Food and Agriculture Organization of the United Nations

Livestock and Dairy Development Project, Bangladesh

Baseline Survey Report

July, 2022



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

LDDP

ACKNOWLEDGEMENT

The Food Agriculture Organization of the United Nations (FAO) greatly acknowledges the opportunity extended by the Department of Livestock Services to provide technical assistance on the Livestock and Dairy Development Project financed by the World Bank. FAO is grateful for the immense support from Mr. Md. Abdur Rahim, Project Director (Joint Secretary), LDDP; Dr. Md. Golam Rabbani, Chief Technical Coordinator (CTC), LDDP; Krishibid Mohammad Shah Alom Biswas, Deputy Project Director (DPD); Dr. ABM Mustanur Rahman, Deputy Project Director (DPD); in every stage of the Baseline survey. Special thanks go to Mr. Kh. Zahir Hossain, Senior M & E Expert, LDDP, for his continuous support during every stage of the baseline study. FAO also acknowledges the support from Dr. Md. Shahjahan Ali Khandaker, Project Management Expert, LDDP; Dr. Arabinda Kumar Saha, Animal Health Expert, LDDP; Dr. B M Abdul Hannan, Animal Reproductive Health Expert, LDDP; Ms. Lutfun Nahar, Social & Gender Specialist, LDDP; Mr. Kalyan Kumar Fouzder, Training & Extension Expert, LDDP; Mr. Md. Gias Uddin Talukder, Agribusiness Expert, LDDP; Mr. Md. Jahid Hossain, National Dairy Expert, LDDP; Mr. Md. Abu Syed, Environment & Social Safeguard Specialist, LDDP; Mr. Md. Misbahuzzaman Chandan, Food Safety & Quality Control Expert (National), LDDP for their contribution and support during the baseline study.

In addition, FAO acknowledge the field-based assistance provided by District Livestock Officers (DLOs), Upazila Livestock Officers (ULOs), Monitoring Officers (MOs) across the country, and Livestock Extension Officers (LEOs) who worked persistently and with great competence on the collection of data from the field. These field-based teams made great contributions in making this assignment a success.

FAO also acknowledges the professors at Bangladesh Agricultural University (BAU), and Sher-e-Bangla Agricultural University (SAU), Dhaka, Scientists of Bangladesh Livestock Research Institute (BLRI), and field practitioners for reviewing the baseline report during review workshops and suggestions for its improvement.

FAO appreciates the contribution of data validators from Patuakhali Science and Technology University who ensured that the data was a true reflection of the information provided by the respondents from the many livestock producer groups across the country. Special thanks go to the many respondent livestock producer groups engaged in dairy, beef, goat, sheep, and poultry value chains within the project area.

FAO also wishes to thank it's team that has provided technical assistance services on this assignment including Mr. Julius Muchemi, International Livestock Development Expert (Team Leader), FAO LDDP team; Mr Sonevilay Nampanya (FAO-RAP Livestock Development Officer and project Lead technical officer); Mr. Khan Shahidul Huque, Animal Husbandry Specialist, FAO LDDP; Ms. Hasneen Jahan, Economist (Macroeconomic and Behavioural Economists), FAO LDDP, Mr. Ripon Kumar Mondal, Economist (Livestock Economist), FAO LDDP; Mr. AKM Mostafa Anower, National Animal Health Expert, FAO LDDP; Mr. Monoj Kumar Majumder, Livestock Economist (Agri-Business) Expert, FAO LDDP; Ms. Kulsum Begum Chowdhury, National Food Safety and Quality Expert, FAO LDDP; Mr. Imran Hasan, National Livestock Risk Management Specialist, FAO LDDP, Mr. Mohammad Mostafizur Rahman, National Dairy Specialist, FAO LDDP; Ms. Farjana Haq, National Livestock Capacity Development Specialist, FAO LDDP; Mr. Md. Kamrul Hasan Sarker, National GIS Specialist, FAO LDDP, Ms.Irfath Ara Iva, National Gender and Social Inclusion Specialist, FAO LDDP; Mr. Muhammad Nazrul Islam, Agricultural Extension Education (Instructional Designer), FAO LDDP; Ms. Mst. Sharmin Akter, Agricultural Extension Education (Instructional Designer), FAO LDDP; Mr. Mahbubur Rahman, Senior Operations Associate, FAO LDDP; Mr. Abdul Halim, National Computer Management Assistant, FAO LDDP; Ms. Raisa Jerry Drong, Programme Assistant, FAO LDDP; Ms. Sumaya Nusrat, Admin & Finance Assistant, FAO LDDP, Mr. Gazi Shariful Islam, Programme Support Assistant, FAO LDDP and Mr. Lovelu Costa, Driver, FAO LDDP.

ABBREVIATION AND ACRONYMS

AI	Artificial Insemination
BDP	Bangladesh Delta Plan
BAU	Bangladesh Agricultural University
BER	Bangladesh Economic Review
BLRI	Bangladesh Livestock Research Institute
BQ	Black Quarter
CHT	Chittagong Hill Tract
CSA	Climate Smart Agriculture
DLS	Department of Livestock Services
DOC	Day Old Chick
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
FY	Financial Year
FYP	Fifth Year Plan
GDP	Gross Domestic Product
HH	Household
IR	Intermediate Result
KG	Kilogram
LDDP	Livestock and Dairy Development Project
LEO	Livestock Extension Officer
LSD	Lumpy Skin Disease
MO	Monitoring Officer
MS	Master of Science
NGO	Non-Government Organization
PAD	Project Appraisal Document
PDO	Project Development Objective
PG	Producer Group
PMU	Project Management Unit
PPR	Peste des petits ruminants
RAP	Region of Asia and Pacific (UN System)
SAU	Sher-e-Bangla Agricultural University
TB	Tuberculosis
Tk	Bangladeshi Currency
TV	Television
ULO	Upazila Livestock Officer
UMB	Urea Molasses Block
UMMB	Urea-molasses multinutrient block
UMS	Urea-Molasses straw
WFP	World Food Program

Table of Contents

Executive Summary 31

Chapter 1 Introduction 36

1.1 Introduction 37

1.2 Background 37

1.3 Objective 39

1.3.1 Overall objective 39
1.3.2 Specific objective 39

1.4 Conceptual framework for Baseline Survey 40

Chapter 2 Methodology 42

2.1 Determining the sample size 43

2.2 Selection of sample area 44

2.3 Selection of enumerator and training on data collection 47

2.4 Questionnaire design 48

2.5 Data collection validation and report writing 48

Chapter 3 Aggregated baseline findings of all value chains 50

3.1 Demographic profile of the respondent farmers 51

3.2 Farmers adopted improved agricultural technologies and practices 55

3.2.1 Farmers adopting improved agricultural technology, all beneficiary farmers (PDO Indicator 1) 56
3.2.2 Farmers adopting improved agricultural technology, female beneficiary farmers (PDO Indicator 1a) 56

3.3 Farmers adopted CSA technology and practices 57

3.3.1 Farmers who have adopted livestock CSA technologies and practices, all farmers (IR Indicator 9) 59
3.3.2 Farmers who have adopted livestock CSA technologies and practices, female farmers (IR Indicator 9.1a) 59

3.4 Productivity of targeted species by direct beneficiaries (PDO Indicator-2) 60

3.5 Total value of sales across different livestock categories during baseline period, all farmers (PDO Indicator 3) 61

3.5.1 Total value of sales across different livestock categories during baseline period, female farmers (PDO Indicator 3.a) 62

3.6 Increasing the resilience to selected risks by livestock farmers (PDO indicator 4) 62

3.7 Food safety measures used in livestock farming (PDO Indicator 5) 66

3.8 Farmers have received business development skills training (PDO Indicator 8) 68

3.9 Overall satisfaction regarding the LDDP services (IR indicator 22) 69

3.10 Number and proportion of farmers received food safety and nutrition related information (IR indicator 18) 69

3.11 Number of farmers with access to animal health services (IR Indicator 21) 70

Chapter 4 Baseline findings of dairy livestock category 72

4.1 Dairy farm characteristics 73

4.2 Milk production per cattle per day in dairy farming 74

4.3 Dairy farmer's breed preference (Cow) for artificial insemination 81

4.4 Dairy food processing by dairy farmers 82

4.5 Household access to market 84

4.5.1 To whom dairy farmers sell their milk 84
4.5.2 Place of selling milk 85
4.5.3 Mode of milk transportation 86
4.5.4 Waiting periods before selling milk 87
4.5.5 Spoilage of milk during transportation for selling 87
4.5.6 Sources from where dairy farmer's purchase feed 88

4.6 Livestock disease management 89

4.6.1 Occurrence of infectious diseases in dairy farms 89
4.6.2 Occurrence of reproductive disease in dairy farms 91
4.6.3 Occurrence of metabolic and other disease in dairy farms 93
4.6.4 Vaccination against infectious disease 94
4.6.5 Death of dairy cattle due to disease 95

4.7 Feed production and management in dairy farming 96

4.7.1 Grass cultivation 96
4.7.2 Area of grass cultivation 97
4.7.3 Types of grass cultivation 97
4.7.4 Feeding practices in dairy farms 97

4.8 Food safety and certification 98

4.8.1 Sources of farm animal's drinking water 100
4.8.2 Sources of food safety related information 100

4.9 Technology and practices used in dairy farming 101

4.10 Capacity enhancement of dairy farmers 103

4.11 Housing and management in dairy farming 104

4.12 Manure management in dairy farming 107
4.13 Climate related risk in dairy farming 109
4.14 Access to extension services in dairy farming 111
4.15 Household's nutrition awareness related information 112
4.16 Gender perspective in managing dairy value chain 113
4.16.1 Gender perspective in household management in dairy value chain 113
4.16.2 Gender perspective in farm management in dairy value chain 114
4.16.3 Gender perspective in access to training and services 116
4.16.4 Gender perspective in ownership of the farm and livestock 116
4.17 Farmer's perceptions regarding LDDP services 117
4.17.1 Farmers received asset from DLS/LDDP to start or continue their livestock business last year 117
4.17.2 Farmers received training from LDDP 118
4.17.3 Farmers overall satisfaction regarding LDDP services 119
Chapter 5 Baseline findings of beef fattening livestock category 120
5.1 Beef fattening farm characteristics 121
5.2 Beef fattening productivity of beef cattle 122
5.2.1 Meat productivity of beef fattening farms per standing cattle per year 124
5.2.2 Breed wise average live weight of beef cattle at slaughter age 125
5.3 Beef fattening household's access to market 126
5.3.1 To whom beef fattening farmers sell their beef 126
5.3.2 Major place of selling beef 126
5.3.3 Mode of beef transportation 127
5.3.4 Selling the processed beef 129
5.3.5 Sources purchased feed for beef fattening farms 129
5.4 Livestock disease management (beef fattening farms) 129
5.4.1 Occurrence of infectious diseases in beef fattening farm 129
5.4.2 Occurrence of metabolic and other disease in beef fattening farms 131
5.4.3 Vaccination against infectious diseases in beef fattening farms 133
5.4.4 Death of beef fattening cattle due to disease 134
5.5 Feed production and management in beef fattening farms 134
5.5.1 Grass cultivation 135
5.5.2 Area of grass cultivation 135
5.5.3 Types of grass cultivation 136
5.5.4 Feeding practices in beef fattening farms 136
5.6 Food safety and certification 137
5.6.1 Sources of farm animal's drinking water (Beef) 138
5.6.2 Sources of food safety related information (Beef fattening farmers) 138

5.7 Technology and practices used in beef fattening farming 139

5.8 Capacity enhancement of beef fattening farmers 140

5.9 Housing and management in beef fattening farming 141

5.10 Manure management in beef fattening farms 144

5.11 Climate related risk in beef fattening farming 146

5.12 Access to extension services in beef fattening farming 147

5.13 Household's nutrition awareness related information 148

5.14 Gender perspective in beef fattening value Chain 149

5.14.1 Gender perspective in household management in beef fattening 149
5.14.2 Gender perspective in farm management in beef fattening 150
5.14.3 Gender perspective in access to training and services 151
5.14.4 Gender perspective in ownership of the farm and livestock 153

5.15 Farmer's perceptions regarding LDDP services 153

5.15.1 Farmers received asset from DLS/LDDP to start or continue their livestock business last year 153
5.15.2 Farmers received training from LDDP 154
5.15.3 Farmers overall satisfaction regarding LDDP services 155

Chapter 6 Baseline findings of small ruminant livestock category 156

6.1 Goat and sheep farm characteristics 157

6.2 Small ruminants' meat productivity 159

6.2.1 Average live weight of goat and sheep at the slaughtering age 159
6.2.2 Average quantity of meat (live weight) sold per farm per year 160
6.2.3 Average price of goat and sheep meat 161

6.3 Breeding management in small ruminant farming 162

6.3.1 Goat farmers breed preference for artificial insemination 163

6.4 Goat and sheep farming household's access to market 164

6.4.1 To home goat and sheep rearing farmers sell their goat and sheep 164
6.4.2 Place of selling goat and sheep 165
6.4.3 Mode of goat and sheep transportation 166
6.4.4 Selling processed goat and sheep or goat and sheep meat 166
6.4.5 Major sources of purchased feed for goat and sheep farming 167

6.5 Livestock disease management (goat and sheep rearing farms) 167

6.5.1 Occurrence of infectious diseases in goat and sheep farming 167
6.5.2 Occurrence of reproductive disease in small ruminant farms 169
6.5.3 Metabolic and other diseases in goat and sheep rearing farms 170
6.5.4 Vaccination against infectious disease in goat and sheep farms 171
6.5.5 Death of goat and sheep due to disease 172

6.6 Feed production and management in small ruminant rearing 173

6.6.1 Grass cultivation 173
6.6.2 Area of grass cultivation 173
6.6.3 Types of grass cultivation 173
6.6.4 Feeding practices in goat and sheep rearing farms 173
6.6.5 Feeding practice 175

6.7 Food safety and certification 176

6.7.1 Sources of farm animal's drinking water 177
6.7.2 Sources of food safety related information 177

6.8 Technology and practices adopted in goat and sheep rearing farms 178

6.9 Capacity enhancement of goat and sheep rearing farmers 179

6.10 Housing and management in goat and sheep farming 180

6.11 Manure management in goat and sheep farms 182

6.12 Climate related risk in goat and sheep rearing farms 184

6.13 Access to extension services in small ruminant farming 186

6.14 Farm household's nutrition awareness related information 187

6.15 Gender perspective in managing small ruminant value chain 187

6.15.1 Gender perspective in household management in small ruminant 187
6.15.2 Gender perspective in farm management in small ruminant 188
6.15.3 Gender perspective in access to training and services 189
6.15.4 Gender perspective in ownership of the farm and livestock 190

6.16 Small ruminant farmer's perceptions regarding LDDP services 191

6.16.1 Farmers received asset from DLS/LDDP to start or continue their livestock business last year 191
6.16.2 Farmers received training from LDDP 192
6.16.3 Farmers overall satisfaction regarding LDDP services 192

Chapter 7 Baseline findings for scavenger poultry 194

7.1 Scavenger poultry farm characteristics 195

7.2 Productivity of scavenger poultry 196

7.2.1 Scavenger poultry meat productivity 197
7.2.2 Average price of scavenger poultry meat 198
7.2.3 Average quantity (carcass weight) sold per farm per year 199
7.2.4 Scavenger poultry egg productivity per year per farm 200

7.3 Scavenger poultry farm household's access to market 201

7.3.1 To whom scavenger poultry farmers sell their poultry 201
7.3.2 Place of selling scavenger poultry 203
7.3.3 Mode of scavenger poultry transportation 203
7.3.4 Tyes of cages used to transport poultry and eggs 204
7.3.5 Selling processed scavenger poultry meat 205
7.3.6 Main sources of purchased feed for scavenger poultry 205

7.4 Livestock disease management (scavenger poultry) 205

7.4.1 Occurrence of diseases in scavenger chicken farming 205
7.4.2 Occurrence of diseases in scavenger duck farming 207
7.4.3 Vaccination against infectious disease in scavenger poultry farms 208
7.4.4 Death of scavenger poultry due to disease 210

7.5 Feeding practice and management 212

7.6 Food safety and certification 213

7.6.1 Sources of drinking water in scavenger poultry farming 213
7.6.2 Sources of food safety related information 214

7.7 Technology and practices used in scavenger poultry farming 215

7.8 Capacity enhancement of scavenger poultry rearing farmers 215

7.9 Housing and management in scavenger poultry farming 217

7.10 Manure management in scavenger poultry farms 221

7.11 Climate related risk in chicken and duck farming 222

7.12 Access to extension service in scavenger poultry farming 224

7.13 Household's nutrition awareness related information 225

7.14 Gender perspective in managing scavenger poultry value chain 225

7.14.1 Gender perspective in household management in scavenger poultry 225
7.14.2 Gender perspective in farm management in scavenger poultry 227
7.14.3 Gender perspective in access to training and services 228
7.14.4 Gender perspective in ownership of the farm and poultry 229

7.15 Scavenger poultry rearing farmer's perceptions regarding LDDP services 229

7.15.1 Farmers received asset from DLS/LDDP to start or continue their poultry business last year 229
7.15.2 Farmers received training from LDDP 230
7.17.3 Farmers overall satisfaction regarding LDDP services 230

Chapter 8 Baseline findings for sonali chicken 232

8.1 Sonali chicken farm characteristics 233

8.2 Productivity of sonali chicken per bird 235

8.2.1 Average weight of sonali chicken at the slaughtering age 235
8.2.2 Average price of sonali chicken per bird 236
8.2.3 Average quantity sold per sonali chicken rearing farm per year 237

8.3 Sonali chicken farm household's access to market 238

8.3.1 To whom sonali chicken farmers sell their chicken 238
8.3.2 Place of selling sonali chicken 239
8.3.3 Mode of sonali chicken transportation 240
8.3.4 Types of cages used to transport sonali chicken 241
8.3.5 Selling processed sonali chicken meat 242
8.3.6 Sources of feed for sonali chicken 242

8.4 Livestock disease management (sonali chicken) 242
8.4.1 Occurrence of diseases in sonali chicken farming 242
8.4.2 Vaccination in sonali chicken farms 244
8.4.3 Death of sonali chicken due to disease 245
8.5 Feeding practice and management 246
8.6 Food safety and certification 247
8.7 Technology and practices used in sonali chicken farming 249
8.8 Capacity enhancement of sonali chicken rearing farmers 250
8.9 Housing and management in sonali chicken farming 251
8.10 Manure management in sonali chicken farms 255
8.11 Climate related risk in sonali chicken farming 256
7.12 Access to extension service in sonali chicken farming 257
8.13 Household's nutrition awareness related information 259
8.14 Gender Perspective in managing Sonali chicken value chain 259
8.14.1 Gender perspective in household management in sonali chicken 259
8.14.2 Gender perspective in farm management in sonali chicken 260
8.14.3 Gender perspective in access to training and services 261
8.14.4 Gender perspective in ownership of the farm and poultry 261
8.15 Sonali poultry rearing farmer's perceptions regarding LDDP services 262
8.15.1 Farmers received asset from DLS/LDDP to start or continue their poultry business last year 262
8.15.2 Farmers received training from LDDP 262
8.15.3 Farmers overall satisfaction regarding LDDP services 263
Chapter 9 Baseline findings for commercial poultry 264
9.1 Commercial poultry farm characteristics 265
9.2 Productivity of commercial poultry per bird 267
9.2.1 Average carcass weight of commercial poultry at the slaughtering age 267
9.2.2 Average live weight of commercial poultry at the slaughtering age 268
9.2.3 Average price commercial poultry meat per Kg 269
9.2.4 Average quantity of commercial poultry meat (carcass weight) sold per year per farm 270
9.2.5 Average quantity of commercial layers egg sold per farm per year 271
9.2.6 Commercial layer egg price 272
9.3 Commercial poultry farm household's access to market 273
9.3.1 To whom commercial poultry farmers mainly sell their product 273
9.3.2 Place of selling commercial poultry 274
9.3.3 Mode of commercial poultry/egg transportation 275
9.3.4 Types of cages used for poultry or egg transportation 276
9.3.5 Selling processed commercial poultry meat 276
9.3.5 Sources of purchased feed for commercial poultry 276

9.4 Livestock disease management (commercial poultry) 277

9.4.1 Occurrence of diseases in broiler farming 277
9.4.2 Occurrence of diseases in layer farming 279
9.4.3 Vaccination in broiler farms 280
9.4.4 Vaccination in layer farms 281
9.4.5 Death of commercial poultry due to disease 282

9.5 Feeding practice and management 283

9.6 Food safety and certification 284

9.6.1 Sources of drinking water in comercial poultry farming 285
9.6.2 Sources of food safety related information 286

9.7 Technology and practices used in commercial poultry farming 287

9.8 Capacity enhancement of commercial poultry rearing farmers 288

9.9 Housing and management in commercial poultry farming 289

9.10 Manure management in commercial poultry farms 292

9.11 Climate related risk in commercial poultry farming 294

9.12 Access to extension service in commercial poultry farming 295

9.13 Household's nutrition awareness related information 296

9.14 Gender perspective in managing commercial poultry value chain 297

9.14.1 Gender perspective in household management in commercial poultry 297
9.14.2 Gender perspective in farm management in commercial poultry 297
9.14.3 Gender perspective in access to training and services 299
9.14.4 Gender perspective in ownership of the farm and livestock 299

9.15 Commercial poultry rearing farmer's perceptions regarding LDDP services 300

9.15.1 Farmers received asset from DLS/LDDP to start or continue their poultry business last year 300
9.15.2 Farmers received training from LDDP 300
9.17.3 Farmers overall satisfaction regarding LDDP services 300

Chapter 10 Conclusion 302

Chapter 11 References 304

Chapter 12 Annexure 310

Annex 1 Revised results framework and monitoring 311

INTERMEDIATE RESULTS: COMPONENT-A 313
INTERMEDIATE RESULTS: COMPONENT-B 314
INTERMEDIATE RESULTS: COMPONENT-C 315
INTERMEDIATE RESULTS: COMPONENT - D 316

Annex 2 Upazila wise distribution of samples for dairy value chain 317

Annex 3 Upazila wise distribution of samples for beef value chain 317

Annex 4 Upazila wise distribution of samples for goat & sheep value chain 318

Annex 5 Upazila wise distribution of samples for scavenger poultry 318

Annex 6 Sample of sonali chicken and commercial poultry 319

Annex 7 Questionnaire for the FAO-LDDP baseline study 320

List of Table

Chapter 1 Introduction 36

Table 1 Main analytical domains and related variables of for baseline study 41

Chapter 2 Methodology 42

Table 2 Sample distribution among six value chains 43
Table 3 Sample size distribution among different value chains by sub-category 44
Table 4 Selected districts under different value chains for baseline survey 46

Chapter 3 Aggregated baseline findings of all value chains 50

Table 5 Average number of family members in a livestock farming household 51
Table 6 Distribution of respondent farmers based on gender 51
Table 7 Distribution of respondent farmers based on the level of education 52
Table 8 Distribution of farmers based on different age categories 53
Table 9 Marital status of the respondent farmers 54
Table 10 Agricultural landholdings by livestock farm households, all categories 54
Table 11 Average number of family members directly engaged in livestock rearing 55
Table 12 Adoption of improved agricultural technologies across value chains, all farmers 56
Table 13 Adoption of improved agricultural technologies across value chains, female farmers 57
Table 14 List of selected CSA technologies and practices used livestock farming 58
Table 15 Adoption of CSA technologies and practices across value chains, all farmers 59
Table 16 Adoption of CSA technologies and practices across value chains, female farmers 60
Table 17 Productivity of targeted species by direct beneficiaries 60
Table 18 Total value of sell across different livestock categories during baseline period for all farmers 61
Table 19 Total value of sells across different livestock categories during baseline period for female farmers 62
Table 20 Measures taken to increase the resilience to selected risks, all farmers 63
Table 21 Measures taken to increase the resilience to selected risks, female farmers 65
Table 22 List of selected food safety measures regularly used by the farmers 66
Table 23 Adoption of food safety measure across all value chain, all farmers 67
Table 24 Adoption of food safety measure across all value chains, female farmers 68
Table 25 Number of farmers who received business development skill training 68

Table 26 Farmers overall level of satisfaction with LDDP services, all value chain 69
Table 27 Access to health services across different value chains, all farmers 71
Table 28 Access to health services across different value chains, female farmers 71

Chapter 4 Baseline findings of dairy livestock category 72

Table 29 Average number of cattle per dairy farm 73
Table 30 Distribution of farmers based on different farm size 74
Table 31 Dairy cattle productivity per cattle per day 76
Table 32 Milk productivity per year at the herd level 77
Table 33 Average quantity of milk production per farm per year 78
Table 34 Breed wise average milk production in dairy farming 79
Table 35 Average price of milk per litre 79
Table 36 Average quantity of milk sold per farm per year 80
Table 37 Production of dairy processed products by dairy farmers 83
Table 38 Spoilage of milk during transportation for selling 87
Table 39 Geographical distribution of occurrence of infectious diseases in dairy farms 90
Table 40 Geographical distribution of the occurrence of reproductive diseases in dairy farms 92
Table 41 Geographical distribution of the occurrence of metabolic and other diseases in dairy farms 93
Table 42 Geographical distribution dairy farms use regular vaccination 95
Table 43 Area under green grass cultivation for dairy 97
Table 44 Use of food safety and certification measures in dairy farm 99
Table 45 Sources of farm animals' drinking water 100
Table 46 Sources of food safety related information in dairy farming 101
Table 47 Adoption of different technologies and practices in dairy farming 102
Table 48 Number of farmers received training for capacity enhancement 103
Table 49 Type of housing used for dairy farming 105
Table 50 Use of different facilities in the cattle house 105
Table 51 Types of biosafety plan used in the dairy farm 106
Table 52 Types of manure processing in dairy farm 107
Table 53 Waste disposal in dairy farming 108
Table 54 Number and proportion of farms affected by climatic risk last five years 110
Table 55 Effect of different climatic risk on dairy farming 111
Table 56 Dairy farmers access to digital and physical extension services 112
Table 57 Gender perspective in household management among the PG of Dairy 114
Table 58 Gender perspective in farm management in dairy value chain 115
Table 59 Gender perspective in access to training and services in dairy value chain 116

Table 60 Gender perspective based on the ownership of the farm and livestock in dairy value chain 117
Table 61 Types of assets farmers received from DLS/LDDP during last year 118
Table 62 Level of satisfaction regarding LDDP provided training during last one year 118
Table 63 Farmers overall level of satisfaction with LDDP services 119

Chapter 5 Baseline findings of beef fattening livestock category 120

Table 64 Average number of cattle per beef fattening 121
Table 65 Distribution of farmers based on different farm size 122
Table 66 Meat productivity of beef fattening cattle, price of beef and quantity sold 123
Table 67 Meat productivity of beef fattening farms per standing cattle per year 125
Table 68 Breed wise average live weight of beef cattle at slaughter age 125
Table 69 Geographical distribution of occurrence of infectious diseases in beef fattening 130
Table 70 Geographical distribution of beef fattening farms affected by different metabolic and other diseases 132
Table 71 Geographical distribution of beef fattening farms use regular vaccination 133
Table 72 Average land area under grass cultivation for beef fattening 135
Table 73 Use of food safety and certification measures in beef fattening farms 137
Table 74 Sources of farm animals' drinking water (beef) 138
Table 75 Sources of food safety related information in beef fattening farming 138
Table 76 Technology and practices used in beef fattening farms 139
Table 77 Number of farmers received training for capacity enhancement 140
Table 78 Type of housing used by the beef fattening farmers 141
Table 79 Use of different facilities in the beef fattening cattle house 142
Table 80 Types of biosafety plan used in the beef fattening farm 143
Table 81 Types of manure processing in beef fattening farmers 144
Table 82 Waste disposal in beef fattening farms 145
Table 83 Number and proportion of farms affected by climatic risk last year 146
Table 84 Effect of different climatic risk on beef fattening farming 147
Table 85 Beef fattening farmers access to digital and physical extension services 148
Table 86 Gender perspective in household management among the PG of beef fattening 149
Table 87 Gender perspective in farm management in beef fattening value chain 150
Table 88 Gender perspective in access to training and services in beef fattening value chain 152
Table 89 Gender perspective based on the ownership of the farm and livestock in beef fattening value chain 153
Table 90 Types of assets farmers received during last year 154

Table 91 Level of satisfaction of beef fattening farmers regarding LDDP provided training during last one year 155
Table 92 Beef fattening farmers overall level of satisfaction with LDDP services 155

Chapter 6 Baseline findings of small ruminant livestock category 156

Table 93 Average number of goat and sheep per farm 157
Table 94 Distribution of sample small ruminant farmers based on different farm categories 158
Table 95 Meat productivity of small ruminant 160.
Table 96 Average quantity of meat (kg) sold per farm last year 160
Table 97 Average price of goat and sheep (live weight) 161
Table 98 Types of breeding used in goat and sheep farm 162
Table 99 Sources of off-farm breeding for goat and sheep 162
Table 100 Small ruminant rearing farmers' awareness of inbreeding 163
Table 101 Average number of goat and sheep kids at one birth 164
Table 102 Number and proportion of goat and sheep rearing farmers based on the type of buyers 165
Table 103 Number and proportion of small ruminant rearing farmers based on the place of selling 165
Table 104 Number and proportion of goat and sheep rearing farmers based on mode of goat and sheep transport 166
Table 105 Geographical distribution of occurrence of infectious diseases in goat and sheep 168
Table 106 Geographical distribution of occurrence of reproductive diseases in goat/sheep 169
Table 107 Geographical distribution of goat and sheep rearing farms affected by different metabolic and other disease 171
Table 108 Geographical distribution small ruminant farmers use regular vaccination 172
Table 109 Distribution of small ruminant farmers based on different types of feeding 174
Table 110 Main sources of goat and sheep grazing 174
Table 111 Use of food safety and certification measures in goat and sheep rearing farms 176
Table 112 Sources of farm animals' drinking water (small ruminant) 177
Table 113 Sources of information related to food safety (Small ruminant) 177
Table 114 Technology and practices used in goat and sheep rearing farms 178
Table 115 Number and proportion of small ruminant farmers received training on different technology and practices 179
Table 116 Type of housing used for goat and sheep farming 180
Table 117 Use of different facilities in the small ruminant's house 181
Table 118 Types of biosafety plan used in the small ruminant farms 181
Table 119 Distribution of small ruminant rearing farmers based on the types of manure processing 182

Table 120 Waste disposal in goat and sheep farming 184
Table 121 Number and proportion of small ruminant farms affected by climatic risk during last five years 184
Table 122 Effect of different climatic risk on small ruminant farming 185
Table 123 Goat and sheep rearing farmers access to digital and physical extension services 186
Table 124 Gender perspective in household management among in Small ruminant value chain 188
Table 125 Gender perspective in farm management in small ruminant value chain 189
Table 126 Gender perspective in access to training and services in small ruminant value chain 189
Table 127 Gender perspective based on the ownership of the farm and livestock in small ruminant value chain 190
Table 128 Types of assets farmers received from DLS/LDDP during last year 191
Table 129 Level of satisfaction regarding LDDP provided training during last one year 192
Table 130 Farmers overall level of satisfaction with LDDP services 192

Chapter 7 Baseline findings for scavenger poultry 194

Table 131 Average number of scavenger poultry in poultry farming 195
Table 132 Distribution of sample scavenger poultry farmers based on different farm categories 196
Table 133 Average carcass weight and live weight of scavenger poultry per bird 197
Table 134 Average price of scavenger poultry per bird 199
Table 135 Average quantity (carcass weight) sold per farm per year 199
Table 136 Average poultry egg productivity and egg price at the farm level 200
Table 137 Number and proportion of scavenger poultry rearing farmers based on poulty and eggs buyers 202
Table 138 Number and proportion of scavenger poultry rearing farmers based on the place of selling 202
Table 139 Number and proportion of scavenger poultry rearing farmers based on mode of chicken/duck transport 204
Table 140 Number and proportion of farmers based on the type of cages for Scavenger poultry and egg transportation 205
Table 141 Geographical distribution of occurrence of infectious diseases in scavenger chicken farms 206
Table 142 Geographical distribution of occurrence of infectious diseases in scavenger duck farms 208
Table 143 Geographical distribution scavenger chicken farms use regular vaccination 209
Table 144 Geographical distribution scavenger duck farms use regular vaccination 210
Table 145 Use of food safety and certification measures in scavenger poultry farms 213
Table 146 Sources of farm animals' drinking water (Scavenger poultry) 214
Table 147 Sources of information related to food safety in scavenger poultry 214

Table 148 Technology and practices adoption in scavenger poultry farming 215
Table 149 Distribution of farmers received training on different technology and practices 216
Table 150 Type of housing used for scavenger poultry farms 217
Table 151 Types of management system used for scavenger poultry farms 218
Table 152 Type of litter used for scavenger poultry farms 219
Table 153 Use of different facilities in the scavenger poultry's house 219
Table 154 Types of biosafety plan used in the scavenger poultry farms 220
Table 155 Types of manure processing in scavenger poultry farms 221
Table 156 Waste disposal in chicken and duck farming 222
Table 157 Number and proportion of scavenger poultry farmers affected by climatic risk during last five year 222
Table 158 Effect of different climatic risk on scavenger poultry farming 223
Table 159 Number and proportion of scavenger poultry farmers have access to extension services 224
Table 160 Gender perspective in household management among scavenger poultry value chain 226
Table 161 Gender perspective in fam management in scavenger poultry value chain 227
Table 162 Gender perspective in access to training and services in scavenger poultry value chain 228
Table 163 Gender perspective based on the ownership of the farm and poultry in scavenger poultry value chain 229
Table 164 Types of assets farmers received from DLS/LDDP during last year 230
Table 165 Level of satisfaction regarding LDDP provided training during last one year 230
Table 166 Farmers overall level of satisfaction with LDDP services (scavenger poultry) 231

Chapter 8 Baseline findings for sonali chicken 232

Table 167 Average number of sonali chicken in poultry farming 233
Table 168 Distribution of sample farms across different farm size 234
Table 169 Average weight of sonali chicken at the slaughtering age 235
Table 170 Price of sonali chicken 236
Table 171 Average quantity (carcass weight) sold per sonali chicken rearing farm per year 237
Table 172 Distribution of sonali chicken rearing farmers based on the buyers 238
Table 173 Number and proportion of sonali chicken rearing farmers based on the place of selling 240
Table 174 Distribution of sonali chicken rearing farmers based on the mode of chicken transport 240
Table 175 Number and proportion of farmers based on the type of cage used for sonali chicken transportation 241

Table 176	Geographical distribution of occurrence of diseases in sonali chicken farms	243
Table 177	Geographical distribution sonali chicken farmers use regular vaccination	245
Table 178	Use of food safety and certification measures in sonali chicken farms	247
Table 179	Sources of farm animal's drinking water (sonali chicken)	248
Table 180	Sources of information related to food safety in sonali chicken farming	248
Table 181	Technology and practices used in sonali chicken rearing farms	249
Table 182	Distribution of farmers received training on different technology and practices	250
Table 183	Type of housing used for sonali chicken farms	251
Table 184	Types of management system used in sonali chicken farms	252
Table 185	Type of litter used in sonali chicken farms	252
Table 186	Use of different facilities in the sonali chicken's house	253
Table 187	Types of biosafety plan used in the sonali chicken farms	254
Table 188	Types of manure processing in sonali chicken farms	255
Table 189	Waste disposal in sonali chicken farming	256
Table 190	Distribution of sonali chicken farms affected by climatic risk during last five years	256
Table 191	Effect of different climatic risk on sonali chicken farms	257
Table 192	Number and proportion of sonali chicken farmers have access to extension services	258
Table 193	Gender perspective in household management among the sonali chicken rearing farmers	260
Table 194	Gender perspective in farm management in sonali chicken value chain	260
Table 195	Gender perspective in access to training and services in sonali chicken value chain	261
Table 196	Gender perspective based on the ownership of the farm and poultry in sonali chicken value chain	262
Table 197	Types of assets farmers received from DLS/LDDP during last year	262
Table 198	Level of satisfaction regarding LDDP provided training during last one year	263
Table 199	Farmers overall level of satisfaction with LDDP services (sonali chicken)	263

Chapter 7 Baseline findings for commercial poultry 264

Table 200	Average number commercial poultry per farm	265
Table 201	Number of farmers based on different farm size	266
Table 202	Average carcass weight of commercial poultry at the slaughtering age	267
Table 203	Average live weight of commercial poultry at the slaughtering age	268
Table 204	Commercial poultry meat price per Kg (carcass weight)	270
Table 205	Quantity of commercial poultry meat sold last year (carcass weight)	271
Table 206	Average quantity of eggs sold per farm per year	272
Table 207	Egg price of commercial layer per 12 eggs	273
Table 208	Distribution of commercial poultry rearing farmers based on the buyers	274

Table 209 Distribution of commercial poultry rearing farmers based on the place of poultry product selling 275
Table 210 Distribution of commercial poultry rearing farmers based on the mode of chicken transport 275
Table 211 Geographical distribution of occurrence of diseases in broiler farms 278
Table 212 Geographical distribution of occurrence of diseases in layer farms 280
Table 213 Geographical distribution broiler farmers use regular vaccination 281
Table 214 Use of food safety and certification measures in commercial poultry farms 285
Table 215 Sources of commercial poultry's drinking water (commercial poultry farming) 286
Table 216 Sources of information related to food safety in commercial poultry farming 286
Table 217 Technology and practices adoption in commercial poultry rearing farms 287
Table 218 Distribution of farmers received training on different technology and practices 288
Table 219 Type of housing used for commercial poultry farms 289
Table 220 Types of management system used in commercial poultry farms 289
Table 221 Type of litter used in commercial poultry farms 290
Table 222 Use of different facilities in the commercial poultry house 291
Table 223 Types of biosafety plan used in the commercial poultry farmers 291
Table 224 Types of manure processing in commercial poultry farms 292
Table 225 Waste disposal in commercial poultry farming 293
Table 226 Distribution of commercial poultry farms affected by climatic risk during last five year 294
Table 227 Effect of different climatic risk on commercial poultry farms 294
Table 228 Commercial poultry farmers access to extension services 295
Table 229 Gender perspective in household management among Commercial poultry value chain 297
Table 230 Gender perspective in farm management in commercial poultry value chain 298
Table 231 Gender perspective in access to training and services in commercial poultry value chain 299
Table 232 Gender perspective based on the ownership of the farm and livestock in commercial poultry value chain 299
Table 233 Types of assets farmers received from DLS/LDDP during last year 300
Table 234 Level of satisfaction regarding LDDP provided training during last one year 300
Table 235 Farmers overall level of satisfaction with LDDP services (commercial poultry) 301

List of Figure

Chapter 1 Introduction 36

Figure 1 Domestic demand and production of milk in different years 38
Figure 2 Domestic demand and production of meat in different year 38
Figure 3 Domestic demand and production of Egg in different years 38
Figure 4 Conceptional framework for baseline survey for LDDP 40

Chapter 2 Methodology 42

Figure 5 Combined map of selected Upazilas for all value chains (Dairy, Beef, Goat & Sheep, Scavenger poultry, Commercial poultry) 45
Figure 6 Sampling framework for baseline survey 47

Chapter 3 Aggregated baseline findings of all value chains 50

Figure 7 Number and proportion of farmers received both food safety and nutrition related information 70
Figure 8 Number and proportion of farmers' who have access to animal health services 70

Chapter 4 Baseline findings of dairy livestock category 72

Figure 9 Dairy farmer's breed preference (Cow) for artificial insemination 81
Figure 10 Number and proportion of farmers engaged in milk processing 82
Figure 11 To whom dairy farmers sell their milk 85
Figure 12 Number and proportion of farmers based on the place of selling milk 85
Figure 13 Proportion of farmers used different mode of transport for milk 87
Figure 14 Number and proportion of farmers based on the sources of purchased feed for dairy farming 88
Figure 15 Proportion of dairy farms affected by infectious disease 90
Figure 16 Proportion of dairy farms infected by reproductive disease 92
Figure 17 Proportion of dairy farms infected by metabolic and other disease 93
Figure 18 Proportion of farmers who use regular vaccination in dairy farming 94
Figure 19 Average number of cattle died due to disease 95
Figure 20 Number and proportion of farmers engaged in fodder cultivation 96
Figure 21 Types of feed used per day per cattle in dairy farming 98
Figure 22 Types of energy used in the dairy farm 106
Figure 23 Number and proportion of farmers use manure as fertilizer in crop cultivation 108
Figure 24 Number and proportions of households received nutrition awareness information 113

Figure 25 Number and proportion of farmers received assets to start/continue livestock business 117

Chapter 5 Baseline findings of beef fattening livestock category 120

Figure 26 Beef sold based on the type of buyers 126
Figure 27 Main locations of selling beef cattle 127
Figure 28 Mode of beef transport 128
Figure 29 Major sources of purchased feed for beef fattening farming 129
Figure 30 Proportion of beef fattening farms affected by infectious disease 130
Figure 31 Proportion of beef fattening farms infected by metabolic and other disease 131
Figure 32 Proportion of farmers use regular vaccination in beef fattening farming 133
Figure 33 Number of cattle died due to disease 134
Figure 34 Number and proportion of farmers engaged in fodder cultivation 135
Figure 35 Types of feed used per day per cattle in beef fattening farming 136
Figure 36 Types of energy used in beef fattening farms 143
Figure 37 Number and proportion of farmers use manure as fertilizer in crop cultivation 145
Figure 38 Farm households received nutrition awareness information 148
Figure 39 Number and proportion of farmers received assets to start/continue livestock business 153

Chapter 6 Baseline findings of small ruminant livestock category 156

Figure 40 Number and proportion of farmers use inbreeding in farm 163
Figure 41 Number and proportion of farmers based on the sources of purchased feed 167
Figure 42 Proportion of goat and sheep rearing farms affected by infectious disease 168
Figure 43 Proportion of goat and sheep rearing farms infected by reproductive disease 169
Figure 44 Proportion of goat and sheep rearing farms infected by metabolic and other diseases 170
Figure 45 Proportion of farmers use regular vaccination in small ruminant farming 171
Figure 46 Number of goat and sheep died due to disease 172
Figure 47 Number and proportion of farmers engaged in grass cultivation 173
Figure 48 Types of feed used per goat and sheep per day 175
Figure 49 Types of energy used in goat and sheep rearing farm 182
Figure 50 Number and proportion of farmers use manure as fertilizer in crop cultivation 183
Figure 51 Households received nutrition awareness information 187

Chapter 7 Baseline findings for scavenger poultry 194

Figure 52 Proportion of scavenger chicken farms affected by different diseases 206
Figure 53 Proportion of scavenger duck farms affected by different disease 207

Figure 54 Regular vaccination in scavenger chicken farms 208
Figure 55 Regular vaccination in scavenger duck farms 210
Figure 56 Number and proportion of scavenger chicken died due to disease 211
Figure 57 Number and proportion of scavenger duck died due to disease 211
Figure 58 Types of feed used per day per poultry in scavenger poultry farming 212
Figure 59 Types of energy used in the scavenger poultry farms 220
Figure 60 Proportion of farmers use manure as fertilizer in crop cultivation 221
Figure 61 Number and proportions of households received nutrition awareness information 225

Chapter 8 Baseline findings for Sonali chicken 232

Figure 62 Sources of purchased feed for sonali chicken 242
Figure 63 Proportion of sonali chicken farms affected by different disease 243
Figure 64 Regular vaccination in sonali chicken farms 244
Figure 65 Number and proportion of sonali chicken died due to disease 245
Figure 66 Types of feed used per day per bird in sonali chicken farming 246
Figure 67 Types of energy used in the sonali chicken farms 254
Figure 68 Proportion of farmers use manure as fertilizer in crop cultivation 255
Figure 69 Number and proportion of households received nutrition awareness information 259

Chapter 9 Baseline findings for commercial poultry 264

Figure 70 Main sources of purchased feed for commercial poultry 277
Figure 71 Proportion of broiler farms affected by different disease 278
Figure 72 Proportion of layer farms affected by different disease 279
Figure 73 Regular vaccination in broiler farms 280
Figure 74 Regular vaccination in layer farms 281
Figure 75 Number and proportion of broiler birds died due to different disease 282
Figure 76 Number and proportion of layer birds died due to different disease 283
Figure 77 Types of feed used per day per bird in commercial poultry farming 283
Figure 78 Types of energy used in the commercial poultry farms 292
Figure 79 Proportion of farmers use manure as fertilizer in crop cultivation 293
Figure 80 Number and proportion of households received nutrition awareness information 296

EXECUTIVE SUMMARY

The baseline survey was conducted to collect solid baseline information and data to establish benchmarks for the indicators in the Results Framework against which Livestock and Dairy Development Project (LDDP) progress will be assessed during project implementation. The main aims of the LDDP are to increase productivity, increase market access and increase the resilience of livestock production. The findings of the baseline report will assist the project management and implementation teams in understanding and measuring the current situations of the livestock sector in Bangladesh, such as livestock productivity, feed management, health management, technology adoption, housing management, capacity enhancement, food safety status, market access, and access to extension services. Two main objectives were focused on during the baseline survey processes, including

(1) Establishing baseline data against the LDDP's outcomes, outputs, and indicators; and

(2) Identifying and recommending appropriate results of key project outcomes, outputs and impact indicators that serve as a baseline to compare the progress and success of the project in relation to its relevance, effectiveness, efficiency, impact, and sustainability.

A baseline survey has been carried out for different value chains such as Dairy, Beef fattening, Small ruminant (goat and sheep), sonali chicken, Scavenger poultry (chicken and duck), and commercial poultry (broiler and layer). Baseline information was collected from the beneficiaries of the LDDP. There are a total of 191,000 beneficiaries under the LDDP project of which 100,000 dairy farmers, 20,000 beef fattening farmers, 15,000 small ruminants (goat/sheep) farmers, 30,000 scavenger poultry farmers, 16,000 commercial poultry farmers, and 10,000 Sonali chicken farmers. However, out of total farmers, 165,000 farmers are producer group (PG) members under LDDP, which comprises of dairy, beef fattening, small ruminant, and scavenger poultry value chains. Beneficiary farmers of commercial poultry and sonali chicken value chains are the individual farmers. Representative sample farmers from each value chain have been selected for the baseline survey by applying appropriate sampling techniques. A total of 2,723 sample farmers of which 655 dairy farmers, 416 beef fattening farmers, 412 small ruminant farmers, 423 scavenger poultry farmers, 399 sonali chicken farmers, and 418 commercial poultry farmers have been selected for baseline data collection from 62 upazila across 25 districts of Bangladesh. About 51% of the total sample of farmers were female at the aggregate level. Data has been collected using the Kobo toolbox, which has been well designed and pretested before implementation. Data has been collected by 116 Livestock Extension Officers (LEOs) who are experienced in field-level livestock production in Bangladesh. Before data collection, the enumerators had been trained in person for three days to make them familiar with the questionnaire. PMU-LDDP and the FAO team jointly monitor the baseline data collection to ensure the quality of data. After data collection, 12 trained data validators cross-checked the data with standard cross-checking tools. The preliminary baseline findings have been reviewed by different scholars and practitioners from Bangladesh Agricultural University, Sher-e-Bangla Agricultural University, Bangladesh Livestock Research Institute, and other national and international NGOs in related fields.

Survey findings

Out of the total surveyed farmers, about 10% of farmers do not have any education, while the majority (42%) have education up to secondary level. Besides, about 30% of the total surveyed farmers have education up to the primary level and about 9% of the total surveyed farmers have a tertiary level of education or more. In terms of the age of the respondents, on average 5% of total farmers fall within the youth (15-24 years) age category. The majority (83-88 %) of total surveyed livestock farmers fall within the age category of 25-54 years across all livestock value chains. About 5% of farmers are aged above 60 years in Beef fattening farming, 4% in Dairy

farming, 3% in Small ruminant farming, and 2% in Scavenger and Commercial poultry farming. Among the total surveyed farm households, 79% of total farmers fall into the small landholding category having 5-249 decimal of agricultural land available on the farm household. Besides, 14% of total surveyed livestock farm households fall into the medium landholding category, 2% of total farm households fall into the large landholding category, and the remaining farm households fall into landless and marginal landholding categories. Usually, the family members of a livestock farm household also participate in livestock farming. On average, a total of 4 family members of which 2 male and 2 female are engaged fully or partially in livestock production among the LDDP beneficiary households.

About 34% of total surveyed farmers (aggregated overall value chain) did not adopt (regular use) any category of improved agricultural technologies and practices in livestock farming. For those who are using any technology, on average, each farmer uses 1.61 improved agricultural technologies and practices in livestock farming. In terms of female farmers, the majority (56% of surveyed female farmers) did not adopt any improved technologies and practices in livestock farming. On average each female farmer regularly uses 0.97 number of improved agricultural technologies and practices in livestock farming. Among different value chains, 94% of scavenger poultry rearing farmers and 70% of small ruminant farmers did not adopt any improved agricultural technologies and practices. In terms of Climate-Smart Agriculture (CSA) technologies and practices, about 34% of the total surveyed farmers did not adopt any category of CSA technologies and practices in livestock farming. Besides, each farmer on average uses 1.53 CSA technologies and practices in livestock farming. About 56% of the total surveyed female farmers did not adopt any CSA technologies and practices in livestock farming. On average, each female farmer uses 0.95 CSA technologies and practices in livestock farming. Overall, the rate of different technology adoption is very low in the livestock sector in Bangladesh. In addition, the adoption rate of different technology and practices by female farmers are much lower compared to that of male farmers. Hence, interventions should be addressed on this issue to improve the livestock sector in Bangladesh.

Baseline findings indicate that on average milk productivity per day per cattle (cow and buffalo) is about 5.66 litres per day per cow. However, milk productivity is slightly lower on the female operated farms which is about 5.25 litres. While disaggregated over cow and buffalo, milk productivity is about 5.81 litres per cow and 2.19 litres per buffalo per day. In terms of female farmers, per day per cow and buffalo milk, is 5.41 Kg and 2.13 Kg respectively. The average productivity (average live weight per beef) of beef cattle at its slaughter age is about 247.74 Kg. In terms of female farmers, beef cattle productivity (live weight) is 239.67 Kg per beef cattle at its slaughter age which is slightly lower compared to this for total beef fattening farmers. The average live weight of a goat and sheep during its slaughter age, is found to be about 14.96 Kg per goat and the average live weight of a sheep is found to be about 11.91 Kg per sheep. Baseline findings also note that the average carcass weight of scavenger chicken and scavenger duck is about 0.49 Kg per chicken and 1.13 Kg per duck during its slaughter age and sale. The average carcass weight of Sonali chicken is found to be about 0.57 Kg per bird, which is almost similar to that for male farmers. The average carcass weight of broiler and culled hen is about 1.17 Kg and 1.39 per bird at its slaughter age, respectively. Hence, productivity-related information from the baseline could be an important source to target the future improvement in productivity of the livestock sector through LDDP.

In terms of market access, the aggregated selling value of target species, as well as an aggregate overall value chains, could be a basis for assessing the improved market access. Baseline findings indicate that the aggregate sale value of dairy, beef fattening, small ruminant, and sonali chicken value chains is about Tk 728,680,128 (USD 8,428,921) during the baseline period. While considering all value chains together (dairy, beef fattening, small ruminant, sonali chicken, scavenger chicken, and commercial poultry), the aggregate sell value in the bassline period becomes 1,391,605,126 (USD 16,097,225). In terms of female farmers, the aggregated selling value for dairy

for dairy, beef fattening, small ruminant, and sonali chicken value chains is Tk 201,442,550 (USD 2,330,163). Considering all value chains together, the aggregate selling value in the baseline period for female farmers becomes Tk 250,078,331 (USD 2,892,751). An increase in the value of sales from the baseline period using the base year price will inform the progress in the access to the market in the livestock sector.

Food safety is now a growing concern to ensure food quality both for animal production and human health. Baseline findings uncover that about 59% of total surveyed livestock farmers did not adopt any of the food safety measures. In addition, each farmer adopted an average of 0.87 food safety measures. The rate of adoption of food safety measures for female farmers is much lower compared to male farmers. Baseline findings show that about 71% of total female farmers did not adopt any kind of food safety measures. A female farmer adopted an average of 0.47 food safety measures on their farm. Among different value chains, the adoption of food safety measures is higher in the case of sonali chicken farming and commercial poultry farming. About 72% of the total sonali chicken farmers and 82 % of the total commercial poultry rearing farmers adopted at least one category of food safety measure. On the other hand, only 17% of the total scavenger poultry rearing farmers, 30% of the total dairy farmers, 24% of the total beef fattening farmers, and 30% of the total small ruminant rearing farmers use at least one food safety measure on their farm. Overall, food safety measures are essential to improve the quality of production, which will contribute to increased productivity, better market access, and resilient production.

One of the aims of LDDP is to increase the resilience to selected risks of livestock farming. On average, five risks have been selected for each value chain based on the severity of the risks, such as frequently occurring diseases, lack of climate-resilient housing to protect against the climatic risks and most importantly inadequate feed or fodder where appropriate. Farmers could increase their resilience by using regular vaccination of disease, having an alternative source of feed during the crisis and having climate resilient housing. Baseline findings indicate that about 47% of the total surveyed farmers (1,270 farmers out of 2,723 farmers) did not adopt any measures against the selected risks. Moreover, on average, each farmer uses only one measure out of five measures to increase resilience. This scenario is worse in the case of female farmers. About 63% of the total female farmers (879 out of 1,402 farmers) did not adopt any measures against the selected risk. On average, one female farmer adopted 0.60 measures against the selected risks. Overall, the majority of surveyed dairy, beef fattening, small ruminant, and scavenger poultry rearing farmers did not regularly use any measures against the selected risks. Besides, the average number of measures used by each farmer is also very low. Although the larger proportion of sonali chicken and commercial poultry rearing farmers use measures against selected risks, the average number of measures are still low. Nevertheless, the female farmers are using less measures compared to this for male farmers. The adoption rate of measures against selected risks to increase resilience needed to be increased by the LDDP intervention. The decrease in the proportion of non-adopters of measures against selected risks and the increase in the average number of measures against selected risks will inform the progress of the increase in resilience against the selected risks in livestock production.

Productivity of the farm largely depends on the efficiency in the use of farm inputs. A well-planned business development plan could contribute to efficiently using the farm resources. However, the baseline findings reveal that all the surveyed farmers do not have any training on the business development plan. Besides, many surveyed farmers do not have any training on different technologies and practices. Hence, training on different technologies and practices as well as business development is indeed necessary for the capacity enhancement of the livestock farmers.

Access to health services is crucial for livestock production. The baseline findings show that about 66% of the total surveyed livestock farmers do not have access to health services, while about 74% of total surveyed female farmers do not have access to health services. Hence, proper initiative is necessary to increase the health services to the livestock farmers.

Proper vaccination against different diseases is critical for livestock production. Although farmers are using vaccination for different diseases for dairy, beef cattle, poultry, and goat and sheep, the rate of occurrence of the respective diseases is still high in some cases. Hence, the quality and efficacy of vaccines should be well maintained and monitored to increase their effectiveness. Similarly, in the case of dairy, although 65% of the total surveyed dairy farmers adopted artificial insemination for their dairy cattle, about 39% of the total dairy farmers reported the repeat breeding problem on their farm. Hence, measures should be taken to make artificial insemination effective to transform the local breed into a crossbreed to commercialize dairy farming. Most alarmingly, about 30% of total goats rearing farmers and 71% of total sheep rearing farmers use inbreeding on their farm. Hence, the awareness regarding the problem of inbreeding should be enhanced.

The baseline findings also show that although about 57% of total dairy farmers cultivate green grass, a very low proportion of farmers in other value chains (21% of total beef fattening farmers and 11% of goat and sheep rearing farmers) cultivate green grass. Hence, proper extension service should be taken to increase the improved green grass cultivation and fodder preservation which could reduce the risk of inadequate feed in the respective value chains.

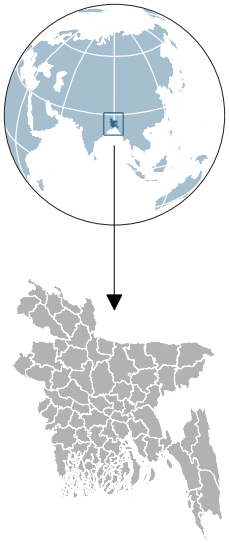
Manure and waste management are very important for environmental concerns. Baseline findings shows that most of the farmers keep manure and wastes in the open space which could be a great environmental issue. Proper extension service and training are necessary to improve the farm level manure and waste management to address the challenges of environmental effects from livestock farming. For instance, training on biogas production and vermicompost production from manure or waste could improve the manure and waste management.

In terms of gender, baseline findings show that men's in the farm household mostly manage outside work and their mobility is well accepted in the society, but women are mainly responsible to manage the housing assignment as their mobility is restricted which is reflected on the farm management assignment (e.g. women's limited access in contracting with input supplier, buyer and vet services). In addition, female farmers have lower farm productivity, lower market access, lower adoption of technology and practices, food safety measures, and lower access to extension services, and lower training on technology and practices compared to male farmers. Hence, there is a need to explore the opportunity of increasing productivity, market access, and resilience production in livestock farming.

Chapter 1. Introduction



1.1 Introduction



Although the contribution of the animal sub-sector to Gross Domestic Product (GDP) was very small, about 1.43 percent in the financial year 2019-2020 at a constant price, it makes an immense contribution to meeting the households' daily requirement of animal protein in Bangladesh (BER 2020). Also, this sector could significantly contribute to the employment generation in Bangladesh. Hence, the government of Bangladesh has initiated several initiatives to develop this sector, such as breed up-gradation through artificial insemination, production and distribution of vaccine and medicine for poultry and livestock for prevention and control of anthrax, foot and mouth disease, avian influenza and other infectious diseases, supply of ducklings and Day-Old Chick (DOC) at a cheaper price. However, it is evident that the development of the livestock sector faces numerous challenges related to productivity, market access, climate-resilient production, and so forth (Rahman et al., 2014; Redoy et al., 2017). The Department of Livestock Services (DLS) received USD 500 Million from the World Bank to implement the Livestock and Dairy Development Project (LDDP) targeting all main livestock value chains in the country, encapsulates dairy , poultry, and ruminants (cattle, buffaloes, sheep, and goats). Nevertheless, a project's successful evaluation might depend on the comparative judgment of the development results of the project implemented with the current knowledge gaps existing at the beginning of the project (FAO, 2013). Hence, a baseline survey is required to be conducted to get the knowledge of the current status of livestock production at the farm level before the project implementation.

The Baseline Survey is a step in the project that gathers cross-sectional key information early in a project so that later judgments can be made about the quality and development results achieved by the project (FAO, 2013). The monitoring and evaluation unit of a project is responsible for verifying the result indicators against the targeted objectives listed in the log frame of the project. The baseline survey is a crucial element in the monitoring and evaluation plan that helps to systematically assess the circumstances in which the project commences. In addition, the baseline survey helps to find the priority areas for project intervention. Also, it provides the basis for subsequent assessment of how efficiently the activity is being implemented and the eventual results achieved.

1.2 Background

The livestock sector is vital to subsistence and economic development in Bangladesh. It not only contributes to the household's food and nutritional security but also helps to generate income and employment. In addition, the livestock sector forms an important livelihood base for millions of resource-poor livestock keepers in Bangladesh. About 75 percent of people rely on livestock to some extent for their livelihood, which clearly indicates that the poverty reduction potential of the livestock sub-sector is high (DLS, 2007). Also, hides and skins of cattle, buffaloes, goats, and sheep are valuable export items, and these have great potential to increase foreign income.

Despite a high density of cattle in Bangladesh, the current production of milk and meat are quite inadequate to meet the current requirements, and the deficits are estimated to be 57 percent and 33 percent respectively (7th FYP). Moreover, there is a larger room to improve productivity in the livestock sector. For instance, the Government of Bangladesh (GoB)'s 7th Five-Year Plan reported that the average weight of local cattle and bulls is about 25-35 percent less compared to Indian cattle. In terms of milk production, the average milk yield per cow per 10 months lactation period is lower than that in India, Pakistan and for all Asia by about 50 percent, 69 percent, and 64 percent respectively. Besides, on the poultry side, there is also a dearth in the availability of eggs.



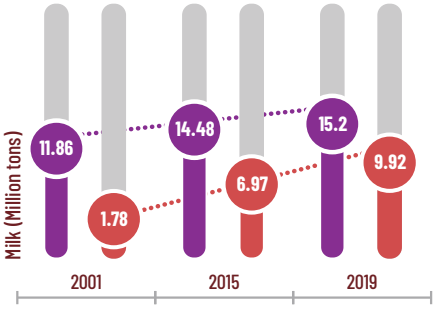


FIGURE 1
Demand and production of milk in different years

Demand Production



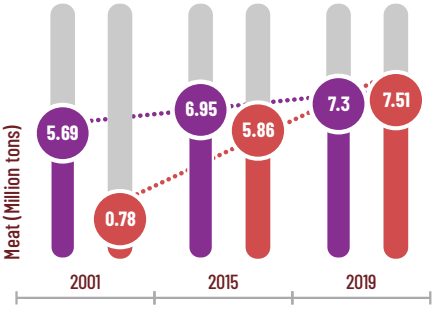


FIGURE 2
Demand and production of meat in different years

Demand Production



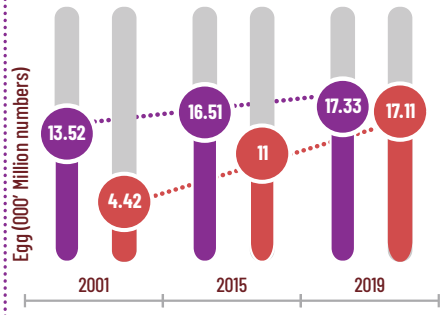


FIGURE 3
Demand and production of Egg in different years

Demand Production

Source: 7th Five-year Plan; DLS (2021)

Figures 1, 2, and 3 present domestic production of milk, meat, and egg compared to corresponding demand in different years, respectively. It can be seen that there is a shortage in the production of milk (Figure 1) and egg (Figure 3) compared to corresponding domestic demand. Although meat production has exceeded the domestic demand for meat in 2019 (Figure 2), an increase in the production of safe and quality meat has a great potential for export earnings. However, the development of the livestock sector faces a number of constraints, as identified in the National Livestock Development Policy (DLS, 2007). For instance, limited knowledge and technical skills of smallholder farmers, scarcity of quality feed, frequent occurrence of disease, lack of advanced technology, lack of credit support, and lack of insurance facilities are some of the main constraints to livestock production.

Marketing is another weak link in the livestock sector and is largely exploited by the middlemen, thereby reducing the profit margin for the farmers coupled with unstable weather and price fluctuations (Rahman, 2014). There is no developed marketing network and market information system for milk and milk products to support smallholder dairy farmers in rural areas. Milk Vita, a cooperative, along with some other private companies such as Aarong, Pran and Aftab recently are commercially meeting the demand for processed milk products in the country. On the other hand, the oligopolistic nature of the egg market exists in Bangladesh, which is mainly controlled by the Aratder. The Aratder extends credit to the poultry farmers and in turn, the farmers are obliged to sell eggs through the Aratdars for loan repayment (7th FYP). Livestock production is also vulnerable to climatic shocks such as extreme hot or cold weather, flood, cyclone, and so forth. For instance, extreme temperatures (hot or cold) could cause physiological changes in cattle and poultry which would result in less production of milk, meat, or egg (MoEF, 2012). Livestock biodiversity, breeding, genetics, livestock rearing, and marketing systems could also be affected by the effect of climate change (Ahmed et al., 2013). Rainfall variability, drought, and rising salinity could also reduce the productivity of grazing lands and forage cultivation, as well as increase competition with crop production for scarce land and water resources. Further, disease prevalence may occur due to various climatic shocks.

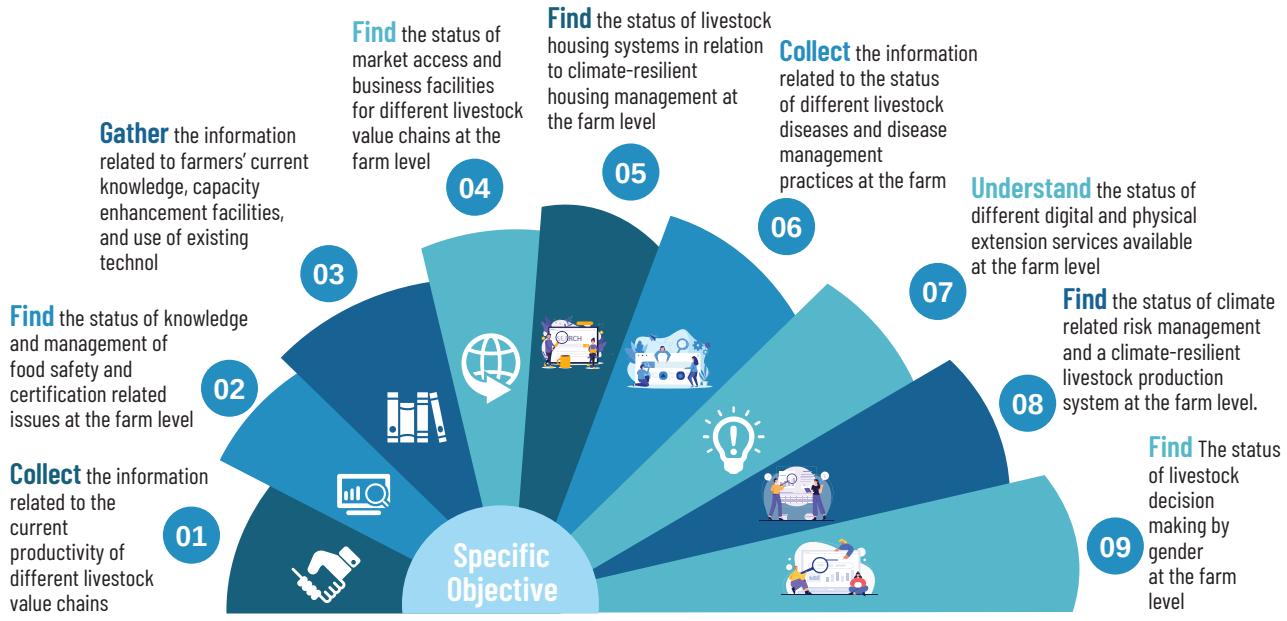
To unlock the growth potential in the livestock sector while addressing the key challenges in Bangladesh, the Department of Livestock Services (DLS) is implementing the Livestock and Dairy Development Project (LDDP) with financial support from the World Bank. The GoB has requested the Food and Agricultural Organization (FAO) in Bangladesh to provide technical assistance (TA) to PMU-LDDP to implement LDDP. Referring to the Contract Document UTF/BGD/077/BGD signed between the FAO in Bangladesh and DLS of the Government of Bangladesh, a baseline survey was conducted to establish benchmarks for the indicators in the Results Framework against which LDDP project progress will be assessed during project implementation.

1.3 Objectives

1.3.1 Overall objective

The overall objective of this baseline survey is to collect solid baseline information and data to establish benchmarks for the indicators in the Results Framework against which LDDP project progress will be assessed during project implementation.

1.3.2 Specific objective



1.4 Conceptual Framework for Baseline Survey

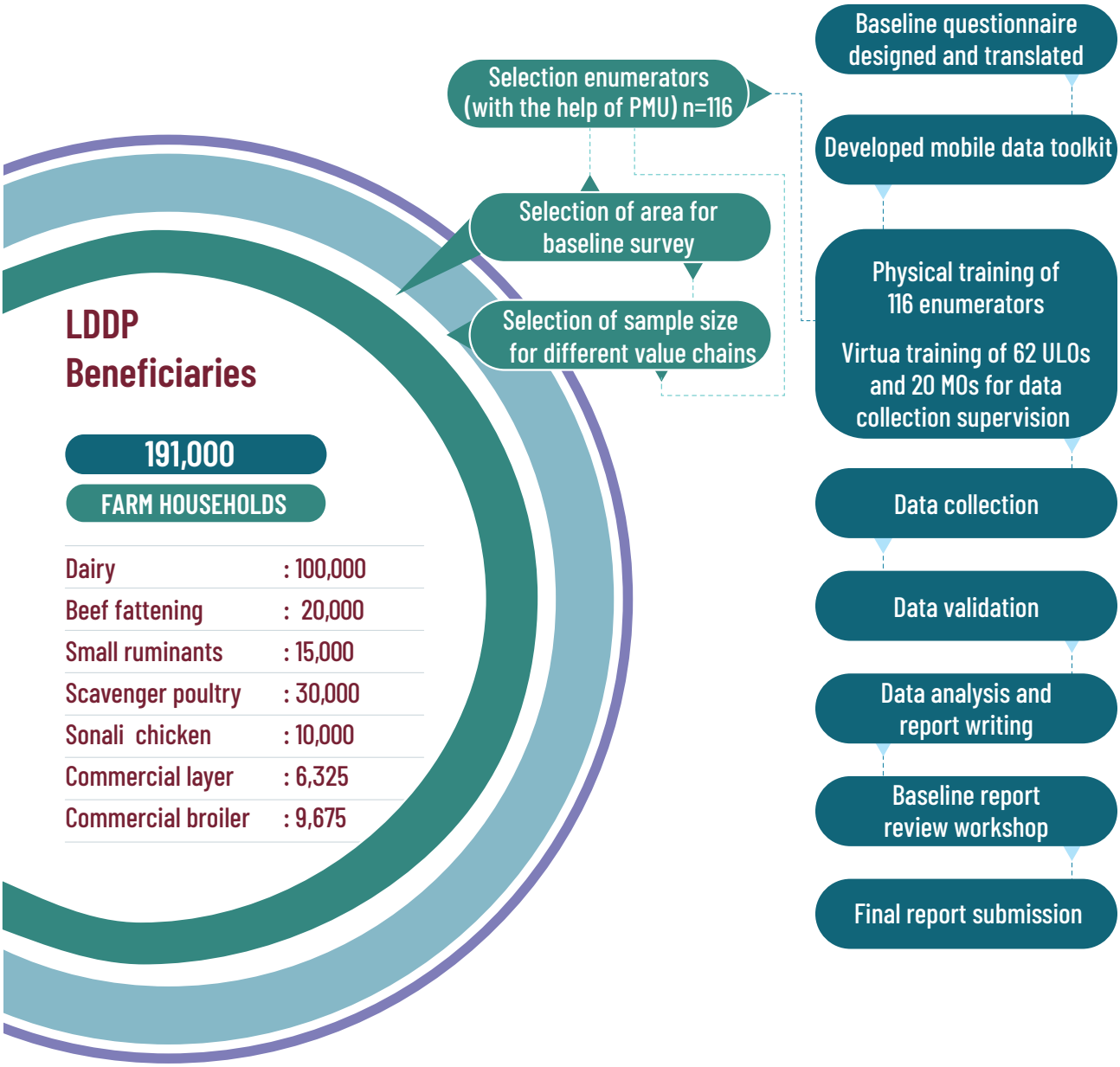


FIGURE 4
Conceptional framework for baseline survey for LDDP

The project development objective (PDO) is to improve the productivity, market access, and resilience of smallholder farmers and agro-entrepreneurs operating in selected livestock value chains in target areas. Based on the extensive review of related documents (Ahmed et al., 2013; DLS, 2007; FAO, 2018a; MoEF, 2012; Quddus, 2012; Rahman et al., 2014; Redoy et al., 2017; Siddiky, 2017; 7th FYP) along with the Project Appraisal Document (PAD), following analytical domains and variables of analysis have been identified for the baseline study:

Table 1: Main analytical domains and related variables of for baseline study

Domains	Variables
Farm characteristics	Farm identification, number of livestock, value of livestock, PG linkage
Productivity	Production per cattle/poultry breed wise production, quantity produced etc.
Feed production and management	Feeding system, fodder cultivation, etc
Food safety and public health	Biosafety, Biosecurity, good farming practice, traceability, safe and quality production, safe and quality feeding, drug withdrawal period, feed and livestock product product quality testing, quality certification etc.
Capacity enhancement	Status of farmers' trainings, training needs on different technologies, training participation based on gender, etc.
Market access	Gross quantity of sell, selling price, place of selling, product buyer, transport system, feed seller, market access issues related to gender etc
Housing and management	Type of housing, biosafety, biosecurity, proper ventilation system, proper colling system, proper waste management, proper stocking, alternative energy source, animal quarantine facility, record keeping for zoonotic disease etc.
Animal health	Record of any contagious and infectious, reproductive, metabolic, and other TBD or EID, status of preventive measure or treatment, death of livestock due to disease
Extension service	Access to different extension service
Manure management	Manure storage system, use of manure in different purpose
Climate risk management	Type of climatic shocks, effects of shocks
Livestock decision making by gender	Ownership of the farm, selling livestock and livestock products, buying livestock, choosing breed, fodder production, feed rationing, livestock feeding, manure management, waste management, food safety, training participation, vet service, marketing

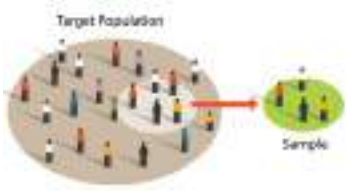
The remaining sections of the baseline report are organized as follows. Section 2 discusses the methodology of the baseline survey. Section 3 discusses the baseline findings aggregated overall value chains mainly focusing on the PDO indicators of the LDDP. The baseline findings of dairy value chain is presented in Section 4 while the baseline findings of the beef fattening value chain are discussed in Section 5. Besides, Section 6 presents the baseline findings of Small ruminant value chain and Section 7 presents the baseline findings of the Scavenger poultry value chain. Section 8 discusses the baseline findings of the sonali chicken value chain. Section 9 presents the baseline findings of commercial poultry value chain and Section 10 concludes.

Chapter 2. Methodology



2.1 Determining the sample size

First, we have to select the total sample required for each value chain to represent each value chain's targeted population. The statistical formula is used to determine the appropriate sample size. Iarossi, G. (2006) proposed a formula to calculate a representative sample from a given population as follows:



$$n_i = \frac{Z_{\frac{\alpha}{2}}^2 P(1-P)}{e^2 + Z_{\frac{\alpha}{2}}^2 \frac{P(1-P)}{N_i}} \qquad (i \quad 1,2,\ldots 6) \qquad (1)$$

here, n_i is the sample size of ith value chain (1=Dairy cattle, 2= Beef cattle, 3= Goat and sheep, 4= Scavenging poultry, 5= Sonali chicken, 6= Commercial Poultry, $Z_{(\alpha/2)}$ =Z distribution corresponding to α level of confidence, P is the population proportion assumed to be known, e_i is the desired level of precision, N_i is the population size of the ith value chain. Assuming population proportion at 0.50, and 95% confidence level, we now calculate the required sample size for i^{th} value chain. We considered 5% level of precision for all value chains except dairy cattle. Assuming comparatively higher variation in farm characteristics (capital investment, number of dairy cattle, breed, farm income variation etc.) within the dairy value chain over other value chains, we assume 4% level of precision for the required sample calculation for the dairy value chain. Applying the formula specified in equation (1), we calculated the required sample size for each value chain. We increased the calculated sample size by 10% to cover the attrition and or nonresponse error. Thus, the total sample for the baseline survey ends up at 2,720. However, the actual sample collected in the Baseline survey is 2,723.

The final required sample size for each value chain is presented in Table 2 below. The male and female sample distributions are also shown in Table 2 based on PAD criteria. For the first four VCs (Sl. 1-4), we know that the population is the members of the corresponding (5,500) PGs while the remaining 26,000 households in the last two value chains are non-PG LDDP beneficiaries.

Table 2: Sample distribution among six value chains

#SL	Value chains	Beneficiary households (HH)	Required sample size				
			Calculated sample based on equation (1)	10% addition to cover attrition	Total* sample HH	Men sample HH	Women sample HH
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Dairy cattle	100,000	597	60	656	387	269
2	Beef cattle	20,000	377	38	415	311	104
3	Goat and Sheep	15,000	375	37	412	0	412
4	Scavenging poultry	30,000	379	38	417	0	417
5	Sonali chicken	10,000	370	37	407	265	142
6	Commercial poultry	16,000	375	38	413	388	25
	Total	191,000	2,473	248	2,720	1,351	1,369

Source: FAO-LDDP baseline survey, 2021

Table 3: Sample size distribution among different value chains by sub-category

#SL	Value chains	Total sample HH	Required sample size			
			*Proportion of sample within value chain (%)	Total sample HH	Male sample HH	Female Sample HH
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1a	Dairy cattle	656	95.19	625	369	256
1b	Dairy buffalo		4.81	31	18	13
2	Beef cattle	415	100.00	415	311	104
3a	Goat	412	78.80	325		325
3b	Sheep		21.20	87		87
4a	Scavenging chicken	417	79.69	332		332
4b	Scavenging duck		20.31	85		85
5	Sonali checken	407	100.00	407	265	142
6a	Commercial layer	413	40.00	165	155	10
6b	Commercial broiler		60.00	248	233	15
	Total	2,720		2,720	1,351	1,369

*Proportions are calculated based on Upazila wise allocation of PGs and individual farmers informed by the PMU-LDDP

Source: FAO-LDDP baseline survey, 2021

The subcategory within different value chains has already been informed by PMUs allocation of PGs and individual farmers across different Upazilas. Therefore, the total required number of samples has been distributed proportionally for each of the sub-category within the value chain. The required number of samples under each value chain and sub-category is presented in Table 3. Upazila wise distribution of the final sample based on the value chain has been presented in Appendix 2-6.

2.2 Selection of sample area

According to the PAD, the primary geographic focus of the project will be rural and peri-urban areas of the high-potential regions (i.e. secondary growing cities) where livestock production systems play a critical role in animal-sourced food production and diets and/or are vulnerable to climate-induced risks. Considering the guidelines in PAD, livestock potential areas have been selected using animal density per square kilometer[1] . However, the distribution of density of different livestock seems to be highly skewed[2] in 61 districts of the LDDP targeted areas. To avoid skewness, livestock density within six[3] hotspot areas (Coastal region, Haor region, crosscutting areas, Barind, and drought-prone areas) of the Hotspot of Bangladesh Delta Plan (BDP-2100) was considered for district selection. The hotspot areas were developed while respecting variations in agriculture and land management, climate change, environment, ecology, and biodiversity of the country (BDP- 2100). Thus, the selection of sample areas among the Hotspot satisfies the guidelines of area selection for LDPP, such as livestock production and diet potential, market accessibility, and climate-induced risks. Within a hotspot area, a tentative list of an initially selected districts has been prepared based on the animal density higher than the average of corresponding density in this hotspot area.

[1] Data available in Agriculture Census in 2019 have been used for density calculation.

[2] The density ranges from 99 to 636, 18 to 517, and 641 to 5,974, respectively, for cattle & buffalo, goat & sheep, and chicken & ducks

[3] Major rivers, and adjoining areas and peri-urban areas will be addressed while samples will be collected from a district since these two hotspots are overlapped at the district level.

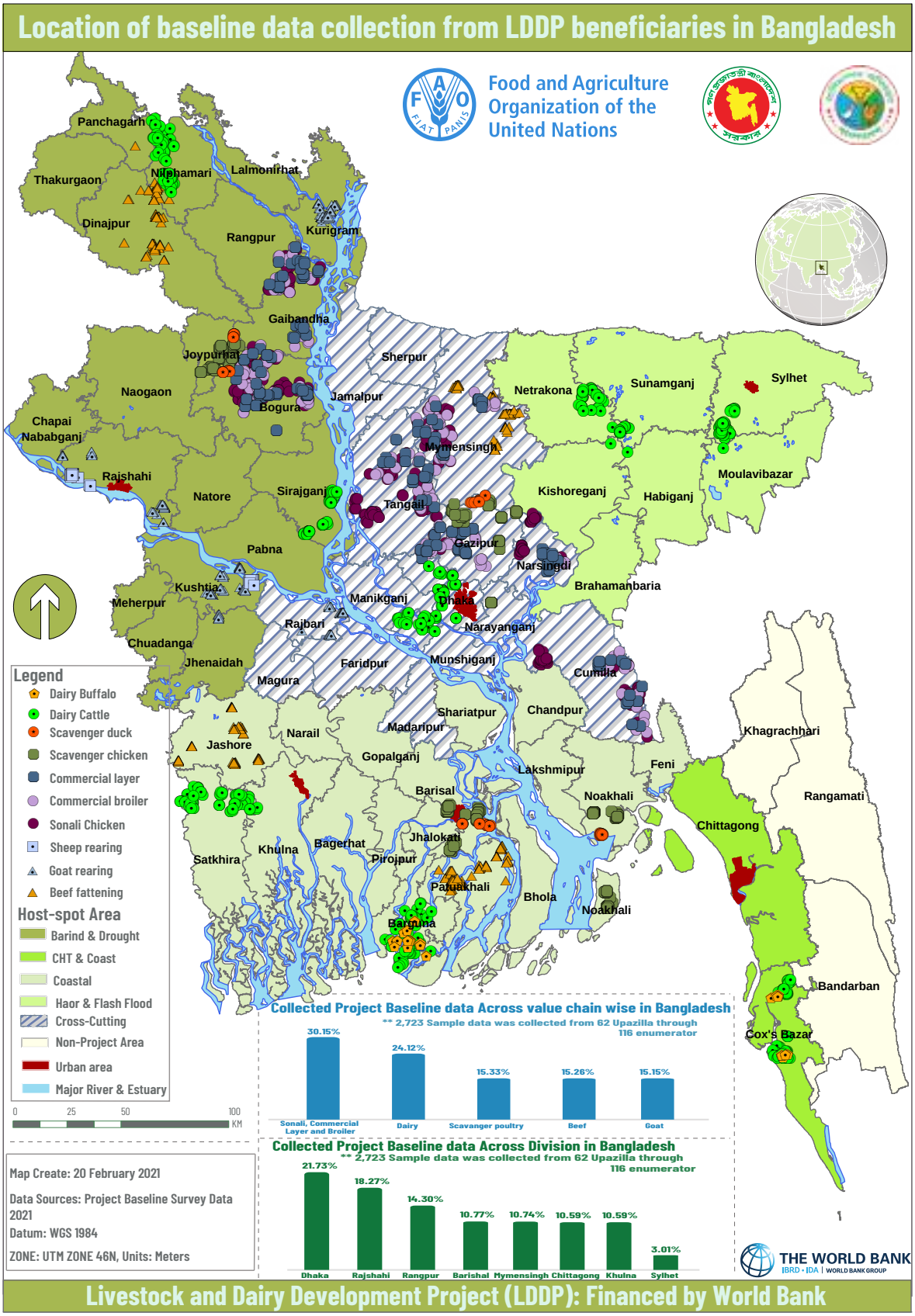


Figure 5: Combined map of selected Upazilas for all value chains (Dairy, Beef, Goat & Sheep, Scavenger poultry, Commercial poultry)

In the next stage, we purposively selected representative districts based on their livestock density, favorable agro-climatic condition, and representation of administrative boundary from each hotspot for baseline sampling. For example, in the case of the dairy value chain, 8 districts were purposively chosen for the baseline survey considering the total number of the sample which were Barguna, Netrokona, Dhaka, Satkhira, Sirajganj, Nilphamari, Cox's Bazar, and Sylhet. Barguna represents the coastal zone as well as the Barisal division. Netrokona was selected from the Haor region which also represents the Mymensingh division. Dhaka represents the urban area that occupies the highest density among all the districts as well as represents the Dhaka division. Satkhira covers the peri-urban area as well as the Khulna division. The Barind area is also a potential region for the dairy value chain and hence we have taken two districts from here to be included in the baseline survey. Sirajganj from the Rajshahi division is selected as this is known as the milking capital of Bangladesh and is agro-ecologically suitable for milk production. Nilphamari is selected from the Rangpur division which has a comparatively high livestock density and vulnerability to poverty. Cox's Bazar and Sylhet districts are selected to represent the Chattogram and Sylhet divisions respectively along with their respective agro-climatic conditions. Similarly, 4 districts for each of the other value chains except sonali chicken and commercial poultry have also been purposively selected considering the animal/poultry density, potentiality, vulnerability, and other characteristics. Based on the PMU-LDDP beneficiary allocation along with other characteristics 7 districts have been chosen for sonali chicken and commercial poultry sampling. The selected districts for each value chain are presented in Table 4. A combined map of selected Upazilas for all value chains are presented in Figure 5.

Table 4: Selected districts under different value chains for baseline survey

#SL	Value Chains	District
(1)	(2)	(3)
1	Dairy cattle	Barguna, Netrokona, Dhaka, Satkhira, Sirajganj, Nilphamari, Cox's Bazar, Sylhet
2	Beef cattle	Jashore, Mymensingh, Patuakhali, Dinajpur
3	Goat and Sheep	Kustia, Kurigram, Rajshahi, Rajbari
4	Scavenging poultry	Joypurhat, Gazipur, Barishal, Noakhali
5	Sonali chicken	Bogura, Gazipur, Mymensingh, Gaibandha, Comilla, Narshingdi, Tangail
6	Commercial poultry	

Source: FAO-LDDP baseline survey, 2021

In Figure 6, we have portrayed the required sample distribution for each value chain for baseline survey. First, we purposively choose sample districts for different value chains considering several issues such as hotspot areas, animal density, potentiality, vulnerability, and administrative coverage. In the second stage, two or three Upazilas are selected in each district based on the density of available farmers (Producer Group members) for a specific value chain. For sonali chicken and commercial poultry value chains, a total of 21 Upazilas across 7 districts have been selected based on the available individual poultry beneficiaries of the LDDP. The PMU informed the Upazila wise allocation of PGs and the data from the PG characterization survey helped to select the Upazilas under each selected district. An Upazila base sampling framework for male and female livestock farmers, where appropriate, will be deployed with the help of local DLS/PMU officials. DLS/PMU-LDDP has been contacted to provide relevant information (list of farmers) regarding final sampling. At the final stage, a random sampling technique is applied to choose the final samples from the sampling frame at the Upazila level. Finally, 62 Upazilas across 25 Districts have been finally selected for baseline data collection. The distribution of final samples of different value chains within different Upazilas has been presented in Appendices 2-6.

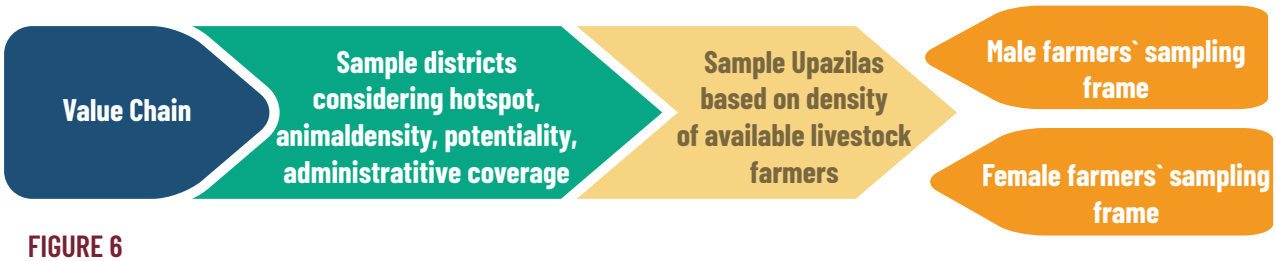


FIGURE 6
Sampling framework for baseline survey

N.B. Figure 6: is completely applicable to dairy, beef, commercial poultry and sonali chicken value chains. For goat & sheep and scavenging poultry value chains only, female farmers are surveyed based on the PAD instruction.

2.3 Selection of enumerator and training on data collection

FAO has trained a total of 116 Livestock Extension Officers (LEOs) as enumerators (45 female) in person for three days in 4 batches from 27th September to 12th October 2021 on baseline data collection using the Kobo mobile data toolkit. Enumerators did practical sessions with invited real farmers (one farmer for three enumerators) from different value chains during the training session. It helps them to be more confident in their baseline data collection. Besides, 62 Upazila Livestock Officers (ULOs) have been been trained on 30th September and 20 Monitoring Officers (10 female) have been trained on 18th -19th October 2021 for baseline data collection.



2.4 Questionnaire design

The baseline survey data has been collected using a pre-structured baseline questionnaire. The individual value chain-based baseline questionnaires are drafted and translated into Bangla. All the set of questions are designed to respond to the requirement of LDDP impact quantifications which encapsulate farmer's adoption of improved technology, increased productivity, market access and climate-resilient production, and so forth. After approval from PMU-LDDP, the questionnaires are transferred to the Kobo mobile toolkit for data collection. The approved questionnaires have been used for ex-ante data collection from selected beneficiaries in selected areas for the baseline survey.

2.5 Data collection validation and report writing

After successful completion of training to the enumerators (LEOs), ULOs and MOs, on questionnaires, techniques of mobile data toolkit, and field protocols, baseline data have been collected from 31st October to 17th November 2021. Field level data collection has been monitored by 6 FAO team members in 28 Upazilas across 24 districts during data collection. To validate the collected data, 12 final year and MS students from Patuakhali Science and Technology University have been trained on questionnaires and data cross-checking using a standard data checking toolkit from 15th – 16th November 2021. After data collection, the validator started data validation from 19th November 2021. However, due to various challenges during data collection, validators required time to finish the validation and the validation finished on 12th December 2021. After validation of collected the data, data has been analyzed considering the result indicators indicated in PAD along with the objectives and variables considered for the baseline survey. The draft report has been reviewed by different scholars, professors, researchers, and practitioners through 6 workshops. The review comments have been rechecked and incorporated where appropriate. Based on the findings of the analysis the baseline report is prepared.

This baseline survey is only targeting the beneficiaries of the LDDP who have been selected based on some specific criteria. For instance, a dairy farmer must have at least 2 lactating cows or 5 litres of milk production per day, a beef fattening farmer must have at least 2 fattening beef and both the dairy and beef fattening farmers must have the opportunity to cultivate green grass. A goat and sheep farmer must have at least 5 goats or sheep on the farm. A scavenger poultry farmer must have at least 20 scavenger chickens or ducks on the farm. Hence the findings of this baseline survey will not purely represent the national data due to exclusion of some extremely poor farmers from the LDDP. However, the baseline data certainly will inform the baseline indicators and farming practices which will be solid ground to check the progress of the LDDP interventions. Besides, the findings will help the concerned stakeholders to understand the present status of livestock production concerning various dimensions such as productivity, market access, the resilience of production, food safety, health management, housing management, feeding management, technology adoption, and capacity enhancement.



Chapter 3. Baseline Findings of Aggregated Value Chain



3.1 Demographic profile of the respondent farmers



The average number of family members in the surveyed farming households are presented in Table 5. The total number of family members is the total count of family members. As can be seen, on average 5 members are present in a livestock farming household which is comprised of 3 males and 2 females. The average number of family members is consistent with the national Data (BBS, 2021). However in terms of small ruminant value chain, the average number of female 3 and male 2. The reason might be that, most of the female headed household are engaged in small ruminant farming.

Table 5: Average number of family members in a livestock farming household

#SL	Type of livestock	Average number of family members in a household		
		Male	Female	Total
(1)	(2)	(3)	(4)	(5)
1	Dairy	3	2	5
2	Beef fattening	3	2	5
3	Small ruminant	2	3	5
4	Scavenger poultry	3	2	5
5	Sonali chicken	3	2	5
6	Commercial poultry	3	2	5
	Average	3	2	5

Source: FAO-LDDP baseline survey, 2021

Table 6: Distribution of respondent farmers based on gender

#SL	Type of livestock	Female		Male		Total farmer
		Number	% of total farmer	Number	% of total farmer	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Dairy	270	41	385	59	655
2	Beef fattening	130	31	286	69	416
3	Small ruminant	412	100	0	0	412
4	Scavenger poultry	418	100	0	0	418
5	Sonali chicken	132	33	267	67	399
6	Commercial poultry	40	3	383	60	423
	Total	1,402	51	1,321	49	2,723

Source: FAO-LDDP baseline survey, 2021

Although a total of 2,720 samples were distributed during the sampling, a total of 2,723 farm households have been surveyed during data collection based on availability. The distribution of surveyed respondent farmers of all livestock value chains (2,723 farmers) based on their gender is presented in Table 6. It can be seen that out of the total 2,723 livestock farmers surveyed during baseline, about 51% are female considering all livestock value chains together.

Table 7 presents the distribution of respondent farmers into different livestock value chains based on the level of education. It can be seen from column (9) that about 10% of total farmers (2,723 farmers) do not have any formal or informal education. The proportion of illiterate farmers are highest in Small ruminant farms (23%), followed by dairy farms (12%), scavenger poultry farms (10%), sonali chicken farms (6%), and commercial poultry farms (4%) and beef fattening farms (3%). In all cases, most of the farmers have education up to secondary level. For instance, out of the total 655 dairy farmers, 214 and 251 farmers have education up to primary and secondary level respectively. However, in the case of Sonali and Commercial poultry farming, most of the farmers have education up to the secondary level.

Table 7: Distribution of respondent farmers based on the level of education

#SL	Value chains	Level of education				No education	Total serveyed fermers	% of total farmers have no education
		Primary	Secondary	Higher secondary	Tertiary			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Dairy cattle	214	251	52	60	78	655	12
2	Beef fattening	147	167	39	50	13	416	3
3	Small ruminant	144	145	19	9	95	412	23
4	Scavenger poultry	175	173	19	8	43	418	10
5	Sonali chicken	60	192	59	63	25	399	6
6	Commercial poultry	66	209	70	63	15	423	4
	Total	**806**	**1,137**	**258**	**253**	**269**	**2,723**	**10**
	% of total respondent	**30**	**42**	**9**	**9**	**10**	**100**	

Source: FAO-LDDP baseline survey, 2021

In terms of tertiary education, almost the same number of farmers (60-63) are educated up to tertiary level in dairy, sonali chicken and commercial poultry farming. On the contrary, only 8 and 9 farmers have tertiary level education in scavenger poultry and small ruminant farming respectively. Overall, 42% of total surveyed farmers have education up to secondary level, 30% have education up to primary level, while 9% have education at tertiary level. Small ruminant farmers are comparatively less educated than other livestock farming categories.

The distribution of farmers based on different age categories is presented in Table 8. It can be seen from column (4) that on average 5% of total farmers fall within the youth (15-24 years) age category. Besides, youth (15-24 years) engagement is slightly higher (6%)

in sonali chicken farming and lower (4%) in dairy farming compared to other categories of livestock farming. About 83-88% of the livestock farmers fall within the age category of 25-54 years in the case of all livestock value chains.

Table 8: Distribution of farmers based on different age categories

#SL	Type of livestock	Age categories								Total sample
		15-24 years		25-54 years		55-60 years		Above 60 years		
		Count	%*	Count	%*	Count	%*	Count	%*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Dairy	25	4	542	83	61	9	27	4	655
2	Beef fattening	19	5	353	85	22	5	22	5	416
3	Small ruminant	22	5	355	86	24	6	11	3	412
4	Scavenger poultry	22	5	369	88	18	4	9	2	418
5	Sonali chicken	25	6	346	87	20	5	8	2	399
6	Commercial poultry	22	5	366	87	27	6	8	2	423
	Total	135	5	2,331	86	172	6	85	3	2,723

*Proportion (%) is calculated from the total farmer of respective value chain

Source: FAO-LDDP baseline Survey, 2021

In terms of the age category of 55-60 years, it can be seen from column (8) of Table 8 that, about 9% of the sample farmers are aged between 55-60 years which is the highest compared to other livestock value chains. A total of 85 farmers out of 2,723 sample farmers are found aged above 60 years considering all livestock categories. About 5% of farmers are aged above 60 years in beef fattening farming 4% in dairy farming, 3% in small ruminant farming, and 2% in scavenger, sonali, and commercial poultry farming.

Table 9 presents the distribution of marital status of respondent farmers of all value chains. Column (3) shows that most of the sample farmers of all value chains are married. In terms of dairy farming, 44 farmer's marital status is unmarried/single following 7 widowed farmers out of the total of 655 dairy farmers. On the other hand, 33 single and 1 widowed farmer are engaged in beef fattening farming. In the case of small ruminant farming, two (2) unmarried, one separated, 25 widowed and 7 divorced farmers are engaged in farming. Likewise, 4 unmarrieds, 2 separated, 26 widowed and 6 divorced farmers are engaged in scavenger poultry farming out of a total of 418 farmers. Besides, 27 farmer's and 33 farmer's marital status is found single for sonali chicken and commercial poultry farming respectively. Overall, it can be seen from columns (6) and (7) that a higher number of farmers are widowed and divorced in small ruminant and scavenger poultry farming compared to other categories of livestock farming.

Table 9: Marital status of the respondent farmers

#SL	Type of livestock	Marital status					Total
		Married	Single	Separated	Widowed	Divorced	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Dairy	604	44	0	7	0	655
2	Beef fattening	382	33	0	1	0	416
3	Small ruminant	377	2	1	25	7	412
4	Scavenger poultry	380	4	2	26	6	418
5	Sonali chicken	369	27	0	2	1	399
6	Commercial poultry	389	33	0	1	0	423
	Total	2,501	143	3	62	14	2,723

Source: FAO-LDDP baseline survey, 2021

Agricultural landholdings by all categories of livestock farm households are presented in Table 10. It can be seen from column (4) that about 5% (19 farmers) out of total 412 small ruminant rearing farmers are landless. In addition, 2% (9 farmers) of commercial poultry rearing farmers are found as landless. About 1% farmers of dairy, beef fattening, sonali chicken, and commercial poultry farming fall into the marginal category. On the contrary, about 9% (38 farmers) and 6% (25 farmers) farmers fall into the marginal farming category in small ruminant and scavenger poultry rearing farms respectively. Column (7) indicates that the highest number of farmers in all livestock categories falls into the small farming landholding category having 5-249 decimal land. Column (8) shows that about 81-89% of total farmers in respective livestock categories fall into the small landholding category while about 66% of dairy farmers fall into the small landholding category.

Table 10: Agricultural landholdings by livestock farm households, all categories

#SL	Type of livestock	Landholding categories										Total
		Landless (no land)		Marginal (1-4.99 decimal)		Small (5-249 decimal)		Medium (250-749 decimal)		Large (750 and above)		
		Count	%*	Count	%*	Count	%*	Count	%*	Count	%*	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Dairy	0	0	5	1	434	66	177	27	39	6	655
2	Beef fattening	0	0	3	1	336	81	74	18	3	1	416
3	Small ruminant	19	5	38	9	340	83	14	3	1	0	412
4	Scavenger poultry	0	0	25	6	374	89	18	4	1	0	418
5	Sonali chicken	0	0	3	1	342	86	46	12	8	2	399
6	Commercial poultry	9	2	3	1	337	80	61	14	13	3	423
	Total	28	1	77	3	2,163	79	390	14	65	2	2,723

NB: Landholding categories has been calculated according to the Agricultural Yearbook, 2019
*Proportion (%) is calculated from the total farmer of respective value chain

Column (10) shows that 27% of total dairy farm households have land from 250-749 decimal. Among other livestock categories, 18%, 3%, 4%, 12%, and 14% of farm households of beef fattening, small ruminant, scavenger poultry, sonali chicken, and commercial poultry farm households, respectively, fall into the medium landholding category. In terms of large farm holding in columns (11-12), it can be seen that 39 farmers (6%) of dairy farms have a land area of 750 decimal and or above. Among other livestock categories, about 2% (8 farmers) and 3% (13 farmers) of sonali chicken and commercial poultry farmers have 750 decimal or above land. On the contrary, small ruminant and scavenger poultry farming households do not fall into the large category of landholding.

The average number of family members directly engaged in livestock farming is presented in Table 11. Column (5) indicates that on average 3 family members are directly engaged in dairy farming and sonali chicken farming while 2 are male and 1 is female. In terms of beef fattening and small ruminant farming, on average 2 family members are engaged in farming one is male, and other one is female. Although 3 family members also engaged in scavenger poultry farming, females engaged more than that of males in the family. However, the larger number of family members (4 members) are engaged in commercial poultry farming compared to other categories of livestock.

Table 11: Average number of family members directly engaged in livestock rearing

#SL	Type of livestock	Average number of family members directly engaged in livestock farming		
		Male	Female	Total
(1)	(2)	(3)	(4)	(5)
1	Dairy	2	1	3
2	Beef fattening	1	1	2
3	Small ruminant	1	1	2
4	Scavenger poultry	1	2	3
5	Sonali chicken	2	1	3
6	Commercial poultry	2	2	4

Source: FAO-LDDP baseline survey, 2021

3.2 Farmers adopted improved agricultural technologies and practices



Improved agricultural technologies and practices could play an important role in increasing livestock productivity and resilient livestock production. Considering the increasing importance of different improved agricultural technologies and practices (including CSA technologies and practices) several improved agricultural technologies and practices have been identified across different value chains. For instance, 22 technologies and practices have been identified for the dairy value chain of which 12 are CSA, 16 technologies and practices have been identified for the beef fattening value chain of which 12 are CSA, and 12 technologies and practices have been identified for the small ruminant value chain of which 10 are CSA, and 9 technologies and practices have been identified for the poultry (scavenger, sonali and commercial) value chain of which 6 are CSA. Technology adoption refers to the regular use of any technology and practices.

3.2.1 Farmers adopting improved agricultural technology, all beneficiary farmers (PDO Indicator 1)

The following table shows that about 34% of the total surveyed farmers (924 farmers) did not adopt any category of improved agricultural technologies and practices in livestock farming. However, it can be seen from column (9) that, on average each farmer uses 1.61 improved agricultural technologies in livestock farming. Among different value chains (column 5), about 15%, 35%, 70% and 94% of surveyed farmers of dairy, beef fattening, small ruminant, and scavenger poultry farmers did not adopt any improved agricultural technology during the baseline period. A list of PDO indicators and IR indicators are shown in Annexure 1.

Table 12: Adoption of improved agricultural technologies across value chains, all farmers

#SL	Value chains	Total number of farmers surveyed	Farmers did not adopt any technology or practice		Average number of technologies and practices used per farmer	Aggregate of all value chains		
			Number	% of total surveyed farmers		Total number of sample farmers did not use any technologies or practices	% of total 2,723 sample farmers who did not use any technology and practice	Average number of technologies and/ practices used per farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Dairy	655	96	15	2.49	924	34	1.61
2	Beef fattening	416	144	35	1.31			
3	Small ruminant	412	290	70	0.42			
4	Sonali chicken	399	0	0	2.74			
5	Scavenger poultry	418	394	94	0.07			
6	Commercial poultry	423	0	0	2.15			

Source: FAO-LDDP baseline survey, 2021

3.2.2 Farmers adopting improved agricultural technology, female beneficiary farmers (PDO Indicator 1a)

The following table presents the adoption of different improved technologies and practices for female farmers surveyed during the baseline. As can be seen about 56 % of surveyed female farmers (783 female farmers) did not adopt any improved technologies and practices in livestock farming. In addition, on average each female farmer adopted 0.97 improved agricultural technologies and practices in livestock farming. Among different value chains (column 5), about 21%, 34%, 70% and 94% of surveyed farmers of dairy, beef fattening, small ruminant, and scavenger poultry farmers did not adopt any improved agricultural technology during the baseline period. Overall, a higher proportion of female farmers did not adopt improved agricultural technologies compared to all surveyed farmers. In addition, the average number of improved technologies and practices use per farmer is also lower than that of the total surveyed farmers. Hence, the decrease in the proportion of nonadopters and increase in the number of average technology and practices used per farm will indicate the increase in the improved technology adoption.

Table 13: Adoption of improved agricultural technologies across value chains, female farmers

#SL	Value Chains	Total number of female farmers surveyed	Female farmers did not adopt any technology or practice		Average number of technologies and practices used per female farmer	Aggregate of all value chains		
			Number	% of total surveyed farmers		Total number of female farmers did not use any technologies or practices	% of total 1,402 female farmers who did not use any technology and practice	Average number of technologies and/ practices used per female farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Dairy	270	55	21	2.07	783	56	0.97
2	Beef fattening	130	44	34	1.36			
3	Small ruminant	412	290	70	0.42			
4	Sonali chicken	132	0	0	2.72			
5	Scavenger poultry	418	394	94	0.07			
6	Commercial poultry	40	0	0	1.83			

Source: FAO-LDDP baseline Survey, 2021

3.3 Farmers adopted CSA technology and practices



To address climate change challenges, and boost economic growth as well as agricultural development, Climate Smart Agricultural (CSA) technologies could play an important role. In Bangladesh, technology or practice is considered a CSA if it could enhance food security as well as at least one of the other objectives of CSA (adaptation and/or mitigation of climate change (World Bank, 2017)[4] . According to the CSA guidelines of the World Bank[5] , cattle productivity could be improved through improved feed production and feeding, improved animal health management, appropriate manure management and so forth. There are three main CSA technologies and practices for the livestock sector identified for Bangladesh within the CSA country profile for the Asia series (World Bank, 2017). These CSA technologies and practices are mainly categorized as

(1) Manure and waste management (compost and biogas production),
(2) Commercial livestock rearing, and
(3) Improved fodder production

Besides, three CSA technologies and practices for the livestock sector are also identified in the Climate-smart agriculture investment plan for Bangladesh namely:

(1) Increasing intake of protein-rich fodder grass and feed concentrate,
(2) Increasing the share of crossbred cows in the total cattle population and
(3) Biogas production.

In livestock farming, improved fodder production denotes improved fodder cultivation, cutting and distribution, while livestock feeding and management services include ration balancing, total mixed rations, silage making, UMS, and UMB/UMMB preparation. Improved

[4] World Bank. 2017. Climate-Smart Agriculture in Bangladesh. CSA Country Profiles for Asia Series. International Center for Tropical Agriculture (CIAT); World Bank. Washington, D.C. 28 p. Climate-Smart Agriculture in Bangladesh (cgiar.org)

[5] Practices | Climate-Smart Agriculture Guide (csa.guide)

fodder and feeding of balanced nutrition have a direct linkage with the GHG emissions from the livestock. Artificial insemination technology considers the transformation from the local breed to crossbreed dairy cows for better production. The increase in the share of rearing crossbreed and high yielding breeds will ensure an increase in productivity by reducing GHG with proper management. Manure and waste management includes compost and/or biogas production which is also directly related to the reduction of GHG emissions. Animal disease prevention and health control are other important CSA practices for livestock production[6].

Table 14: List of selected CSA technologies and practices used livestock farming

#SL	Name of the CSA technology and practices	Different livestock value chains					
		Dairy	Beef fattening	Small ruminant	Scavenger poultry	Sonali chicken	Commercial poultry
1	Improved fodder cultivation	✓	✓	✓			
2	Silage making	✓	✓				
3	Total mixed ration	✓	✓				
4	Ration balancing	✓	✓	✓	✓	✓	✓
5	UMS	✓	✓	✓			
6	UMMB/UMB	✓	✓	✓	✓	✓	✓
7	Artificial insemination/ Improved breed rearing	✓	✓	✓			
8	Routine vaccination	✓	✓	✓	✓	✓	✓
9	Routine deworming	✓	✓	✓	✓	✓	✓
10	Manure management	✓	✓	✓	✓	✓	✓
11	Waste management*	✓	✓	✓			
12	Climate-resilient housing	✓	✓	✓	✓	✓	✓

Source: FAO-LDDP baseline survey, 2021

The higher the animal health, the higher the productivity. Hence, healthy livestock will shrink the herd overhead by reducing the unproductive animals which in turn will reduce the GHG emission in the long run (FAO, 2018b). The list of CSA technologies and practices used for different livestock categories is presented in the following table. Considering the increasing importance of different CSA technologies, 12 CSA technologies and practices are identified for dairy and beef fattening value chains. Besides, 10 and 6 CSA technologies and practices are identified for small ruminant and poultry value chains, respectively.

[6] B2 - 3 Climate-smart livestock production systems in practice | Climate Smart Agriculture Sourcebook | Food and Agriculture Organization of the United Nations (fao.org); FAO (2018b) Ministry of Agriculture, Livestock and Fisheries, Climate smart agriculture: Training Manual for Agricultural Extension Agents in Kenya.

* Waste Management- In terms of poultry value chain it is difficult to separate poultry manue and other poultry waste. Mostly poultry manure mixed up with waste. Hence we did not consider waste management technology separately for the poultry value chain.

3.3.1 Farmers who have adopted livestock CSA technologies and practices, all farmers (IR Indicator 9)

The following table shows the number and proportion of total surveyed farmers who have adopted livestock CSA technologies and practices. As can be seen, about 34% of the total surveyed farmers did not adopt any category of CSA technologies and practices in livestock farming. Besides, it can be seen from column (9) that, on average each farmer uses 1.53 CSA technologies and practices in livestock farming. In terms of different value chains, the majority of total farmers of the small ruminant (70%) and scavenger poultry (94%) value chains did not use any CSA in livestock farming. Moreover, the average number of CSA practice by each farmer is also 0.41, and 0.07 for small ruminant and scavenger poultry, respectively. On the other hand, all farmers in sonali chicken and commercial poultry value chains are using on average 2.73 and 1.89 CSA technologies and practices respectively. The reason behind that all the farmers in sonali chicekn and commercial poultry value chains rear improved breed which is a CSA technology.

Table 15: Adoption of CSA technologies and practices across value chains, all farmers

#SL	Value chains	Total number of farmers surveyed	Farmers did not adopt any technology or practice		Average number of technologies and practices used per farmer	Aggregate of all value chains		
			Number	% of total surveyed farmers		Total number of sample farmers did not use any technologies or practices	% of total 2,723 sample farmers who did not use any technology and practice	Average number of technologies and/ practices used per farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Dairy	655	96	15	2.35	925	34	1.53
2	Beef fattening	416	144	35	1.30			
3	Small ruminant	412	291	7	0.41			
4	Sonali chicken	399	0	0	2.73			
5	Scavenger poultry	418	394	94	0.07			
6	Commercial poultry	423	0	0	1.89			

Source: FAO-LDDP baseline survey, 2021

3.2.2 Farmers who have adopted livestock CSA technologies and practices, female farmers (IR Indicator 9.1a)



The following table presents the adoption of different CSA technologies and practices for female farmers surveyed during the baseline survey across all value chains. As can be seen from column (8) about 56% of total surveyed female farmers did not adopt any CSA technologies and practices in livestock farming. In addition, on average each female farmer uses 0.95 CSA technologies and practices in livestock farming. Overall, the adoption rate of CSA technologies and practices are lower for females compared to this for all surveyed farmers including males. In addition, the average number of CSA technologies and practices used per female farmer is also lower than that for all surveyed farmers as well as male farmers. Hence, the decrease in the proportion of nonadopters and the increase in the number of average CSA technology and practices used per farmer will indicate the increase in the CSA technology adoption.

Table 16: Adoption of CSA technologies and practices across value chains, female farmers

#SL	Value chains	Total number of female farmers surveyed	Female farmers did not adopt any technology or practice		Average number of technologies and practices used per female farmer	Aggregate of all value chains		
			Number	% of total surveyed farmers		Total number of female farmers did not use any technologies or practices	% of total 1,402 female farmers who did not use any technology and practice	Average number of technologies and/ practices used per female farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Dairy	270	55	20	1.99	784	56	0.95
2	Beef fattening	130	44	34	1.36			
3	Small ruminant	412	291	70	0.41			
4	Sonali chicken	132	0	0	2.70			
5	Scavenger poultry	418	394	94	0.07			
6	Commercial poultry	40	0	0	1.63			

Source: FAO-LDDP baseline survey, 2021

3.4 Productivity of targeted species by direct beneficiaries (PDO Indicator-2)

The productivity of different value chains has been calculated based on the baseline survey data using different measurement units. For instance, the average milk per day per cattle is used as a measure of dairy productivity. Likewise, the average live weight (Kg) per beef and small ruminant at its slaughter age is used as the measure of the productivity of the beef and small ruminant value chain. However, the average carcass weight (Kg) per bird at the slaughtering age is used as the measure of poultry productivity. Productivity related detail report has been presented in the relevant section of each value chain. However, the following table presents the productivity of the targeted species of the LDDP briefly.

Table 17: Productivity of targeted species by direct beneficiaries

#SL	Value chains	Livestock category	Unit	Livestock category wise productivity		Value chain wise productivity	
				(All farmers)	(Female farmers)	(All farmers)	(Female farmers)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Dairy cattle (PDO indicator 2.a)	Cow	Milk (litres/day/cattle)	5.81	5.41	5.66	5.25
		Buffalo		2.17	2.13		
2	Beef fattening (PDO indicator 2.b	Beef fattening	live weight (Kg/ cattle at slaughter age)	247.74	239.67	247.74	239.67
3	Small ruminant (PDO indicator 2.c)	Goat	live weight (Kg/ sheep at slaughter age)	14.96	14.96	14.53	14.53
		Sheep		11.91	11.91		
4	Sonali chicken (PDO indicator 2.d)	Sonali chicken	Carcass weight (Kg/ bird at slaughter age)	0.57	0.56	0.56	0.57
5	Scavenger poultry	Chicken	Carcass weight (Kg/ bird at slaughter age)	0.49	0.49	0.60	0.60
		Duck		1.13	1.13		
6	Commercial poultry	Broiler meat	Carcass weight (Kg/ bird at slaughter age)	1.17	1.15	1.19	1.17
		Culled hen meat		1.39	1.38		

Source: FAO-LDDP baseline survey, 2021

As can be seen from column (5), of Table 17 each cow on average produces 5.81 litres of milk per day and each buffalo produces 2.17 litres of milk per day. In terms of beef fattening, productivity is about 247.74 Kg (live weight) per cattle at slaughter age while productivity for females is a little lower (239.67 Kg per cattle) than this for the total farmer. Among small ruminants, goat productivity seems to be 14.96 Kg (live weight) per goat and sheep productivity seems to be 11.91 Kg per sheep. However, sonali chicken meat productivity becomes 0.57 Kg (carcass weight) per bird during the slaughter age. Among scavenger poultry, scavenger chicken productivity is about 0.49 Kg (carcass weight) per bird while scavenger duck productivity is about 1.13 Kg (carcass weight) per bird. The average carcass weight of broiler and culled hen is about 1.17 and 1.39 Kg per bird respectively. In terms of the female farmer, the average carcass weight of broiler and culled hen is found about 1.15 Kg and 1.38 Kg per bird respectively.

3.5 Total value of sales across different livestock categories during baseline period, all farmers (PDO Indicator 3)

The PDO indicator 3 will assess the increase in the market access by all direct beneficiaries under LDDP by the incremental sales aggregated over all targeted value chains in real value in the project areas.

Table 18: Total value of sell across different livestock categories during baseline period, all farmers

#SL	Value chains	Livestock category	Number of surveyed farmers	Unit	Quantity sold per farm per year (unit)	Average price per unit Tk/Unit	Total quantity sold during baseline year(unit)	Total sold value during baseline period	
								Tk	USD 1 =Tk86.45
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Dairy cattle (PDO indicator 2.a)	Cow	629	Milk (litres)	3,064	51.42	1,927,256	99,099,504	1,146,322
		Buffalo	26		692	74.69	17,992	1,343,822	15,545
2	Beef fattening (PDO indicator 2.b)	Beef fattening	416	live weight (Kg)	508.54	305.16	211,553	64,557,404	746,760
3	Small ruminant (PDO indicator 2.c)	Goat	367	live weight (Kg)	42.33	341.89	15,535	5,311,299	61,438
		Sheep	45		47.13	305.74	2,121	648,429	7,501
4	Sonali chicken (PDO indicator 2.d)	Sonali chicken	399	Carcass weight (Kg)	5,042	277.23	2,011,758	557,719,670	6,451,355
5	Scavenger poultry	Chicken	332	Carcass weight (Kg)	9.34	552.93	3,101	1,714,570	19,833
		Duck	86		20.44	618.07	1,758	1,086,468	12,568
6	Commercial poultry	Broiler	252	Carcass weight (Kg)	12,837	185.82	3,234,924	601,113,578	6,953,310
		Culled hen	171		1,319	261.63	225,549	58,010,385	682,596
Total Value								1,391,605,128	16,097,225

Source: FAO-LDDP baseline survey, 2021

Note: Total quantity sold during the baseline year= quantity sold per farm per year * number of surveyed farmers during baseline. Total sold value during the baseline year = total quantity sold during the baseline year * average price per unit during the baseline year.

Table 18 presents the total value of sales across the different categories of livestock and poultry as well as value chains for all surveyed farmers. As can be seen from the table above, the total sale value of livestock aggregated overall value chains during the baseline period was Tk 1,391,605,126 (USD 16,097,225). While considering only four value chains namely dairy, poultry, small ruminant, and sonali chicken, the total selling value of livestock aggregated overall value chains was Tk 728,680,128 (USD 8,428,921).

3.5.1 Total value of sales across different livestock categories during baseline period, female farmers (PDO Indicator 3.a)

The PDO indicator 3.a will assess the increase in the market access by all female direct beneficiaries under LDDP by the incremental sales aggregated over all targeted value chains in real value in the project areas.Table 19 presents the total value of sales across different value chains for female surveyed farmers during baseline. As can be seen from the table below, the total sale value of livestock aggregated overall value chains for female farmers during the baseline period was Tk 250,078,331 (USD 2,892,751). While considering only four value chains namely dairy, beef fattening, small ruminant, and sonali chicken, the total selling value of livestock aggregated overall value chains for female farmers was Tk 201,442,550 (USD 2,330,163).

Table 19: Total value of sells across different livestock categories during baseline period, female farmers

#SL	Value chains	Livestock category	Number of surveyed female farmers	Unit	Quantity sold per farm per year (unit)	Average price per unit Tk/Unit	Total quantity sold during baseline year(unit)	Total sold value during baseline period	
								Tk	USD 1 =Tk86.45
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Dairy cattle (PDO indicator 2.a)	Cow	257	Milk (litres)	2,296	51.1	590,072	30,152,679	348,787
		Buffalo	13		618	70	8,034	562,380	6,505
2	Beef fattening (PDO indicator 2.b	Beef fattening	130	live weight (Kg)	452.78	293.14	58,861	17,254,631	199,591
3	Small ruminant (PDO indicator 2.c)	Goat	367	live weight (Kg)	42.33	341.89	15,535	5,311,299	61,438
		Sheep	45		47.13	305.74	2,121	648,429	7,501
4	Sonali chicken (PDO indicator 2.d)	Sonali chicken	132	Carcass weight (Kg)	4,029	277.37	531,828	147,513,132	1,706,340
5	Scavenger poultry	Chicken	332	Carcass weight (Kg)	9.34	552.93	3,101	1,714,570	19,833
		Duck	86		20.44	618.07	1,758	1,086,468	12,568
6	Commercial poultry	Broiler	23	Carcass weight (Kg)	9,749	182.3	224,227	40,876,582	472,835
		Culled hen	17		1,157	252.08	19,669	4,958,162	57,353
Total Value								250,071,787	2,892,751

Source: FAO-LDDP Baseline survey, 2021

Note: Total quantity sold during the baseline year= quantity sold per farm per year * number of surveyed farmers during baseline. Total sold value during the baseline year = total quantity sold during the baseline year * average price per unit during the baseline year.

3.6 Increasing the resilience to selected risks by livestock farmers (PDO indicator 4

Many risks could affect livestock production adversely. Based on the severity and frequency of occurrence, several risks have been selected for which the increase in the resilience could be measured. For instance, some diseases like FMD, LSD and Mastitis are most common in dairy farming that causes huge production as well as economic loss every year (Ahmed et al., 2012; Hasib et. Al., 2021; Sarker et al., 2011). Hence, these diseases have been selected as the risk in the dairy value chain. It is assumed that the control and prevention of these diseases by using regular vaccination and treatment could increase the resilience against these selected risks. Besides, shocks due to climate change could also adversely affect livestock farming. Different climatic shocks such as flood/waterlogging, tornado/cyclone, extreme temperature, and so forth affect livestock farming every year. The use of climate-resilient housing in livestock farming could increase resilience against climatic effects (Biswas et al., 2019). Besides, the outbreak of PPR is a common cause of a huge proportion of morbidity and mortality of goat in Bangladesh (Nabi et al., 2018). Several diseases such as Newcastle, avian influenza

fowl cholera, and gumboro are considered as high risk in the poultry value chain due to the severity and frequency of these diseases (Biswas et al, 2008; Belgrad et al., 2018; Rabbi et al., 2014). Feeding is the crucial input for livestock production. Due to various reasons such as climatic shocks, limited grazing land, and high price of feed ingredients, uncertainty of adequate feed becomes another challenge and risk in livestock production specially in dairy, beef fattening, and small ruminant value chains (Ahmed et al., 2012).

Table 20: Measures taken to increase the resilience to selected risks, all farmers

Value chain	Total number of farmers surveyed	#SL	Name of selected risk	Based on specific value chain			Aggregate of all value chains		
				Number of farmers use measures for this risk	Number of farmers do not use any measure for this risk	Average number of measures used per farmer	Total number of surveyed farmers did not use any measure	% of total 2723 surveyed farmers who did not use any measure	Average number of measures used per farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dairy	655	1	FMD	249	294	0.84	1,270	47	1.0
		2	LSD	9					
		3	Mastitis	11					
		4	Lack of climate resilient housing	70					
		5	Inadequate improved fodder / grass	214					
Beef fattening	416	1	FMD	143	248	0.53			
		2	LSD	39					
		3	Lack of climate resilient housing	15					
		4	Inadequate improved fodder / grass	23					
Small ruminant	412	1	PPR	129	268	0.37			
		2	FMD	7					
		3	Lack of climate resilient housing	5					
		4	Inadequate improved fodder / grass	11					
Scavenger poultry	418	1	Newcastle	23	386	0.12			
		2	Fowl Cholera	16					
		3	Avian influenza	0					
		4	Duck plague	8					
		5	Duck cholera	4					
		6	Lack of climate resilient housing	0					
Sonali chicken	399	1	Newcastle	351	35	2.15			
		2	Fowl Cholera	68					
		3	Avian influenza	44					
		4	Gumboro	326					
		5	Lack of climate resilient housing	67					
Commercial poultry	423	1	Newcastle	332	39	2.10			
		2	Fowl Cholera	126					
		3	Avian influenza	127					
		4	Gumboro	264					
		5	Lack of climate resilient housing	27					

Source: FAO-LDDP baseline survey, 2021

Table 20 presents the status of resilience against the selected risks during the baseline period. As can be seen from columns (8 and 9), about 47% of the total surveyed farmers (1,270 farmers out of 2,723 farmers) did not regularly use any measures against the selected risks. In addition, each farmer on average regularly uses 1 measure against the selected risks. While disaggregated over different value chains, it can be seen that a total of 294 dairy farmers out of 655 farmers (45% of total surveyed farmers) did not use any measures against the selected risks. Likewise, 60%, 65%, and 92% of total surveyed farmers of beef fattening, small ruminant, and scavenger poultry value chains respectively did not regularly use any measures against selected risks. However, only 9% of the total surveyed farmers both in sonali chicken and commercial poultry value chains did not use any measures against selected risks. Besides, dairy farmers, beef fattening farmers, small ruminant farmers, and scavenger poultry rearing farmers use on average 0.84, 0.53, 0.37, and 0.12 measures against selected risk respectively. On the other hand, sonali chicken and commercial poultry rearing farmers use on average 2.15 and 2.10 measures against selected risks respectively.

Table 21 presents the status of resilience for female farmers against the selected risks during the baseline period. As can be seen from columns (8 and 9), about 63% of total surveyed farmers (879 female farmers out of a total surveyed of 1,402 female farmers) did not regularly use any measures against the selected risks. In addition, each farmer on average regularly uses a 0.60 measure against selected risks. While disaggregated over different value chains, it can be seen that a total of 135 female dairy farmers out of 270 female farmers (50% of total surveyed female dairy farmers) did not use any measures against the selected risks. Likewise, 56%, 65%, and 92% of total surveyed female farmers of beef fattening, small ruminant, and scavenger poultry value chains did not regularly use any measures against selected risks. However, only 10% of total surveyed female farmers in sonali chicken and commercial poultry value chains did not use any measures against selected risks. Besides, female farmers in dairy, beef fattening, small ruminant, and scavenger poultry value chain use on average 0.71, 0.57, 0.37, and 0.12 measures against selected risk respectively. On the other hand, sonali chicken and commercial poultry rearing female farmers use on average 2.14 and 2.05 measures against selected risks respectively.

Overall, the majority of surveyed dairy, beef fattening, small ruminant, and scavenger poultry rearing farmers did not regularly use any measures against the selected risks. Besides, the average number of measures used by each farmer is also very low. Although the larger proportion of sonali chicken and commercial poultry rearing farmers use measures against selected risks, the average number of measures is still low. Nevertheless, the female farmers are using fewer measures compared to the male farmers. Hence, proper intervention is indeed necessary to increase the resilience of selected risks. The decrease in the proportion of non-users of different measures and increase in the average number of measures used will reflect the increase in the resilience to selected risks.

Table 21: Measures taken to increase the resilience to selected risks, female farmers

Value chain	Total number of farmers surveyed	#SL	Name of selected risk	Based on specific value chain			Aggregate of all value chains		
				Number of female farmers use measures for this risk	Number of female farmers do not use any measure for this risk	Average number of measures used per farmer	Total number of surveyed female farmers did not use any measure	% of total 1,402 surveyed farmers who did not use any measure	Average number of measures used per female farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Dairy	270	1	FMD	97	135	0.71	879	63	0.60
		2	LSD	4					
		3	Mastitis	5					
		4	Lack of climate resilient housing	18					
		5	Inadequate improved fodder / grass	69					
Beef fattening	130	1	FMD	48	73	0.57			
		2	LSD	12					
		3	Lack of climate resilient housing	3					
		4	Inadequate improved fodder / grass	10					
Small ruminant	412	1	PPR	129	268	0.37			
		2	FMD	7					
		3	Lack of climate resilient housing	5					
		4	Inadequate improved fodder / grass	11					
Scavenger poultry	418	1	Newcastle	23	386	0.12			
		2	Fowl Cholera	16					
		3	Avian influenza	0					
		4	Duck plague	8					
		5	Duck cholera	4					
		6	Lack of climate resilient housing	0					
Sonali chicken	132	1	Newcastle	117	13	2.14			
		2	Fowl Cholera	24					
		3	Avian influenza	17					
		4	Gumboro	108					
		5	Lack of climate resilient housing	17					
Commercial poultry	40	1	Newcastle	32	4	2.05			
		2	Fowl Cholera	13					
		3	Avian influenza	10					
		4	Gumboro	25					
		5	Lack of climate resilient housing	2					

Source: FAO-LDDP Baseline survey, 2021

3.7 Food safety measures used in livestock farming (PDO Indicator 5)

Food safety measures are crucial for quality and safe livestock production as well as for public health. A total of 18 food safety measures have been identified for the dairy value chain to understand the current food safety status of dairy farmers. Besides, a total of 12 food safety measures have been identified to understand the food safety status of the beef fattening, small ruminant, and poultry value chains in the baseline survey. The list of food safety measures for different value chains is presented in Table 22.



Table 22: List of selected food safety measures regularly used by the farmers

#SL	Food safety and certification particulars	Different livestock value chains			
		Dairy	Beef fattening	Small ruminant	Poultry
1	Do you wash your hand before entering the farm?	✓	✓	✓	✓
2	Do you use foot bath containing disinfectant at the entrance of the farm?	✓	✓	✓	✓
3	Do you control visitor/other animal, bird and pest access on the farm?	✓	✓	✓	✓
4	Do you monitor and maintain records for the above-mentioned activities?	✓	✓	✓	✓
5	Do you keep record of parent's information, treatment, vaccination and AI information for each farm animal?	✓	✓	✓	✓
6	Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your cattle/buffalo feed	✓	✓	✓	✓
7	Do you transport animal with animal comfort?	✓	✓	✓	✓
8	Do you test mastitis of milking cow regularly?	✓			
9	Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use?	✓	✓	✓	✓
10	Do you wash your hand, clean and disinfectant milking cows udder before milking?	✓			
11	Do you keep milk in cleaned covered pan on height to prevent urine and cow dung cross contamination into the milk?	✓			
12	Do you preserve milk below 50 C (cool temperature) after milking	✓			
13	Do you transport and sell milk by maintaining cool chain below 5 dgree C before milk marketing?	✓			
14	Do you perform regular health check-up of animals and farm workers (TB, Jaundice, Brucellosis etc.)?	✓	✓	✓	✓
15	Do you keep records of health check-up of animals and farm workers (TB, Brucellosis etc	✓	✓	✓	✓
16	Do you test quality (Fat%, SNF) and food safety (microbial count, antibiotics, and heavy metals) parameters of your farm's milk and milk products?	✓			
17	Do you maintain withdrawal period of antibiotic/hormone?	✓	✓	✓	✓
18	Do you test any milk safety parameters (e.g. microbiological, antibiotic, heavy metals) before sale?	✓			
19	Do you get any cattle health certificate before sale?		✓	✓	✓

Source: FAO-LDDP baseline survey, 2021

Table 23 presents the food safety status of all surveyed livestock and poultry farmers aggregated overall value chains. As can be seen that, about 59% of total surveyed farmers (column 8) did not adopt any food safety measures on their farms. Adoption refers to the regular use of any food safety measure. However, on average each farmer uses 0.87 measures for food safety on their farm. Besides, column (5) shows that more than 70% of total surveyed farmers of dairy, beef fattening, small ruminant, and scavenger poultry rearing farmers did not adopt (regular use) any kind of listed food safety measures. However, most of the Sonali poultry and commercial poultry rearing farmers adopted food safety measures. Only 28% and 18% of sonali chicken and commercial poultry rearing farmers, respectively, did not adopt any food safety measures. Nevertheless, the average number of food safety measures adopted by each farmer is very low.

Table 23: Adoption of food safety measure across all value chain, all farmers

#SL	Value chains	Total number of farmers surveyed	Farmers did not adopt any food safety measure		Average number of food safety measures adopted by each farmer	Aggregate of all value chains		
			Number	% of total surveyed farmers		Total number of sample farmers did not adopt any food safety measures	% of total 2,723 sample farmers who did adopt any food safety measures	Average number of food safety measures used by each farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Dairy	655	458	70	0.44	1,603	59	0.87
2	Beef fattening	416	316	76	0.40			
3	Small ruminant	412	291	70	0.20			
4	Sonali chicken	399	112	28	2.00			
5	Scavenger poultry	418	349	83	0.21			
6	Commercial poultry	423	77	18	2.26			

Source: FAO-LDDP baseline survey, 2021

Table 24 presents the food safety status of all female surveyed livestock and poultry farmers aggregated overall value chains. As can be seen that about 71% of total surveyed female farmers (column 8) did not adopt any food safety measures on their farm. However, on average each female farmers use 0.47 measures of food safety on their farm. Besides, column (5) shows that above 70% of total surveyed female farmers of dairy, beef fattening, small ruminant, and scavenger poultry rearing farmers did not adopt (regular use) any kind of listed food safety measures. In contrast, most of the sonali chicken and commercial poultry rearing female farmers adopted food safety measures. About 35% and 15% of sonali chicken and commercial poultry rearing farmers respectively did not adopt any food safety measures. Nevertheless, the average number of food safety measures adopted by each farmer is very low. Overall, many livestock farmers did not adopt (regularly use) any kind of food safety measures and the average number of measures used by each female farmer is very low. In addition, the adoption rate of food safety measures for female farmers is lower compared to male farmers. Hence, proper intervention is required to increase the adoption of food safety measures in livestock farming. The increase in the regular use of food safety measures could be tracked in two ways. First, the decrease in the proportion of non-adopters will inform the

progress and second, the increase in the used of the average number of food safety measures used by each farmer will inform the increased use of food safety measures.

Table 24: Adoption of food safety measure across all value chains, female farmers

#SL	Value chains	Total number of female farmers surveyed	Farmers did not adopt any food safety measure		Average number of food safety measures adopted by each female farmer	Aggregate of all value chains		
			Number	% of total surveyed female farmers		Total number of female farmers did not adopt any food safety measures	% of total 1,402 female farmers who did adopt any food safety measures	Average number of food safety measures used by each female farmer
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Dairy	270	206	76	0.14	998	71	0.47
2	Beef fattening	130	102	80	0.11			
3	Small ruminant	412	291	70	0.20			
4	Sonali chicken	132	44	35	1.77			
5	Scavenger poultry	418	349	83	0.21			
6	Commercial poultry	40	6	15	2.56			

Source: FAO-LDDP baseline survey, 2021

3.8 Farmers have received business development skills training (PDO Indicator 8)

The PDO indicator 8 of LDDP is to increase the number of farmers (including females) with business development training. Table 25 shows that farmers of all value chains did not receive any training on business development for their livestock.

Table 25: Number of farmers who received business development skill training

#SL	Value chains	Number of farmers surveyed		Number of farmers who received business development skills training		% of surveyed farmers who received business development skills training	
		Total farmers	Female farmers	Total farmers	Female farmers	Total farmers	Female farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Dairy	655	270	0	0	0	0
2	Beef fattening	416	130	0	0	0	0
3	Small ruminant	412	412	0	0	0	0
4	Sonali chicken	399	418	0	0	0	0
5	Scavenger poultry	418	132	0	0	0	0
6	Commercial Poultry	423	40	1	0	0	0
	Total	2,723	1,402	1	0	0	0

Source: FAO-LDDP baseline survey, 2021

3.9 Overall satisfaction regarding the LDDP services (IR indicator 22)

About 28.27% of total respondent (770 out of 2723) are found to be satisfied with LDDP services. The breakdown of 770 respondent farmers and the satisfaction level are presented in table 26.
Note that this 28.27% respondent farmers have received cash incentive from the CERC-EAP.

Table 26: Farmers overall level of satisfaction with LDDP services, all value chain

#SL	Overall satisfaction with LDDP services	Total farmers (IR indicator 22)		Female farmers (IR Indicator (22a)	
		Number of farmers	% of total 770 farmers who responded to satisfaction related question	Number of female farmers	% of total 228 female farmers who responded to satisfaction related question
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	338	44	111	45
2	Good	432	56	125	55
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

3.10 Number and proportion of farmers received food safety and nutrition related information (IR indicator 18)

Figure 7 presents the number and proportion of sample households that received both food safety and nutrition-related information. It can be seen from the figure (a) that only about 8% (205 farm HHs) of the total surveyed farm HHs received information related to both food safety and nutrition. On the other hand, only 5% of the total surveyed female farmers received information related to food safety and nutrition. Note that LDDP has presented some TV programs related to food safety and nutrition with the help of SAARC before the commencement of the baseline survey.

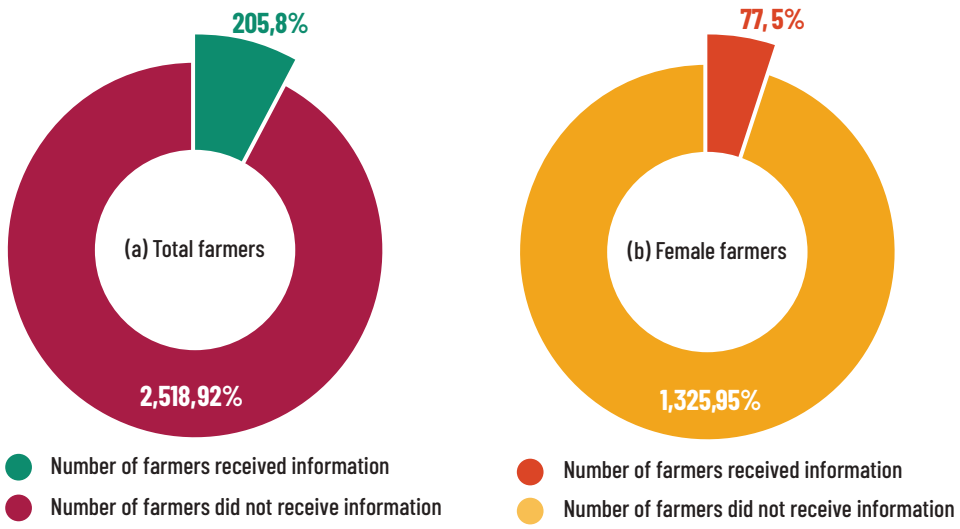


FIGURE 7
Number and Proportion of farmers received both food safety and nutrition related information

3.11 Number of farmers with access to animal health services (IR Indicator 21)

Access to health services does not merely refer to the supply or adequacy of services. Rather, access to health services depends on some other factors such as availability, affordability, physical accessibility, and acceptability of services (Gulliford et al., 2002). For instance, if any health service is available and physically accessible, but not affordable to the farmer due to high cost, then this farmer does not have access to this service.

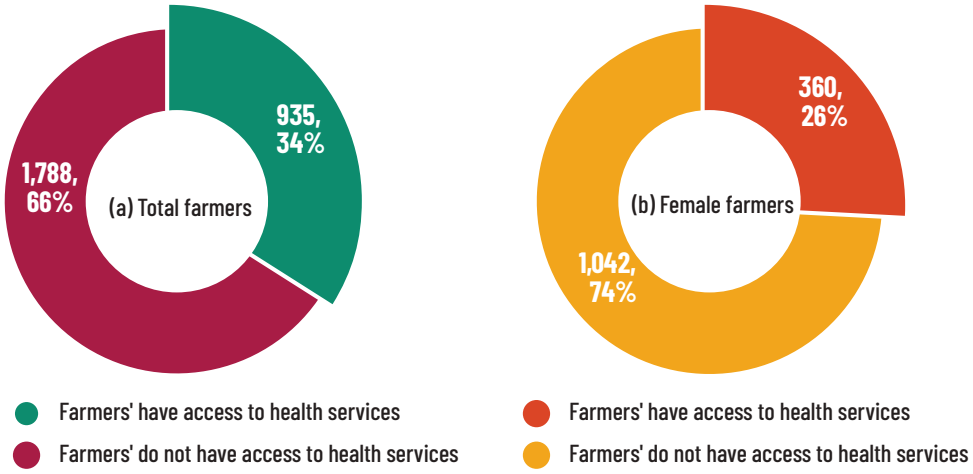


FIGURE 8
Number and Proportion of farmers received both food safety and nutrition related information

Five health facilities have been considered to measure the access to health services in the livestock sector for the baseline survey, such as access to veterinary and consultancy services, access to vaccination services, access to deworming services, access to mobile veterinary services, and access to online treatment services. Since most of the services selected above are an integral part of the animal health service, it is considered that a farmer has access to animal health services if this farmer has access to at least threeoft-he listed health services. Figure 8 shows that about 66% of total farmers (figure a) do not have access to animal health services. In addition, about 74% of all surveyed female farmers do not have access to animal health services.

Table 27: Access to health services across different value chains, all farmers

#SL	Value chains	Total number of farmers surveyed	Number of farmers do not have access to health service	% of surveyed farmers do not have access to health services	Aggregate of all value chains	
					Number of farmers who do not have access to health service	% of 2,723 sample farmers who do not access
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Dairy	655	299	46	1,788	66
2	Beef Fattening	416	194	47		
3	Small Ruminant	412	358	87		
4	Sonali chicken	399	251	63		
5	Scavenger poultry	418	369	88		
6	Commercial Poultry	423	317	75		

Source: FAO-LDDP baseline survey, 2021

Table 27 presents the number and proportion of farmers who do not have access to animal health services across different value chains. As can be seen, about 87%, 63%, 88% and 75% of small ruminant rearing farmers, sonali chicken rearing farmers, scavenger poultry rearing farmers, and commercial poultry rearing farmers do not have access to animal health services respectively. This means that farmers do not have access to at least three of the listed health services for their livestock.

Table 28: Access to health services across different value chains, female farmers

#SL	Value chains	Total number of female farmers surveyed	Number of female farmers who do not have access to health service	% of surveyed female farmers who do not have access to health services	Aggregate of all value chains	
					Number of female farmers who do not have access to health service	% of 1,402 female farmers who do have not access
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Dairy	270	137	51	1,042	74
2	Beef Fattening	130	66	51		
3	Small Ruminant	412	358	87		
4	Sonali chicken	132	79	60		
5	Scavenger poultry	418	369	88		
6	Commercial Poultry	40	33	83		

Source: FAO-LDDP baseline survey, 2021

Table 28 presents the number and proportion of female farmers who do not have access to animal health services across different value chains. As can be seen, about 87%, 60%, 88% and 83% of small ruminant rearing farmers, sonali chicken rearing farmers, scavenger poultry rearing farmers, and commercial poultry rearing farmers do not have access to animal health services, respectively. Overall, female farmers have less access to animal health services compared to males. Hence, proper interventions are indeed necessary to increase the access to animal health services for the farmers.

Chapter 4. Baseline Finding of Dairy Value Chain



There were 100,000 dairy farmers under different producer groups as the direct beneficiary of the LDDP. A total of 655 sample farmers from the direct beneficiary dairy farmers across 8 districts have been surveyed during the baseline survey. The criteria for dairy farmer selection of dairy producer groups were to have at least 2 milking cattle and 5 liters milk of per day per farm.

4.1 Dairy farm characteristics

The average number of Cattle/Buffalo per farm is presented in Table 29. As can be seen, on average, the same number (6 per farm) of cattle and buffalo are present on each dairy farm. However, there are 2 lactating cows and 3 lactating buffalos on average present in each dairy farm among the collected sample farms.

Table 29: Average number of cattle per dairy farm

#SL	Type of cattle	Type of dairy farm	
		Cattle	Buffalo
(1)	(2)	(3)	(4)
1	Lactating Cow/Buffalo	2	3
2	Bulls	1	0
3	Dry Cow/Buffalo	1	1
4	Bull calf	1	1
5	Heifer calves	1	1
6	Heifer	1	1
	Total per farm	**6**	**6**

Source: FAO-LDDP Baseline survey, 2021

The following table presents the distribution of farmers based on different farm sizes in dairy value chain. The dairy cattle farm size is classified as small (1-3 cattle), medium (4-5 cattle), and large (above 5 cattle)[7]. As can be seen, that about 22% of total dairy farmers surveyed who were the group members of the LDDP project fall in the category of small farms. Besides, about 38% of total surveyed farmers fall into the category of medium farms and about 40% of total surveyed farmers fall into the category of large farmers.

[7] Datta, A. K., Haider, M. Z., & Ghosh, S. K. (2018). Economic analysis of dairy farming in Bangladesh. Tropical Animal Health and Production. doi:10.1007/s11250-018-1659-7

Jabbar M.A., Islam S.M.F., Delgado C., Ehui S., Akanada M A.I., Khan M.I. and Kamruzzaman M. (2005). Policy and scale factors influencing efficiency in dairy and poultry production in Bangladesh. ILRI (International Livestock Research Institute), Nairobi, Kenya, SLP (Systemwide Livestock Programme), Addis Ababa, Ethiopia, and BSMRAU (Bangabandhu Sheikh Mujibur Rahman Agricultural University), Salana, Gazipur, Bangladesh. 76 pp



Table 30: Distribution of farmers based on different farm size

#SL	District	Number of dairy farms		
		Small farm (1 – 3 cattle)	Medium farm (4 – 5 cattle)	Large farms (above 5 cattle)
(1)	(2)	(3)	(4)	(5)
1	Barguna	14	19	49
2	Cox's Bazar	21	29	31
3	Dhaka	22	28	32
4	Netrokona	19	46	17
5	Nilphamari	10	29	43
6	Satkhira	24	42	16
7	Sirajganj	22	30	30
8	Sylhet	12	26	44
	Total	**144**	**249**	**262**
	% of total (655 farms)	**22**	**38**	**40**

Source: FAO-LDDP baseline survey, 2021

4.2 Milk production per cattle per day in dairy farming

The average productivity per cattle/buffalo per day is presented in Table 31. Although the milk production could be varied based on different characteristics such as lactation period, age of the cattle, breed type, and cattle feeding, the average milk calculation per cattle is calculated without considering variations due to these characteristics. However, the average milk production per day per cattle presented in the table below will reflect the overall productivity scenario on the dairy farms in Bangladesh. To estimate the average milk production per cattle per day, milk production data for each lactating cattle was collected for three periods, such as the early stage of

the lactation period, mid stage of the lactation period and at the end of the lactation period. Then the average milk per day per cattle is calculated for each cattle taking the average of these three periods.



As can be seen at the bottom of columns (3) and (4), the average milk production per day per cow and buffalo is about 5.81 and 2.19 litres respectively. However, considering both cow and buffalo milk production together, the average productivity of dairy farming is about 5.66 litres per cattle per day. While disaggregated across different districts, the productivity of cows is the highest (7.95 litres) in Sirajganj districts following 7.07 litres in Dhaka, 7.04 litres in Satkhira, 6.97 litres in Coxs Bazar, 6.29 litres in Nilphamari, 5.74 litres in Barguna and 3.71 litres in Sylhet districts. The lowest milk production per day per cow is found in the case of Netrokona District which is about 1.83 litres per cow per day. It should be noted that most of the farmers of the Netrokona district rear indigenous cows for milk purposes. As can be seen from column (4), the average milk production per buffalo per day is about 2.91 litres in Cox's Bazar district while it is only 1.65 litres in the Barguna district. It can be seen from column (7) that the average milk production per cattle per day is about 5.25 litres in the case of female farmers which is a little lower than that of the average of male farmers (5.95 litres). However in some districts (Barguna, Netrokona and Sirajganj) milk productivity per cattle is slightly higher for female farmers than the male farmers. The most likely reason mightly be that sample female farmers are rearing cross breed cows than the male farmers. Furthermore, female farmers adoption of other technologies seems to be low.

Table 31: Dairy cattle productivity per cattle per day

#SL	District	Average milk production per cattle per day				
		Dairy cow (629)	Dairy Buffalo (26)	Both cow and buffalo together		
				Average	Male (385) farmers	Female (270) farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Barguna	5.74	1.65	5.00	4.97	5.02
2	Cox's Bazar	6.97	2.91	6.42	6.65	6.08
3	Dhaka	7.07		7.07	7.28	6.76
4	Netrokona	1.83		1.83	1.76	1.91
5	Nilphamari	6.29		6.29	6.59	5.79
6	Satkhira	7.04		7.04	7.39	6.43
7	Sirajganj	7.95		7.95	7.92	8.00
8	Sylhet	3.71		3.71	4.48	2.73
	Total	**5.81**	**2.19**	**5.66**	**5.95**	**5.25**

NB: Productivity per cattle = Average milk production per day per cattle during lactation period. There were one Hariana breed cow and one Murrah breed buffalo in the surveyed sample giving 12 litres and 11 litres of milk per day. However, the calculation of average milk excluded these two samples since these two breeds are not common in Bangladesh.

Source: FAO-LDDP baseline survey, 2021

Table 32 presents the milk productivity per year per standing cattle at the herd level. Following the productivity calculation criteria of the PDO indicator provided by the PMU-LDDP, productivity is computed as the total quantity of milk production (litres) at the herd level during the last year divided by the total number of standing animals including males and females, not in production. This productivity reflects the productivity share of animals that are in production at the herd level. As can be seen at the bottom of columns (3) and (4), the average productivity for the dairy cow at the herd level is about 618.68 litres and 153.67 litres for the dairy cow and dairy buffalo respectively. However, considering dairy cow and buffalo milk production together, the average productivity per standing cattle of dairy farming at the head level is about 600.22 litres per cattle per year at the herd level. While disaggregated across different districts, the productivity of cows is the highest (869.30 litres) in Sirajganj districts following 832.84 litres in Satkhira, 739.83 litres in Dhaka, 730.34 litres in Cox's Bazar, 600.77 litres in Barguna, 628.20 litres in Nilphamari, and 403.19 litres in Sylhet districts. The lowest milk production per day per standing cattle at the herd level is found in the case of Netrokona District which is 158.02 litres only. As can be seen from column (4), the average milk productivity per standing buffalo at the herd level per year is about 222.78 litres in Cox's Bazar district while it is only 103.00 litres in Barguna district. The average milk productivity per standing cattle at the herd level for female farmers is about 537.73 litres which is lower than that of the average of male farmers (644.04 litres).

Table 32: Milk productivity per year at the herd level

#SL	District	Average productivity per farm per standing cattle per year (Littre)				
		Dairy cow (629)	Dairy Buffalo (26)	Both cow and buffalo together		
				Average	Male (385) farmers	Female (270) farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Barguna	600.77	103.00	509.71	503.08	517.39
2	Cox's Bazar	730.34	222.78	661.41	686.08	625.54
3	Dhaka	739.83		739.83	717.70	772.69
4	Netrokona	158.02		158.02	149.99	168.28
5	Nilphamari	628.20		628.20	692.15	522.99
6	Satkhira	832.84		832.84	875.74	758.48
7	Sirajganj	869.30		869.30	960.35	734.10
8	Sylhet	403.19		403.19	498.41	281.53
	Total	**618.68**	**153.67**	**600.22**	**644.04**	**537.73**

NB: Productivity = (Total Milk production last year on the farm / Standing cattle)

Source: FAO-LDDP baseline survey, 2021



The average quantity of milk production (litres) per farm per year is presented in Table 33. As can be seen at the bottom of columns (3) and (4), the average milk production per farm for the dairy cow and dairy buffalo is about 3,777 litres and 1,072 litres per year. However, considering both cow and buffalo milk production together, the average yearly production of dairy farming is about 3,670 litres per farm. While disaggregated across different districts, the quantity of milk production of dairy cow rearing farms is the highest (6,302 litres) in Sirajganj districts following 4,435 litres per farm in Dhaka, 4,325 litres in Cox's bazar, 3,929 litres in Nilphamari, 3,723 litres in Satkhira, 3,680 litres in Barguna, and 3,198 litres in Sylhet districts. The lowest milk production per day per cow is found in the case of Netrokona District which is about 689 litres per farm per year. As can be seen from column (4), the average quantity of milk production per buffalo rearing farm per year is about 1,327 litres in Cox's Bazar district while it is only 885 litres in Barguna district. In terms of female farmers, it can be seen that the average milk production per farm per year is about 2,871 litres which is much lower compared to the average milk production of male farmers (4,230 litres). This might be due to the small-scale operation of dairy farms by female farmers.

Table 33: Average quantity of milk production per farm per year

#SL	District	Average production per farm per year (Littre)				
		Dairy cow (629)	Dairy Buffalo (26)	Both cow and buffalo together		
				Average	Male (385) farmers	Female (270) farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Barguna	3,680	885	3,169	3,283	3,036
2	Cox's Bazar	4,325	1,327	3,918	4,638	2,870
3	Dhaka	4,435		4,435	5,049	3,524
4	Netrokona	689		689	658	729
5	Nilphamari	3,929		3,929	4,611	2,807
6	Satkhira	3,723		3,723	3,822	3,552
7	Sirajganj	6,302		6,302	7,084	5,142
8	Sylhet	3,198		3,198	4,410	1,650
	Total	3,777	1,072	3,670	4,230	2,871

NB: Average milk production = total milk production during last year / number of farms
Source: FAO-LDDP baseline survey, 2021

In terms of breed wise milk production per day per cow, it can be seen from Table 34 that in terms of crossbreed cows, milk production per day per cow is the highest for Holstein-Friesian cross (9.24 litres) followed by Jersey cross (8.29 litres), Sahiwal cross (5.79 litres), and Sindhi cross (4.95 litres)[8] . Among other breeds, Pabna breeds produce on average 5.27 litres of milk per day and the red Chittagong breed produces 2.93 litres of milk per day. However, the average milk production of local breed cows is about 1.93 litres per day per cow. In the case of buffalo, the local breed gives on average 2.14 litres of milk per day.

[8]The findings related to breed wise milk production per day per cow during the lactation period seem consistent with some local studies conducted in different regions of Bangladesh (Paul et al., 2013; Amin and Afroz, 2021; Mamun et al., 2015; Das et al., 2021).

Table 34: Breed wise average milk production in dairy farming

#SL	Breed	Cattle	Buffalo
(1)	(2)	(3)	(4)
1	Buffalo Local		2.14
2	Local breed/Deshi	1.93	
3	Holstein-Friesian cross	9.24	
4	Jersey cross	8.29	
5	Sindhi cross	4.95	
6	Sahiwal cross	5.79	
7	Red Chittagong	2.93	
8	Pabna breed	5.27	

Source: FAO-LDDP baseline survey, 2021

Table 35 presents the average price of milk per litre disaggregated at the district level. As can be seen at the bottom of columns (3) and (4), the average price of cow milk and buffalo milk per litre is about Tk 51.42 and Tk 74.69 respectively. However, considering cow milk and buffalo milk together, the average price of milk is about Tk 52.10 per litre. Nevertheless, it can be seen from the bottom of columns (6-7) that the average price (Tk 51.70) for female farmers is slightly lower than that of the average price for male farmers (Tk 52.36). This might be due to the less access to the market for female farmers compared to male farmers. While disaggregated across different districts, the average price of cow milk is the highest (about Tk 62/litre) in Cox's Bazar and Dhaka districts. On the contrary, milk price is the lowest, Tk 34.06 per litre in Satkhira district. In Nilphamari district and Sirajganj District, milk price per litre is about Tk 44.83/litre and Tk 45.17/litre respectively. Among other districts, milk price is about Tk 60.49, Tk 55.71, and Tk 53.19 in Sylhet, Netrokona, and Barguna districts respectively. As can be seen from column (4), average price of buffalo milk per litre varies between Tk 70 to Tk 77 per litre. Overall, the buffalo milk price is higher compared to cow milk. Besides, cow milk price is the lowest in Satkhira district. Farmers' better access to the market could be reflected at a better price with proper interventions.

Table 35: Average price of milk per litre

#SL	District	Average price of milk per litre (Tk)				
		Dairy cow (629)	Dairy Buffalo (26)	Total farmers	Male (385) farmers	Female (270) farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Barguna	53.19	70.00	54.52	55.57	53.21
2	Cox's Bazar	62.50	76.82	64.44	64.90	63.79
3	Dhaka	62.26		62.26	62.55	61.82
4	Netrokona	55.71		55.71	58.89	50.00
5	Nilphamari	44.83		44.83	45.02	44.52
6	Satkhira	34.06		34.06	34.21	33.79
7	Sirajganj	45.17		45.17	45.88	44.12
8	Sylhet	60.49		60.49	61.72	58.94
	Average/Litre	51.42	74.69	52.10	52.36	51.70

Source: FAO-LDDP baseline survey, 2021



The average quantity of milk sold per farm per year is presented in Table 36 disaggregated across different districts.

Table 36: Average quantity of milk sold per farm per year

#SL	District	Average quantity of milk (litre) sold per farm per year				
		Dairy cow (629)	Dairy Buffalo (26)	Both cow and buffalo together		
				Average	Male (385) farmers	Female (270) farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Barguna	2,967	339	2,486	2,394	2,593
2	Cox's Bazar	3,647	1,173	3,311	3,942	2,392
3	Dhaka	4,009		4,009	4,605	3,124
4	Netrokona	131		131	155	100
5	Nilphamari	2,999		2,999	3,655	1,921
6	Satkhira	3,180		3,180	3,176	3,185
7	Sirajganj	5,199		5,199	6,301	3,563
8	Sylhet	2,446		2,446	3,465	1,143
	Litter/year	3,064	692	2,970	3,499	2,296

Source: FAO-LDDP baseline survey, 2021

As can be seen from the bottom of columns (3) and (4), average milk sold per farm for dairy cow and dairy buffalo is about 3,064 litres and 692 litres per year. However, considering both cow and buffalo milk production together, the average yearly sold quantity of dairy milk is about 2,970 (column 5) litres per farm. While disaggregated across different districts, quantity of milk sold last year for dairy cow farms is the highest, 5,199 litres in Sirajganj district following 4,009 litres in Dhaka, 3,647 litres in Cox's Bazar, 3,180 litres in Satkhira, 2,999 litres in Nilphamari, 2,967 litres in Barguna, and 2,446 litres in Sylhet districts. However, the lowest amount of milk sold per farm per year is found in the case of Netrokona District which is about 131 litres. As can be seen from column (4), the average quantity of milk sold per buffalo farm per year is about 1,173 litres in Cox's Bazar district while it is only 339 litres in Barguna district. Nevertheless, it can be seen from the bottom of columns (6-7) that the average quantity of milk sold per year by the female farmers is about 2,296 litres which is lower than that of the average for male farmers (3,499 litres).

4.3 Dairy farmer's breed preference (Cow) for artificial insemination

Out of a total 655 surveyed dairy farmers, 629 farmers were cow rearing farmers, and the remaining 26 farmers were buffalo rearing farmers. Figure 9 shows the dairy cow rearing farmer's highest preference of breed for artificial insemination. It can be seen from the figure that the Holstein-Friesian cross is the most preferred breed among the farmers who reported their preference. About 71% of the respondent farmers prefer the Holstein-Friesian crossbreed for artificial insemination of the dairy cow.

Among other crossbreeds, 7% of respondent farmers prefer the Sahiwal cross, 5% of the respondents prefer the Sindhi cross, and 3% of farmers prefer the Jersey crossbreed for artificial insemination. Only 3 respondents prefer the Pabna breed for artificial insemination of their cow. However, about 14% of total respondents prefer the local breed for the insemination of their cow. Likewise, in terms of female farmers, it can be seen that the Holstein-Friesian cross is the most preferred breed for artificial insemination. For instance, about 68% of female farmers preferred the Holstein-Friesian cross for artificial insemination of their cow. About 18% of female farmers prefer local breeds for insemination.

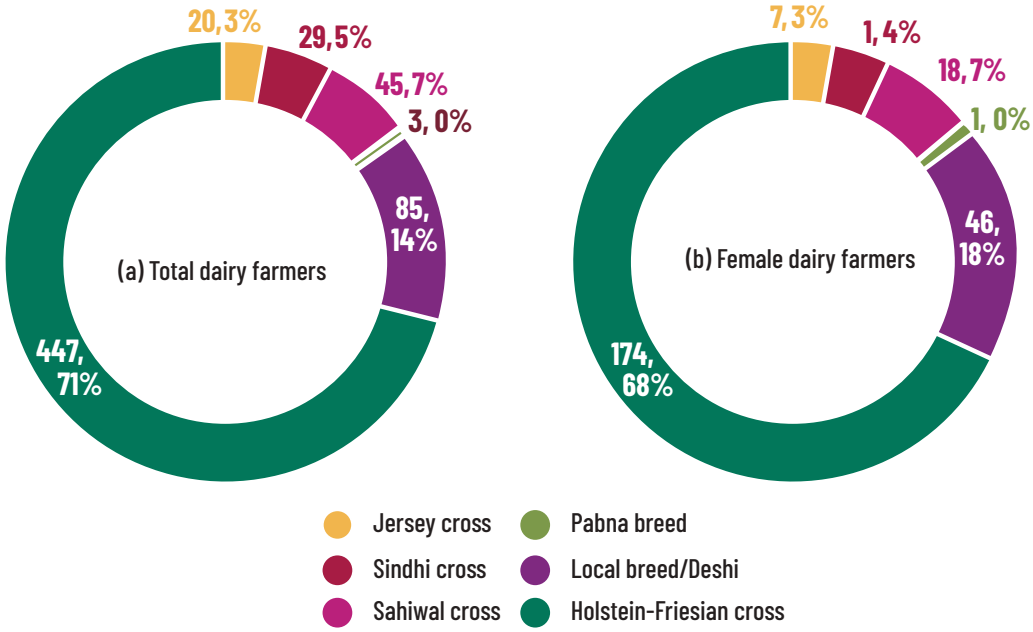


FIGURE 9
Proportion of dairy farmer's breed preference (Cow) for artificial insemination



4.4 Dairy food processing by dairy farmers

Figure 10 shows the number and proportion of total dairy farmers who are engaged in dairy product processing on the farm. It can be seen that only about 2% (16 farmers) of farmers are engaged in dairy product processing out of a total of 655 dairy farmers. A similar proportion can be seen to participate in dairy food processing in the case of female dairy farmers.

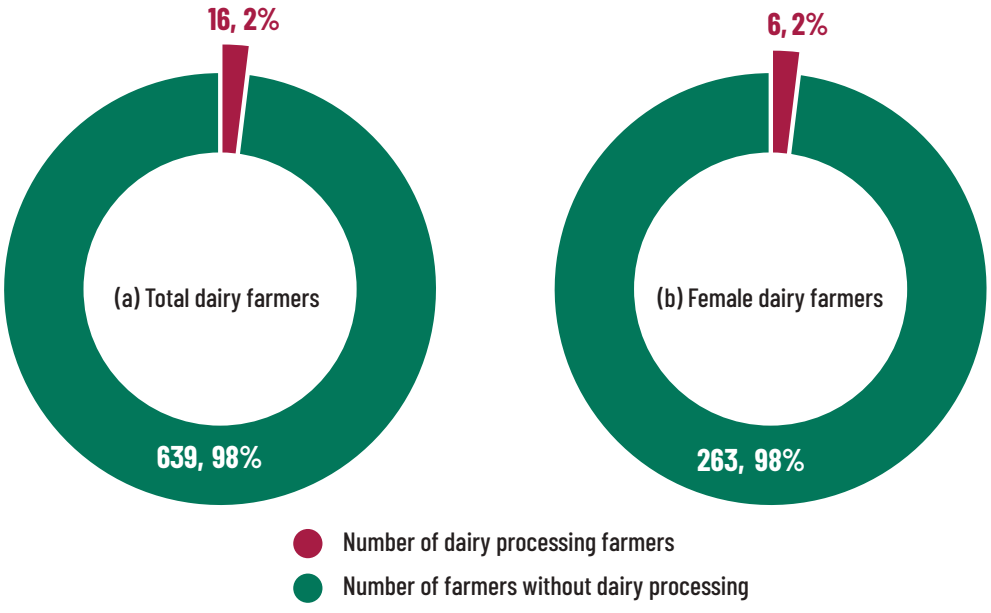


FIGURE 10
Proportion of farmers engaged in milk processing

Table 37 presents the quantity of dairy products produced, sold and the average price of different dairy products. There are four dairy items namely Cream, Ghee, Yogurt, and Sweetmeats are produced by the dairy farmers. Table 37 shows that on average about 800 Kg of cream, 142 Kg of Ghee, 9,865 Kg of yogurt, and 1,200 Kg of sweetmeat was produced by the dairy farmers during the last year. The quantity of dairy products sold is almost the same as the production. This indicates that most of the dairy product processor farmers produced their product for commercial purposes. The average price of cream, ghee, yoghurt, and sweetmeat was Tk 400, Tk 725, Tk 160, and Tk 260 respectively.

Table 37: Production of dairy processed products by dairy farmers

#SL	Dairy items	Quantity produced (Kg)	Quantity sold (Kg)	Price Tk/Kg
(1)	(2)	(3)	(4)	(5)
1	Cream	800	800	400
2	Ghee	142	140	725
3	Yoghurt	9,865	9,733	160
4	Sweetmeat	1,200	1,200	260

Source: FAO-LDDP baseline survey, 2021



4.5 Household access to market

4.5.1 To whom dairy farmers sell their milk

Figure 11 shows the proportion of dairy farmers who sell milk based on the categories of buyers to whom they usually sell their produced milk. Among the total surveyed 655 dairy farmers 100 farmers (46 female) did not sell milk during the survey period. The farmers who did not sell milk have started their dairy business recently and become the members of the producer group (PG) of the LDDP or they are rearing local breeds and operating the farm on a subsistence basis. As can be seen about 15% of total surveyed farmers who sell milk (17% of female farmers) mainly sell milk to the consumers. It is found that the small farmers and mainly the local breed rearing farmers usually sell milk to the consumers. Besides, about 60% of total surveyed dairy farmers who sell milk (60% of female) usually sell to the milk traders (Goala). Milk traders usually collect milk from the farmer's house. About 18% of total surveyed dairy farmers (17% of female) who sell milk usually sell to the sweet manufacturers while only about 6% of farmers usually sell milk to the processing companies such as Pran dairy, Milk vita, Arong dairy and so forth.



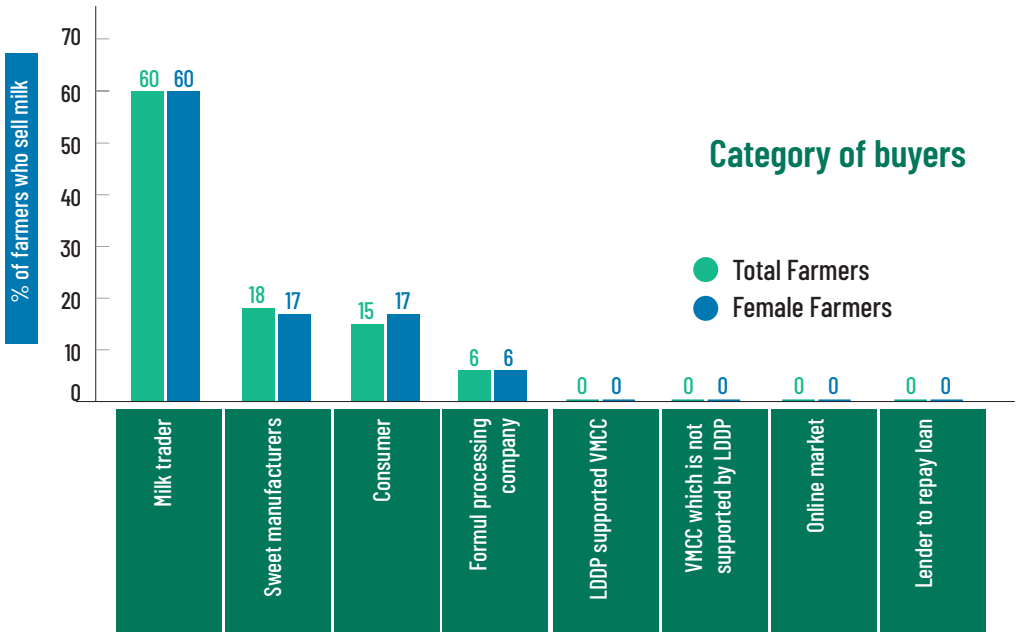


FIGURE 11
To whom dairy farmers sell their milk

4.5.2 Place of selling milk

The following table presents the proportion of total surveyed farmers based on the place of selling milk. Out of a total surveyed 655 dairy farmers 100 farmers (46 female farmers) did not sell milk during the baseline survey period. As can be seen, 40% of total surveyed dairy farmers (42% of female farmers) sell milk at the farmgate. This is because most of the traders (Goala) collect milk from the farm and sometimes milk traders (Goala) help farmers in milking. Besides, some consumers collect milk from the farmer's house. About 28% of total surveyed farmers (27% of female) sell milk at the local market. Besides, about 16% of total surveyed farmers sell milk at the buyer's place.

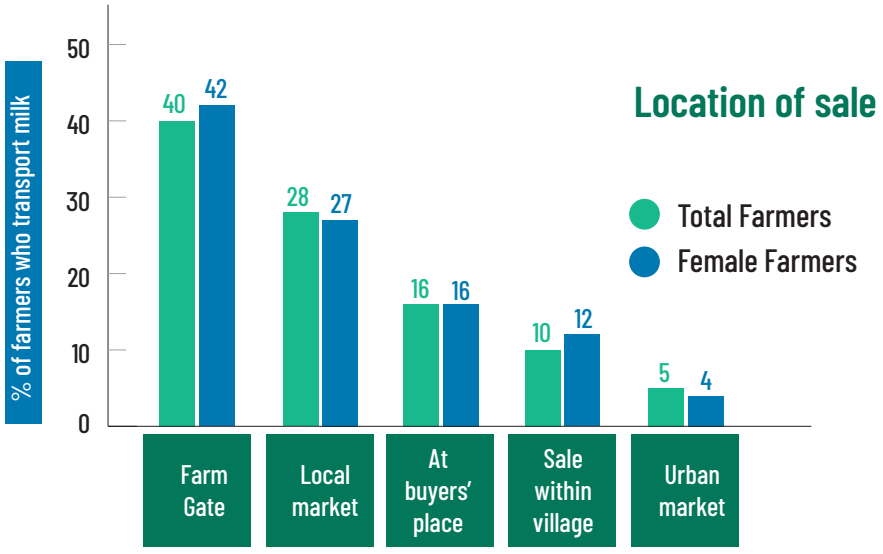


FIGURE 12
Proportion of farmers based on the place of selling milk

Mostly, the farmers need to transport milk to the buyer's place in this case. The farmers who sell milk at the the buyers place mainly sell milk to processing companies, restaurants, and to some consumers. About 10% of surveyed farmers (12% of female farmers) sell their produced milk within the village. It means that farmers sell milk to their neighbors within the same village. Only 5% of total surveyed dairy farmers (4% of female farmers) are found to sell milk at the urban market.

4.5.3 Mode of milk transportation

Among the total surveyed 655 dairy farmers, a total of 275 farmers, of which 105 female farmers, transported milk for sale during the last year.

Figure 13 presents the proportion of farmers who transported milk based on the mode of milk transport. The figure shows that about 33% of the farmers (29% of female farmers) who transport milk use bicycles/motorcycles for milk transport. Besides, about 24% of surveyed farmers (25% of female) who transport milk use a rickshaw/van or auto vehicle, while about 19% of farmers (22% of female) sell milk on foot.



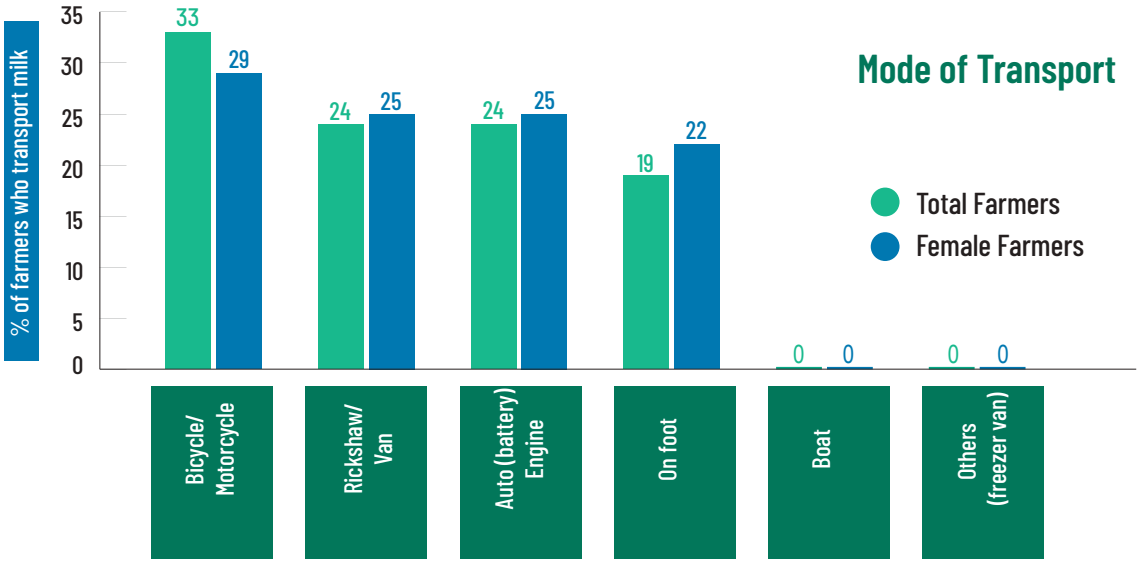


FIGURE 13

Proportion of farmers used different mode of transport for milk

4.5.4 Waiting periods before selling milk

This indicator tries to estimate the time farmer waits before transport milk for selling. The estimation shows that on average dairy farmers wait about one hour before transporting milk for selling.

4.5.5 Spoilage of milk during transportation for selling

As can be seen from Table 38 a total of 527 surveyed dairy farmers (215 female) reported that their produced milk did not spoil during transport in last year.

Table 38: Spoilage of milk during transportation for selling

#SL	District	Number of times milk spoiled during transportation				Number of farmers did not report milk spoil	
		Summer		Winter			
		Total	Female	Total	Female	Total	Female
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Barguna	7	5	0	0	76	34
2	Cox's Bazar	20	8	0	0	61	25
3	Dhaka	9	3	0	0	74	31
4	Netrokona	-	-	0	0	82	36
5	Nilphamari	58	26	2	0	22	5
6	Satkhira	5	2		0	77	28
7	Sirajganj	14	9		0	72	27
8	Sylhet	23	8	1	0	63	29
	Total	136	61	3	0	527	215

On the other hand, 128 farmers reported that their milk spoiled during the last year. Based on the seasons, it can be seen that milk was spoiled 136 times during the summer season while 3 times it was spoiled during winter season. Overall, the risk of milk spoilage is higher during the summer season compared to the winter season. However, the occurrence of spoilage during milk transportation was higher in Nilphamari district compared to other districts in the summer season.

4.5.6 Sources from where dairy farmers' purchase feed

Figure 14 shows the proportion of farmers who used purchased feed based on the sources of different purchased feed for dairy farming. About 83% of total surveyed dairy farmers (546 farmers of which 224 were female) use any kind of purchased feed for their dairy cattle. It can be seen from figure (a) that the majority of farmers (about 67%) purchased feed from the local retailers while about 28% of total surveyed dairy farmers purchased feed from the wholesalers. Besides, about 4% and 1% of total surveyed dairy farmers purchased dairy feed from the feed company and local feed mixtures respectively. Here, feed company denotes the feed company dealers who directly supply feed to the farmers. Local feed mixtures are some small entrepreneurs who commercially produce mixtures of feed with different ingredients and sell them to the farmers.

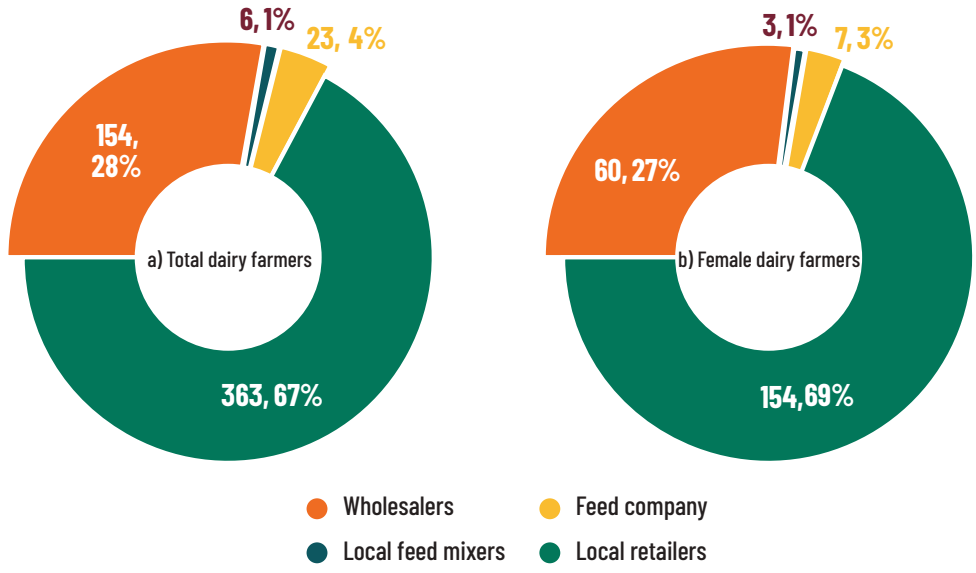


FIGURE 14
Number and Proportion of farmers based on the sources of purchased feed for dairy farming

It can also be seen from Figure 14 (b) that the majority (about 69%) of the surveyed female dairy farmers purchased feed from local retailers while about 27% of female farmers purchased feed from wholesalers. About 3% of female farmers purchase dairy cattle feed from the feed company dealers and 1% of female farmers purchase feed from the local feed mixtures.

4.6 Livestock disease management

The baseline survey was carried out in 8 districts of Bangladesh for the dairy value chain. To understand the disease frequency faced in the last year by the members of the Producer Groups (PGs) under the Livestock and Development Project (LDDP), the survey asked infectious, reproductive, metabolic, and other disease-related questions to the farmers.

4.6.1 Occurrence of infectious diseases in dairy farm

Figure 15 shows that FMD is the highest occurred infectious disease in dairy farming. About 33% of total dairy farms and 29% of the female operated farms reported to be affected by FMD last year[9]. The second highest occurred disease is Lumpy Skin Disease (LSD). As can be seen, about 29% of total dairy farms and 26% of female operated farms have been affected by LSD during the last year. The third highest occurred disease seems to be Mastitis. As can be seen about 18% of total dairy farms and 14% of female operated farms have been affected by mastitis during the last year. Among other diseases 4% of total surveyed dairy farms and female operated farms seem to be affected by Haemorrhagic Septicaemia (HS), 2% of total surveyed dairy farms have been affected by black quarters, and 1% of total dairy farms and female operated farms have been affected by anthrax during the last year.



[9]The findings are consistent with some other studies in Bangladesh (Talukder, et. Al 2018)

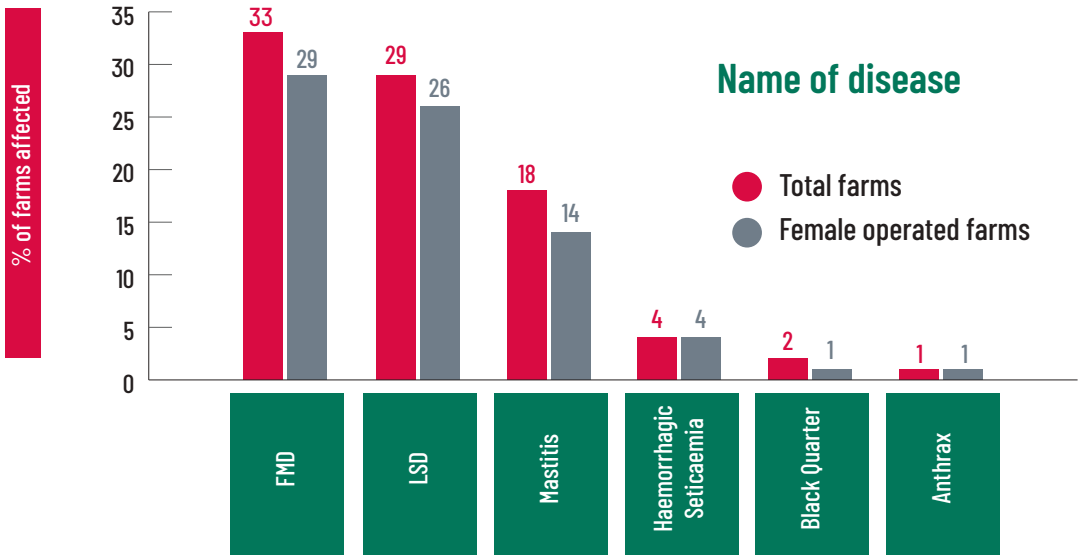


FIGURE 15

Proportion of dairy farms affected by infectious disease

Table 39 shows the geographical distribution of the occurrence of infectious diseases in dairy farming. On average, 82 sample dairy farmers have been surveyed from each district for the baseline survey. It is found that the highest occurrence of Foot and Mouth Disease (FMD) in Cox's Bazar district (42 farms) compared to Nilphamari (32 farms), Netrakona and Sirajganj (31 farms), Sylhet (30 farms), Barguna (18 farms), Satkhira (17 farms) and Dhaka (16 farms). The highest frequency of mastitis was found in Sirajganj district (35 farms) and the lowest in Netrakona (3 farms).

Table 39 Geographical distribution of occurrence of infectious diseases in dairy farms

#SL	Name of disease	Number of farms affected across district								Total dairy farms affected	% of total 655 farms	Total female operated farms affected	% of total 270 female operated farms
		Barguna	Cox's Bazar	Dhaka	Netrokona	Nilphamari	Satkhira	Sirajganj	Sylhet				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	FMD	18	42	16	31	32	17	31	30	217	33	78	29
2	Mastitis	11	21	10	3	15	10	35	13	118	18	38	14
3	LSD	12	34	10	41	55	9	11	18	190	29	70	26
4	Anthrax			3					1	4	1	3	1
5	Black Quarter		1	2	1	2		3	2	11	2	3	1
6	Bovine Tuberculosis										0	0	0
7	Haemorrhagic Septicaemia	1	4	1	1	7	3	3	3	23	4	11	4
8	Rabies		1				1	1		3	0	0	0

Source: FAO-LDDP baseline survey, 2021

4.6.2 Occurrence of reproductive disease in dairy farms

Figure 16 presents the proportion of total dairy farms affected by different reproductive diseases during last year. It can be seen that repeat breeding is the highest occurred reproductive disease in dairy farming. About 39% of total dairy farms and 34% of the female operated farms reported to face repeat breeding during last year. The second highest occurrence disease is anoestrous. As can be seen about 15 % of the total surveyed dairy farms and 14% of female operated farms had been affected by anoestrous during last year. Among other disease 7% of total dairy farms and 6% of female operated farms seems to be affected by retained placenta. Besides, 5% of total dairy farms and 4% of female operated farms have faced cow abortion while 4% of total dairy farms and 5% of female operated dairy farms have faced dystocia. The absolute figures of farms facing different reproductive disease are presented in Table 40.



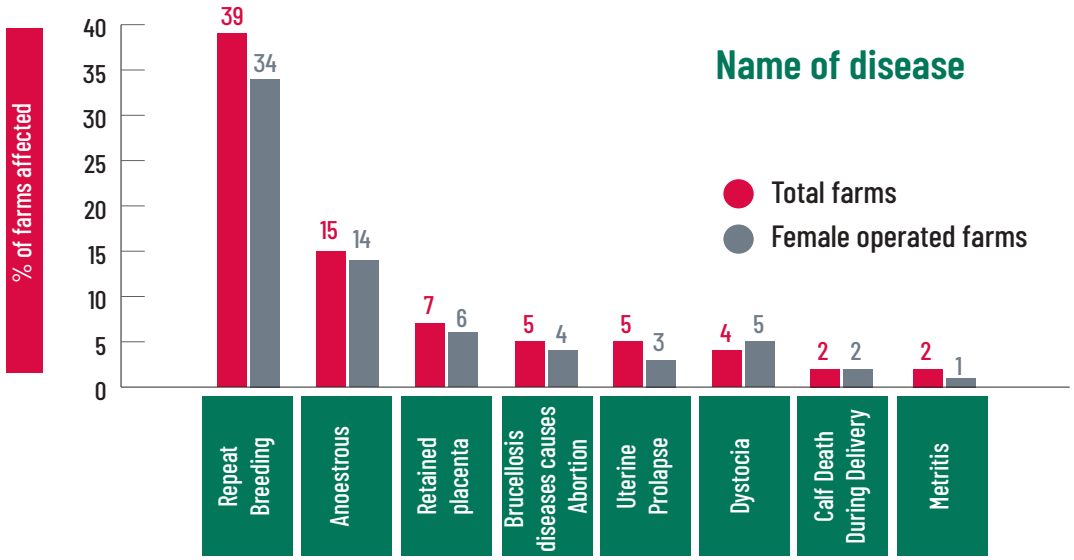


FIGURE 16

Proportion of dairy farms infected by reproductive disease

Table 40 shows that the repeat breeding problem was the highest (47 farms) in the Nilphamari district followed by Cox's Bazar (41 farms), Barguna and Dhaka (35 farms) and Satkhira 32 farms. The same number of farmers (22 farmers) reported the occurrence of repeat breeding in the Netrokona, Sirajganj, and Sylhet districts. The highest occurrence of Metritis was in Cox's bazar district (4 farms) while the highest occurrence of retained placenta was in Nilphamari district (10 farms). The highest number of farms (25-26 farms) in Barguna and Sirajganj districts faced anoestrous while farms in Netrokona did not face this problem. Abortion was highest in Dhaka and Sirajganj districts while the occurrence of dystocia and uterine prolapse was the highest in Nilphamari district. It can also be seen from the table that a total of 14 farms faced calf death during delivery of which 4 farms in Barguna and 4 farms in Cox's Bazar district.

Table 40: Geographical distribution of the occurrence of reproductive diseases in dairy farms

#SL	Name of disease	Number of farms affected across district								Total dairy farms affected	% of total 655 farms	Total female operated farms affected	% of total 270 female operated farms
		Barguna	Cox's Bazar	Dhaka	Netrokona	Nilphamari	Satkhira	Sirajganj	Sylhet				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	Repeat breeding	35	41	35	22	47	32	22	22	256	39	92	34
2	Metritis		4			2	2	3	2	13	2	3	1
3	Retained placenta	5	9	8	2	10	4	9	1	48	7	16	6
4	Anoestrous	26	10	6		18	7	25	5	97	15	38	14
5	Brucellosis diseases causes abortion		5	7	5	3	4	7	3	34	5	11	4
6	Dystocia	1	4	2	2	15	1		2	27	4	14	5
7	Uterine prolapse	2	4	5		10	9	2		32	5	8	3
8	Calf death during delivery		4	4	1	1	1	2	1	14	2	5	2

Source: FAO-LDDP baseline survey, 2021

4.6.3 Occurrence of metabolic and other disease in dairy farms

Figure 17 presents the proportion of total surveyed dairy farms and female operated farms infected by different metabolic and other diseases during the last year. It can be seen that about 37% of the total surveyed farms and 33% of female operated farms faced the bloat disease last year. The second-highest occurrence was the respiratory complications and 12% of total farms and 11% of female operated farms reported respiratory complications in their cattle. The absolute figures of farms that faced different metabolic diseases are presented in Table 41.

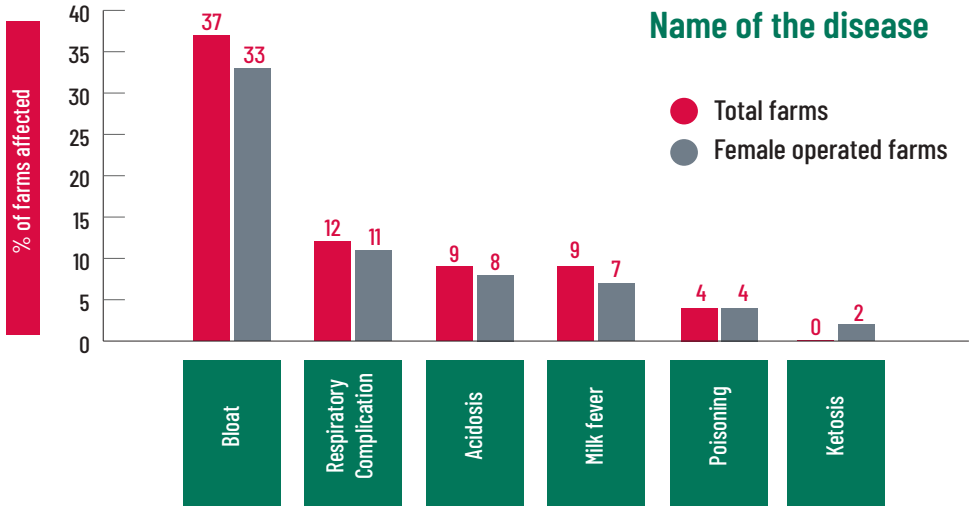


FIGURE 17

Proportion of dairy farms infected by metabolic and other disease

Table 41 shows that out of a total of 61 farms who reported to be affected by milk fever, the highest number of farms (21 farms) was in Cox's bazar district followed by Nilphamari (13 farms), Satkhira (10 farms) and Barguna (5 farmers). Only 2 farms were affected by ketosis of which one in Barguna district and another in Cox's Bazar district.

Table 41: Geographical distribution of the occurrence of metabolic and other diseases in dairy farms

#SL	Name of disease	Number of farms affected across district								Total dairy farms affected	% of total 655 farms	Total female operated farms affected	% of total 270 female operated farms
		Barguna	Cox's Bazar	Dhaka	Netrokona	Nilphamari	Satkhira	Sirajganj	Sylhet				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	Milk fever	5	21	7		13	10	2	3	61	9	19	7
2	Ketosis	1	1							2	0	5	2
3	Acidosis	7	21	2	1	8	1	15	6	61	9	22	8
4	Bloat	22	55	24	18	45	20	25	33	242	37	89	33
5	Poisoning	0	5		1	17	2		1	26	4	11	4
6	Respiratory complication	3	51	2	3	5	2	9	4	79	12	30	11

Source: FAO-LDDP baseline survey, 2021

A total of 61 farms were reported to be affected by acidosis of which the highest occurrence was reported by the farms in Cox's Bazar district (21 farms). Besides, most of the farms in every district seem to be affected by bloat. For instance, out of a total of 242 farms affected by bloat, the highest number of farms was in Cox's Bazar (55 farms), followed by 45 farms in Nilphhamari, and 33 farms in Sylhet. The highest occurrence of poisoning was reported in Nilphamari (17 farms) while the highest occurrence of respiratory complications was reported in Cox's Bazar district (51 farms).

4.6.4 Vaccination against infectious disease

Figure 18 presents the proportion of total surveyed dairy farmers who use regular vaccination for different infectious diseases. It can be seen that about 38% of total surveyed dairy farmers and 36% of female farmers use the regular vaccination for FMD on their farms. In terms of Anthrax, about 19% of total surveyed dairy farmers and 17% of female dairy farmers reported using regular vaccination while about 15% of total dairy farmers and 13% of female dairy farmers use regular vaccination for Black Quarter (BQ). About 7% of total farmers and 6% of female dairy farmers regularly use vaccination for Haemorrhagic Septicaemia (HS). A very low number of farmers (1% -2%) use vaccination for mastitis and LSD. The absolute figures of farmers who used regular vaccination for the different diseases are presented in Table 42.

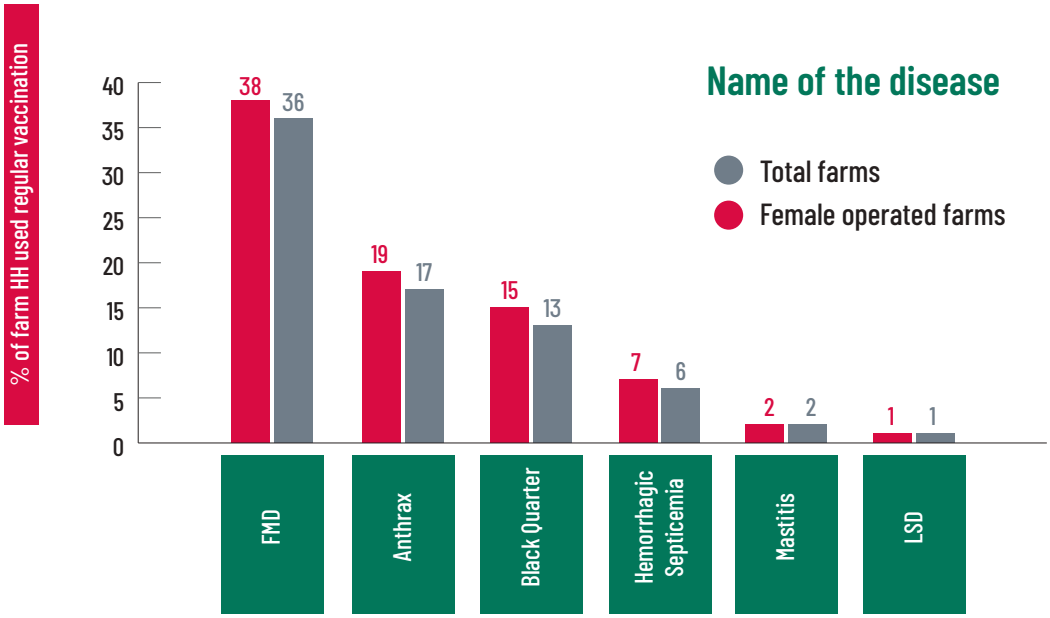


FIGURE 18
Proportion of farmers who use regular vaccination in dairy farming

Table 42 shows that out of a total of 249 farmers who used regular vaccination of livestock for FMD, 57 farmers were in Sirajganj district, 41 farmers in Nilphamari and Stkhira, 34 farmers in Cox's Bazar, 31 farmers in Dhaka, 20 in Barguna and Sylhet and 5 in Netrokona districts. 3 farmers in each of Cox's Bazar, Nilphamari and Sirajganj districts used vaccination for mastitis while farmers in Barguna, Netrokona, and Sylhet did not use that vaccine. It can be seen that the rate of vaccine use for all diseases was the highest in the Sirajganj district.

Table 42 Geographical distribution dairy farms use regular vaccination

#SL	Name of disease	Number of farms affected across district								Total dairy farms affected	% of total 655 farms	Total female operated farms affected	% of total 270 female operated farms
		Barguna	Cox's Bazar	Dhaka	Netrokona	Nilphamari	Satkhira	Sirajganj	Sylhet				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	FMD	20	34	31	5	41	41	57	20	249	38	97	36
2	Metritis		3	2		3		3		11	2	5	2
3	Lumpy Skin Disease		3	1	1			4		9	1	3	1
4	Anthrax	2	5	26	1	18	1	62	10	125	19	46	17
5	Black Quarter	5	4	5	19	7		44	12	96	15	35	13
6	Haemorrhagic Septicaemia	2	4	2			5	25	6	44	7	16	6
7	Rabies										0		0

Source: FAO-LDDP baseline survey, 2021

4.6.5 Death of dairy cattle due to disease

Every year, several cattle die due to different diseases. During data collection, the trained and experienced data enumerators tried to identify the causes of cattle deaths based on its symptoms. Figure 19 shows the average number of cattle that died due to different diseases during the last year (1st October 2020 to 30th September 2021). Surveyed dairy farmers reported that cattle mainly died due to FMD, LSD, Anthrax, Black quarter, Haemorrhagic Septicaemia, calf diarrhoea, and Rabies diseases. It can be seen from the figure (a) that the highest number (26 cattle, 33% of total cattle died) of cattle died due to FMD. However, in terms of female operated dairy farms, the highest (10 cattle, 42% of total cattle died in female operated farms) number of cattle died due to LSD (Figure (b)) while 2 cattle died due to FMD. Considering total dairy farmers (Figure (a), 21 (27%), 17 (21%), 6 (8%), 4 (5%) cattle died due to LSD, calf diarrhoea, Anthrax, and Haemorrhagic Septicaemia, respectively. Although 3 cattle died due to Rabies while considering total farmers, female farmers did not face this problem on their farm.

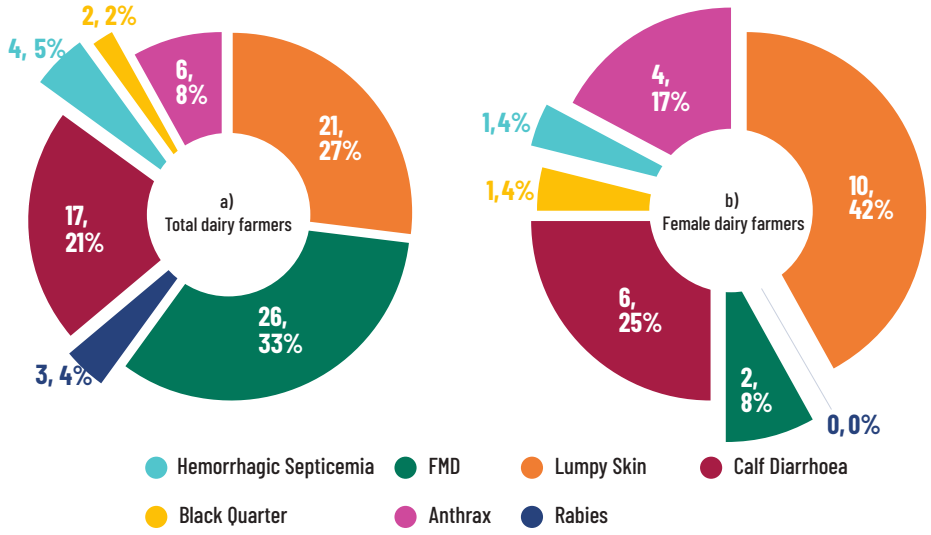


FIGURE 19
Average number of cattle died due to disease

4.7 Feed production and management in dairy farming

4.7.1 Grass cultivation

Dairy farmers cultivate different types of grass to feed their cattle. While some farmers cultivate grass occasionally and others cultivate grass on a regular basis. Figure 20 shows that about 57% (375 farmers) of total surveyed dairy farmers and 49% (131 farmers) of female farmers cultivate green grass for dairy production. On the other hand, 43% of the total surveyed dairy farmers (280 farmers) and 51% of female dairy farmers (139 female farmers) did not cultivate green grass. Noted that a total of 214 dairy farmers regularly cultivate improved green grass for dairy farming.

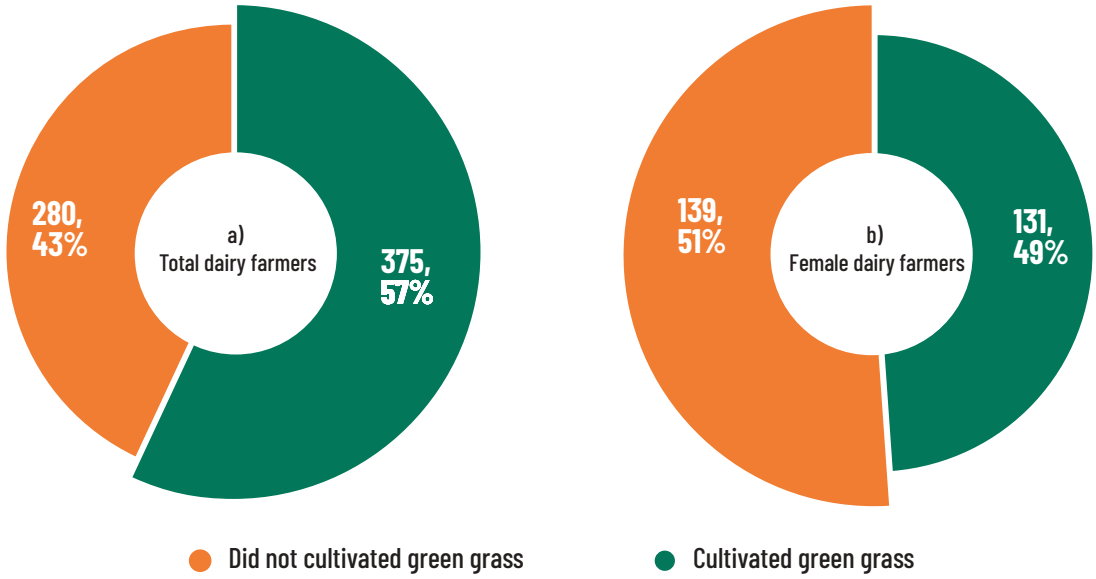


FIGURE 20
Number and Proportion of farmers engaged in fodder cultivation



4.7.2 Area of grass cultivation

The following table shows the average area under grass cultivation for dairy farming. It can be seen that on average, about 20.41 decimal of land is used for grass cultivation among the sample farmers who are cultivating green grass. While disaggregated among different districts, the grass cultivation area was the highest in Sylhet (31.61 decimal), following Barguna (26.71 decimal), Sirajganj (26.14 decimal), Dhaka (19.95 decimal), and Nilphamari (13 decimal). However, most of the farmers use their own cultivated land for grass cultivation in Bangladesh, which is about 26.13 decimals on average.

Table 43: Area under green grass cultivation for dairy

#SL	District	Land area under grass cultivation (Decimal)				
		Homestead land	Fallow land	Leased/ mortgaged in land	Own cultivable land	Average of Total land
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Barguna	5.00	15.00	14.75	43.35	26.71
2	Cox's Bazar			8.34	25.12	16.27
3	Dhaka	4.50	23.33	7.91	34.80	19.95
4	Netrokona				3.33	3.33
5	Nilphamari	4.25	5.67	14.75	16.72	13.00
6	Satkhira	5.33		7.47	14.64	12.53
7	Sirajganj	15.50	6.00	14.42	26.35	26.41
8	Sylhet	2.00	32.00	15.90	37.33	31.61
	Average of Total	**6.71**	**9.81**	**9.85**	**26.13**	**20.14**

Source: FAO-LDDP baseline survey, 2021

4.7.3 Types of grass cultivation

Grass cultivation for dairy farming is becoming popular in Bangladesh. There are different types of grass being cultivated in Bangladesh, such as Nepier/Pakchun, German, Maiz, Kesheri, and so forth. Napier/Packchun grass is found to be the most popular among the surveyed farmers. Nepier/Packchun is the most cultivated grass following German, Maiz, and Kesheri.

4.7.4 Feeding practices in dairy farms

Figure 21 shows the average quantity of different types of feed used by dairy farmers for their cattle per day. It can be seen that roughages occupied the major portion of different feed categories including female farmers. Among roughages, the use of green grass (9.38 Kg/day/cattle) is the highest compared to other roughage (6.13 Kg/day/cattle) that includes paddy/wheat straw, hay, silage, UMS and so forth. The average quantity of grains, oil cake, commercial ready feed, minerals, and molasses used by total surveyed dairy farmers was about 1.71, 0.17, 0.66, 0.11 and 0.02 Kg per day per cattle respectively. In terms of female farmers, the quantity of grains, oil cake, commercial ready feed, minerals, and molasses used by female farmers was about 1.49, 0.14, 0.57. 0.07, and 0.02 Kg per day per cattle respectively.

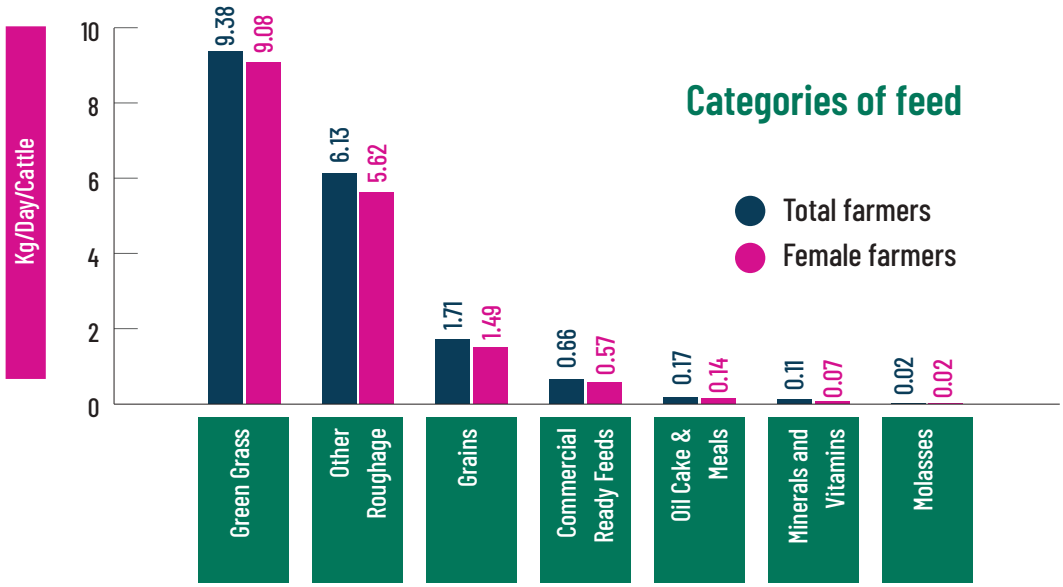


FIGURE 21

Types of feed used per day per cattle in dairy farming



4.8 Food safety and certification

The following table shows the number and proportion of surveyed dairy farmers based on different food safety measures used in dairy farming. Here, food safety measures consider both animal safety and health safety. Farmers who use any kind of food safety measures on a regular basis are considered the user of food safety measures. It can be seen from Table 44 that only about 2% of total surveyed dairy farmers (11 out of 655 farmers) wash their hands before entering the farm while the majority do not. Only 2% of the total surveyed dairy farmers use footbath containing disinfectant at the entrance of the farm and control visitors/other animals, birds and pest access on the farm. However, only 1% of the total surveyed farmers monitor and keep a record of biosecurity measures on the farm. About 4% of farmers maintain a record of parents information, treatment, vaccination and AI for each dairy cattle. Only one dairy farmer out of a total of 655 farmers has tested feed quality and safety materials from a private feed testing lab, but others never did feed quality tests.

Table 44: Use of food safety and certification measures in dairy farm

#SL	Food safety and certification particulars	Number of farmers use this measure	% of total 655 farmers use this measure	Number of female farmers use this measure	% of 270 female farmers use this measure
1	Do you wash your hand before entering the farm?	11	2	2	1
2	Do you use foot bath containing disinfectant at the entrance of the farm?	13	2	6	2
3	Do you control visitor/other animal, bird and pest access on the farm?	16	2	4	2
4	Do you monitor and maintain records for the above mentioned activities?	4	1	0	0
5	Do you keep record of parent's information, treatment, vaccination and AI information for each farm animal?	25	4	9	3
6	Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your cattle/buffalo feed	1	0	0	0
7	Do you transport animal with animal comfort?	36	5	16	6
8	Do you test mastitis of milking cow regularly?	2	0	0	0
9	Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use?	9	1	2	1
10	Do you wash your hand, clean and disinfectant milking cows udder before milking?	16	2	5	2
11	Do you keep milk in cleaned covered pan on height to prevent urine and cow dung cross contamination into the milk?	65	10	19	7
12	Do you preserve milk below 5 degreee C (cool temperature) after milking	3	0	1	0
13	Do you transport and sell milk by maintaining cool chain below 5 dgree C before milk marketing?	5	1	0	0
14	Do you perform regular health check-up of animals and farm workers (TB, Jaundice, Brucellosis etc.)?	0	0	0	0
15	Do you keep records of health check-up of animals and farm workers (TB, Brucellosis etc.)	0	0	0	0
16	Do you test quality (Fat%, SNF) and food safety (microbial count, antibiotics, and heavy metals) parameters of your farm's milk and milk products?	0	0	0	0
17	Do you maintain withdrawal period of antibiotic/hormone?	77	12	26	10
18	Do you test any milk safety parameters (e.g. microbiological, antibiotic, heavy metals) before sale?	1	0	0	0
19	Do you use any label/brand for your cow's milk?	2	0	0	0
20	Did you receive any information related to food safety?	37	6	9	3

Source: FAO-LDDP baseline survey, 2021

In terms of animal transport, about 5% of total surveyed farmers reported that they transport animals for their comfort. Though mastitis is a common disease in cows, only 2 farmers out of a total of 655 farmers reported testing the mastitis for their milking cow. Besides, only about 1% of farmers reported that they wash their milking utensils properly with safe water and disinfect before and after milking while about 2% of total surveyed farmers wash their hands and disinfect cow's udder before milking. However, many farmers remain unaware of this and do not practice safety measure during milking. About 10% of the total surveyed farmers practice milking hygiene like keeping milk in a cleaned covered pan at height to prevent urine and cow dung cross-contamination into the milk to prevent contamination of milk from urine and cow dung. Only 1% of farmers maintain a cool chain keeping milk under 5^{0C} during transpor and

selling milk. About 12% of farmers maintain a drug withdrawal period to sell milk in the market. In terms of access to information, only 6% (37 out of 655) of total dairy farmers received information related to food safety issues. However, the proportion of female farmers who use different food safety and certification measures is almost the same as it is for total farmers.

4.8.1 Sources of farm animals' drinking water

Safe drinking water for livestock is very important for livestock farming. However, different farmers are using water from different sources for their livestock farming. It can be seen from Table 45 that the majority (about 83%) of the total dairy farmers use direct water from shallow tube-well or electric pumps as the source of drinking water for their cattle. Besides, about 9%, 5%, and 3% of farmers use water from hand tube-well, ponds/cannels/rivers, and supply/tap water on their farms respectively.

Column (5) and (6) presents the number and proportion of female farmers based on the source of farm animals' drinking water. It can be seen that about 80% of female farmers use shallow tube-well/electric pump water for their cattle. Besides, about 10%, 7%, and 3% of farmers use water from hand tube-well, ponds/cannel/rivers, and supply/tap water on their farms respectively. Overall, few farmers use drinking water from ponds/cannels/rivers which should be improved. However, if the drinking water from a hand tube-well, supply/tap, or shallow tube-well/electric pump is free from arsenic, it could not be confirmed during data collection since farmers did not check the water from these sources.

Table 45: Sources of farm animals' drinking water

#SL	Name of the water source	Number of farmers use this source	% of total 655 farmers who use this source	Number of female farmers use this source	% of total 270 female farmers who use this source
(1)	(2)	(3)	(4)	(5)	(6)
1	Tube-well	56	9	28	10
2	Ponds/Cannel/Rivers	33	5	18	7
3	Supply/ Tap	21	3	7	3
4	Filtered	0	0	0	0
5	Deep tube-well	0	0	0	0
6	Sallow tube-well/ Electric pumps	545	83	217	80

Source: FAO-LDDP baseline survey, 2021

4.8.2 Sources of food safety related information

The following table shows the sources of food safety-related information. It is found that only 37 dairy farmers out of a total of 655 farmers received any kind of food safety-related information during the last year. Among those who received food safety-related information, TV seems to be the most popular medium of information followed by online media, SMS, and training. For instance, a total of 33 farmers of which 26 male and 7 female farmers received information from TV. Out of the total of 14 farmers who received information from online media, 13 are male and only one is female. However, only 2 farmers (one male and one female) reported that they received information from mobile apps, exhibitions, and some other mediums such as NGOs. BLRI, and Billboard. Noted that some farmers receive information about food safety from more than one source.

Table 46: Sources of food safety related information in dairy farming

#SL	Name of the source of food safety information	Number of farmers received information from this source			% of 37 farmers who received food safety related information
		Male	Female	Total	
(1)	(2)	(3)	(4)	(5)	(6)
1	Training	8	2	10	27
2	Mobile app	2	0	2	5
3	SMS	10	1	11	30
4	Community radio	0	0	0	0
5	TV	26	7	33	89
6	Online media	13	1	14	38
7	Exhibition	2	0	2	5
8	Others (NGO, Billboard, BLRI)	1	1	2	5

Source: FAO-LDDP baseline survey, 2021

4.9 Technology and practices used in dairy farming

Table 47 presents the adoption of different technologies and practices in dairy farming in the surveyed areas of Bangladesh. Adoption of any technology is considered if a farmer uses this technology on a regular basis in dairy farming.

It can be seen that about 33% of surveyed dairy farmers regularly cultivate improved fodder for dairy farming. About 65% of total surveyed dairy farmers regularly use artificial insemination and routine deworming of their cattle while about 45% of total farmers use routine vaccination. About 11% of the total surveyed dairy farmers use climate-resilient housing for their dairy cattle. Although manure management is an important issue related to dairy farming, only 10% of the total surveyed farmers reported using manure management. In terms of feeding, only 6 and 4 farmers were found to use UMS and silage making technology in their dairy farming on a regular basis. Out of a total of 655 farmers, only 8 farmers use ration balancing to feed their cattle on the farm. Only 4% of total surveyed dairy farmers use waste management technology while only 5% of total surveyed dairy farmers use calf weaning pan for dairy farming. Although udder management is crucial for safe milk production, only 2% of farmers were found to use udder management among surveyed farmers. Out of the total of 655 dairy farmers, only 6 farmers were found to be engaged in dairy food processing. No farmer was found to use other technologies and practices such as Total Mixed Ration, UMB/UMMB, Floor feeding, Hydroponic fodder production, Access to Climate-resilient manure entrepreneur, and Animal Identification. In terms of female farmers, it can be seen that the proportion of adoption of different technologies and practices is lower compared to that for the total farmers.

Table 47: Adoption of different technologies and practices in dairy farming

#SL	Name of technology	Adoption of Technology and Practices			
		Number of farmers adopted	% of total (655) farmers adopted technology	Number of female farmers adopted	% of total (270) female farmers adopted
(1)	(2)	(3)	(4)	(5)	(6)
	CSA technologies and practices				
1	Improved Fodder cultivation	214	33	69	26
2	Silage Making	4	1	0	0
3	Total Mixed Ration	0	0	0	0
4	Ration balancing	8	1	2	1
5	UMS	6	1	0	0
6	UMMB/UMB	0	0	0	0
7	Artificial insemination	426	65	158	59
8	Routine Vaccination	296	45	111	41
9	Routine Deworming	426	65	163	60
10	Manure management	64	10	12	4
11	Waste Management	28	4	5	2
12	Climate-resilient housing	70	11	9	3
	Other technologies and practices				
13	Calf winning pan	32	5	9	3
14	Udder management	10	2	0	0
15	Milk Processing technology	6	1	2	1
16	Milk replacer for calf	2	0	0	0
17	Machine milking	2	0	0	0
18	Floor feeding	0	0	0	0
19	Hydroponic fodder production	0	0	0	0
20	Early pregnancy testing	27	4	8	3
21	Access to CR manure entrepreneur	0	0	0	0
22	Animal identification	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

4.10 Capacity enhancement of dairy farmers

Table 48 presents the number and proportion of farmers who received training on different technologies and practices as a means of capacity enhancement. Table 48 shows that only 11% of total farmers (75 farmers out of 655 farmers) and 10% of female farmers received training on routine deworming while 38 farmers of which 9 female farmers received training on improved fodder production.

Table 48: Number of farmers received training for capacity enhancement

#SL	Capacity enhancement training	Number of total farmers received training	% of total (655) farmers received training	Number of female farmers received training	% of total (270) female farmers received training
(1)	(2)	(3)	(4)	(5)	(6)
1	Artificial insemination	19	3	3	1
2	Ration balancing	6	1	0	0
3	Total Mixed Ration	0	0	0	0
4	Calf winning pan	2	0	0	0
5	Milk replacer for calf	1	0	0	0
6	Improved fodder production	38	6	9	3
7	Silage making	4	1	0	0
8	UMS	6	1	2	1
9	UMMB/UMB	3	0	0	0
10	Floor feeding	0	0	0	0
11	Hydroponic fodder production	1	0	0	0
12	Climate-resilient housing	12	2	1	0
13	Machine milking	1	0	0	0
14	Milk processing technology	1	0	1	0
15	Early pregnancy diagnosis	0	0	0	0
16	Manure management	5	1	0	0
17	Waste management	2	0	0	0
18	Routine Deworming	75	11	27	10
19	Improved udder management	10	2	2	1
20	Agribusiness and value chain	0	0	0	0
21	Business development skill	0	0	0	0
22	Good agricultural practice	6	1	1	0
23	Food safety training	5	1	1	0
24	Climate shock mitigation	0	0	0	0
25	Animal Identification	0	0	0	0
26	Animal health card and certification	5	1	2	1
27	Training on gender equality	19	3	7	3
28	Training on using mobile apps	2	0	0	0

Besides, 19 farmers of which 3 were females received training on artificial insemination of cattle. A total of 19 farmers including 7 female farmers reported that they received training on gender equality issues. Only 12 farmers of which only one female farmer received training on climate-resilient housing. In addition, 6 farmers reported that they received training on good agricultural practices, UMS, total mixed ration, and ration balancing in cattle farming. Besides, 5 farmers received training on animal health cards and certification, food safety, and manure management. Only 4 farmers received training on silage production and 3 farmers received training on UMB preparation while all are male farmers. Only 2 farmers (all-male) reported receiving training on using the mobile app, waste management and calf wining pan use. On the other hand, only one farmer who is female reported receiving training on milk processing technology. Besides, only one farmer who is male received training on machine milking, hydroponic fodder production, and milk replacer for a calf. The survey findings show that no farmer received training on animal identification, climate shock mitigation/adaptation, business development and skill, agribusiness and value chain, early pregnancy diagnosis tool, and floor feeding of cattle. Overall, a very low proportion of farmers received training in different livestock technologies and practices. Furthermore, female farmers' participation in different pieces of training is low compared to male farmers. Hence, training on different technologies and practices should be provided based on their priority for the development of the livestock sector.

4.11 Housing and management in dairy farming

There are different types of cattle houses being used for dairy farming in Bangladesh. Table 49 shows that the majority (56%) of the total surveyed dairy farmers and 53% of female farmers use a single row permanent cattle house made with brick in the floor and tin on the roof. On the other hand, about 16% of total farmers and 13% of females use double row permanent cattle houses made with brick or tin. About 25% of total dairy farmers and 32% of female farmers reported using the conventional type of cattle house. A conventional (Kacha) house is mainly made with bamboo/jute sticks with a tin roof. Only 11 farmers of which 4 are female use single row cattle house making shift while only 2 farmers of which one female use double row making the shift.



Table 49: Type of housing used for dairy farming

#SL	Type of housing	Number of farmers	% of total 655 dairy farmers	Number of female farmers	% of total 270 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Single row permanent made with brick (floor) and tin (roof)	370	56	144	53
2	Double row permanent made with brick or tin	107	16	35	13
3	Single rows make-shift	11	2	4	1
4	Double rows make-shift	2	0	1	0
5	Conventional	165	25	86	32

Source: FAO-LDDP baseline survey, 2021

Table 50 shows the number and proportion of dairy farms based on the use of different housing facilities on the farm. The majority of the dairy farms (86% of total farmers and 84% of female farmers) reported that they have sufficient space for livestock, have proper ventilation facilities on the farm (64% of total farmers and 58% of female farmers), use women-friendly utensils (78% of total farmers and 77% of female farmers).

Table 50: Use of different facilities in the cattle house

#SL	Facilities in the cattle house	Number of farmers	% of total 655 dairy farmers	Number of female farmers	% of total 270 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Floor mat	243	37	79	29
2	Electric fan	378	58	143	54
3	Mechanical manure management	5	1	2	1
4	Mechanical watering and washing option	10	2	1	0
5	Biosafety plan	106	16	34	13
6	Proper ventilation	422	64	157	58
7	Sufficient space for livestock	564	86	227	84
8	Quarantine facility	21	2	4	1
9	Utensils are women friendly	511	78	207	77

Source: FAO-LDDP baseline survey, 2021

Besides, 58% of total farmers and 54% of female farmers have an electric fan to keep the cattle house cool during the summer season. Only 2% of total dairy farmers use mechanical watering and washing options in their cattle houses. About 37% of total farmers and 29% of female farmers use floor mats for their cattle. The biosafety plan is maintained on 106 farms of which 34 female operated farms while a quarantine facility for disease affected livestock exists on 21 farms of which 4 is female operated farms. Only 5 farmers including 2 female farmers use the mechanical manure management system in dairy farming. It can be seen from Table 50 that a total of 106 farmers of which 34 are female farmers use biosafety plans on their farms. Table 51 presents the number and proportion of farmers based on different biosafety plans among the farmers who use biosafety plans on their farms. Among different types of biosafety plans, the majority (77% of total farmers and 26% of female farmers) of farmers use a mosquito net to protect their livestock. A total of 13 farmers of which 6 are female use foot baths as a measure of biosafety plan on their farm.

Table 51: Types of biosafety plan used in the dairy farm

#SL	Biosafety plan	Dairy farms			
		Number of total farmers	% of 106 farms who use biosafety	Female operated farms who use biosafety	% of 34 female operated farms who use biosafety
(1)	(2)	(3)	(4)	(5)	(6)
1	Foot bath	13	2	6	2
2	Hand wash facility	11	2	2	1
3	Mosquito net	82	77	26	67

Source: FAO-LDDP baseline survey, 2021

Figure 22 shows the number and proportion of dairy farms based on using different energy sources on the farm. The majority of farms (78% of total farms and 77% of female operated farms) use electricity as the energy source while about 22% of farms (23% of female operated farms) do not use any kind of energy.

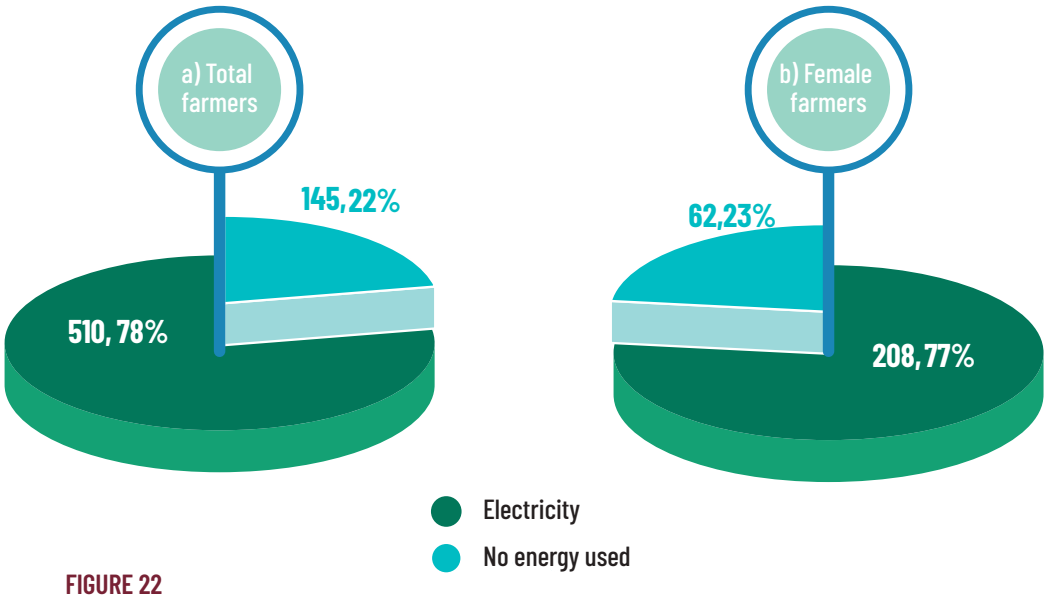


FIGURE 22
Types of energy used in the dairy farm

4.12 Manure management in dairy farming

Table 52 presents the number and proportion of farms based on different types of manure processing techniques used in dairy farming by the beneficiaries under LDDP. It can be seen that most of the farms (53% of total farmers and 56% of female farmers) keep manure (cow dung) as solid storage in the open space while only 18% of total farmers and 29% of female farmers keep manure as solid storage in the covered place. Manure (cow dung) is also being used as burned fuel by about 5% of total farmers while only 1% of total farmers process manure as anaerobic digestion. However, about 23% of total farmers (21% of female farmers) dispose of manure on the open space which could be a great concern for environmental issues.

Table 52: Types of manure processing in dairy farm

#SL	Type of manure processing	Number of farms	% of total 655 dairy farms	Number of female operated farms	% of total 270 female operated farms
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	348	53	150	56
2	Solid storage (in covered place)	121	18	51	19
3	Dispose to open space	150	23	56	21
4	Burned Fuel	30	5	10	4
5	Anaerobic digestion	6	1	3	1

Source: FAO-LDDP baseline survey, 2021



Manure (cow dung) is also used in crop cultivation. Farmers store manure in a place and use this manure in crop cultivation while it becomes compost. Figure 23 shows that about 76% (495 farmers) of farmers use manure as organic fertilizer in crop cultivation. Besides, about 98% (264 female farmers) of female farmers use manure in crop cultivation.

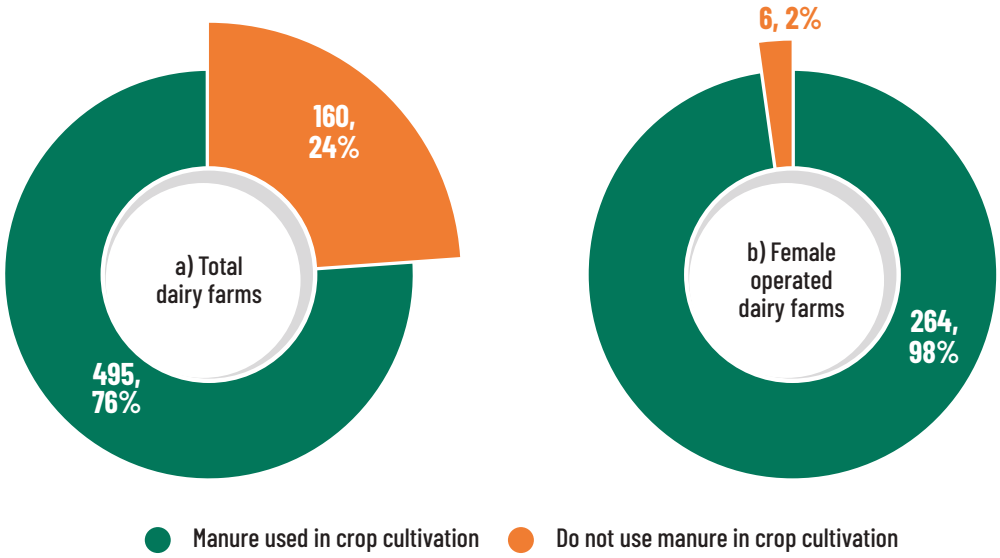


FIGURE 23
Number and proportion of farmers use manure as fertilizer in crop cultivation

Table 53 presents the number and proportion of dairy farms based on different categories of waste disposal on the farm. Waste is defined as any other kind of material other than manure (cow dung) such as excess feed, straw, etc. It can be seen that about 40% of total surveyed farmers (36% of female farmers) dispose of farm waste as solid storage in the open space while only 12% of total farmers (11% of female farmers) dispose of waste in a covered place. More alarming is that about 40% of total farmers (45% of female farmers) dispose of waste in the open space which could be an environmental concern. However, about 8% of total farmers (7% of female farmers) use waste as burned fuel and 2 farmers of which one is female use waste for anaerobic digestion.

Table 53: Waste disposal in dairy farming

#SL	Type of waste disposal	Number of farms	% of total 655 dairy farms	Number of female operated farms	% of total 270 female operated farms
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	260	40	98	36
2	Solid storage (in covered place)	78	12	31	11
3	Dispose to open space	265	40	122	45
4	Burned Fuel	50	8	18	7
5	Anaerobic digestion	2	0	1	0

Source: FAO-LDDP baseline survey, 2021



4.13 Climate related risk in dairy farming

Different climatic risks such as floods, tornados, cyclones, extreme weather, and rainfall frequently affect livestock production in Bangladesh. Table 54 shows that about 22% of the total surveyed dairy farmers (19% of female farmers) were affected by flood/flash flood/waterlogging during the last five years. Besides, about 11% of total farmers (9% of female farmers) reported that tornado/cyclone affected their farm during the last five years. About 3% of total farmers (2% of female farmers) reported that their farm was affected by extremely hot weather while about 2% of total farmers (3% of female farmers) were affected by excessive rainfall. Extreme hot weather is defining the temperature while dairy cattle feel uncomfortable surviving. Salinity is another challenge for livestock production in the southern part of Bangladesh. About 3% of total farmers (3% of female farmers) reported that their farm was affected by the increase in salinity during the last five years. Only one farmer reported that his farm was affected by extremely cold weather last year.

Table 54: Number and proportion of farms affected by climatic risk last five years

#SL	Type of climate related risk	Number of farmers	% of total 655 dairy farmers	Number of female farmers	% of total 270 farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Flood/flash flood/waterlogging	141	22	51	19
2	Draught	3	0	0	0
3	Tornado/cyclone	70	11	24	9
4	Extreme hot weather	19	3	6	2
5	Extreme cold weather	1	0	0	0
6	Excessive rainfall	14	2	8	3
7	Salinity	21	3	7	3

Source: FAO-LDDP baseline survey, 2021

The effect of climatic risks on dairy farming could be of several types. As can be seen in Table 55 a total of 123 farmers of which 42 were female farmers reported that they faced the scarcity of green grass and concentrate feeds due to different types of climatic risks. Besides, 52 farmers including 16 female farmers faced damage or destruction of cattle houses due to tornado/cyclone. Insufficient input and service due to climatic risk is reported by 34 farmers of which 9 are female while 33 farmers of which 7 are female faced animal death and disease outbreak due to climatic risk during the last five years. In addition, raising feed prices was reported by 44 farmers of which 21 are female while 14 farmers of which 7 are female faced interruption in output sales due to climatic risk during the last five years.



Table 55: Effect of different climatic risk on dairy farming

#SL	Effect of climatic risk	Number of farmers	% of total 655 dairy farmers	Number of female farmers	% of total 270 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Output sale interrupted	14	2	7	3
2	Animal death and disease outbreak increase	33	5	7	3
3	Scarcity of green grass and concentrate feeds	123	19	42	16
4	Damage/destruction to livestock house	52	8	16	6
5	Inadequate input and service (veterinary Treatment, AI, vaccine)	34	5	9	3
6	Rising of food prices	44	7	21	8

Source: FAO-LDDP baseline survey, 2021

4.14 Access to extension services in dairy farming

Table 56 shows that the majority (about 71%-87%) of total surveyed dairy farmers (column 4) and female farmers (column 6) have access to veterinary services, artificial insemination services, vaccination services, and deworming services.

Besides, about 30% of total surveyed farmers (10% of female farmers) have access to early pregnancy test services, 15% of total surveyed farmers (11% of female farmers) have access to fodder production, cutting and distribution services, 11% of total surveyed farmers (7% of female farmers) have access to livestock feeding and management services, and 10% of total surveyed farmers (7% of female farmers) have access to online livestock and product marketing services. Only 8% of total surveyed farmers (6% of female farmers) have access to local and global market information services, while 6% of total surveyed farmers (4% of female farmers) have access to online knowledge sharing. Access to other types of extension services is also very low ranging from 1% to 4%. While dairy farmers have access to some veterinary and health-related services, access to other services is very low. In addition, no farmers have any access to some services such as online database services, and online treatment services.

Source: FAO-LDDP baseline survey, 2021

Table 56: Dairy farmers access to digital and physical extension services

#SL	Types of extension services	Reported digital and physical extension services is accessible			
		Number of farmers reported this services is accessible	% of total (655) farmers reported this services is accessible	Number of female farmers reported this services is accessible	% of total 270 female farmers reported this services is accessible
(1)	(2)	(3)	(4)	(5)	(6)
1	Veterinarian and Consultancy service	526	80	208	77
2	Artificial Insemination service	572	87	225	83
3	Vaccination service	513	78	210	78
4	Pregnancy test service	196	30	28	10
5	Deworming service	491	75	191	71
6	Agro-enterprise development service	12	2	1	0
7	Fodder production, cutting and distribution service	101	15	29	11
8	Livestock feeding and management services service	75	11	19	7
9	Local & global market information service accessible	52	8	15	6
10	Product and input quality control services service	6	1	1	0
11	Product branding and quality certification service	6	1	0	0
12	Online Database service	0	0	0	0
13	Online livestock and product marketing service	63	10	19	7
14	Online knowledge sharing related to food safety, marketing, animal health, livestock production etc. service accessible	38	6	10	4
15	Online treatment service	0	0	0	0
16	Mobile veterinary clinic service	4	0	0	0
17	Waste management service	7	1	1	0
18	Manure management service	10	2	4	1

Source: FAO-LDDP baseline survey, 2021

4.15 Household's nutrition awareness related information

Figure 24 presents the number and proportion of livestock farming households that received various nutrition awareness related information. The figure indicates that 319 dairy farmers of which 122 female farmers received nutrition-related information. In terms of proportion, about 49% of total dairy farmers received nutrition-related information while about 45% of female farmers received nutrition-related information.

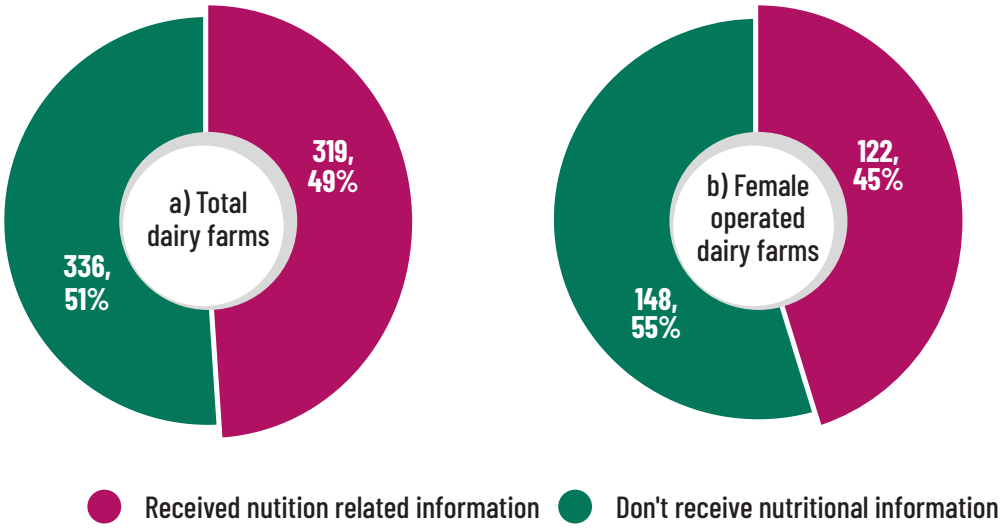


FIGURE 24

Number and proportions of households received nutrition awareness information

4.16 Gender perspective in managing dairy value chain

The dairy value chain is the largest value chain of LDDP intervention implemented in 61 districts in Bangladesh. The overall data states that the gender barrier prevails in the Southern part on comparison to the Northern part. The young people are interested in the dairy value chain rather than other value chains.

4.16.1 Gender perspective in household management in dairy value chain

The table below shows that women are mostly taking care of their families as well as the farm. Among the total surveyed households who responded, females, are mainly taking care of children in 68% of households (HHs) and both males and females are taking care in 28% HHs. In terms of preparing children for school, females are preparing children in about 84% HHs while both males and females are preparing children in only about 13% HHs. Besides, females are caring for elderly members, cooking in the family and collecting cooking water in about 61%, 98% and 42% of HH respectively who responded to the respective questions. The overall data amplifies that cooking, rearing children, caring for elderly people and preparing children for school are dedicatedly taken care of by females.

The dairy value chain is one of the main value chains under LDDP intervention. For ensuring women's empowerment there is a need to develop the promotion of the practice of sharing workload especially the household chores together in consensus which will strengthen the family bonding and spend quality time with family members and become more productive.

Table 57: Gender perspective in household management in dairy value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Manage taking care of children along with farming	21	401	168	4	68	28	590
2	Manage preparing children for their school along with farming	15	479	77	3	84	13	571
3	Manage caring elderly family members along with farming	22	269	148	5	61	34	439
4	Manage cooking along with farming	6	619	6	1	98	1	631
5	Manage collecting water along with farming	82	250	277	13	42	45	609

Source: FAO-LDDP baseline survey, 2021



4.16.2 Gender perspective in farm management in dairy value chain

The following table presents the gender perspective in farm management in dairy farming. Among the total surveyed households who responded to the respective questions, as can be seen in the majority of households (56% to 87%), male members are mainly taking decisions on buying livestock, choosing a breed, fodder production, fodder cultivation, selection of input supplier, contact with input supplier, place of selling livestock, and contact with buyers and vet service providers.

Table 58: Gender perspective in farm management in dairy value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who takes the decision of buying livestock?	365	19	269	56	3	41	653
2	Who chooses the breed?	385	21	224	61	3	36	630
3	Who takes the decision of fodder production?	332	15	133	69	3	28	480
4	Who cultivates fodder?	422	5	49	89	1	10	476
5	Who collect fodder from field?	569	3	83	87	0	13	655
6	Who takes decision of feed rationing?	308	34	309	47	6	47	651
7	Who fed animals on the farm?	157	59	438	24	9	67	654
8	Who decide to manage manure?	232	63	281	40	11	49	576
9	Who manages manure and waste on the farm?	180	75	318	32	13	55	573
10	Who perform cleaning and sanitization on the farm?	138	110	368	22	18	60	616
11	Who choose the input supplier?	466	16	99	80	3	17	581
12	Who maintain the contact with the input supplier?	510	16	59	87	3	10	585
13	Who decide where to sale?	408	19	188	66	3	31	615
14	Who maintain the contact with the buyer?	515	18	82	84	3	13	615
15	Who decide the use of money earned from livestock?	257	23	366	39	4	57	646
16	Who maintain the contact with the vet service providers?	446	23	177	69	4	27	646

Source: FAO-LDDP baseline survey, 2021



On the other hand, in the majority of households (49% to 67% of total households who responded), both males and females are mainly taking decisions for feed rationing, livestock feeding, manure management, waste management and cleaning and sanitization on the farm of livestock but male have a strong command in taking a decision on where to sell (39%), use the income from livestock farming, and cleaning of farm utensils in livestock farming. Overall, Men mostly manage outside work and their mobility is well accepted in the society, but women are mainly responsible to manage the housing assignment as their mobility is restricted which is reflected on the farm management assignment as well (e.g. women's limited access to contracting with input suppliers, buyers and vet services).

4.16.3 Gender perspective in access to training and services

As can be seen from the table below, males are mostly participating in training in 59%, spending more time in farming in 45%, having access to financial services in 48% and go out for feed and food product testing in about 93% of farm households, and 60% men also have access to digital and physical extension services. Overall, males have better access to different digital and physical extension services- but females have very limited access to training (9%), going out for a feed and food testing (3%), and digital and physical extension services (4%).

Table 59: Gender perspective in access to training and services in dairy value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who participates in the training?	289	46	156	59	9	32	491
2	Who spent more time in farm activities?	293	266	88	45	41	14	647
3	Who mainly have access to finance/ credit?	220	180	60	48	39	13	460
4	Who mainly goes out for feed and food product testing?	197	6	8	93	3	4	211
5	Who have mainly access to different digital and physical extension services?	298	22	176	60	4	36	496

Source: FAO-LDDP baseline survey, 2021

4.16.4 Gender perspective in ownership of the farm and livestock

Despite of women's strong role in farm management of the Dairy value chain women less ownership in both farm and livestock. As can be seen from the table below, in 84% of dairy farms, male members are the authorized owner of the farm while females are the authorized owner in 7% farm and both male and females are the authorized owner in 9% of total dairy farms. In terms of the authorized owner of the livestock on the farm, female, male and both male and females are the authorized owners of the livestock in 75%, 7%, and 18% of the farms respectively.

So, there is a need to explore the opportunity of increasing the ownership of women in both farm and livestock management for accelerating the path of women empowerment.

Table 60: Gender perspective based on the ownership of the farm and livestock in dairy value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who is the authorized owner of this farm?	528	45	55	84	7	9	628
2	Who is the authorized owner of livestock?	472	45	111	75	7	18	628

Source: FAO-LDDP baseline survey, 2021

4.17 Farmers' perceptions regarding LDDP services

LDDP is providing different services for increasing productivity, market access and climate-resilient production for the improvement of the livestock sector in Bangladesh. This section presents the overall services to the farmers and the farmers satisfaction level regarding the LDDP services.

4.17.1 Farmers received asset from DLS/LDDP to start or continue their livestock business last year

It can be seen from Figure 25 that about 29% (189 dairy farmers) of the total surveyed dairy farmers received any kind of asset from DLS/LDDP to start or continue their existing livestock business. On the other hand, 27% of female dairy farmers (72 female farmers) reported that they received any kind of asset assistance from the DLS/LDDP.



FIGURE 25

Number and Proportion of farmers received assets to start/continue livestock business

Table 61 shows that among different kinds of assets, 186 dairy farmers of which 71 were female farmers received cash incentives due to the COVID impact and travel restriction last year to continue their existing dairy business. In addition, 3 farmers of which 1 female received feed incentives from LDDP last year.

Table 61: Types of assets farmers received from DLS/LDDP during last year

#SL	Asset from LDDP/DLS	Number of farmers received this	% of total 655 farmers use this received this	Number of female farmers received this	% of total 270 female farmers received this
(1)	(2)	(3)	(4)	(5)	(6)
1	Livestock house	0	0	0	0
2	Utensils like bucket, spade, etc	0	0	0	0
3	Cream separator	0	0	0	0
4	Feed mixture machine	0	0	0	0
5	Hygienic cleaning tools	0	0	0	0
6	Roughage shredder machine	0	0	0	0
7	Grass chopper machine	0	0	0	0
8	Live animal	0	0	0	0
9	Cash incentive	186	28	71	26
10	Feed	3	0	1	0

Source: FAO-LDDP baseline survey, 2021

4.17.2 Farmers received training from LDDP

Only 5 dairy farmers received training from LDDP during the last year. However, among those who received training from LDDP, 4 male farmers reported good while 1 female farmer reported excellent regarding training from LDDP (see Table 62). While the baseline survey commenced, some of the LDDP interventions were already in the field. Hence, some beneficiary farmers received some services from the LDDP during the baseline period.

Table 62: Level of satisfaction regarding LDDP provided training during last one year

#SL	Rate of satisfaction on the training you received from LDDP	Number of farmers	% of total 5 dairy farmers	Number of female farmers	% of total 1 farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	1	20	1	100
2	Good	4	80	0	0
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0
6	Not applicable	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

4.17.3 Farmers overall satisfaction regarding LDDP services

A total of 189 dairy farmers (72 females) received any kind of asset from LDDP last year. The overall satisfaction of those who received an asset from LDDP is shown in Table 63. In terms of overall satisfaction regarding LDDP service, 69% of total farmers who received assets from LDDP reported excellent. Besides, 31% of total farmers who received assets from LDDP reported good service. However, the majority of dairy farmers did not comment on the overall satisfaction since they did not receive any service from LDDP yet (see Table 63). The rate of satisfaction of female farmers regarding LDDP services is the same as this for total farmers.

Table 63: Farmers overall level of satisfaction with LDDP services

#SL	Overall satisfaction with LDDP services	Number of farmers received	% of total 189 farmers received	Number of female farmers received	% of total 72 female farmers received
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	131	69	50	69
2	Good	58	31	22	31
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Chapter 5. Baseline Finding of Beef Fattening Value Chain



There were 20,000 beef fattening farmers under different producer groups as the direct beneficiaries of the LDDP. A total of 416 sample farmers including 130 females from the direct beneficiary beef fattening farmers across 4 districts have been surveyed during the baseline survey. The criteria for beef fattening PG member selection were that a farmer should have at least 2 beef fattening cattle on the farm.

5.1 Beef fattening farm characteristics

The average number of cattle per farm is presented in Table 64. As can be seen, on average 4 cattle are present on each beef fattening farm. However, there are 2 fattening bulls that exist on average per beef fattening farm.

Table 64: Average number of cattle per beef fattening

#SL	Cattle	Average number of cattle
(1)	(2)	(3)
1	Bulls	2
2	Lactating Cow	2
3	Dry Cow	2
4	Bull calf	1
5	Heifer calves	1
6	Heifer	2
	Average cattle per farm	**4**

Source: FAO-LDDP baseline survey, 2021

The following table presents the distribution of farmers based on different farm sizes in the beef fattening value chain. Beef fattening cattle farm size is classified as small (1-3 cattle), medium (4-5 cattle), and large (above 5 cattle)[10]. As can be seen that about 52% of total surveyed beef fattening farmers who were the group members of the LDDP fall in the category of small farms. Besides, about 30% of total surveyed farmers fall into the category of medium farm and about 17% of total surveyed farmers fall into the category of large farmers. Overall, the majority of farmers are small farmers in the beef fattening value chain.

[10] Datta, A. K., Haider, M. Z., & Ghosh, S. K. (2018). Economic analysis of dairy farming in Bangladesh. Tropical Animal Health and Production. doi:10.1007/s11250-018-1659-7

Jabbar M.A., Islam S.M.F., Delgado C., Ehui S., Akanada M A.I., Khan M.I. and Kamruzzaman M. (2005). Policy and scale factors influencing efficiency in dairy and poultry production in Bangladesh. ILRI (International Livestock Research Institute), Nairobi, Kenya, SLP (Systemwide Livestock Programme), Addis Ababa, Ethiopia, and BSMRAU (Bangabandhu Sheikh Mujibur Rahman Agricultural University), Salana, Gazipur, Bangladesh. 76 pp

Table 65: Distribution of farmers based on different farm size

#SL	District	Number of beef cattle farms		
		Small farm (1 – 3 cattle)	Medium farm (4 – 5 cattle)	Large farms (above 5 cattle)
(1)	(2)	(3)	(4)	(5)
1	Dinajpur	46	34	20
2	Jashore	55	31	17
3	Mymensingh	57	32	18
4	Patuakhali	60	29	17
	Total	218	126	72
	% of total (416 farms)	52	30	17

Source: FAO-LDDP baseline survey, 2021



5.2 Beef fattening productivity of beef cattle

The following table presents the average live weight of beef at its slaughter age, price of beef and average quantity of live weight sold by each farm during the last year (1st October 2020 to 30 September 2021). Although beef live weight could depend on many factors such as breed type, age of beef cattle at its slaughter age, rearing period, feeding and management and so forth, these characteristics are not considered during live weight estimation during the baseline survey. Here, live weight is the estimated weight of beef cattle that are sold by the farmer at slaughter age. Slaughter age denotes the age when a farmer sells his/her fattening beef cattle for slaughtering purposes. However, the estimated live weight of beef cattle at its slaughter age will inform the average productivity of beef cattle. An increase in the live weight at slaughtering age will inform the effect of different interventions such as improved breed rearing, fodder and health management, housing, market access, and resilience to risk. Columns (3) and (6) in Table 66 show the average live weight (kg) of beef cattle sold at their slaughter age.

As can be seen from column (3), the average live weight of fattening beef cattle is about 247.74 Kg which varies from 182.31 Kg to 356.21 Kg across different districts. However, the average live weight of fattening beef cattle is the highest in Jashore district (356.21 Kg per beef) and lowest in Patuakhali district (182.31 Kg per beef). In terms of female farmers, as can be seen from column (6), the average live weight of fattening beef per cattle at the slaughter age is about 239.67 Kg which is lower compared to the total number of farmers (247.74Kg).



Table 66: Meat productivity of beef fattening cattle, price of beef and quantity sold

#SL	District	Total farmers (416)			Female farmers (130)		
		Average estimated live weight (Kg) of beef at slaughter age	Average price of beef (live weight) (Tk/Kg)	Average quantity (live weight) sold per farm last year (Kg)	Average estimated live weight (Kg) of beef at slaughter age	Average price of beef (live weight) (Tk/Kg)	Average quantity (live weight) sold per farm last year (Kg)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Dinajpur	239.15	277.18	611.90	243.38	278.06	525.60
2	Jashore	356.21	301.30	520.49	325.37	275.98	500.77
3	Mymensingh	268.19	293.14	442.92	244.19	289.78	318.18
4	Patuakhali	182.31	351.03	465.66	186.64	339.92	462.17
	Total	247.74	305.16	508.54	239.67	293.14	452.78

Source: FAO-LDDP baseline survey, 2021

In terms of price, it can be seen from column (4) that the average price of beef meat on average is about Tk 305.16 per Kg which is the highest in Patuakhali district (Tk 351.03 per Kg) and the lowest in Dinajpur district (Tk 277.18 per Kg). However, the average price of beef meat for the female farmers (Tk 293.14 per Kg) is slightly lower compared to the average for total farmers. The average yearly price has been estimated to overcome the seasonality bias in price estimation.



In terms of average quantity sold per farm per year, as can be seen, on average beef fattening farmers sell 508.54 Kg of beef last year (1st October 2020 to 30th September 2021). In terms of female farmers, on average each female farmer sold 452.78 Kg of beef meat last year which is lower compared to the average for total farmers.

5.2.1 Meat productivity of beef fattening farms per standing cattle per year

Columns (3) and (4) of Table 67 present the productivity of beef fattening farms per year at the herd level. Following the productivity calculation criteria of the PDO indicator provided by the PMU-LDDP, beef fattening productivity is computed as the total volume (kg) of the live weight sold in a year (computed as animal numbers * estimated average weight), divided by the standing cattle population (all cohorts). This productivity reflects the productivity share of animals that are in production at the herd level. As can be seen at the bottom of columns (3), the average productivity for beef cattle at the herd level is about 181.69 Kg per standing cattle per year which varies from 157.55 Kg to 212.01 Kg across districts. In terms of female farmers, the average productivity for beef cattle at the herd level is about 161.29 Kg per standing cattle per year which varies from 122.87 Kg to 183.37 Kg across districts. The increase in productivity per standing cattle will inform the farm's specialization in beef fattening which contributes to productivity.

Table 67: Meat productivity of beef fattening farms per standing cattle per year

#SL	District	Average estimated live weight (Kg) of beef per standing cattle per farm per year	
		Total farmers (416)	Female farmers (130)
(1)	(2)	(3)	(4)
1	Dinajpur	190.90	183.37
2	Jashore	212.01	166.80
3	Mymensingh	157.55	122.87
4	Patuakhali	167.93	169.32
	Total	**181.69**	**161.29**

Source: FAO-LDDP baseline survey, 2021

5.2.2 Breed wise average live weight of beef cattle at slaughter age

The following table presents the average live weight of different breeds of beef cattle at the slaughter age. As can be seen, the average live weight is the lowest (185.84 Kg per beef cattle) in the case of the local/deshi breed compared to the live weight of other breeds. On the other hand, the average live weight of the Holstein crossbreed is the highest compared to that of other breeds.

Table 68: Breed wise average live weight of beef cattle at slaughter age

#SL	Breed type	Average live weight (Kg) per beef cattle at its slaughter age
(1)	(2)	(3)
1	Local breed/Deshi	185.84
2	North Bengal Grey	210.00
3	Red Chittagong	205.00
4	Pabna breed	245.00
5	Holstein cross	418.12
6	Jersey cross	236.67
7	Sahiwal cross	271.31
8	Sindhi cross	224.67

Source: FAO-LDDP baseline survey, 2021

5.3 Beef fattening household's access to market

To know the market access of beef fattening farmers, several information has been collected such as to whom farmers sell their beef cattle, where they sell and what is the mode of transport they use to transport their beef cattle for marketing.

5.3.1 To whom beef fattening farmers sell their beef

Out of the total of 416 surveyed beef fattening farmers, 24 farmers of which 6 were females did not sell any fattening beef during last year (1st October 2020 to 30 September 2021). A total of 392 farmers of which 123 females sold beef last year. Figure 26 shows the distribution of farmers who sold fattening beef last year based on the type of buyers of beef. It can be seen that the majority (57% of total farmers and 66% of female farmers) of beef fattening farmers sell beef to the trader or packer while 41% of total farmers and 33% of female farmers sell beef to the consumers directly. Besides, 1% of total beef fattening farmers sell to the roadside butcher while 2% of total farmers sell to the butchers in the local market. Overall, most of the farmers sell their fattening beef to the trader and or Packers or Dalal. There is no well-organized beef marketing system in Bangladesh.

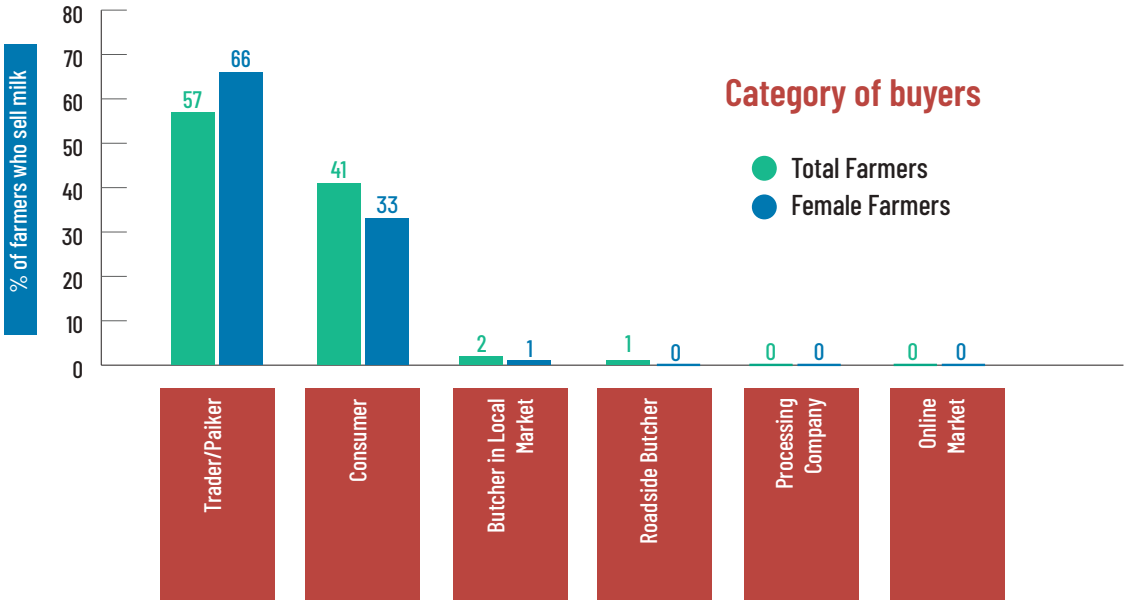


FIGURE 26
Beef sold based on the type of buyers

5.3.2 Major place of selling beef

Figure 27 shows that the majority (63% of total farmers and 66% of female farmers) of farmers who sell beef cattle sell their fattening beef to the local market. Basically, different traders/paiker/dalal purchase beef cattle at the local market. In addition, 27% of total farmers and 29% of female farmers sell their fattened beef at the farmgate. Those farmers who sell at farmgate don't use any transport for selling their beef cattle. About 6% of total farmers and 3% of female farmers sell their fattened beef at the urban market and about 4% of total farmers and 2% of female farmers sell their fattened beef within the village. Only one percent of farmers sell their fattening beef to the buyer's place.

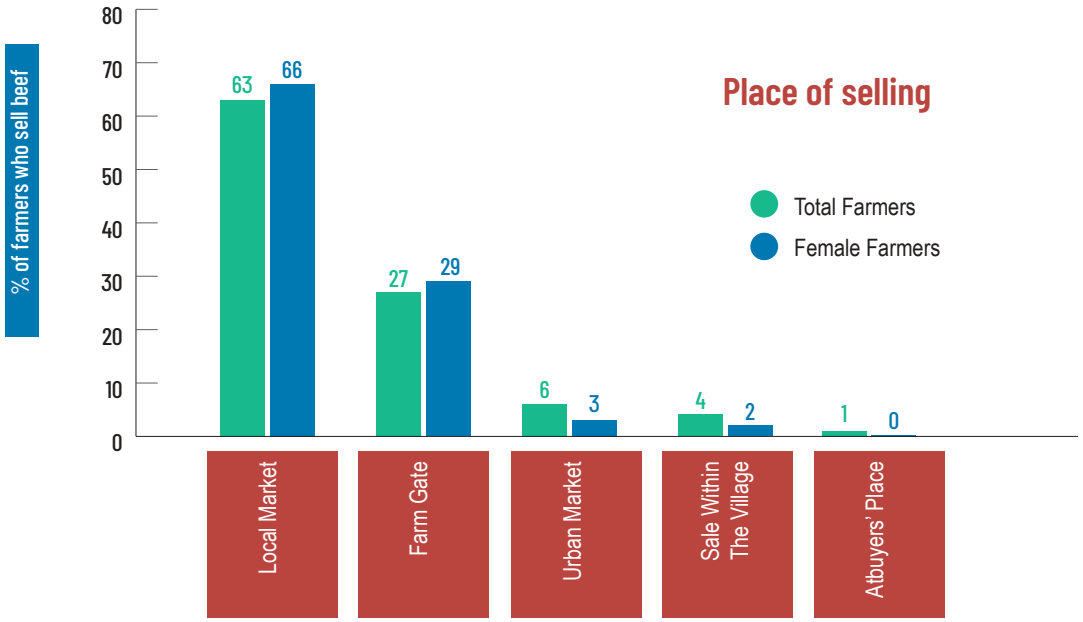


FIGURE 27

Main locations of selling beef cattle



5.3.3 Mode of beef transportation

Out of the total of 416 surveyed beef fattening farmers, 131 farmers of which 42 were females did not transport any fattening beef during last year (1st October 202o to 30 September 2021). A total of 295 farmers of which 87 were females transported their beef cattle during the baseline period. Figure 28 presents the number of farmers who transport beef cattle for sale based on the mode of transport. The figure shows that 44% of total farmers and 47% of female farmers transport beef on foot to the market. On the other hand, 47% of total farmers and 48% of female farmers reported that they use auto (battery/engine driven) to transport their beef cattle. Only 5% of total farmers and 3% of female farmers use mini trucks/truck to transport their fattened beef for selling.

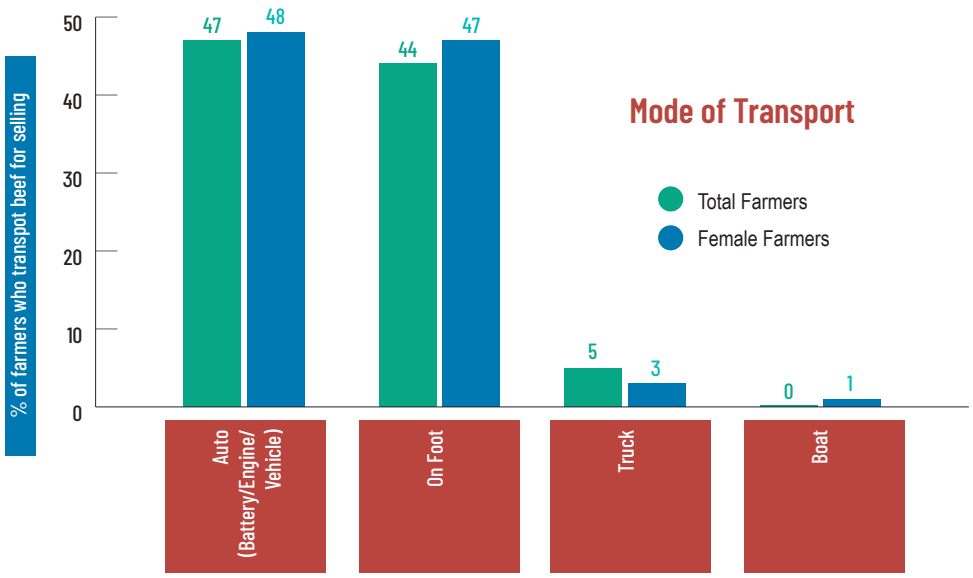


FIGURE 28
Mode of beef transport



5.3.4 Selling the processed beef

All of the sample farmers reported that they did not slaughter or sell any processed beef or portions of beef during the last year.

5.3.5 Sources purchased feed for beef fattening farms

Out of the total of 416 surveyed beef fattening farmers, 341 farmers (108 female) used any kind of purchased feed. Figure 29 shows the proportion of farmers who purchase feed based on the sources of different purchased feed for beef fattening farming. The majority of farmers (79% of total farmers and 82% of female farmers) purchased feed from the local retailers while 17% of total farmers and 17% of female farmers purchased feed from the wholesalers. Besides, 13 farmers of which 1 female purchased feed from the feed company while 1 farmer purchased feed from local feed mixtures.

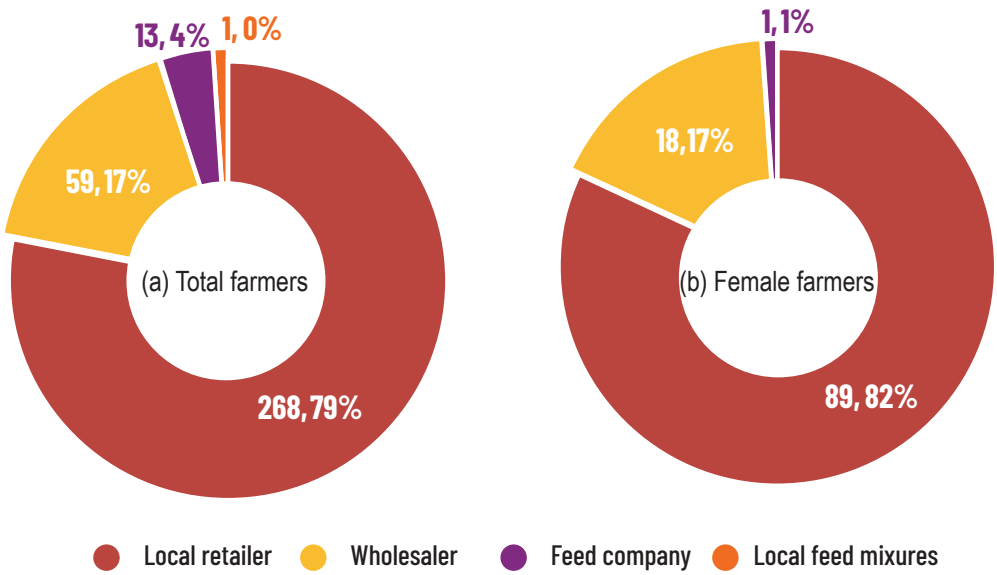


FIGURE 29
Major sources of purchased feed for beef fattening farming

5.4 Livestock disease management (beef fattening farms)

The baseline survey was carried out in 4 districts of Bangladesh for the beef fattening value chain. To understand the disease frequency faced in the last year by the members of the Producer Groups (PGs) under the Livestock and Development Project (LDDP), the survey asked infectious, reproductive, metabolic, and other disease-related questions to the farmers.

5.4.1 Occurrence of infectious diseases in beef fattening farm

Figure 30 shows that FMD is the highest occurring infectious disease in dairy farming. About 23% of total beef fattening farms and 21% of the female operated farms were reported to be affected by FMD. The second highest occurred disease is Lumpy Skin Disease (LSD). As can be seen, about 19% of total farms while 25% of female operated farms have been affected by LSD during the last year. Among other diseases 2% of total farms and 3% of female operated farms seem to be affected by haemorrhagic septicaemia (HS).

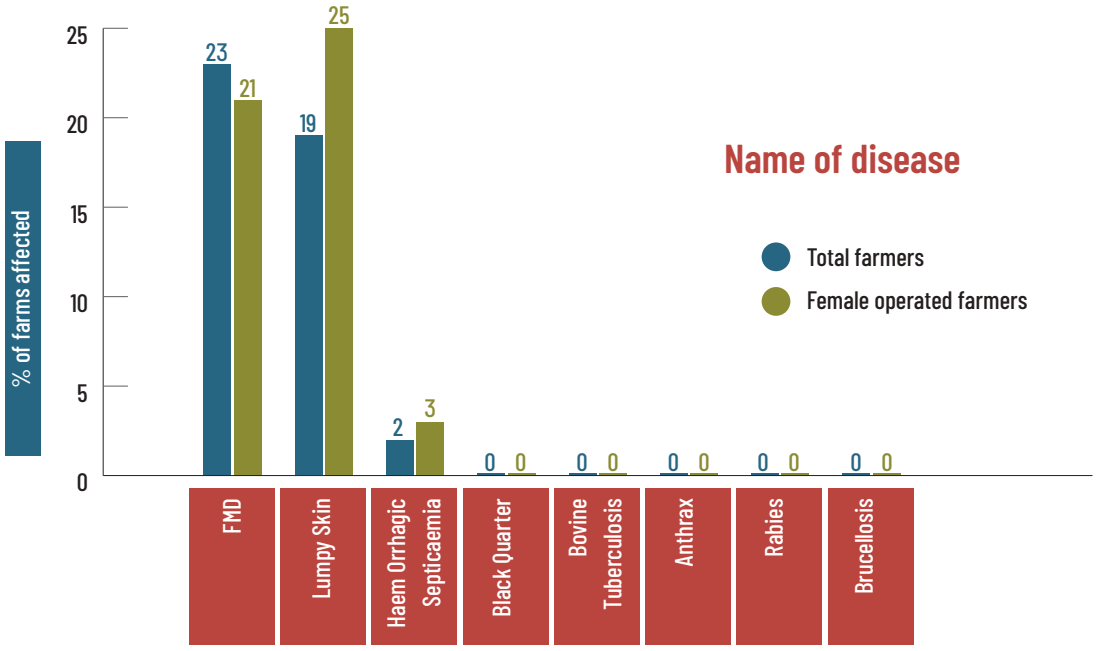


FIGURE 30

Proportion of beef fattening farms affected by infectious disease

Table 69 shows the geographical distribution of the occurrence of infectious diseases in Beef fattening farms. A total of 104 beef fattening farmers have been surveyed from each district during the baseline survey. It is found that the highest occurrence of Foot and Mouth Disease (FMD) in Jessore (32 farms) district compared to Patuakhali (26 farms), Mymensingh (23 farms), and Dinajpur (16 farms). The highest frequency of LSD was found in Mymensingh district (31 farms) following Dinajpur (22 farms), Jessore (16 farms) and the lowest in Patuakhali (12 farms). Only one beef fattening farm in Dinajpur and Mymensingh districts was affected by Anthrax last year. The highest occurrence of haemorrhagic Septicaemia was in Dinajpur district (6 farms) while the lowest occurrence was in Mymensingh district (one farm). A total of 2 farms in the Dinajpur district were affected by Brucellosis last year. In terms of female operated farms, it can be seen from column (9) that LSD is the highest occurring disease while 32 female operated farms were affected by this disease last year. Besides, a total of 27 and 4 female operated farms were affected by FMD and haemorrhagic Septicaemia respectively during last year.

Table 69: Geographical distribution of occurrence of infectious diseases in beef fattening

#SL	Name of disease	Number of farms affected across district				Total farms affected	% of total 416 farms	Total female operated farms affected	% of total 130 female operated farms
		Dinajpur	Jessore	Mymensingh	Patuakhali				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	FMD	16	32	23	26	96	23	27	21
2	Lumpy Skin disease	22	16	31	12	81	19	32	25
3	Anthrax	1	0	1	0	2	0	0	0
4	Black Quarter	0	0	0	0	0	0	0	0

5	Bovine Tuberculosis	0	0	0	0	0	0	0	0
6	Haemorrhagic Septicaemia	6	0	1	2	9	2	4	3
7	Rabies	0	0	0	0	0	0	0	0
8	Brucellosis	2	0	0	0	2	0	0	0

Source: FAO-LDDP baseline survey, 2021

5.4.2 Occurrence of metabolic and other disease in beef fattening farms

Figure 31 presents the proportion of total and female operated beef fattening farms infected by different metabolic and other diseases during the last year (1st October 2020 to 30th September 2021). It can be seen that about 17% of the total farms and 18% of female operated farms faced the bloat disease on their farms during last year. About 14% of total farms and 15% of female operated farms have been affected by this disease during the last year. In the case of calf diarrhea, the highest occurrence was in Mymensingh district (20 farms) followed by Dinajpur (18 farms), Patuakhali (10 farms), and Jessore (9 farms). Among other diseases, about 1% of total as well as female operated farms are affected by poisoning and lameness. However, 1% of total farms faced acidosis and respiratory complications while no female operated farms faced this problem. Overall, bloat and calf diarrhoea are the frequently occurring metabolic diseases in beef fattening farming.

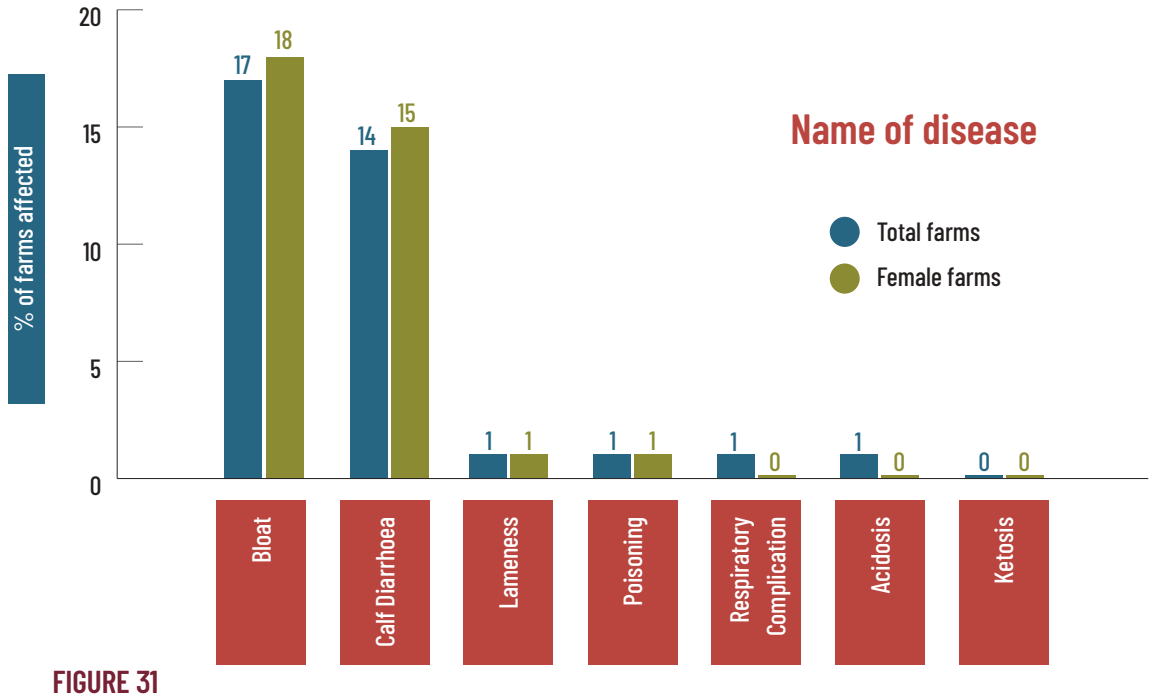


FIGURE 31

Proportion of beef fattening farms infected by metabolic and other disease

The table 70 below shows the geographical distribution of the occurrence of metabolic and other diseases in beef fattening farms.

Table 70: Geographical distribution of beef fattening farms affected by different metabolic and other diseases

#SL	Name of disease	Number of farms affected across district				Total farms affected	% of total 416 farms	Total female operated farms affected	% of total 130 female operated farms
		Dinajpur	Jessore	Mymensingh	Patuakhali				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Ketosis	0	0	0	0	0	0	0	0
2	Acidosis	1	2	1	1	5	1	0	0
3	Bloat	25	7	27	10	69	17	23	18
4	Poisoning	0	0	2	2	4	1	1	1
5	Respiratory complication	2	2	0	1	5	1	0	0
6	Lameness	3	0	0	0	3	1	1	1
7	Calf Diarrhoea	18	9	20	10	57	14	19	15

Source: FAO-LDDP baseline survey, 2021

It is found that the highest occurrence of acidosis was in Jessore district (2 farms) while one farm was affected in each of Patuakhali, Mymensingh, and Dinajpur districts. The highest frequency of bloat was found in Mymensingh district (27 farms) followed by Dinajpur (25 farms), Patuakhali (10 farms) and the lowest in Jessore district (7 farms). A total of 4 farms were affected by poisoning of which 2 farms in Patuakhali and the other 2 are in Mymensingh district. The respiratory complications were found in 5 farms of which 2 farms in Jessore, 2 farms in Dinajpur and 1 in Patuakhali district. Only 3 beef fattening farms in Dinajpur district faced Lameness on their farms during last year. In terms of female operated farms, bloat seems to be the highly occurred disease (23 farms affected) following poisoning (1 farm) and lameness (1 farm).

5.4.3 Vaccination against infectious diseases in beef fattening farms

Figure 32 presents the proportion of beef fattening farmers who use regular vaccination for different infectious diseases. About 34% of total beef fattening farmers and 37% of female farmers use regular vaccination for FMD while 17% of total farmers and 21% of female farmers use regular vaccination for anthrax. In addition, 12% of total farmers use regular vaccination for the black quarter while about 16% of female farmers use this vaccination on their farm. About 10% of total farmers use regular vaccination for Haemorrhagic Septicaemia while 12% of female farmers use this vaccination. Among other diseases, 9% of farmers reported that they use the regular vaccine for LSD while only 1% of farmers use regular vaccination for rabies. In summary, the use of regular vaccination is higher for female farmers for almost all diseases compared to male farmers. Besides, the rate of the use of vaccination for FMD is higher compared to all other categories of diseases.

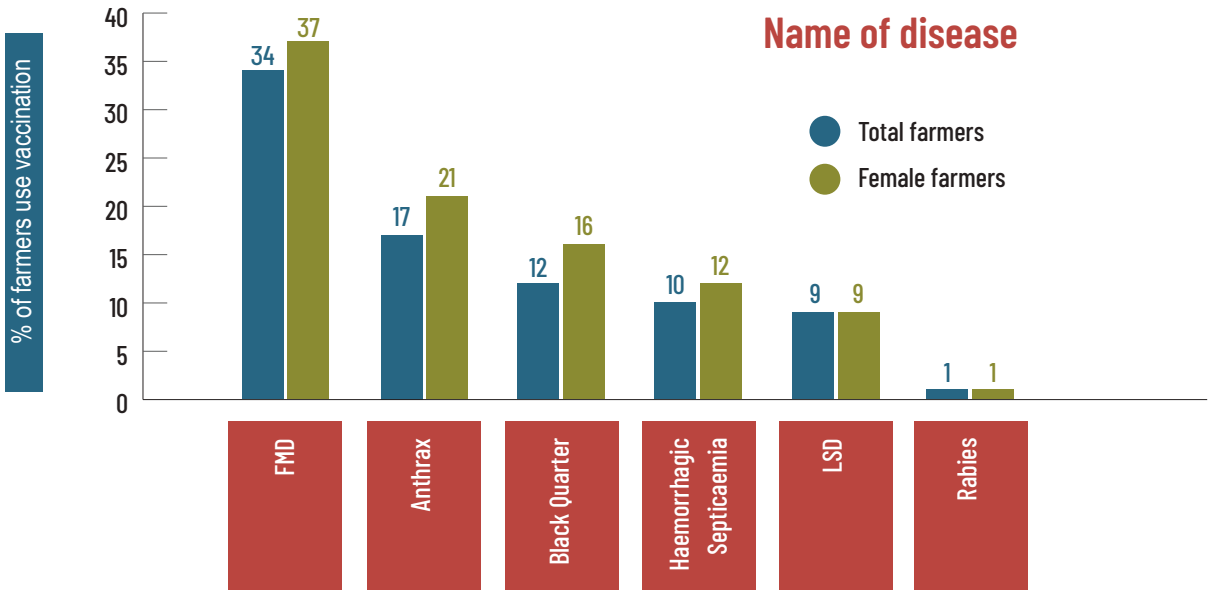


FIGURE 32

Proportion of farmers use regular vaccination in beef fattening farming

Table 71 shows the geographical distribution of the regular vaccination in beef fattening farms. In terms of FMD, it is found that the highest number of farmers in Jessore district used regular vaccination (50 farmers) compared to farmers in other districts. Among other districts, 40 farmers use the FMD vaccination in Patuakhali while 29 farmers in Dinajpur and 24 farmers in Mymensingh use the FMD vaccination.

Table 71: Geographical distribution of beef fattening farms use regular vaccination

#SL	Name of disease	Number of farms affected across district				Total farms affected	% of total 416 farms	Total female operated farms affected	% of total 130 female operated farms
		Dinajpur	Jessore	Mymensingh	Patuakhali				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	FMD	29	50	24	40	143	34	48	37
2	Lumpy Skin Disease (LSD)	0	1	6	32	39	9	12	9
3	Anthrax	10	15	3	42	70	17	27	21
4	Black Quarter	10	11	3	27	51	12	20	16
5	Haemorrhagic Septicaemia	9	10	0	21	40	10	16	12
6	Rabies	1	0	2	0	3	1	1	1

Source: FAO-LDDP baseline survey, 2021

A total of 32 farmers in Patuakhali use regular vaccination for LSD while only one farmer in Jessore and 6 farmers in Mymensingh use vaccination for LSD and no farmer in Dinajpur uses vaccine for LSD. In terms of anthrax, 42 farmers in Patuakhali use regular vaccination while 10, 15, and 3 farmers in Dinajpur, Jessore, and Mymensingh districts respectively used regular vaccination last year. In terms of the black quarter, 27 farmers in Patuakhali use regular vaccination while 10, 11, and 3 farmers in Dinajpur, Jessore, and Mymensingh districts respectively use regular vaccination. Besides, 9 farmers of Dinajpur and 10 farmers of Jessore district used vaccination for Haemorrhagic Septicaemia while a larger number of farmers (21 farmers) in Patuakhali used this vaccination. However, no farmers in Mymensingh are found to use vaccination for Haemorrhagic Septicaemia. Only one farmer in Dinajpur and 2 farmers in Mymensingh district used vaccination for Rabies while no farmers in Jessore and Patuakhali used vaccination for rabies last year.

In terms of female farmers in column (9), it can be seen that the highest number of female farmers (48 female farmers) used regular vaccination for FMD compared to other diseases. Among other diseases, 27, 20, 16, and 12 female farmers reported that they used regular vaccination for anthrax, black quarter, Haemorrhagic Septicaemia, and lumpy skin disease respectively.

5.4.4 Death of beef fattening cattle due to disease

The number of cattle that died in the beef fattening farm during the last year is reported in Figure 33. It can be seen that a total of 16 cattle died during the baseline period due to different diseases. The highest number of deaths was due to FMD (6, 37% of total deaths) followied by Bloat (4, 25% of total deaths). Besides, 2 cattle died due to LSD, Anthrax, and poisoning last year. However, Figure (b) shows that 2 cattle died on female operated farms, of which one from bloat and another from FMD disease.

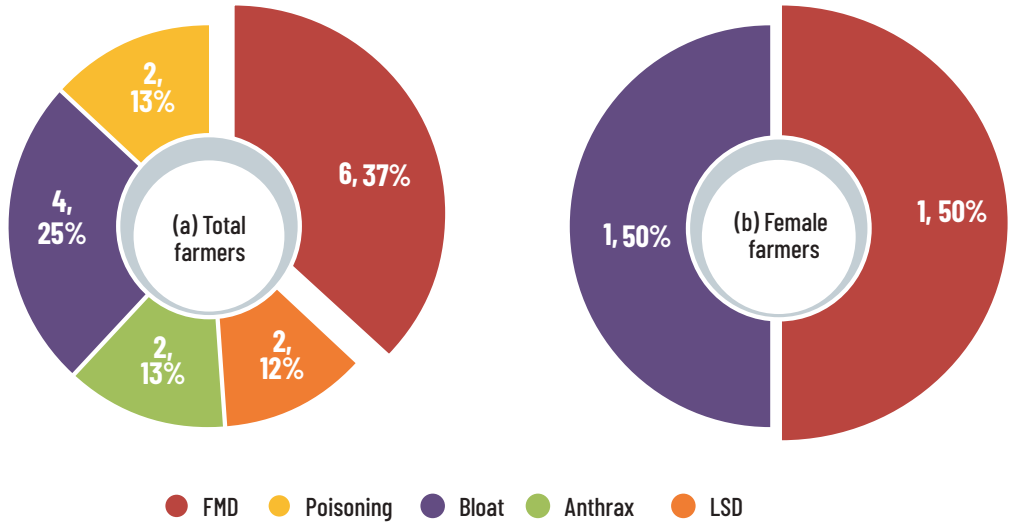


FIGURE 33
Number of cattle died due to disease

5.5 Feed production and management in beef fattening farms

Beef fattening farmers cultivate different types of green grass for their cattle. Some farmers cultivated green grass on their own land, while some others cultivated grass leased in or mortgaged in land.

5.5.1 Grass cultivation

Figure 34 shows that about 21% of total beef fattening farmers (89 farmers) and 28% of female farmers (36 female farmers) cultivate green grass for beef fattening. On the other hand, a total of 327 farmers do not cultivate green grass, of which 93 are female.

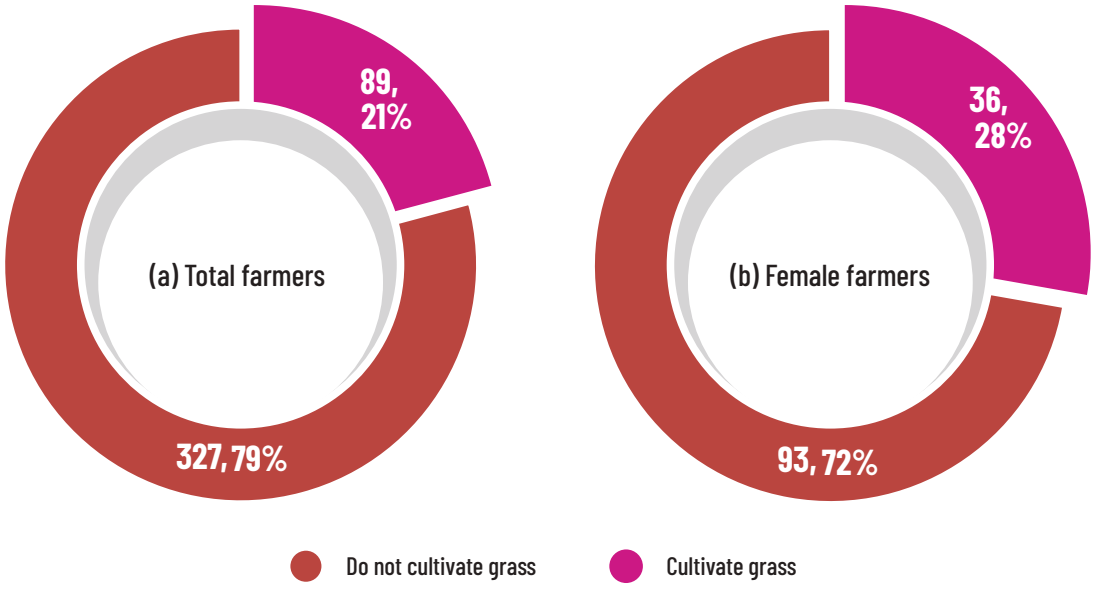


FIGURE 34
Proportion of farmers engaged in fodder cultivation

5.5.2 Area of grass cultivation

It can be seen from Figure 34 that out of a total of 416 beef fattening farmers, 89 farmers cultivate grass for their livestock. Baseline findings show that those who cultivate green grass, on average, about 15.56 decimal of land is used for grass cultivation among the sample farmers in Bangladesh. While disaggregated among different districts, grass cultivation area was the highest in Mymensingh (50.5 decimal) following Patuakhali (26 decimal), Dinajpur (14.34 decimal), and Jessore (10.38 decimal). However, most of the farmers use their own land (16.35 decimals) and mortgaged in land (10.83 decimals) for grass cultivation in Bangladesh respectively.

Table 72: Average land area under grass cultivation for beef fattening

#SL	District	Average land area in decimal				
		Homestead land	Fallow land	Mortgage land	Own Cultivate land	Total Land
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Dinajpur	-	18.63	12.4	11.4	14.34
2	Jashore	6.25		6.33	12.23	10.38
3	Mymensingh	-			50.5	50.5
4	Patuakhali	-	6	30	25.7	26
	Grand Total	**6.25**	**17.23**	**10.83**	**16.35**	**15.56**

Source: FAO-LDDP baseline survey, 2021

5.5.3 Types of grass cultivation

Grass cultivation for beef fattening farming is becoming popular in Bangladesh. There are different types of grass being cultivated in Bangladesh, such as Napier/Pakchun, German, Maiz, Kesheri, and so forth. Nepier/Packchun grass is found to be the most popular among the surveyed farmers. Few farmers cultivate other types of grass (dubli and local) for beef fattening farming.

5.5.4 Feeding practices in beef fattening farms

Figure 35 shows the average quantity of different types of feed used by beef fattening farmers for their cattle per day. It can be seen that roughage occupied the major portion of different feed categories, including female farmers. Among roughage, beef fattening farmers use on average of 6.06 Kg of green grass and 5.79 Kg of other roughage per day per cattle. The average quantity of grains, commercial ready feed, oil cake, molasses, minerals, and used by total farmers was about 1.24, 0.64, 0.18. 0.1, and 0.09 Kg per day per cattle respectively. Female farmers also used almost the same quantity of feed as there is for total farers in beef fattening.

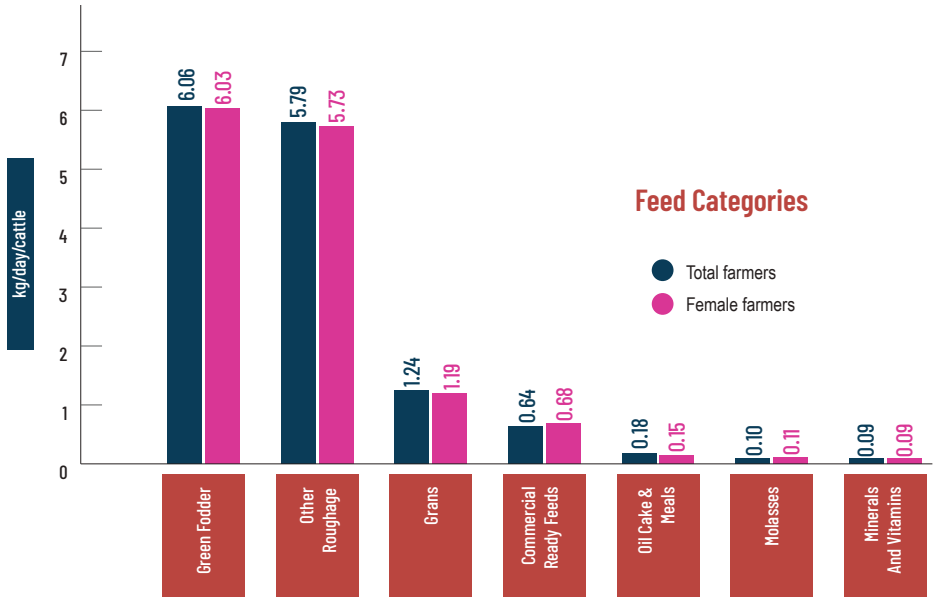


FIGURE 35
Types of feed used per day per cattle in beef fattening farming



5.6 Food safety and certification

It can be seen from Table 73 that only about 2% of farmers (9 out of 416 farmers) wash their hands before entering the farm while the majority do not. Only 1% of the total beef fattening farmers use foot baths containing disinfectant at the entrance of the farm while only 2% of farmers control visitors/other animals, birds and pest access on the farm. However, only one farmer monitors and keeps a record of biosecurity measures on the farm, maintains a record of pedigree, treatment, vaccination and AI for each animal and tests feed quality and safety materials from a private feed testing lab. About 1% of total farmers reported that the utensils cleaned and sanitized utensils properly with safe water and disinfectants before and after use. In terms of animal transport, about 13% of total farmers reported that they transport animals considering their comfort. Besides, 13% of total farmers reported that they follow the drug withdrawal period. Only 10 farmers out of a total of 416 farmers receive food safety-related information while the majority remain unaware of this and do not practice the food safety measures. Nevertheless, the proportion of female farmers who use the food safety and certification measures is almost the same as this is for total farmers.

Table 73: Use of food safety and certification measures in beef fattening farms

#SL	Food safety and certification particulars	Number of farmers use this measure	% of total 416 farmers use this measure	Number of female farmers use this measure	% of 130 female farmers use this measure
(1)	(2)	(3)	(4)	(5)	(6)
1	Do you wash your hand before entering the farm?	9	2	5	4
2	Do you use foot bath containing disinfectant at the entrance of the farm?	3	1	1	1
3	Do you control visitor/other animal, bird and pest access on the farm?	10	2	3	2
4	Do you monitor and maintain records for the above mentioned activities?	1	0	0	0
5	Do you keep record of parent's information, treatment, vaccination and AI information for each farm animal?	1	0	0	0
6	Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your cattle/buffalo feed	1	0	0	0
7	Do you transport animal with animal comfort?	54	13	14	11
8	Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use?	5	1	2	1
9	Do you perform regular health check-up of animals and farm workers (TB, Jaundice, Brucellosis etc.)?	0	0	0	0
10	Do you keep records of health check-up of animals and farm workers (TB, Brucellosis etc	0	0	0	0
11	Do you maintain withdrawal period of antibiotic/hormone?	53	13	15	12
12	Do you get any cattle health certificate before sale?	3	1	1	1
13	Do you use any label/brand for your beef cattle?	0	0	0	0
14	Did you receive any information related to food safety?	10	2	2	2

Source: FAO-LDDP baseline survey, 2021

5.6.1 Sources of farm animals' drinking water (Beef)

Safe drinking water for livestock is very important for livestock farming. However, different farmers are using water from different sources for their livestock farming. It can be seen from Table 74 that the majority (76% of total farmers and 73% of female farmers) of farmers use shallow tube-well/electric pumps as the source of drinking water for their cattle. Besides, about 19% of total farmers and 21% of female farmers use hand tube-well water for their beef cattle. Most of the farmers use water from sallow tube-well/electric pumps for household consumption as well as on the beef fattening farm. However, about 4% of total farmers and 6% of female farmers reported that they use farm animal's drinking water from ponds/cannels/rivers. Hence, this might be a safety concern regarding farm animals' drinking water in beef fattening farming.

Table 74: Sources of farm animals' drinking water (beef)

#SL	Name of the water source	Number of farmers use this source	% of total 416 farmers who use this source	Number of female farmers use this source	% of total 130 female farmers who use this source
(1)	(2)	(3)	(4)	(5)	(6)
1	Tube-well	80	19	27	21
2	Ponds/Cannel/Rivers	18	4	8	6
3	Supply/ Tap	0	0	0	0
4	Filtered	0	0	0	0
5	Sallow tube-well/ electric pump	318	76	94	73

Source: FAO-LDDP baseline survey, 2021

5.6.2 Sources of food safety related information (Beef fattening farmers)

It is found that only 10 beef fattening farmers out of a total of 416 farmers received any kind of food safety-related information during the last year. Among those who received food safety-related information, TV seems to be the most popular medium of information following SMS, online media, mobile apps, and training. For instance, a total of 9 farmers, received information from TV, 6 farmers received information from SMS, 5 farmers received information from online media and 3 farmers received information from training and mobile apps. Only 2 female farmers (column 6) received information from TV. Overall, the female farmers have much less access to food safety information compared to male farmers.

Table 75: Sources of food safety related information in beef fattening farming

#SL	Name of the source of food safety information	Number of farmers received information from this source	% of 10 farmers who received food safety related information	Number of female farmers received information from this source	% of 2 female farmers who received food safety related information
(1)	(2)	(3)	(4)	(5)	(6)
1	Training	3	1	0	0
2	Mobile app	3	1	0	0
3	SMS	6	1	0	0

4	Community radio	1	0	0	0
5	TV	9	2	2	100
6	Online media	5	1	0	0
7	Exhibition	1	0	0	0

Source: FAO-LDDP baseline survey, 2021

5.7 Technology and practices used in beef fattening farming

Table 76 presents the adoption of different technologies and practices in beef fattening farming in the surveyed areas of Bangladesh. Adoption is defined as the regular use of any technology or practice on the farm. It can be seen that about 46% of total farmers use routine deworming of their cattle while about 34% of total farmers use routine vaccination. Some beef fattening farmers rear dairy cattle along with their beef fattening cattle.

Table 76: Technology and practices used in beef fattening farms

#SL	Name of technology	Adoption of Technology and Practices			
		Number of farmers adopted	% of total 416 farmers adopted technology	Number of female farmers adopted	% of total 130 female farmers adopted
(1)	(2)	(3)	(4)	(5)	(6)
	CSA technologies and practices				
1	Artificial insemination	149	36	50	39
2	Improved fodder production	23	6	10	8
3	Silage making	2	0	0	0
4	Total Mixed Ration	0	0	0	0
5	Ration balancing	3	1	1	1
6	UMS	10	2	1	1
7	UMB/UMMB	0	0	0	0
8	Routine Vaccination	143	34	48	37
9	Routine Deworming	190	46	60	47
10	Manure management	8	2	3	2
11	Waste Management	1	0	0	0
12	Climate-resilient housing	15	4	3	2
	Other technologies and practices				
13	Floor feeding	1	0	0	0
14	Hydroponic fodder production	0	0	0	0
15	Animal Identification	0	0	0	0
16	Access to Climate-resilient manure entrepreneur	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

It is found that about 36% of total farmers use artificial insemination on their farm. About 6% of farmers reported using improved fodder cultivation. About 4% of farmers use climate-resilient housing for their cattle. Although manure management is an important issue related to beef fattening farming, only 2% of farmers reported using manure management among the total surveyed farmers. Only 1 farmer uses waste management technology on the farm. In terms of feeding, only 10 and 3 farmers were found to use UMS and ration balancing technology on their farms. Besides, one farmer is found to use floor feeding on their farm. No farmer is found to use other technologies and practices such as Total Mixed Ration, UMB/UMMB, hydroponic fodder production, access to Climate-resilient manure entrepreneur, and animal identification. In terms of female farmers, it can be seen that about 47% of female farmers use routine deworming, 39% of female farmers use farm cattles artificial insemination, 48% of female farmers use routine vaccination, and 8% of female farmers use improved fodder production technologies. Besides, 3 female farmers use climate-resilient housing and 'have adopted manure management systems. Only one female farmer uses ration balancing and UMS on their farm.

5.8 Capacity enhancement of beef fattening farmers

Table 77 presents the number and proportion of farmers who received training on different technologies and practices as a means of capacity enhancement. It can be seen that only 24 farmers of which 11 were females received training on routine deworming while 14 farmers of which 3 were female farmers received training for artificial insemination. Besides, 13 farmers of which 3 were females received training on improved fodder production. Only one female farmer received training on climate-resilient housing and using mobile app. 2 farmers of which one female received training on manure management and waste management. A total of 11 farmers of which 6 were females received training on ration balancing while 17 farmers of which 5 were females received training on UMS. A total of 4 farmers including 1 female received training on UMB/ UMMB preparation and good agricultural practice. In addition, 4 farmers reported that they received training on food safety. Overall, the majority o farmers did not receive any training on most of the technologies and practices. Hence, there is a big room to increase productivity, market access, and resilience of beef production by enhancing the farmers' capacity enhancement.

Table 77: Number of farmers received training for capacity enhancement

#SL	Capacity enhancement training	Capacity enhancement of beef fattening			
		Number of farms received training	% of total 416 farms received	Number of female farms received	% of total 130 female farms received
(1)	(2)	(3)	(4)	(5)	(6)
1	Routine Deworming	24	6	11	9
2	Artificial insemination	14	3	4	3
3	Improved fodder production	13	3	3	2
4	Climate-resilient housing	1	0	1	1
5	Manure management	2	0	1	1
6	Ration balancing	11	3	6	5
7	UMS	17	4	5	4
8	Waste management	2	0	1	1
9	Total Mixed Ration	11	3	2	2
10	Silage making	5	1	1	1

11	UMB/UMMB	4	1	1	1
12	Floor feeding	0	0	0	0
13	Hydroponic fodder production	0	0	0	0
14	Agribusiness and value chain	0	0	0	0
15	Business development skill	0	0	0	0
16	Good agricultural practice	4	1	1	1
17	Food safety training	4	1	0	0
18	Climate shock mitigation	0	1	0	0
19	Animal Identification	0	0	0	0
20	Animal health card and certification	0	0	0	0
21	Training on gender equality	0	0	0	0
22	Training on using mobile apps	1	0	1	1
23	Others	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

5.9 Housing and management in beef fattening farming

There are different types of cattle houses are being used for beef fattening farming in Bangladesh. Table 78 shows that the majority (56%) of the total beef fattening farmers and 49% of female farmers use a single row permanent cattle house made with brick on the floor and tin on the roof. On the other hand, about 6% of total farmers and 7% of female farmers use double row permanent cattle houses made with brick or tin. About 2% of total beef fattening farmers and 2% of female farmers reported using the single row makeshift type of cattle house. However, 36% of total farmers and 43 % of female farmers use the conventional type of cattle house.

Table 78: Type of housing used by the beef fattening farmer

#SL	Type of housing	Number of farmers	% of total 416 beef fattening farmers	Number of female farmers	% of total 130 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Single row permanent made with brick (floor) and tin (roof)	233	56	63	49
2	Double row permanent made with brick or tin	24	6	9	7
3	Single rows make-shift	8	2	2	2
4	Double rows make-shift	0	0	0	0
5	Conventional	151	36	55	43

Source: FAO-LDDP baseline survey, 2021



Table 79 shows the number and proportion of beef fattening farms based on the use of different housing facilities on the farm.

Table 79: Use of different facilities in the beef fattening cattle house

#SL	Facilities in the cattle house	Beef fattening farmers			
		Number of total farmers	% of total 416 beef fattening farmers	Number of female farmers	% of total 130 female beef fattening farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Floor mat	125	30	32	25
2	Air cooling	0	0	0	0
3	Floor Electric fanr mat	188	45	58	45
4	Mechanical manure management	0	0	0	0
5	Mechanical watering and washing option	18	4	3	2
6	Biosafety plan	82	20	25	19
7	Proper ventilation	41	10	9	7
8	Sufficient space for livestock	296	71	88	68
9	Quarantine facility	1	0	0	0
10	Utensils are women friendly	284	68	87	67

Source: FAO-LDDP baseline survey, 2021

The majority of the farms (71% of total farmers and 68% of female farmers) have sufficient space for livestock, 30% of total farmers and 25% of female farmers use floor mats, and 45% of total farmers as well as female farmers have electric fans on the farm, 4% of total farmers and 2% of female farmers have mechanical watering and washing facilities. Besides, 20% of total farmers and 19% of female farmers use a biosafety plan, and 10% of total farmers and 7% of female farmers have proper ventilation on the farm. About 68% of total farmers and 67% of female farmers reported that the utensils they use are women friendly.

It can be seen from Table 79 that a total of 82 farmers of which 25 are female farmers use biosafety plans on their farms. Table 80 presents the number and proportion of farmers among the farmers who use biosafety plans on their farms based on different biosafety plans. Among the different types of biosafety plans, the majority of farms use mosquito nets to protect their livestock. However, no farmer is found who uses foot baths on their beef fattening farms.

Table 80: Types of biosafety plan used in the beef fattening farm

#SL	Biosafety plan	Beef fattening farmers			
		Number of total farmers	% of 82 farmers who use biosafety	Number of female farmers	% of (25) female farmers who use biosafety
(1)	(2)	(3)	(4)	(5)	(6)
1	Foot bath	3	4	1	4
2	Hand wash facility	9	11	6	24
3	Mosquito net	70	85	18	72

Source: FAO-LDDP baseline survey, 2021

Figure 36 shows the number and proportion of beef fattening farms based on using different energy sources on the farm. The majority of farms (83% of total farmers as well as female farmers) use electricity as the energy source. Only one male farmer uses solar energy on his beef fattening farm (Figure a).

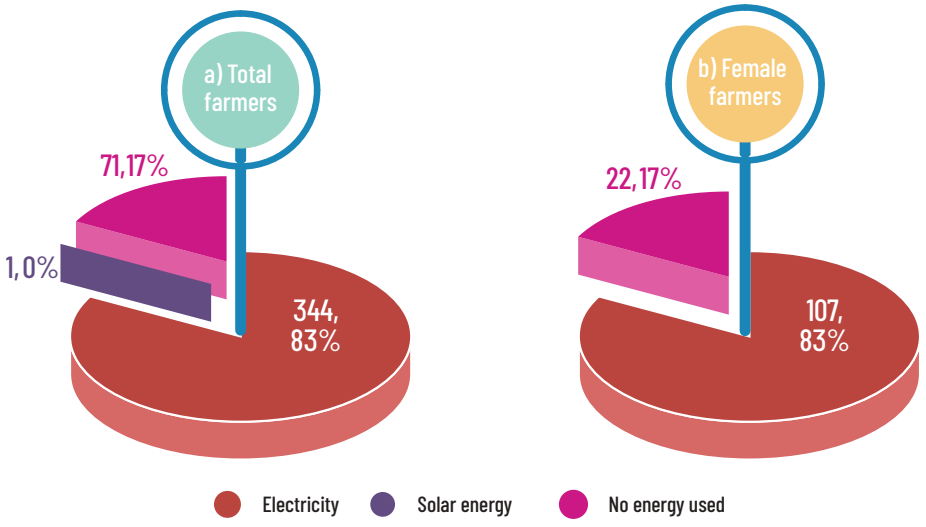


FIGURE 36
Types of energy used in beef fattening farms

5.10 Manure management in beef fattening farms

Table 81 presents the number and proportion of farms based on different types of manure processing techniques. It can be seen that most of the farmers (72% of total farmers and 79% of female farmers) keep manure (cow dung) as solid storage in the open space while 20% of total farmers and 15% of female farmers keep manure as solid storage in the covered place. Manure (cow dung) is also being used as burned fuel. A total of 2 farmers were found to use manure as a burning. Only 3 farmers of which 1 female process manure as anaerobic digestion to produce biogas. However, about 6% of total farmers and 4% of female farmers dispose of manure on the open space which could be a concern for environmental issues. The efficient manure management could reduce the GHG emissions in livestock farming.

Table 81: Types of manure processing in beef fattening farmers

#SL	Type of manure processing	Number of farmers	% of total 416 beef fattening farmers	Number of female farmers	% of total 130 female beef fattening farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	301	72	102	79
2	Solid storage (in covered place)	85	20	19	15
3	Dispose to open space	25	6	5	4
4	Burned Fuel	2	0	2	2
5	Anaerobic digestion	3	1	1	1

Source: FAO-LDDP baseline survey, 2021



Farmers also use manure in crop cultivation after making compost. Figure 37 shows that about 88% (366 farmers) of total farmers as well as female farmers use manure as organic fertilizer in crop cultivation.

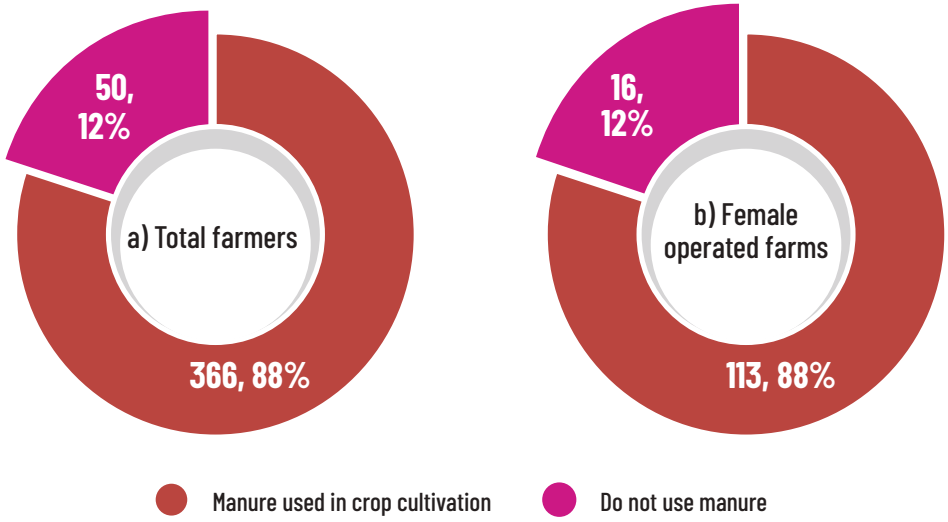


FIGURE 37

Number and Proportion of farmers use manure as fertilizer in crop cultivation

Table 82 presents the number and proportion of beef fattening farms based on different categories of waste disposal on the farm. Waste is defined as any other kind of material other than manure (cow dung) such as excess feed, straw, and so forth.

Table 82: Waste disposal in beef fattening farms

#SL	Type of waste disposal	Number of farmers	% of total 416 beef fattening farms	Number of female farmers	% of total 130 female beef fattening farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	234	56	77	60
2	Solid storage (in covered place)	48	12	10	8
3	Dispose to open space	118	28	39	30
4	Burned Fuel	15	4	3	2
5	Anaerobic digestion	1	0	0	0

Source: FAO-LDDP baseline survey, 2021

It can be seen that about 56% of total farmers and 60% of female farmers dispose farm waste as solid storage in the open space while 12% of total farmers and 8% of female farmers dispose waste in the covered place. More alarming is that about 28% of total farmers and 30% of female farmers dispose waste in the open space which could be an environmental concern. Besides, 4% of total farmers and 2% of female farmers dispose waste as burned fuel. However, only one male farmer uses anaerobic digestion.



5.11 Climate related risk in beef fattening farming

Different climatic risks such as floods, tornados, cyclones, extreme weather, and rainfall frequently affect livestock production in Bangladesh. Table 83 shows that about 11% of farms (11% of female operated farms) were affected by flood/flash flood/waterlogging during the last five years. Besides, about 15% of farmers (14% of female operated farms) reported that tornados/cyclones affected their farm in the last five years. 2 farmers of which one female operated were affected by extremely hot weather while only one male operated farm was affected by extremely cold weather. However, 8 farmers (all male) reported that they faced excessive rainfall during the last five years.

Table 83: Number and proportion of farms affected by climatic risk during last 5 year

#SL	Type of climate related risk	Number of farms	% of total 416 beef fattening farms	Number of female operated farms	% of total 130 female beef fattening farms
(1)	(2)	(3)	(4)	(5)	(6)
1	Flood/flash flood/waterlogging	47	11	14	11
2	Draught	0	0	0	0
3	Tornado/cyclone	62	15	18	14
4	Extreme hot weather	2	0	1	1
5	Extreme cold weather	1	0	0	0
6	Excessive rainfall	8	2	0	0
7	Salinity	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

The effect of climatic risks on beef fattening farming could be of several types. A total of 47 farmers of which 14 were female responded to the question related to the effect of climatic risks. Table 84 shows that a total of 42 farmers of which 13 female farmers reported the scarcity of green grass and concentrate feeds due to different types of climatic risk. Besides, 33 farmers of which 13 were female farmers faced damage or destruction of cattle houses due to tornado/cyclone. Insufficient input and service due to climatic risk is reported by only one male farmer. A total of 79 farmers of which 11 are female faced animal death and disease outbreaks due to climatic risk. In addition, raising feed prices is reported by 9 farmers of which 2 are females while 30 farmers of which 10 are female faced interruption in output sales due to climatic risk last year.

Table 84: Effect of different climatic risk on beef fattening farming

#SL	Effect of climatic risk	Number of farmers	% of total 47 farmers	Number of female farmers	% of total 14 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Output sale interrupted	30	64	10	71
2	Animal death and disease outbreak increase	37	79	11	79
3	Scarcity of green grass and concentrate feeds	42	89	13	93
4	Damage/destruction to livestock house	33	70	13	93
5	Inadequate input and service (veterinary Treatment, AI, vaccine)	1	2	0	0
6	Rising of food prices	9	19	2	14

Source: FAO-LDDP baseline survey, 2021

5.12 Access to extension services in beef fattening farming

Table 85 shows that the majority (about 69%-75%) of total dairy farmers (column 4) and female farmers (68% -76%) (column 6) have access to veterinarian and consultancy services, artificial insemination services, vaccination services, and deworming services. Besides, 6 farmers of which 2 females have access to fodder production, cutting and distribution services, 14 farmers of which 3 female farmers have access to livestock feeding and management services, and 10 farmers of which 6 females have access to online livestock and product marketing services. Overall, most farmers don't have access to many other services such as online treatment, mobile veterinary clinics, online databases, online knowledge sharing, and business development training.

Table 85: Beef fattening farmers access to digital and physical extension services

#SL	Types of extension services	Number of total farmers reported this services is accessible	% of total 416 farmers reported this services is accessible	Number of female farmers reported this services is accessible	% of total 130 female farmers reported this services is accessible
(1)	(2)	(3)	(4)	(5)	(6)
1	Veterinarian and Consultancy	313	75	88	68
2	Artificial Insemination	288	69	92	71
3	Vaccination	304	73	98	76
4	Deworming	303	73	85	66
5	Agro-enterprise development	5	1	0	0
6	Fodder production, cutting and distribution	6	1	2	2
7	Livestock feeding and management services	14	3	3	2
8	Local & global market information	2	0	1	1
9	Product and input quality control services	1	0	0	0
10	Product branding and quality certification	1	0	0	0
11	Online Database	0	0	0	0
12	Online livestock and product marketing	10	2	6	5
13	Online knowledge sharing related to food safety, marketing, amimal health, livestock production etc.	6	1	3	2
14	Online treatment	0	0	0	0
15	Mobile veterinary clinic	0	0	0	0
16	Waste management	2	0	1	1
17	Manure management	0	0	0	0

5.13 Household's nutrition awareness related information

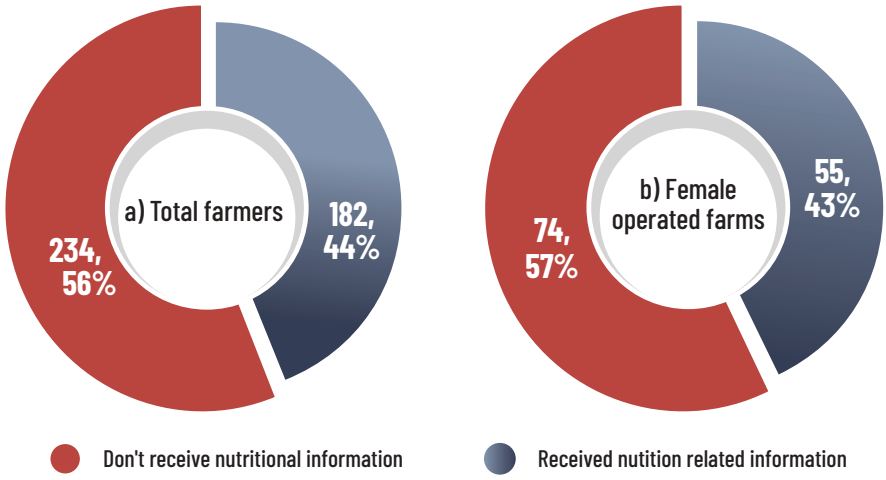


FIGURE 38

Farm households received nutrition awareness information

Figure 38 presents the number and proportion of beef fattening farmers who received various nutrition awareness related information. The figure indicates that about 182 (44%) of beef fattening farmers of which 55 were female (43% of female farmers) received nutrition-related information last year. On the other hand, the majority of beef fattening farmers (234 of which 74 were female did not receive any nutrition-related information.

5.14 Gender perspective in beef fattening value Chain

The beef fattening value chain is another important value chain of the LDDP intervention implemented in 61 districts in Bangladesh. To fulfil the demand for animal protein the beef fattening value chain is an important initiative for the country. Usually, the farm owners purchase the cattle to rear for a few months and then sell them in the market. The male and young boys who are more accessible to market, veterinary services interested in this beef fattening value chain.

5.14.1 Gender perspective in household management in beef fattening value chain

The table below shows that women are mostly taking care of their family as well as the farm. Among the total surveyed households who responded, females are mainly taking care of children in 75% of households (HHs) and both males and females are taking care of Children in 23% HHs.

Table 86: Gender perspective in household management among the PG of beef fattening

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Manage taking care of children along with farming	7	289	89	2	75	23	385
2	Manage preparing children for their school along with farming	6	304	69	2	80	18	379
3	Manage caring elderly family members along with farming	7	247	83	2	73	25	337
4	Manage cooking along with farming	7	385	16	2	94	4	408
5	Manage collecting water along with farming	15	259	136	4	63	33	410

Source: FAO-LDDP baseline survey, 2021

In terms of preparing children for school, females are preparing children in about 80% of HHs while both males and females are preparing children only about 18% HHs. Besides, females are caring for elderly members, cooking in the family and collecting cooking water in about 73%, 94% and 63% of HH respectively who responded to the respective questions. The overall data amplifies that cooking, rearing children, caring for elderly people, and preparing children for school are dedicatedly taken care of by females.

For ensuring women's empowerment there is a need to develop the promotion of the practice of sharing workload especially the household chores together in consensus which will strengthen the family bonding and spend quality time with family members and become more productive.

5.14.2 Gender perspective in farm management in beef fattening value chain

The following table presents the gender perspective in farm management in beef fattening farming.

Table 87: Gender perspective in farm management in beef fattening value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who takes the decision of buying livestock?	217	3	195	52	1	47	415
2	Who chooses the breed?	218	5	189	53	1	46	412
3	Who takes the decision of fodder production?	166	4	67	70	2	28	237
4	Who cultivates fodder?	202	1	11	95	0	5	214
5	Who collect fodder from field?	253	5	19	91	2	7	277
6	Who takes decision of feed rationing?	171	17	226	41	4	55	414
7	Who fed animals on the farm?	122	26	268	30	6	64	416
8	Who decide to manage manure?	137	19	213	37	5	58	369
9	Who manages manure and waste on the farm?	125	23	231	33	6	61	379
10	Who perform cleaning and sanitization on the farm?	100	77	226	25	19	56	403
11	Who choose the input supplier?	296	20	69	77	5	18	385
12	Who maintain the contact with the input supplier?	324	10	50	84	3	13	384
13	Who decide where to sale?	243	8	165	58	2	40	416
14	Who maintain the contact with the buyer?	341	7	68	82	2	16	416
15	Who decide the use of money earned from livestock?	167	7	242	40	2	58	414
16	Who maintain the contact with the vet service providers?	317	6	91	77	1	22	414

Source: FAO-LDDP baseline survey, 2021

Among the total surveyed households who responded to the respective questions, as can be seen in the majority of households (58% to 95%), male members are mainly taking decisions for fodder production, fodder cultivation, selection of input supplier, contact with input supplier, place of selling livestock, and contact with buyers. On the other hand, in the majority of households (55% to 64% of total households who responded), both males and females are mainly taking decisions for feed rationing, livestock feeding, manure management, waste management and cleaning and sanitization on the farm of livestock but male have a strong command in taking a decision on where to sell (58%), to use income from livestock farming (40%). Overall, Men mostly manage outside work and their mobility is well accepted in the society, but the female is mainly responsible to manage the housing assignment as their mobility is restricted which is reflected on the farm management assignment as well (e.g. female's limited access in contracting with input supplier, buyer and vet services).



5.14.3 Gender perspective in access to training and services

As can be seen from the table below, males are mostly participating in training in 58% and 53% of males have access to different digital and physical extension services while both male and female farmers spent time in farm activities in about 42% and 7% respectively. 40 % of female and 27% of male go out for feed and food product testing, and an almost equal 38% of male and 37% of female have access to finance.

Table 88: Gender perspective in access to training and services in beef fattening value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who participates in the training?	209	8	144	58	2	40	361
2	Who spent more time in farm activities?	130	23	161	42	7	51	314
3	Who mainly have access to finance/ credit?	156	152	107	38	37	25	415
4	Who mainly goes out for feed and food product testing?	85	124	103	27	40	33	312
5	Who have mainly access to different digital and physical extension services?	187	18	151	53	5	42	356

Source: FAO-LDDP baseline survey, 2021



5.14.4 Gender perspective in ownership of the farm and livestock

Overall, males (53%) have better access to different digital and physical extension services, but females have very limited access to training (2%), and digital and physical extension services (5%). As can be seen from the table below, in 87% of beef fattening farms, male members are the Gender perspective in ownership of the farm and livestock. Despite a female's role in farm management of Beef fattening female has less ownership in both the farm and livestock.

Table 89: Gender perspective based on the ownership of the farm and livestock in beef fattening value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who is the authorized owner of this farm?	361	14	41	87	3	10	416
2	Who is the authorized owner of livestock?	353	14	49	85	3	12	416

Source: FAO-LDDP baseline survey, 2021

As can be seen from the table above, in 87% of beef fattening farms, male members are the key authorized owners of the farm while females are the authorized owner in 3% of farms and both males and females are the authorized owner in 10% of total beef fattening farms. In terms of the authorized owner of the livestock on the farm, females, males and both males and females are the authorized owners of the livestock on 85%, 3%, and 12% of the farms. So, there is a need to explore the opportunity of increasing the ownership of females in both farm and livestock management to accelerate the path of female empowerment.

5.15 Farmers perceptions regarding LDDP services

LDDP is providing different services for increasing productivity, market access and climate-resilient production for the improvement of the livestock sector in Bangladesh. This section presents the overall services to the beef fattening farmers and the farmers' satisfaction levels regarding the LDDP services.

5.15.1 Farmers received asset from DLS/LDDP to start or continue their livestock business last year

It can be seen from Figure 39 that about 13% (56 beef fattening farmers) of total beef fattening farmers received any kind of asset from DLS/LDDP to start or continue their existing livestock business. On the other hand, 87% of farmers reported that they did not receive any kind of asset assistance from the DLS/LDDP. Among female farmers, about 12% of farmers (15 farmers) received an asset from DLS/LDDP last year.years.

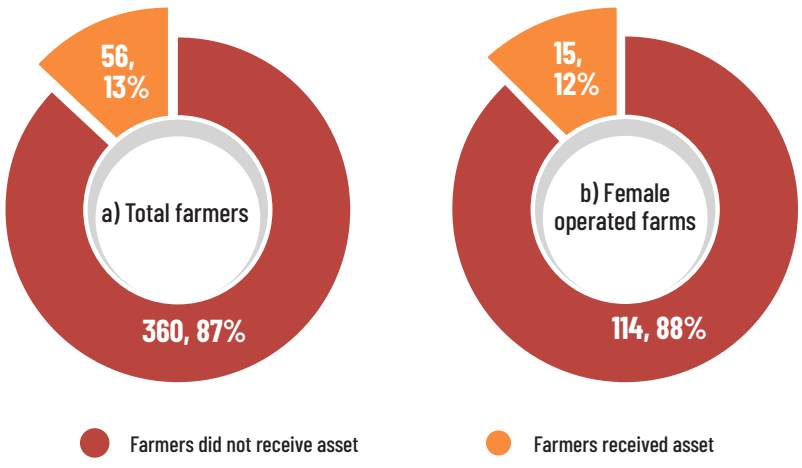


FIGURE 39
Number and Proportion of farmers received assets to start/continue livestock business

Table 90 shows the number and proportion of farmers who received different assets for the LDDP.

Table 90: Types of assets farmers received during last year

#SL	Asset from LDDP/DLS	Number of farmers received this	% of total 416 farmers use this received this	Number of female farmers received this	% of total 130 female farmers received this
(1)	(2)	(3)	(4)	(5)	(6)
1	Livestock house	0	0	0	0
2	Utensils like bucket, spade, etc	0	0	0	0
3	Feed mixture machine	0	0	0	0
4	Hygienic cleaning tools	0	0	0	0
5	Roughage shredder machine	0	0	0	0
6	Grass chopper machine	0	0	0	0
7	Live animal	0	0	0	0
8	Cash incentive	26	6	7	5
9	Feed	1	0	1	1
10	Vaccination & Deworming	29	7	7	5

Source: FAO-LDDP baseline survey, 2021

5.15.2 Farmers received training from LDDP

As can be seen, 26 beef fattening farmers of which 7 female farmers received cash incentives due to COVID impact last year to continue their existing beef fattening business. In addition, 1 female farmer received another asset feed incentive last year. A total of 29 farmers (7 female) received vaccination and deworming medicines from LDDP. This is because the baseline survey was carried out while some of the interventions of LDDP were already in the field.

Only 4 beef fattening farmers received training from LDDP last one year. However, among those who received training from LDDP, 3 male farmers and 1 female farmer reported good training from LDDP (see Table 91).

Table 91: Level of satisfaction of beef fattening farmers regarding LDDP provided training during last one year

#SL	Rate of satisfaction on the training you received from LDDP	Number of farmers	% of total 4 farmers	Number of female farmers	% of total 1 farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	0	0	0	0
2	Good	4	100	1	100
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0
6	Not applicable	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

5.15.3 Farmers overall satisfaction regarding LDDP services

A total of 56 beef fattening farmers (15 female) received any kind of asset from LDDP last year. The overall satisfaction of those who received an asset from LDDP is shown in the following table. In terms of overall satisfaction regarding LDDP service, 100% of total farmers who received assets from LDDP reported good service. However, the majority (87% of total farmers) of beef fattening farmers did not comment regarding the overall satisfaction since they had not received any service from LDDP yet (see Table 92).

Table 92: Beef fattening farmers overall level of satisfaction with LDDP services

#SL	Overall satisfaction with LDDP services	Number of farmers received	% of total 56 farmers received	Number of female farmers received	% of total 15 female farmers received
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	0	0	0	0
2	Good	56	100	15	100
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Chapter 6. Baseline Finding of Small Ruminant Value Chain





There were 15,000 small ruminant farmers under small ruminant producer groups as the direct beneficiaries of the LDDP. Small ruminants consider both goat and sheep farming. A total of 412 sample farmers (367 from goat farming and 45 from sheep farming) from the direct beneficiary small ruminant farmers across 4 districts, namely Kustia, Kurigram, Rajshahi, and Rajbari have been surveyed during the baseline survey. Although the primary sampling distribution was 325 goat farmers and 87 sheep farmers, the final sample size has been rearranged to 367 goat farmers and 45 sheep farmers due to the unavailability of beneficiary sheep farmers during the baseline survey.

6.1 Goat and sheep farm characteristics

The average numbers of goat and sheep per farm are presented in columns (3) and (5) of Table 93. As can be seen, on average 6 goats are present on each goat rearing farm while 10 sheep are present per sheep rearing farm.

Table 93: Average number of goat and sheep per farm

#SL	Goat	Average number of Goat	Sheep	Average number of Sheep
(1)	(2)	(3)	(4)	(5)
1	Does	3	Rams	2
2	Castrated goat	2	Ewes	5
3	Kids	2	Wethers	3
4	Bucks	2	Lamb	4
5	Average number of goats per farm	6	Average number of sheep per farm	10

Source: FAO-LDDP baseline survey, 2021

Small ruminants have been classified into three categories, such as small (1-4 goats/sheep), medium (5-8 goat/sheep), and large (more than 8 goats/sheep)[11]. As can be seen from the following table, out of the total surveyed 367 goat rearing farms, 30% are categorized as small farm, 57% are categorized as medium farm, and 13% are categorized as the large farm. On the other hand, 20% of sheep rearing farms are categorized as small farms, 27% are categorized as medium farm and 53% are categorized as large farms. Overall, the majority of goat rearing farms are categorized as medium farm while majority of sheep rearing farms are categorized as large farm.

[11] Farm size has been categorized following Nandi et al., (2011) small ruminant (goat & sheep) farms will be classified as small (1-4 ruminants), medium (5-8 ruminants), and large (above 8 ruminants).



Table 94: Distribution of sample small ruminant farmers based on different farm categories

#SL	Category	Number of sample farmers rearing goat and sheep					
		Goat farming (357 farmers)			Sheep farming (45 farmers)		
		Small farm (1 – 4 goats)	Medium farm (5 – 8 goats)	Large farm (>8 goats)	Small farm (1 – 4 sheep)	Medium farm (5 – 8 sheep)	Large farm (>8 sheep)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Kurigram	58	35	10	0	0	0
2	Kushtia	22	41	25	3	3	9
3	Rajbari	15	83	5	0	0	0
4	Rajshahi	13	51	9	6	9	15
	Grand Total	**108**	**210**	**49**	**9**	**12**	**24**
	% of total goat and sheep farmers	**30**	**57**	**13**	**20**	**27**	**53**

Source: FAO-LDDP baseline survey, 2021

6.2 Small ruminant's meat productivity

The following table presents the average live weight of goat and sheep at their slaughter age during last one year (1st October 2020 to 30th September 2021). Although the goat and sheep live weight could depend on many factors such as breed type, age of goat and sheep at its slaughter age, rearing period, feeding and management and so forth, these characteristics are not considered during live weight estimation during the baseline survey. Here live weight is the estimated value of goat and sheep that are sold and consumed on-farm by the farmer at slaughter age. Slaughter age denotes the age when a farmer sells his/her fattening beef cattle for slaughtering purposes. Average live weight is calculated by dividing the total quantity of live weight sold and consumed on-farm (number of goat and sheep sold and consumed during last year * average live weight) with the total number of goat and sheep sold and consumed on-farm by the survey households.

6.2.1 Average live weight of goat and sheep at the slaughtering age

As can be seen at the bottom of columns (3) and (5) of Table 95, average live weight of a goat and sheep is about 14.96 Kg and 11.91 Kg at the slaughter age, respectively. However, considering goat and sheep together, the average live weight of small ruminant is about 14.53 Kg per small ruminant. While disaggregated across different districts, the average live weight of goat is 13.82 Kg in Kurigram and 17.57 Kg in Kustia districts. Besides, the average live weight of goat in Rajshahi district is found to be 15.22 Kg. However, the lowest live weight per goat was in the Rajbari district which is only 12.68 Kg. In terms of sheep farming, the live weight per sheep in Kushtia district is higher (14.11 Kg) compared Rajshahi district (11.29 Kg).



Table 95: Meat productivity of small ruminant

#SL	District	Average live weight of goat and sheep (Kg) at its slaughter age		
		Goat	Sheep	Average live weight
(1)	(2)	(3)	(4)	(5)
1	Kurigram	13.82	-	13.82
2	Kushtia	17.57	14.11	17.15
3	Rajbari	12.68	-	12.68
4	Rajshahi	15.22	11.29	13.95
5	Total	14.96	11.91	14.53

Source: FAO-LDDP baseline survey, 2021

6.2.2 Average quantity of meat (live weight) sold per farm per year

The average quantity of meat sold per goat and sheep farm per year is presented in Table 96 disaggregated across different districts. As can be seen from the bottom of columns (3) and (4), the average quantity of meat sold per goat and sheep farm is about 42.33 Kg and 47.13 Kg per year respectively. While disaggregated across different districts, the quantity of goat meat sold last year is the highest, 53.96 Kg in the Rajshahi district followed by 51.48 Kg in Kustia, and 43.15 Kg in the Kurigram district. However, the lowest quantity of goat meat sold per farm is found in the case of Rajbari district which is about 25.47 Kg per year. As can be seen from column (4), the average quantity of sheep meat sold per farm per year is about 50 Kg in Rajshahi district while it is only 41.40 Kg in Kustia district.

Table 96: Average quantity of meat (kg) sold per farm last year

#SL	District	Average quantity (live weight, Kg) sold per farm per year	
		Goat	Sheep
(1)	(2)	(3)	(4)
1	Kurigram	43.15	-
2	Kushtia	51.48	41.40
3	Rajbari	25.47	-
4	Rajshahi	53.96	50.00
5	Total	42.33	47.13

Source: FAO-LDDP baseline survey, 2021

6.2.3 Average price of goat and sheep meat

Table 97 presents the average price of goat and sheep meat per Kg (live weight) respectively disaggregated across the district level. The price is estimated as the yearly average during the baseline period to overcome the seasonal bias. As can be seen at the bottom of columns (3) and (4), average price of goat meat and sheep meat is about Tk 341.89 and Tk 305.74 per Kg respectively. However, considering goat meat and sheep meat together, the average price of meat (live weight) is about Tk 337.94 per Kg. While disaggregated across different districts, the average price of goat meat seems to be the highest (about Tk 368.39/Kg) in Rajshahi district. On the contrary, goat meat price is the lowest, Tk 327.75 per Kg in Rajbari district. In Kurigram district and Kustia District, goat meat price per Kg is about Tk 327.83 and Tk 352.92 respectively. The average price of sheep meat seems to be the highest (about Tk 317.17/Kg) in Rajshahi district, while lowest in Kustia district (Tk 282.88 per Kg).



Table 97: Average price of goat and sheep (live weight)

#SL	District	Average price of small ruminant meat (live weight, kg)		
		Goat	Sheep	Average
(1)	(2)	(3)	(4)	(5)
1	Kurigram	327.83	-	327.83
2	Kushtia	352.92	282.88	342.72
3	Rajbari	327.75	-	327.75
4	Rajshahi	368.39	317.17	353.47
	Total	341.89	305.74	337.94

NB: Meat price = Average value per goat and sheep / average live weight of goat and sheep, Source: FAO-LDDP baseline survey, 2021

6.3 Breeding management in small ruminant farming

Table 98 presents the types of breeding used in goat and sheep farming. It can be seen that the majority of farmers (96%) use off-farm paid natural mating in goat farming. Besides, a total of 11 farmers engaged in goat farming use natural mating in their own farm and 13 engaged in sheep farming use off-farm paid natural mating. However, only 3 goat rearing farmers reported using AI services for their goats.

Table 98: Types of breeding used in goat and sheep farm

#SL	Breeding method	Goat farming		Sheep farming		Total farmers use this method	% of total 412 farmers use this method
		Number of farmers	% of total (367) goat farmers	Number of farmers	% of total (45) sheep farmers		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Natural mating in own farm	11	3	32	71	43	10
2	Off-farm paid natural mating	353	96	13	29	366	89
3	AI service	3	1	0	0	3	1

Source: FAO-LDDP baseline survey, 2021

Table 99 presents the number and proportion of farmers who use off-farm breeding, including AI. on their farm across different sources of breeding. It can be seen that about 99 % of farmers use breeding services from other private services (the farmers who do breeding business locally). Only 3 goat farmers used the goat breeding service from the community breeding center.

Table 99: Sources of off-farm breeding for goat and sheep

#SL	Source of breeding	Goat farming		Sheep farming		Total farmers use this method	% of total 369 farmers use this method
		Number of farmers	% of total (356) goat farmers	Number of farmers	% of total (13) sheep farmers		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Govt. breeding center	0	0	0	0	0	0
2	Community breeding center	3	1	0	0	3	1
3	Others (Private service	353	99	13	100	366	99

Source: FAO-LDDP baseline survey, 2021

Figure 40 shows the number and proportion of farmers regarding the use of inbreeding in goat and sheep farming. About 30% of goat rearing farmers reported that they use inbreeding (Figure a) while about 71% of sheep rearing farmers use inbreeding (Figure b) on their farms. Considering both goat and sheep farming together, it can be seen that (Figure c) about 35% of total small ruminant rearing farmers use inbreeding on their farms. Overall, the rate of using inbreeding on farms is higher in sheep rearing farms compared to goat rearing farms. Hence, increased awareness regarding the problem of inbreeding is indeed necessary.

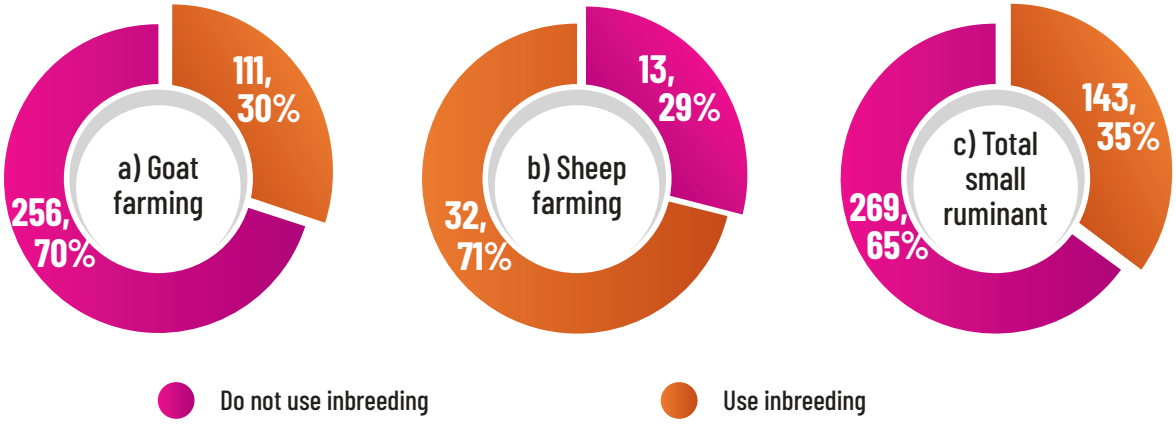


FIGURE 40

Number and Proportion of farmers use inbreeding in farm

In terms of inbreeding related awareness, about 30% of goat farmers and 71% of sheep rearing farmers reported that they use inbreeding on the farm. However, only one goat rearing farmer and 20 sheep rearing farmers reported that they knew about the problems of inbreeding problems. Hence, proper interventions are needed to reduce inbreeding and increase awareness regarding the problems of inbreeding.

Table 100: Small ruminant rearing farmers' awareness of inbreeding

#SL	Particulars	Goat farming		Sheep farming		Total farmers	% of total 412
		Number of farmers	% of total (367) goat farmers	Number of farmers	% of total (45) sheep farmers		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Use of inbreeding in farm	111	30	32	71	143	35
2	Farmers know about inbreeding problem	1	1	20	63	21	15

Source: FAO-LDDP baseline survey, 2021

6.3.1 Goat farmers breed preference for artificial insemination

It was found that only 3 goat rearing farmers responded regarding their preference for artificial insemination. However, all 3 farmers preferred black Bengal goats for artificial insemination on their farms.

Table 101 presents the average number of kids given at one birth by goats and sheep on the farm. It can be seen that on average 2 kids (both goat and sheep) were born at one birth.

Table 101: Average number of goat and sheep kids at one birth

#SL	District	Average number of goat and sheep kids at one birth		Total number of kids
		Goat rearing	Sheep rearing	
(1)	(2)	(3)	(4)	(5)
1	Kurigram	2	-	2
2	Kushtia	2	2	2
3	Rajbari	2	-	2
4	Rajshahi	2	2	2
	Average	**2**	**2**	**2**

Source: FAO-LDDP baseline survey, 2021

6.4 Goat and sheep farming household's access to market

To know the market access of small ruminant farmers, several information has been collected such as to whom farmers sell their beef cattle, where they sell and what is the mode of transport they use to transport their goat and sheep for marketing.

6.4.1 To home goat and sheep rearing farmers mainly sell their goat and sheep

Table 102 shows the number and proportion of goat and sheep rearing farmers based on the buyers. It can be seen that a total of 317 surveyed farmers (283 goats rearing and 34 sheep rearing farmers) sell their goats and sheep to the traders/pikers. In addition, 56 farmers (52 goat rearing and 4 sheep rearing farmers) sell goat and sheep to the butchers in the local market. However, a total of 22 farmers (17 goat rearing and 5 sheep rearing farmers) reported that they did not sell any during the last year.



Table 102: Number and proportion of goat and sheep rearing farmers based on the type of buyers

#SL	Types of buyers	Number of goat rearing farmers	% of total 367 goat rearing farmers	Number of sheep rearing farmers	% of total 45 sheep rearing farmers	Total farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Consumer	15	4	2	4	17	4
2	Trader/piker	283	77	34	76	317	77
3	Roadside butcher	0	0	0	0	0	0
4	Butcher in local market	52	14	4	9	56	14
5	Meat processor	0	0	0	0	0	0
6	Lender to repay loan	0	0	0	0	0	0
7	Online market	0	0	0	0	0	0
8	Call center	0	0	0	0	0	0
9	Did not sell	17	5	5	11	22	5

Source: FAO-LDDP baseline survey, 2021

6.4.2 Place of selling goat and sheep

A total of 390 farmers out of the total surveyed 412 farmers sold their goats and sheep last year. Table 103 shows the number and proportion of goat and sheep rearing farmers based on the place of selling their products. It can be seen that a total of 234 surveyed farmers (203 goat rearing and 31 sheep rearing farmers) sell their goats and sheep at farm gate. In addition, 121 farmers (116 goat rearing and 5 sheep rearing farmers) mainly sell their goats and sheep at local markets while 31 farmers (27 goat rearing and 4 sheep rearing farmers) mainly sell goats and sheep in the urban market.

Table 103: Number and proportion of goat and sheep rearing farmers based on the place of selling

#SL	Name of location	Number of goat rearing farmers	% of total 350 goat rearing farmers who sold	Number of sheep rearing farmers	% of total 40 sheep rearing farmers	Total farmers who sold	% of total 390 farmers who sold
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Farmgate	203	58	31	78	234	60
2	Sale within village	4	1	0	0	4	1
3	Local market	116	33	5	13	121	31
4	Urban market	27	8	4	10	31	8

Source: FAO-LDDP baseline survey, 2021

6.4.3 Mode of goat and sheep transportation

Table 104 shows the number and proportion of goat and sheep rearing farmers based on the mode of transport they use for marketing. It can be seen that a total of 33 farmers (29 goat rearing and 4 sheep rearing farmers) sell their goats and sheep on foot. In addition, 104 farmers (103 goat rearing and 1 sheep rearing farmer) use rickshaw/van/bicycle/motorcycle etc. to sell their goats and sheep while 19 farmers (15 goat rearing and 4 sheep rearing farmers) use an auto vehicle to sell goat and sheep in the market. In terms of the proportion, it can be seen from column (8) that the highest proportion of total farmers use rickshaw/van/bicycle etc. (27%) followed by foot (8%) for goat and sheep transport.



Table 104: Number and proportion of goat and sheep rearing farmers based on mode of goat and sheep transport

#SL	Mode of transport	Number of goat rearing farmers	% of total 350 goat rearing farmers who sold	Number of sheep rearing farmers	% of total 40 sheep rearing farmers	Total farmers who sold	% of total 390 farmers who sold
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	On foot	29	8	4	10	33	8
2	Rickshaw/Van/bicycle etc	103	29	1	3	104	27
3	Auto vehicle	15	4	4	10	19	5
4	Others (do not transport)	203	58	31	78	234	60

Source: FAO-LDDP baseline survey, 2021

6.4.4 Selling processed goat and sheep or goat and sheep meat

All of the sample farmers reported that they did not sell any slaughtered or processed goat and sheep or portions of goat and sheep during last year.

6.4.5 Major sources of purchased feed for goat and sheep farming

Out of total 412 surveyed small ruminant farmers, 282 farmers (275 goat farmers and 7 sheep farmers) use some kind of purchase feed for their goat and sheep. The following figure shows the main sources of different purchased feed for goat and sheep farming. It can be seen that about 98% of goat rearing farmers and 97% of sheep rearing farmers use purchased feed from the local retailers, while about 2 % of goat rearing farmers and 1% of sheep rearing farmers purchase feed from the wholesalers.

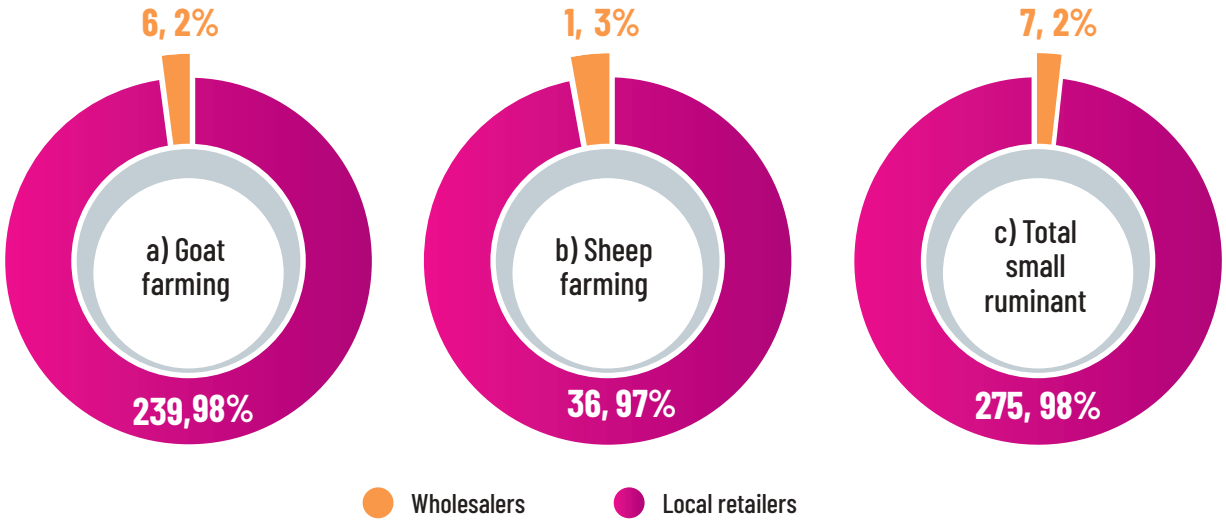


FIGURE 41
Number and Proportion of farmers based on the sources of purchased feed

Table 102 shows the number and proportion of goat and sheep rearing farmers based on the buyers. It can be seen that a total of 317 surveyed farmers (283 goats rearing and 34 sheep rearing farmers) sell their goats and sheep to the traders/pikers. In addition, 56 farmers (52 goat rearing and 4 sheep rearing farmers) sell goat and sheep to the butchers in the local market. However, a total of 22 farmers (17 goat rearing and 5 sheep rearing farmers) reported that they did not sell any during the last year.

6.5 Livestock disease management (goat and sheep rearing farms)

The baseline survey was carried out in 4 districts of Bangladesh for the small ruminant value chain. To understand the disease frequency faced during the last year by the Producer Groups (PGs) members under the Livestock and Development Project (LDDP), the survey asked infectious, reproductive, metabolic, and other disease-related questions to the farmers.

6.5.1 Occurrence of infectious diseases in goat and sheep farming

Figure 42 shows that PPR is the most frequently occurring infectious disease in small ruminant farming. Last year, about 37 % of total small ruminant farms of which 38% of total goat rearing farms and 31% of sheep rearing farms were reported to be affected by PPR. The second most frequently occurring disease is Pneumonia. As can be seen about 32 % of total small ruminant rearing farms of which 33% of goat rearing and 22% of sheep rearing farms have been affected by pneumonia during the last year. A small proportion (1% to 4%) of goat and sheep rearing farmers have also been affected by some other infectious diseases like FMD, pox, mastitis, enterotoxaemia and actinomycosis.

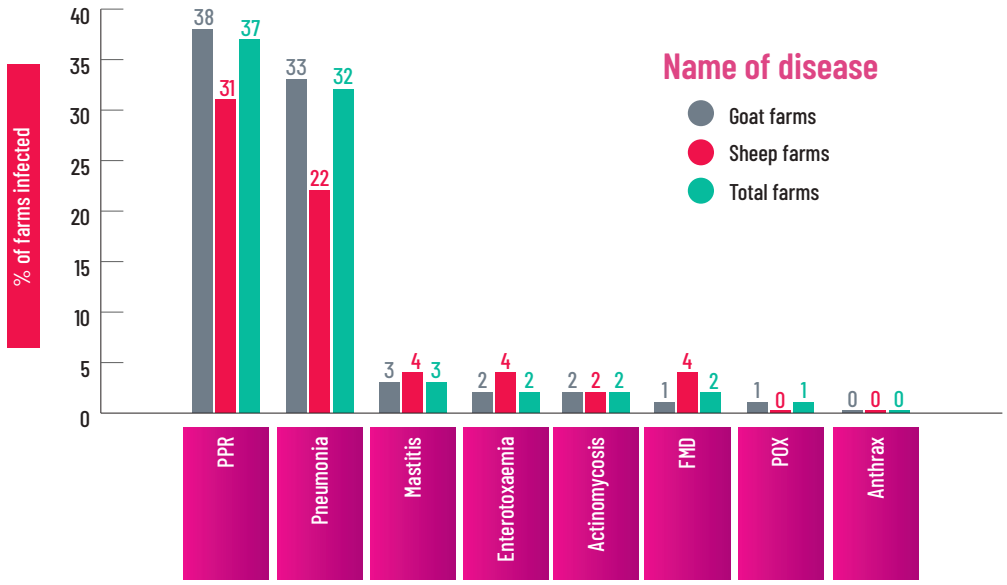


FIGURE 42

Proportion of goat and sheep rearing farms affected by infectious disease

Table 105 shows the geographical distribution of the occurrence of infectious diseases in small ruminant farming. It was found that the highest occurrence of PPR was in Kurigram district (58 goat farms) compared to Rajshahi (41 goat farms and 14 sheep farms), Kustia (27 goat farms), and Rajbari (12 goat farms). Besides, the highest occurrence of pneumonia is found in Kurigram district (58 goat farms) compared to Kustia (32 goat farms and 10 sheep farms), Rajbari and Rajshahi (16 goat farms). A total of 12 farms of which 10 goat farms and 2 sheep farms have been affected by mastitis while a total of 10 farms have been affected by Enterotoxaemia and Actinomycosis diseases.

Table 105: Geographical distribution of occurrence of infectious diseases in goat and sheep

#SL	Name of disease	Number of farms affected across district								Total Goat farms	% of total 367 goat farms	Total Sheep farms	% of total 45 sheep farms	Total farms	% of total 412 farms
		Kurigram		Kustia		Rajbari		Rajshahi							
		Goat	Sheep	Goat	Sheep	Goat	Sheep	Goat	Sheep						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	PPR	58	0	27	0	12	0	41	14	138	38	14	31	152	37
2	FMD	4	0	0	1	1	0	0	1	5	1	2	4	7	2
3	Pox	1	0	2	0	0	0	0	0	3	1	0	0	3	1
4	Pneumonia	58	0	32	10	16	0	16	0	122	33	10	22	132	32
5	Mastitis	2	0	5	1	2	0	1	1	10	3	2	4	12	3
6	Enterotoxaemia	3	0	2	0	2	0	1	2	8	2	2	4	10	2
7	Anthrax	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Actinomycosis	5	0	4	0	0	0	0	1	9	2	1	2	10	2

Source: FAO-LDDP baseline survey, 2021

6.5.2 Occurrence of reproductive disease in small ruminant farms

Figure 43 shows that repeat breeding is the most frequently occurring reproductive disease in goat farming. About 16% of the total surveyed goat farms faced this problem last year while sheep farmers did not face this problem. On the other hand, the abortion rate was higher in sheep farming. It seems that about 13% of sheep farms faced this problem last year while 3% of goat farms faced this problem. In terms of dystocia, about 7% of total small ruminant farms of which 7% of goat farms and 4% of sheep farms faced this problem last year.

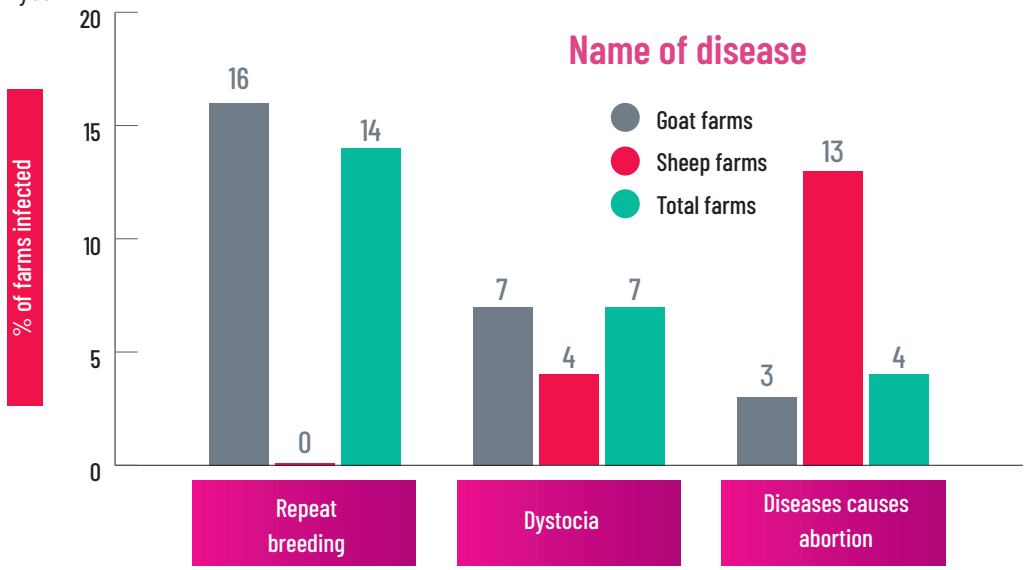


FIGURE 43

Proportion of goat and sheep rearing farms infected by reproductive disease

Table 106 shows the geographical distribution of the occurrence of reproductive diseases in small ruminant farming. It was found that the highest occurrence of repeat breeding is in the Kustia district (30 goat farms) compared to Rajshahi (18 goat farms), Kurigram (8 goat farms), and Rajbari (1 goat farm). Besides, the highest occurrence of dystocia is found in the Rajshahi district (19 goat farms) compared to Kustia (6 goat farms and 2 sheep farms), and Rajbari (1 goat farm). A total of 17 farms of which 11 goat farms and 6 sheep farms have faced cattle abortion during the last year.

Table 106: Geographical distribution of occurrence of reproductive diseases in goat/sheep

#SL	Name of disease	Number of farms affected across district								Total Goat farms	% of total 367 goat farms	Total Sheep farms	% of total 45 sheep farms	Total farms	% of total 412 farms
		Kurigram		Kustia		Rajbari		Rajshahi							
		Goat	Sheep	Goat	Sheep	Goat	Sheep	Goat	Sheep						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	Repeat breeding	8	0	30	0	1	0	18	0	57	16	0	0	57	14
2	Dystocia	0	0	6	2	1	0	19	0	26	7	2	4	28	7
3	Diseases causes abortion	3	0	7	0	1	0	0	6	11	3	6	13	17	4

Source: FAO-LDDP baseline survey, 2021

6.5.3 Metabolic and other diseases in goat and sheep rearing farms

Figure 44 presents the proportion of goat and sheep rearing farms infected by different metabolic and other diseases during the last year. It can be seen that the majority of farms (both goat and sheep) have been affected by diarrhoea, parasitic, and tympany diseases. For instance, 47% of total farms were affected by diarrhoea while about 48% of goat farms and 38% of sheep farmers were affected by diarrhoea last year.

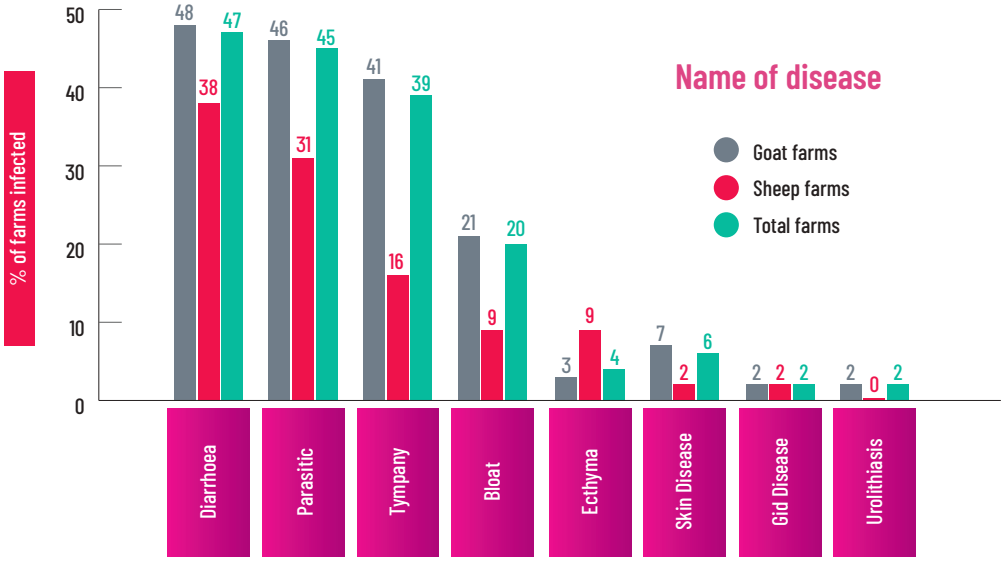


FIGURE 44
Proportion of goat and sheep rearing farms infected by metabolic and other diseases

Besides, about 45% of total farms have been affected by the parasitic disease while about 46% of goat farms and 31% of sheep farms have been affected by this disease. About 39% of the total farms including 41% of goat farms and 16% of sheep farms have been affected by tympany. In terms of bloat disease, it can be seen that about 21% of goat farms and 9% of sheep farms have been affected by this disease during the last year. However, a small proportion (2% to 7% of farms) of farms have also been affected by some other diseases such as urolithiasis, gid disease, skin disease, and ecthyma

Table 107 presents the geographical distribution of the occurrence of metabolic and other diseases in small ruminant farming. It is found that the highest occurrence of parasitic disease was in the Kustia district (48 goat farms, and 7 sheep farms) compared to Kurigram (47 goat farms), Rajshahi (46 goat farms and 7 sheep farms), and Rajbari (29 goat farms). Besides, the highest occurrence of tympany is found in Rajshahi district (58 goat farms and 4 sheep farms) compared to Kustia (42 goat farms and 3 sheep farms), Kurigram (34 goat farms), and Rajbari (18 goat farms). A total of 82 farms of which 78 goat farms and 4 sheep farms were affected by bloat disease last year.

Table 107: Geographical distribution of goat and sheep rearing farms affected by different metabolic and other disease

#SL	Name of disease	Number of farms affected across district								Total Goat farms	% of total 367 goat farms	Total Sheep farms	% of total 45 sheep farms	Total farms	% of total 412 farms
		Kurigram		Kustia		Rajbari		Rajshahi							
		Goat	Sheep	Goat	Sheep	Goat	Sheep	Goat	Sheep						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	Parasitic	47	0	48	7	29	0	46	7	170	46	14	31	184	45
2	Tympany	34	0	42	3	18	0	58	4	152	41	7	16	159	39
3	Bloat	29	0	36	1	8	0	5	3	78	21	4	9	82	20
4	Urolithiasis	1	0	7	0	0	0	0	0	8	2	0	0	8	2
5	Gid disease	1	0	4	0	2	0	0	1	7	2	1	2	8	2
6	Skin disease	1	0	10	1	3	0	11	0	25	7	1	2	26	6
7	Ecthyma	1	0	3	2	0	0	8	2	12	3	4	9	16	4
8	Diarrhoea	39	0	45	2	29	0	63	15	176	48	17	38	193	47

Source: FAO-LDDP baseline survey, 2021

6.5.4 Vaccination against infectious disease in goat and sheep farms

Figure 45 presents the proportion of farmers who use regular vaccination on their farms. It can be seen that goat rearing farmers use regular vaccination only for PPR diseases. For instance, about 35% of goat rearing farmers use vaccination for PPR while only 2% of goat rearing farmers use vaccination for FMD. Sheep rearing farmers did not found to use any vaccines regularly.



FIGURE 45

Proportion of farmers use regular vaccination in small ruminant farming

Table 108 presents the geographical distribution of regular vaccination by goat and sheep rearing farms. It can be seen that a total of 128 goat rearing farmers use vaccination against PPR of which the majority (65 farmers) are in Kurigram district following Rajbari (26 farmers), Kustia (25 farmers, and Rajshahi (12 farmers). However, only one sheep rearing farmer is found in the Rajshahi district who uses regular vaccination for PPR. In terms of vaccination against FMD, a total of 7 goat rearing farmers use vaccination of which 6 farmers are in Kurigram and 1 farmer is in Rajbari district.

Table 108: Geographical distribution small ruminant farmers use regular vaccination

#SL	Name of disease	Number of farmers use vaccination								Total Goat farms	% of total 367 goat farms	Total Sheep farms	% of total 45 sheep farms	Total farms	% of total 412 farms
		Kurigram		Kustia		Rajbari		Rajshahi							
		Goat	Sheep	Goat	Sheep	Goat	Sheep	Goat	Sheep						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	PPR	65	0	25	0	26	0	12	1	128	35	1	0	129	31
2	FMD	6	0	0	0	1	0	0	0	7	2	0	0	7	2

Source: FAO-LDDP baseline survey, 2021

6.5.5 Death of goat and sheep due to disease

Figure 46 shows the number of cattle that died due to different diseases during the last year. Small ruminant farmers surveyed during the baseline survey reported that cattle mainly died due to PPR, pneumonia, diarrhoea, mastitis, and enterotoxaemia. However, it seems that the number of goat and sheep deaths is higher for PPR following pneumonia. A total of 101 goats (61% of total goat death) and 40 sheep (80% of sheep death) died due to PPR last year. Besides, a total of 28 goats died due to pneumonia last year.

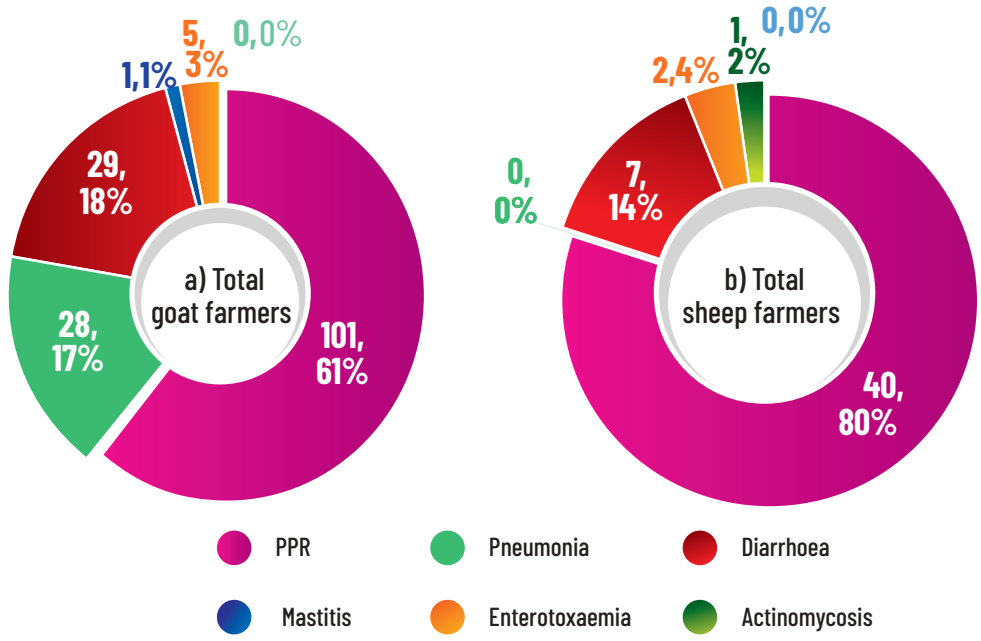


FIGURE 46

Number of goat and sheep died due to disease

6.6 Feed production and management in small rumininat rearing

6.6.1 Grass cultivation

Figure 47 shows that only 11 % of total small ruminant farmers cultivate green grass. A total of 43 goat rearing farmers (12% of goat rearing farmers) and 1 sheep rearing farmer (2% of sheep rearing farmers) cultivated green grass during the last year.

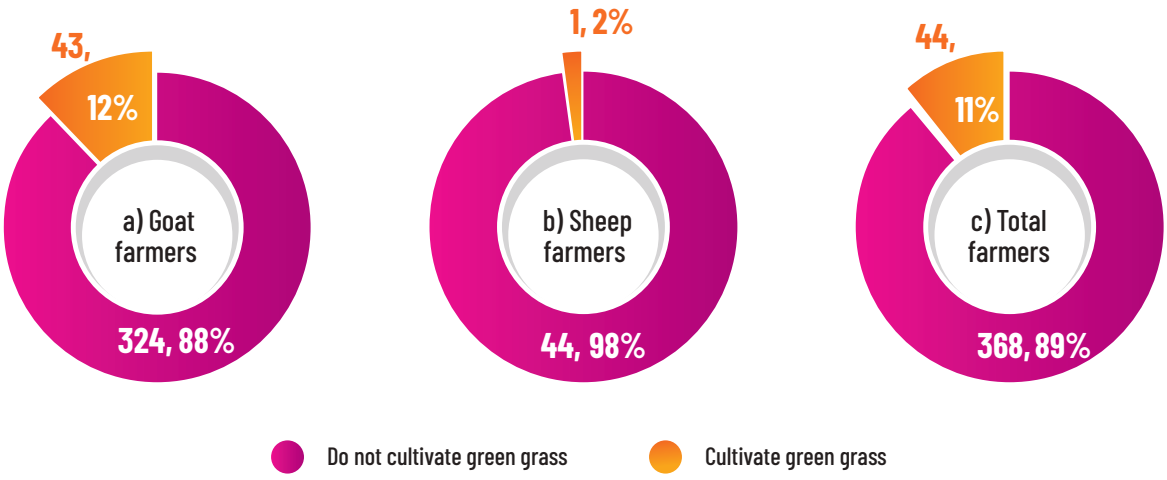


FIGURE 47
Number and Proportion of farmers engaged in grass cultivation

6.6.2 Areas of grass cultivation

A total of 44 farmers cultivate grass for their goats and sheep. Baseline findings show that on average, about 3.07 decimal of land is used for grass cultivation among the sample farmers in Bangladesh. While disaggregated among different districts, the grass cultivation area was the highest in Kurigram (3.43 decimal) followed by Rajshahi (3.2 decimal), Rajbari (3 decimal) and Kustia (2.67 decimal. Only one sheep farmer in the Kustia district is found to cultivate green grass in leased in land of 4 decimal.

6.6.3 Types of green grass

There are different types of grass being cultivated in Bangladesh, such as Napier (*Pennisetum purpureum*), jambo, and leaf (dhoincha, Ipilipil). Nepier grass is found to be the most popular among the surveyed farmers. A total of 40 farmers cultivated Nepier while 3 and 1 farmers cultivated Jambo and Leaf respectively. Overall, grass cultivation for small ruminant rearing is very low in the sampled areas.

6.6.4 Feeding practices in goat and sheep rearing farms

Table 109 shows that the majority of farmers (56% of total farmers) use the combined grazing and stall-feeding system for their goat and sheep rearing. It can be seen that a total of 230 farmers (192 goat rearing farmers and 38 sheep rearing farmers) use both grazing and stall-feeding practices. On the other hand, about 31% of total farmers (128 farmers of which 121 goats rearing and 7 sheep rearing farmers) use only the grazing method for feeding their goat/sheep. However, 54 goat rearing farmers (15% of goat rearing farmers) is found to use only the stall feeding while no sheep farmers were dependent on stall-feeding.

Table 109: Distribution of small ruminant farmers based on different types of feeding

#SL	Types of feeding	Total goat rearing farmers	% of total 367 goat rearing farms	Total sheep rearing farmers	% of total (45) sheep farmers	Total farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Grazing	121	33	7	16	128	31
2	Stall-feeding	54	15	0	0	54	13
3	Both browsing and stall-feeding	192	52	38	84	230	56

Source: FAO-LDDP baseline survey, 2021

Table 110 shows that the majority (45% of total farmers) of the goat and sheep rearing farmers browse their goat and sheep at village fallow land following roadside grazing (34% of total farmers), pastureland (20% of total farmers).

Table 110: Main sources of goat and sheep grazing

#SL	Sources of goat and sheep grazing	Total goat rearing farmers	% of total 313 goat rearing farms	Total Sheep rearing farmers	% of total 45 sheep rearing farmers	Total farmers	% of total 358 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Roadside	106	34	14	31	120	34
2	Agricultural land	0	0	0	0	0	0
3	Forest land	4	1	-	0	4	1
4	Village fallow land	143	46	18	40	161	45
5	Pastureland	60	19	13	29	73	20

Source: FAO-LDDP baseline survey, 2021



6.6.5 Feeding practice

Figure 48 shows the average quantity of different types of feed used by small ruminant farmers for their goats and sheep per day. It can be seen that green grass occupied the major portion of the different feed categories for goats and sheep.

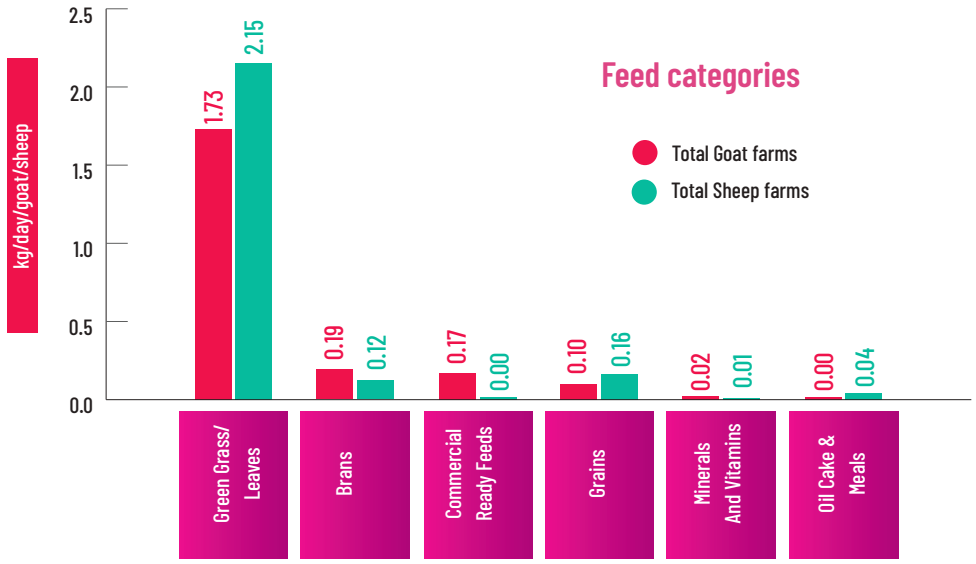


FIGURE 48
Types of feed used per goat and sheep per day

Goat rearing farmers use an average of 1.73 Kg of green grass per day per cattle while sheep rearing farmers use about 2.15 Kg of green grass. The average quantity of grains, brans, minerals and vitamins used by goat rearing farmers was about 0.10, 0.19, 0.17, and 0.02 Kg per day per goat respectively. In terms of sheep farmers, the quantity of grains, brans, oil cake, minerals and vitamins used by sheep rearing farmers was about 0.16, 0.12, 0.04, and 0.01 Kg per day per sheep respectively.



6.7 Food safety and certification

Table 111 shows that only 2 farmers control visitors/other animals, birds and pest access on their farm. About 4% of total farmers reported that they properly clean the utensils before and after use.

Table 111: Use of food safety and certification measures in goat and sheep rearing farms

#SL	Food safety and certification particulars	Number of farmers use this measure	% of total 412 farmers use this measure
(1)	(2)	(3)	(4)
1	Do you wash your hand before entering the farm?	0	0
2	Do you use foot bath containing disinfectant at the entrance of the farm?	0	0
3	Do you control visitor/other animal, bird and pest access on the farm?	2	0
4	Do you monitor and maintain records for the above-mentioned activities?	3	1
5	Do you keep record of parent's information, treatment, vaccination and AI information for each farm animal?	0	0
6	Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your cattle/buffalo feed	0	0
7	Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use?	15	4
8	Do you transport animal with animal comfort?	50	12
9	Do you perform regular health check-up of animals and farm workers (TB, Jaundice, Brucellosis etc.)?	0	0
10	Do you keep records of health check-up of animals and farm workers (TB, Brucellosis etc	0	0
11	Do you maintain withdrawal period of antibiotic/hormone?	15	4
12	Do you get any goat and sheep health certificate before sale?	0	0
13	Do you use any label/brand for your goat and sheep or their meat?	0	0
14	Did you receive any information related to food safety?	12	3

Source: FAO-LDDP baseline survey, 2021

Besides, about 12% of total farmers reported that they transport animals for their comfort. However, 4% of farmers reported that they follow the drug withdrawal period. In addition, only 12 farmers reported that they received any kind of food safety information last year. Overall, the majority of small ruminant rearing farmers are not following most of the safety-related issues.

6.7.1 Sources of farm animals' drinking water

Different farmers use water from different sources for their livestock farming. It can be seen from the table below that the majority (about 54%) of the total small ruminant farmers use pond/canal as the source of drinking water for their goats and sheep. Besides, about 44% (180 farmers) and 2% (10 farmers) of farmers use water from tube-well and supply/tap respectively. Hence, the use of safe drinking water is an issue for small ruminant farming.

Table 112: Sources of farm animals' drinking water (small ruminant)

#SL	Name of the water source	Number of farmers use this source	% of total 412 farmers who use this source
(1)	(2)	(3)	(4)
1	Tube-well	180	44
2	Ponds/Cannel/Rivers	223	54
3	Supply/ Tap	10	2
4	Filtered	0	0
5	Deep tube-well	0	0
6	Sallow tube-well	0	0

Source: FAO-LDDP baseline survey, 2021

6.7.2 Sources of food safety related information

It is found that only 12 small ruminant rearing farmers out of a total of 412 farmers received any kind of food safety-related information during the last year

Table 113: Sources of information related to food safety (Small ruminant)

#SL	Name of the source of food safety information	Number of farmers received information from this source	% of 12 farmers who received food safety related information
(1)	(2)	(3)	(4)
1	Training	6	1
2	Mobile app	0	0
3	SMS	1	0
4	Community radio	0	0
5	TV	12	2
6	Online media	4	1
7	Exhibition	0	0
8	Others	0	0

Source: FAO-LDDP baseline survey, 2021

Among those who received food safety-related information, TV seems to be the most popular medium of information following training (6 farmers) and online media (4 farmers). However, no farmer received food safety information from other sources such as mobile apps, SMS, community radio, and exhibition.

6.8 Technology and practices adopted in goat and sheep rearing farms

Table 114 shows that about 26% of total farmers use routine deworming of their goats and sheep while about 11% of total farmers use routine vaccination. In addition, only 3% of total small ruminant farmers use improved fodder production and 2% of total small ruminant farmers use climate-resilient housing. However, only 1% of total farmers (5 farmers) reported that they use kids' replacer on their farms. Overall, there is greater scope to increase the production of small ruminants through increasing the adoption of different technologies and practices.

Table 114: Technology and practices used in goat and sheep rearing farms

#SL	Name of technology	Adoption of Technology and Practices	
		Number of farmers adopted	% of total 412 farmers adopted technology
(1)	(2)	(3)	(4)
	CSA technologies and practices		
1	Improved fodder production	11	3
2	Ration balancing	0	0
3	UMS	0	0
4	UMB/UMMB	0	0
5	Artificial insemination	0	0
6	Routine deworming	106	26
7	Routine vaccination	45	11
8	Manure management	0	0
9	Waste management	0	0
10	Climate-resilient housing	5	2
	Other technologies and practices		
11	Kids replacer	5	1
12	Kids brooding	0	0

Source: FAO-LDDP baseline survey, 2021

6.9 Capacity enhancement of goat and sheep rearing farmers

Table 115 presents the number of farmers who received training on different technologies and practices in small ruminant farming in the surveyed areas of Bangladesh. Very few farmers received training on different technologies and practices last year. For instance, only 8 farmers received training on improving fodder production last year. Besides, 14, 17, and 27 farmers received training on the regular vaccination, deworming, and goat and sheep rearing. Only 2 farmers received training on climate-resilient housing, ration balancing and good agricultural practices. Nevertheless, there is a huge room to enhance the capacity of small ruminant rearing farmers through different pieces of training.

Table 115: Number and proportion of small ruminant farmers received training on different technology and practices

#SL	Capacity enhancement training	Number of farmers received	% of total 412 farmers received traning
(1)	(2)	(3)	(4)
1	Artificial insemination	0	0
2	Improved fodder production	8	2
3	UMS	0	0
4	UMMB/UMB	0	0
5	Kids replacer	1	0
6	Kids brooding	1	0
7	Climate-resilient housing	2	0
8	Manure management	3	1
9	Waste management	1	0
10	Ration balancing	2	0
11	Routine vaccination	14	3
12	Routine Deworming	17	4
13	Goat fattening and Sheep production	27	7
14	Animal health card and certification	0	0
15	Agribusiness and value chain	0	0
16	Business development skill	0	0
17	Good agricultural practice	2	0
18	Food safety	0	0
19	Climate shock mitigation	0	0
20	Gender equality	1	0
21	Using mobile apps	0	0

Source: FAO-LDDP baseline survey, 2021

6.10 Housing and management in goat and sheep farming

Table 116 shows that the majority (267 farmers of which 246 goats rearing and 21 sheep rearing farmers) of the total surveyed small ruminant farmers use a covered Katcha shed type house. Besides, 50 farmers of which 49 goat rearing farmers and 1 sheep rearing farmer use mixed shelter for cattle and goats and sheep together. In addition, a total of 65 farmers of which 59 goats rearing and 6 sheep rearing farmers use raised floor houses. A total of 30 farmers of which 13 goats rearing and 17 sheep rearing farmers reported that they use enclosed/fenced open spaces adjacent to the homestead area for goat and sheep rearing.

Table 116: Type of housing used for goat and sheep farming

#SL	Type of housing	Goat farms		Sheep farms		Total small ruminant farms	
		Number of farmers	% of total (367) goat farmers	Number of farmers	% of total (45) sheep farmers	Number of farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Enclosed/ Fenced open space adjacent to homestead	13	4	17	38	30	7
2	Covered katcha shed (little high from ground with bamboo and tin)	246	67	21	47	267	65
3	Raised floor houses	59	16	6	13	65	16
4	Cattle and goat mixed shelters	49	13	1	2	50	12

Source: FAO-LDDP baseline survey, 2021



Table 117 presents the distribution of small ruminant rearing farmers based on the various facilities used in the small ruminant house. It can be seen that about 13% of total farmers have adequate ventilation systems while 67% of total farms have sufficient space for goats and sheep. Besides, about 74% of total farmers reported that the utensils they use on their farms are women friendly. About 7% of total farmers reported that they have a proper drainage system in livestock houses while 5% of farms have a biosafety plan.

Table 117: Use of different facilities in the small ruminant's house

#SL	Facilities in the goat and sheep house	Goat farms		Sheep farms		Total small ruminant farms	
		Number of farmers	% of total (367) goat farmers	Number of farmers	% of total (45) sheep farmers	Number of farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Adequate ventilation system	50	14	2	4	52	13
2	Proper drainage system	30	8	0	0	30	7
3	Sufficient space for livestock	245	67	31	69	276	67
4	Quarantine facility	0	0	0	0	0	0
5	Biosafety plan	20	5	1	2	21	5
6	Utensils are women friendly	270	74	34	76	304	74

Source: FAO-LDDP baseline survey, 2021

A total of 21 farmers of which 20 were goat rearing and 1 sheep rearing farmer use biosafety plan on their farms. Table 118 presents the number and proportion of farmers based on different biosafety plans used among the farmers who use biosafety plans. All (100%) of the farmers use the mosquito net to protect their livestock.

Table 118: Types of biosafety plan used in the small ruminant farms

#SL	Types of biosafety plan	Goat farms		Sheep farms		Total small ruminant farms	
		Number of farmers	% of total (20) goat farmers	Number of farmers	% of total (1) sheep farmers	Number of farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Foot bath	0	0	0	0	0	0
2	Hand wash facility	0	0	0	0	0	0
3	Mosquito net	20	100	1	100	21	100
4	Others	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Figure 49 presents the number and proportion of small ruminant rearing farmers based on using different energy sources. It can be seen that about half of the total farmers (207 farmers of which 174 goats rearing and 33 sheep rearing farmers use electricity as the energy source. However, 53% of goat rearing farmers and 27% of sheep rearing farmers do not use any kind of energy on their farms.

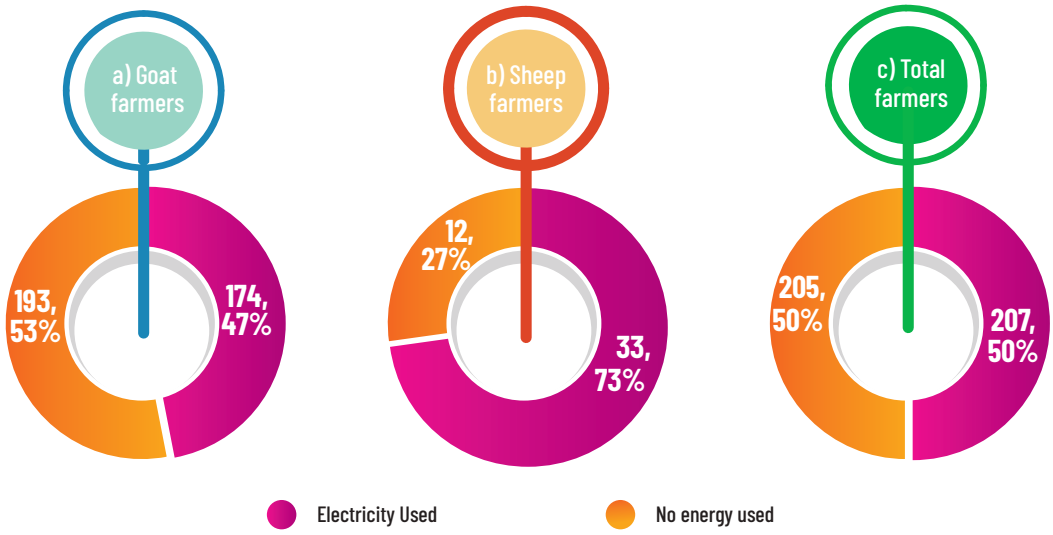


FIGURE 49
Types of energy used in goat and sheep rearing farm

6.11 Manure management in goat and sheep farms

Table 119 presents the number and proportion of farmers based on different types of manure processing techniques.

Table 119: Distribution of small ruminant rearing farmers based on the types of manure processing

#SL	Types of manure processing	Goat farms		Sheep farms		Total small ruminant farms	
		Number of farmers	% of total (367) goat farmers	Number of farmers	% of total (45) sheep farmers	Number of farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Solid storage (Open space)	115	31	29	64	144	35
2	Solid storage (in covered place)	79	22	5	11	84	20
3	Dispose to open space	173	47	11	24	184	45
4	Burned Fuel	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

A total of 144 farmers of which 115 goats rearing and 29 sheep rearing farmers keep manure in open space as solid storage. On the other hand, a total of 84 farmers of which 79 goats rearing and 5 sheep rearing farmers dispose manure in covered place as solid storage. However, a total of 184 farmers of which 173 goats rearing and 11 sheep rearing farmers dispose manure on the open space which could be a great worry for environmental issues.



Figure 50 shows that about 56% (231 farmers) of total farmers use manure as organic fertilizer in crop cultivation. Besides, about 56% of goat rearing farmers and 25% of sheep rearing farmers use manure in crop cultivation.

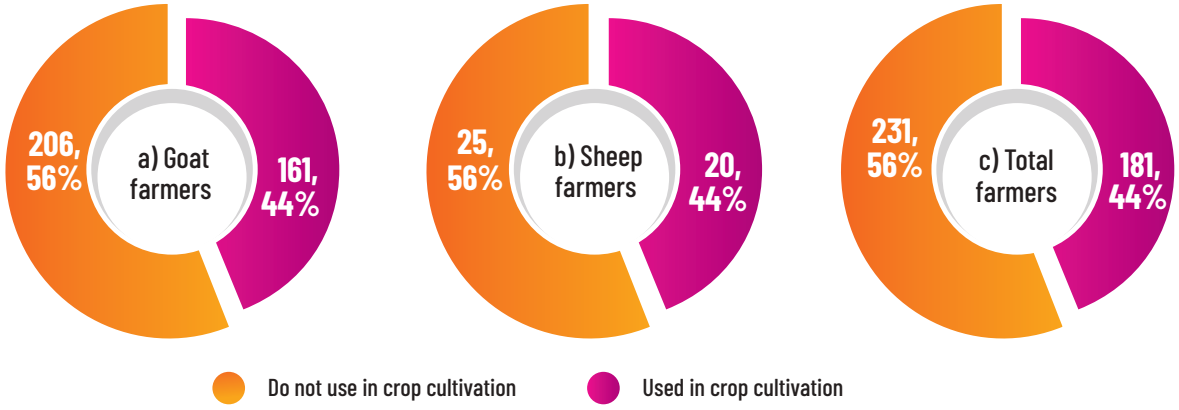


FIGURE 50

Number and Proportion of farmers use manure as fertilizer in crop cultivation

Table 120 presents the number and proportion of small ruminant farmers based on different categories of waste disposal on the farm. Waste is defined as any other kind of materials other than manure (dung), such as excess feed, straw, etc.

Table 120: Waste disposal in goat and sheep farming

#SL	Types of waste disposal	Goat farms		Sheep farms		Total small ruminant farms	
		Number of farmers	% of total (367) goat farmers	Number of farmers	% of total (45) sheep farmers	Number of farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Solid storage (Open space)	107	29	27	60	134	33
2	Solid storage (in covered place)	80	22	7	16	87	21
3	Dispose to open space	180	49	11	24	191	46
4	Burned Fuel	0	0	0	0	0	0
5	Anaerobic digestion	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

As can be seen from Table 120 a total of 134 farmers of which 107 goats rearing and 27 sheep rearing farmers dispose waste in open space as solid storage. On the other hand, a total of 87 farmers of which 80 goats rearing and 7 sheep rearing farmers dispose waste in covered place as solid storage. However, a total of 191 farmers of which 180 goats rearing and 11 sheep rearing farmers dispose waste on the open space.

6.12 Climate related risk in goat and sheep rearing farms

Different climatic risks such as flood, tornado, cyclone, extreme weather, and rainfall are a challenge for livestock production in Bangladesh. Table 121 shows that about 33% of total small ruminant farmers were affected by flood/flash flood/waterlogging during the last five years. Besides, about 25%, 39%, and 31% of total farmers faced draught, tornado/cyclone, and excessive rainfall during the last five years. About 14% of total farmers reported that they faced extreme hot and cold weather during the last five years.

Table 121: Number and proportion of small ruminant farms affected by climatic risk during last five years

#SL	Type of climatic related risk	Goat farms		Sheep farms		Total small ruminant farms	
		Number of farmers	% of total (367) goat farmers	Number of farmers	% of total (45) sheep farmers	Number of farmers	% of total 412 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Flood/flash flood/ waterlogging	130	35	7	16	137	33
2	Draught	105	29	0	0	105	25
3	Tornado/cyclone	152	41	10	22	162	39
4	Extreme hot weather	58	16	1	2	59	14
5	Extreme cold weather	58	16	1	2	59	14
6	Excessive rainfall	113	31	13	29	126	31
7	Salinity	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Table 122 shows that a total of 86 farmers of which 79 goats rearing and 7 sheep rearing farmers reported the interruption in goat and sheep sales due to climatic shocks. In addition, a total of 92 farmers of which 86 goats rearing and 6 sheep rearing farmers reported the increase in disease outbreaks and animal deaths due to climatic risks. A total of 129 farmers of which 122 goats rearing and 7 sheep rearing farmers reported scarcity of green grass and concentrate feeds due to different types of climatic risk. Besides, 68 farmers of which 63 goats rearing and 5 sheep rearing farmers faced damage or destruction to cattle houses due to tornado/cyclone. Insufficient input and service due to climatic risk is reported by 71 farmers of which 62 goats rearing and 5 sheep rearing farmers. In terms of feed prices, 101 goat rearing farmers and 7 sheep rearing farmers reported an increase in feed prices during the climatic risks.

Table 122: Effect of different climatic risk on small ruminant farming

#SL	Effect of climatic risk	Goat farms		Sheep farms		Total small ruminant farms	
		Number of farmers	% of total (130) goat farmers	Number of farmers	% of total (7) sheep farmers	Number of farmers	% of total 137 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Output sale interrupted	79	61	7	100	86	63
2	Animal death and disease outbreak increase	86	66	6	86	92	67
3	Scarcity of green grass and concentrate feeds	122	94	7	100	129	94
4	Damage/destruction to livestock house	63	48	5	71	68	50
5	Inadequate input and service (veterinary Treatment, AI, vaccine)	62	48	5	71	67	49
6	Rising of feed prices	101	78	7	100	108	79

Source: FAO-LDDP baseline survey, 2021



6.13 Access to extension services in small ruminant farming

Table 123 reveals that the majority (67%) of total small ruminant farmers (column 4) have access to veterinarian and consultancy services while 48% and 33% of total farmers have access to vaccination services, and deworming services. Besides, about 1%, to 10% of total farmers have access to different services such as agro-enterprise development, fodder production, cutting and distribution, livestock feeding and management, online marketing, mobile veterinary clinic, manure management, and waste management. A total of 71 farmers didn't take any services. Overall, most of the services are not accessible to small ruminant farmers. Hence, intervention should be implemented to increase access.

Table 123: Goat and sheep rearing farmers access to digital and physical extension services

#SL	Name of services	Number of farmers reported this service is accessible	% of 412 farmers reported this service is accessible
(1)	(2)	(3)	(4)
1	Veterinarian and Consultancy	274	67
2	Artificial Insemination	3	0
3	Vaccination	197	48
4	Deworming	136	33
5	Agro-enterprise development	5	1
6	Fodder production, cutting and distribution	10	2
7	Livestock feeding and management services	52	13
8	Local & global market information	0	0
9	Product and input quality control services	0	0
10	Product branding and quality certification	0	0
11	Online Database	0	0
12	Online livestock and product marketing	5	1
13	Online knowledge sharing related to food safety, marketing, animal health, livestock production etc.	0	0
14	Online treatment	0	0
15	Mobile veterinary clinic	0	0
16	Waste management	40	10
17	Manure management	28	7

Source: FAO-LDDP baseline survey, 2021

6.14 Household's nutrition awareness related information

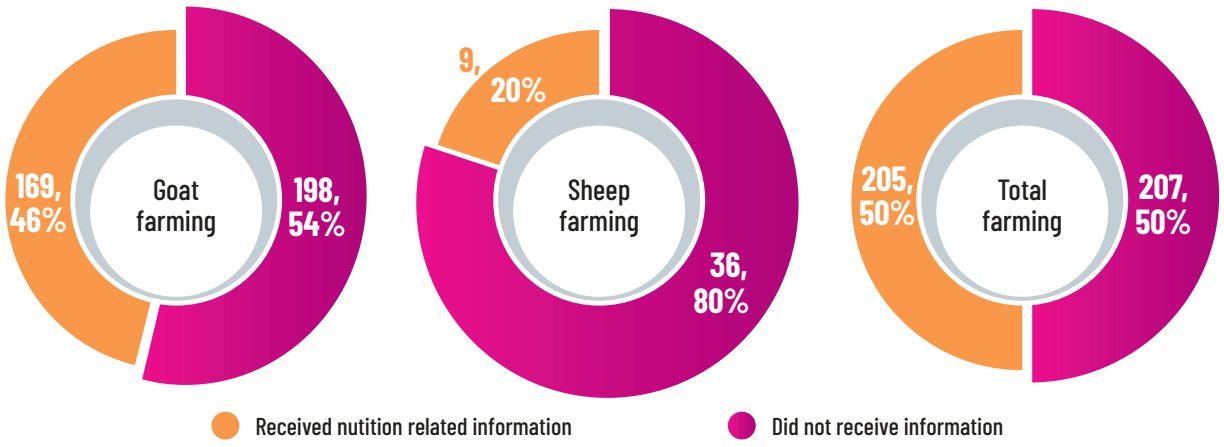


FIGURE 51
Households received nutrition awareness information

Figure 51 indicates that 205 small ruminant farmers of which 169 goat rearing farmers and 36 sheep rearing farmers received nutrition-related information. In terms of proportion, about 50% of total farmers received nutrition-related information while about 46% of goat rearing farmers and 80% of sheep rearing farmers received nutrition-related information.

6.15 Gender perspective in managing small ruminant value chain

The Small Ruminant value chain is one of the important value chains of the LDDP intervention implemented in 61 districts in Bangladesh, especially for the women of vulnerable communities. The women have a great interest in improving the productivity of small ruminants to meet the demand for the meat and improve the financial condition of the family.

6.15.1 Gender perspective in household management in small ruminant value chain

The table below shows that women are mostly taking care of their family as well as the farm. Among the total surveyed households who responded, females, are mainly taking care of children in 95% of households (HHs) and both males and females are taking care in 5% HHs. In terms of preparing children for school, females are preparing children in about 98% HHs while both males and females are preparing children in only about 2% HHs.

Besides, females are caring for elderly members, cooking in the family and collecting cooking water in about 91%, 100% and 74% of HH respectively who responded to the respective questions. The overall data amplifies that cooking, rearing children, caring for elderly people, and preparing children for school are dedicatedly taken care of by females.

The small ruminant value chain is one of the main value chains under LDDP intervention which is mainly taken in the case of 100 percent female. For ensuring women's empowerment there is a need to develop the promotion of the practice of sharing workload especially the household chores together in consensus which will strengthen the family bonding and spent quality time with family members and become more productive.

Table 124: Gender perspective in household management among in Small ruminant value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Manage taking care of children along with farming	1	343	16	0	95	5	360
2	Manage preparing children for their school along with farming	0	340	8	0	98	2	348
3	Manage caring elderly family members along with farming	0	203	19	0	91	9	222
4	Manage cooking along with farming	0	410	2	0	100	0	412
5	Manage collecting water along with farming	3	306	102	1	74	25	411

Source: FAO-LDDP baseline survey, 2021

6.15.2 Gender perspective in farm management in small ruminant value chain

The following table presents the gender perspective in farm management in small ruminant farming. Among the total surveyed households who responded to the respective questions, as can be seen in the majority of households (50% to 71%), male members are mainly taking decisions for fodder production, fodder cultivation, selection of input supplier, contact with input supplier, place of selling livestock, and contact with buyers. On the other hand, in the majority of households (60% to 90% of total households who responded), females are mainly taking decisions for feed rationing, livestock feeding, manure management, waste management, and cleaning and sanitization of the farm. However, in the majority of households (59%), both male and female members together took the decision to use the income from livestock farming. The data also shows that female have better contact with the veterinary services (33%) and better access to different digital and physical extension services. Overall, Men mostly manage outside work and their mobility is well accepted in society, but women are mainly responsible for managing the housing assignment as their mobility is restricted which is reflected in the farm management assignment as well.



Table 125: Gender perspective in farm management in small ruminant value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who takes the decision of buying livestock?	152	82	160	39	21	41	394
2	Who chooses the breed?	128	86	169	33	22	44	383
3	Who takes the decision of fodder production?	65	16	42	53	13	34	123
4	Who cultivates fodder?	79	6	26	71	5	23	111
5	Who collect fodder from field?	96	48	91	41	20	39	235
6	Who takes decision of feed rationing?	28	251	120	7	63	30	399
7	Who fed animals on the farm?	7	261	142	2	64	35	410
8	Who decide to manage manure?	23	283	66	6	76	18	372
9	Who manages manure and waste on the farm?	7	311	56	2	83	15	374
10	Who perform cleaning and sanitization on the farm?	4	347	36	1	90	9	387
11	Who choose the input supplier?	225	71	47	66	21	14	343
12	Who maintain the contact with the input supplier?	245	55	44	71	16	13	344
13	Who decide where to sale?	206	64	130	52	16	33	400
14	Who maintain the contact with the buyer?	283	54	60	71	14	15	397
15	Who decide the use of money earned from livestock?	101	68	241	25	17	59	410
16	Who maintain the contact with the vet service providers?	193	79	136	47	19	33	408

Source: FAO-LDDP baseline survey, 2021

6.15.3 Gender perspective in access to training and services

As can be seen from the table below, females are mostly participating in training in 71% and spending more time on farming in 88% while male farmers are mostly going out for feed and food product testing in about 63 farm households. The table also states that females have better access to finance/ credit as well.

Table 126: Gender perspective in access to training and services in small ruminant value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who participates in the training?	26	115	22	16	71	13	163
2	Who spent more time in farm activities?	23	356	25	6	88	6	404
3	Who mainly have access to finance or credit?	123	112	63	41	38	21	298
4	Who mainly goes out for feed and food testing?	37	17	5	63	29	8	59
5	Who have mainly access to different digital and physical extension services?	80	116	133	24	35	40	329



6.15.4 Gender perspective in ownership of the farm and livestock

Despite women's strong role in farm management of the small ruminant value chain, women have less ownership of both farm and livestock. As can be seen from the table below, in 61% of small ruminant farms, male members are the authorized owners of the farm, while females are the authorized owners in 25% of farms and both males and females are the authorized owner in 14% of total small ruminant farms. In terms of the authorized owners of the livestock on the farm, females, males and both males and females are the authorized owners of the livestock on 35% 36%, and 29% of the farms.

So, there is a need to explore the opportunity of increasing the ownership of women in both farm and livestock management to accelerate the path of women empowerment.

Table 127: Gender perspective based on the ownership of the farm and livestock in small ruminant value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who is the authorized owner of this farm?	251	101	59	61	25	14	411
2	Who is the authorized owner of livestock?	148	143	121	36	35	29	412

Source: FAO-LDDP baseline survey, 2021

6.16 Small ruminant farmers' perceptions regarding LDDP services

LDDP is providing different services for increasing productivity, market access and climate-resilient production for the improvement of the livestock sector in Bangladesh. Goat and sheep farmers were considered for the baseline survey in the small ruminant category. Only the female farmers are the members of the goat and sheep PGs under LDDP.

6.16.1 Farmers received assets from DLS/LDDP to start or continue their livestock business last year

It can be seen from the table below that only one farmer received utensil feed incentives. On the other hand, a total of 411 small ruminant farmers did not receive any kind of asset or training from the LDDP or DLS last year. Hence, small ruminant farmers did not comment regarding their satisfaction level with LDDP service during the baseline survey.

Table 128: Types of assets farmers received from DLS/LDDP during last year

#SL	Asset from LDDP/DLS	Number of farmers received this	% of total 412 farmers use this received this
(1)	(2)	(3)	(4)
1	Livestock house	0	0
2	Utensils like bucket, spade, etc	1	0
3	Feed mixture machine	0	0
4	Hygienic cleaning tools	0	0
5	Roughage shredder machine	0	0
6	Grass chopper machine	0	0
7	Live animal	0	0
8	Cash incentive	0	0
9	Feed	1	0
10	Others	0	0

Source: FAO-LDDP baseline survey, 2021

6.16.2 Farmers received training from LDDP

Since farmers did not receive training from LDDP, they did not comment on the satisfaction level.

Table 129: Level of satisfaction regarding LDDP provided training during last one year

#SL	Rate of satisfaction on the training you received from LDDP	Number of farmers received this	% of total 0 farmers who received this training
(1)	(2)	(3)	(4)
1	Excellent	0	0
2	Good	0	0
3	Moderate	0	0
4	Bad	0	0
5	Very bad	0	0
6	Not applicable	0	0

Source: FAO-LDDP baseline survey, 2021

6.16.3 Farmers overall level of satisfaction with LDDP services

In terms of overall satisfaction regarding LDDP service, 21 farmers reported excellent service while another 22 farmers reported good service. However, the majority of small ruminant farmers (369 farmers) did not comment on the overall satisfaction since they did not receive any service from LDDP during the baseline period (see Table 130).

Table 130: Farmers overall level of satisfaction with LDDP services

#SL	Overall satisfaction with LDDP services	Number of farmers received this	% of total 43 farmers who received this training
(1)	(2)	(3)	(4)
1	Excellent	21	50
2	Good	22	50
3	Moderate	0	0
4	Bad	0	0
5	Very bad	0	0
6	Not applicable	0	0

Source: FAO-LDDP baseline survey, 2021

Chapter 7. Baseline Finding of Scavenger Poultry Value Chain



A total of 418 sample farmers across 4 districts namely Joypurhat, Gazipur, Barishal, and Noakhali have been surveyed during the baseline survey. Scavenger poultry value chain includes both scavenger chicken (332 farmers) and scavenger duck (86 farmers) rearing farms. A number of farm and household characteristics have been collected through this survey that will establish a basis to measure the progress of LDDP stated indicators related to productivity, market access, and climate-resilient production.

7.1 Scavenger poultry farm characteristics

Column (5) of Table 131 shows that, on average 27 scavenger poultry exist per farm. The highest number of poultry (33 poultry) is found in Gazipur district while the lowest (21 poultry) is found in Barisal district. However, in terms of scavenger chicken, it can be seen that on average each farm rears 28 scavenger chicken while the maximum (37 scavenger chicken) is in Noakhali and lowest (19 scavenger chicken) is in Barisal district. In terms of scavenger duck, each farm is rearing an average 25 scavenger duck while the maximum (42 scavenger duck) is in Gazipur and the lowest (18 scavenger duck) is in Noakhali district.

Table 131: Average number of scavenger poultry in poultry farming

#SL	District	Average number of scavenger poultry per farm		
		Scavenger Chicken	Scavenger Duck	Average
(1)	(2)	(3)	(4)	(5)
1	Barisal	19	23	21
2	Gazipur	24	42	33
3	Joypurhat	31	27	29
4	Noakhali	37	18	28
	Grand Total	**28**	**25**	**27**

Source: FAO-LDDP baseline survey, 2021

The following table presents the distribution of farmers based on different farm sizes in the scavenger poultry value chain. Scavenger poultry rearing farm size is classified as small (1-20 birds), medium (21-40 birds), and large (above 40 birds) based on the type of management needed. As can be seen, the majority of scavenger chicken farmers fall into the medium category while the majority of scavenger duck rearing farmers fall into the small farm category.



Table 132: Distribution of sample scavenger poultry farmers based on different farm categories

#SL	Category	Number of sample farmers rearing scavenger poultry					
		Chicken farming (332 farmers)			Duck farming (86 farmers)		
		Small farm (1 – 20 chicken)	Medium farm (21 – 40 chicken)	Large farm (>40 chicken)	Small farm (1-20 duck)	Medium farm (21-40 duck)	Large farm (> 40 duck)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Barisal	54	24	2	8	18	0
2	Gazipur	43	44	5	11	0	1
3	Joypurhat	27	36	17	13	7	4
4	Noakhali	3	50	27	18	5	1
	Total	127	154	51	50	30	6

Source: FAO-LDDP baseline survey, 2021

7.2 Productivity of scavenger poultry

In the sample area, it was found that scavenger poultry farmers not only reared poultry for meat but also for egg production. The productivity of scavenger poultry per year at the farm level has been calculated in two ways such as meat productivity and egg productivity. Scavenger poultry meat productivity is calculated as the average weight of a scavenger chicken and duck at its slaughter age (sold for slaughter purposes). Besides, egg productivity is calculated at the farm level by dividing the total quantity of egg produced during the baseline period (1st October 2020 to 30th September 2021) by the number of sample farmers.

7.2.1 Scavenger poultry meat productivity

Average carcass weight and live weight per scavenger poultry at its slaughter age are shown in Table 133. Based on the review (Akhter et al., 2018; Islam et al., 2012), carcass weight of scavenger chicken and duck are taken as 60% and 65% of their live weight at the slaughter age. In the case of average, carcass weight is taken at 62%. Although the slaughter age per bird could be varied based on different farmers, baseline survey considered only the weight at selling stage for slaughtering purposes as an aggregate. As can be seen in column (23), the average carcass weight of scavenger chicken is about 0.49 Kg per bird at its slaughter age which ranges from 0.41 Kg per bird to 0.58 Kg per bird across different districts. In terms of scavenger duck (column 4), average carcass weight is about 1.13 Kg per duck at its slaughter age which ranges from 0.90 Kg to 2.02 Kg per duck across different districts. Considering both scavenger chicken and duck together (column 5), the average carcass weight is about 0.60 Kg per bird.



Table 133: Average carcass weight and live weight of scavenger poultry per bird

#SL	District	Average carcass weight per scavenger poultry at slaughter age			Average live weight per scavenger poultry at slaughter age		
		Chicken	Duck	Average	Chicken	Duck	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Barishal	0.51	2.02	0.71	0.85	3.10	1.16
2	Gazipur	0.48	1.20	0.53	0.80	1.84	0.87
3	Joypurhat	0.41	0.90	0.53	0.69	1.38	0.85
4	Noakhali	0.58	1.11	0.67	0.97	1.71	1.10
	Total	0.49	1.13	0.60	0.82	1.74	0.97

Source: FAO-LDDP baseline survey, 2021

In terms of live weight per bird, as can be seen in column (6), the average live weight of scavenger chicken is about 0.82 Kg per bird at its slaughter age which is ranges from 0.69 Kg per bird to 0.97 Kg per bird across different districts. In terms of scavenger duck (column 7), the average live weight is about 1.74 Kg per duck at its slaughter age which is ranges from 1.38 Kg to 3.10 Kg per duck across different districts. Considering both scavenger chicken and duck together (column 8), the average live weight is about 0.97 Kg per bird.

7.2.2 Average price of scavenger poultry meat

The average price of scavenger poultry (chicken and duck) has been calculated based on the sell value of scavenger poultry during its slaughter age irrespective of age variation and seasonality. To overcome the seasonal variation in price, average price has been estimated considering the average price of scavenger poultry sold in different seasons during the baseline period (1st October 2020 to 30th September 2021).

As can be seen in column (3) of Table 134The average price of carcass weight of scavenger chicken is about Tk 552.93 per Kg which is ranged from Tk 546.95 to Tk 558.89 per Kg across different districts. In terms of scavenger duck (column 4), average price of per Kg carcass weight is about Tk 618.07 which is ranges from Tk 580.67 to Tk 673.71 across different districts. Considering both scavenger chicken and duck together (column 5), the average price per Kg carcass weight of scavenger poultry is about Tk 563.56.



In terms of live weight, the average price of scavenger chicken is about Tk 331.76 per Kg (column 6) which ranges from Tk 328.17 to Tk 335.33 per Kg across different districts. In terms of scavenger duck (column 7), average price per Kg live weight is about Tk 401.75 which ranges from Tk 377.44 to Tk 437.91 across different districts. Considering both scavenger chicken and duck together (column 8), the average price per Kg live weight of scavenger poultry is about Tk 343.18.

Table 134: Average price of scavenger poultry per bird

#SL	District	Average price of scavenger poultry (carcasses weight) (Tk/Kg)			Average price of scavenger poultry (live weight) (Tk/Kg)		
		Chicken	Duck	Average	Chicken	Duck	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Barishal	558.89	659.58	572.71	335.33	428.72	348.15
2	Gazipur	557.47	583.98	559.13	334.48	379.59	337.30
3	Joypurhat	546.95	580.67	555.03	328.17	377.44	339.98
4	Noakhali	551.54	673.71	572.92	330.92	437.91	349.65
	Total	552.93	618.07	563.56	331.76	401.75	343.18

Source: FAO-LDDP baseline survey, 2021

7.2.3 Average quantity (carcass weight) sold per farm per year

The average quantity of carcass weight sold during the baseline period (1st October to 30th September 2021) per farm is calculated by dividing the total quantity sold (number of birds sold during the baseline year * average carcass weight per bird) by the total number of surveyed farmers. The average quantity sold per farm is shown in Table 135. As can be seen, the average quantity of scavenger chicken meat (carcass weight) sold per farm per year is about 9.34 Kg which ranges from 5.51 Kg to 12.33 Kg per year. In terms of scavenger duck meat (carcass weight) sold per farm per year, as can be seen, each farmer sold on average 2044 Kg duck meat per year which ranged from 15.12 Kg to 29.71 Kg. Considering both the scavenger chicken and duck together (column 5), average quantity of meat sold per farm per year is about 11.62 Kg per farm per year.

Table 135: Average quantity (carcass weight) sold per farm per year

#SL	District	Average quantity (carcass weight) sold per farm per year (Kg)		
		Chicken	Duck	Average
(1)	(2)	(3)	(4)	(5)
1	Barisal	5.51	15.12	7.87
2	Gazipur	10.80	19.75	11.83
3	Joypurhat	8.49	29.71	13.39
4	Noakhali	12.33	17.28	13.47
	Average of total	9.34	20.44	11.62

Source: FAO-LDDP baseline survey, 2021

7.2.4 Scavenger poultry egg productivity per year per farm

Table 136 presents the average quantity of eggs sold per year per farm and the average price of egg per 12 eggs. As can be seen from Columns (3) of Table 136, the average quantity of chicken eggs sold during the baseline period (one year) is about 546 which varied from 256 eggs to 920 eggs per farm across different districts. Besides, each farm sold on average 1158 duck eggs during baseline period (one year) which varies from 938 eggs to 1,195 eggs per farm. It should be noted that all the chickens and ducks sold last year did not produce eggs since male chicken and ducks are also included in the sold quantity. However, each scavenger chicken produces about 30-60 eggs per year while each duck produces 60 -100 eggs per year. Column (5) shows that the average quantity of eggs per farm was about 952 eggs while considering both chicken and duck together.



Columns (6-8) present the average price of chicken and duck eggs per 12 eggs. As can be seen, the average price of chicken eggs was about Tk 131 per 12 eggs during the baseline period which varied from Tk 121 to Tk 139 per 12 eggs across different districts. Besides, the average price of scavenger duck eggs was about Tk 144 which varied from Tk 138 to Tk 149 per 12 eggs across different districts. Considering both chicken and duck eggs together, the average price of eggs was Tk 137 per 12 eggs.

Table 136: Average poultry egg productivity and egg price at the farm level

#SL	District	Average quantity of egg sold per farm per year (number)			Average price of scavenger poultry egg (Tk/12 eggs)		
		Chicken	Duck	Average	Chicken	Duck	Average
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Barishal	920	1028	1378	135	149	142
2	Gazipur	256	1080	1376	139	144	142

3	Joypurhat	383	1195	789	128	145	137
4	Noakhali	279	938	609	121	138	130
	Total	546	1158	952	131	144	137

Source: FAO-LDDP baseline survey, 2021

7.3 Scavenger poultry farm household's access to market

Findings related to market access of scavenger poultry rearing households are described in this sub-section. A number of information such as type of buyers, place of selling, mode of transport, and so forth are analysed in this sub-section.

7.3.1 To whom scavenger poultry farmers sell their poultry

Table 137 shows the number and proportion of scavenger poultry rearing farmers based on the poultry and eggs buyers. As can be seen, about 27% of chicken rearing farmers and 41% of duck rearing farmers sell their products directly to consumers. In aggregate (column 8), about 30% of scavenger poultry farmers sell their products (poultry and eggs) directly to the consumers. Besides, about 31% of the total surveyed scavenger poultry farmers sell their product (poultry and eggs) to the traders/paiker/foria. About 36% of chicken rearing farmers and 27% of duck rearing farmers sell their products to the local shop. In aggregate (column 8), about 34% of scavenger poultry farmers sell their products (poultry and eggs) to the local shop. However, about 4% of scavenger poultry farmers reported that they did not sell their products (poultry and eggs) during the baseline period (one year) and mainly produced poultry for their own home consumption.



Table 137: Number and proportion of scavenger poultry rearing farmers based on poulty and eggs buyers

#SL	Types of buyers	Number of chicken rearing farmers	% of total 332 chicken rearing farmers	Number of duck rearing farmers	% of total 86 duck rearing farmers	Total farmers	% of total 418 scavenger poultry farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Consumer	90	27	35	41	125	30
2	Trader/piker/foria	105	31	27	31	132	31
3	Processing company	0	0	0	0	0	0
4	Hotel and restaurant	0	0	0	0	0	0
5	Local shop	120	36	23	27	143	34
6	Supermarket	0	0	0	0	0	0
7	lender to repay loan	0	0	0	0	0	0
8	Online market	0	0	0	0	0	0
9	Others (Do not sell)	17	5	1	1	18	4

Source: FAO-LDDP baseline survey, 2021

7.3.2 Place of selling scavenger poultry

Out of the total surveyed 418 scavenger poultry farmers, 18 farmers (17 chicken rearing and 1 duck rearing) did not sell their poultry products during the baseline period (1st October 2020 to 30 September 2021). Table 138 presents the number and proportion of scavenger poultry rearing farmers who sold poultry products (400 farmers) last year based on the place of selling their products. As can be seen about 36% of scavenger chicken farmers and 51% of duck rearing farmers sell their product at the farmgate. Mainly the traders/paiker/foria and some consumers collect poultry and eggs from the farmgate. Besides, 20% of scavenger poultry farmers sell their product in the local village mainly to the neighboring consumers. About 36% of scavenger chicken farmers and 27% of duck rearing farmers sell their products at the local market. Only 1 and 10 chicken rearing farmers sell their product to the urban market and at the buyer's place, respectively. In aggregate (column 8), about 39%, 20%, 34% and 2% of total surveyed scavenger chicken rearing farmers sell their poultry and eggs at the farmgate, within the village, the local market and at buyers' places, respectively.

Table 138: Number and proportion of scavenger poultry rearing farmers based on the place of selling

#SL	Name of location	Number of chicken rearing farmers	% of total 315 chicken rearing farmers	Number of duck rearing farmers	% of total 85 duck rearing farmers	Total farmers	% of total 400 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Farm gate	119	36	44	51	163	39
2	Sale within village	65	20	17	20	82	20
3	Local market	120	36	23	27	143	34

4	Urban market	1	0	1	1	2	0
5	At buyer's place	10	3	0	0	10	2

Source: FAO-LDDP baseline survey, 2021



7.3.3 Mode of scavenger poultry transportation

Table 139 shows the number and proportion of scavenger poultry rearing farmers who transport poultry and eggs for selling based on the mode of transport. Out of total surveyed 418 scavenger poultry rearing farmers 237 farmers (196 chicken rearing and 41 duck rearing farmers) used transport for selling poultry and eggs. As can be seen from the Table 139, about 41% of scavenger chicken farmers and 71% of duck rearing farmers who use transport sell their poultry and eggs on foot. Besides, about 34% of scavenger chicken farmers and 27% of duck rearing farmers who use transport use Rickshaw/Van/bicycle etc. as their mode of transport. About 25% of scavenger chicken farmers who use transport use auto vehicle as their mode of transport. In aggregate (column 8), about 46%, 32%, and 21% of total surveyed scavenger poultry rearing farmers who use transport sell their poultry on foot, by using Rickshaw/Van/bicycle and auto vehicle respectively.



Table 139: Number and proportion of scavenger poultry rearing farmers based on mode of chicken/duck transport

#SL	Mode of transport	Number of chicken rearing farmers	% of total 196 chicken rearing farmers	Number of duck rearing farmers	% of total 41 duck rearing farmers	Total farmers	% of total 237 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	On foot	81	41	29	71	110	46
2	Rickshaw/Van/bicycle etc	66	34	11	27	77	32
3	Auto vehicle	49	25	0	0	49	21
4	Boat	0	0	1	2	1	0
5	Truck	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.3.4 Types of cages used to transport poultry and eggs

Table 140 presents the distribution of farmers who use different cages based on the types of cages used for scavenger poultry and egg transportation. Out of total surveyed 418 scavenger poultry rearing farmers 237 farmers (196 chicken rearing and 41 duck rearing farmers) used transport and different cages for selling poultry and eggs. As can be seen from the Table 140, majority of scavenger chicken rearing farmers (53% of chicken rearing farmers who transport poultry) transport poultry and egg by hand for selling. On the other hand, about 37% of duck rearing farmers (who transport for sell) sell their poultry and eggs transport by hand. However, the majority of duck rearing farmers (63% of duck rearing farmers who use transport for selling) use bamboo cage for duck transport to sell while only 47% of chicken rearing farmers use bamboo cage.



Table 140: Number and proportion of farmers based on the type of cages for Scavenger poultry and egg transportation

#SL	Types of cage	Number of chicken rearing farmers	% of total 196 chicken rearing farmers	Number of duck rearing farmers	% of total 41 duck rearing farmers	Total farmers	% of total 237 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Bamboo cage	92	47	26	63	118	50
2	Plastic cage	0	0	0	0	0	0
3	Iron cage	0	0	0	0	0	0
4	By hand	104	53	15	37	119	50
5	Poly bag	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.3.5 Selling processed scavenger poultry meat

All of the sample farmers reported that they did not sell any slaughtered poultry or any processed scavenger poultry during the last year.

7.3.6 Main sources of purchased feed for scavenger poultry

Scavenger poultry farmers provide some home-sullied feed such as rice, rice bran, wheat bran and other cereals to their scavenger poultry along with some purchased feed. However, it is found that out of the total surveyed 418 scavenger poultry farmers, 120 farmers use some kind of purchased feed from the local retailers.

7.4 Livestock disease management (scavenger poultry)

The baseline survey was carried out in 4 districts of Bangladesh for the scavenger poultry value chain. To understand the disease frequency faced during the last year by the Producer Groups (PGs) members under the Livestock and Development Project (LDDP), the survey asked disease-related questions to the farmers.

7.4.1 Occurrence of diseases in scavenger chicken farming

The following figure shows the proportion of scavenger chicken farmers affected by different diseases during the last one year. As can be seen, Newcastle has the highest occurring disease in scavenger chicken farming.

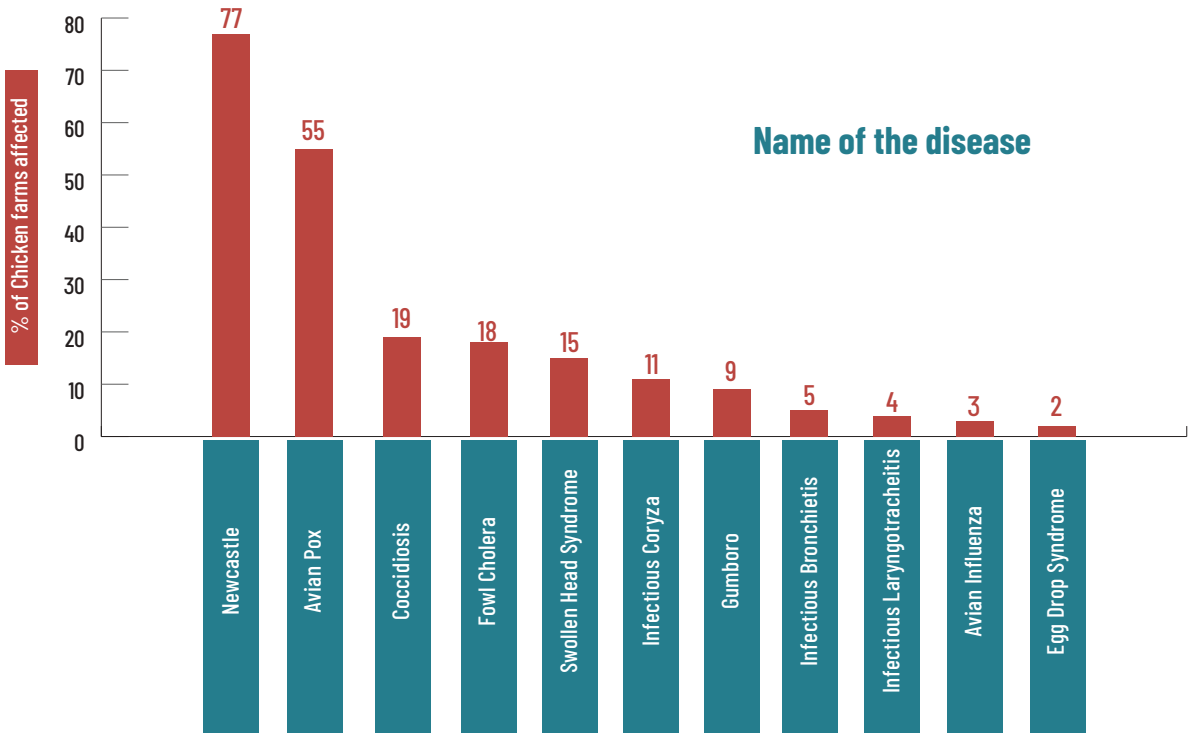


FIGURE 52

Proportion of scavenger chicken farms affected by different diseases

About 77 % of total scavenger chicken rearing farmers reported that their chickens were affected by this disease during the last year. The second highest occurring disease is avian pox. As can be seen, about 55% of total scavenger chicken rearing farms have been affected by this disease during the last year. In addition, 18%, 11%, 15%, and 19% of total surveyed chicken farms have been affected by fowl cholera, infectious coryza, swollen head syndrome, and coccidiosis disease, respectively. A few portions of farms (2%-9%) have also been affected by some other diseases such as avian influenza, infectious bronchitis, and infectious laryngotracheitis.

Table 141 shows that the highest occurrence of Newcastle was in the Gazipur district (80 farms) compared to Joypurhat (71 farms), Noakhali (61 farms), and Barisal (53 farms). Besides, the highest occurrence of Avian pox is found in Gazipur district (80 farms) compared to Joypurhat (61 farms), Noakhali (42 farms). The highest occurrence of fowl cholera is also found in Gazipur (24 farms) compared to Joypurhat (20 farms), Noakhali (13 farms), and Barisal (3 farms).

Table 141: Geographical distribution of occurrence of infectious diseases in scavenger chicken farms

#SL	Name of disease	Number of occurrences of different diseases				Total Chicken farms	% of total 332 farms
		Barisal	Gazipur	Joypurhat	Noakhali		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Avian Influenza	1	7	0	1	9	3
2	Newcastle	53	80	71	61	265	77
3	Infectious bronchietis	0	4	9	5	18	5
4	Infectious Laryngotracheitis	0	0	14	0	14	4

5	Fowl Cholera	3	24	20	13	60	18
6	Infectious coryza	4	0	22	10	36	11
7	Swollen head syndrome	4	14	26	5	49	15
8	Gumboro	0	1	12	17	30	9
9	Avian pox	0	80	61	42	183	55
10	Egg drop syndrome	1	0	7	0	8	2
11	Coccidiosis	0	26	25	11	62	19

Source: FAO-LDDP baseline survey, 2021

7.4.2 Occurrence of diseases in scavenger duck farming

Figure 53 presents that duck plague is the highest occurring disease in scavenger duck farming. About 73% of total scavenger duck rearing farmers reported that their duck got affected by this disease during last year while the remaining 27% of scavenger duck farmers did not. The second highest occurred disease is duck cholera. As can be seen about 31% of total scavenger duck rearing farms have been affected by this disease during last year. Besides, about 5% of duck farms were affected by duck hepatitis during the last year.

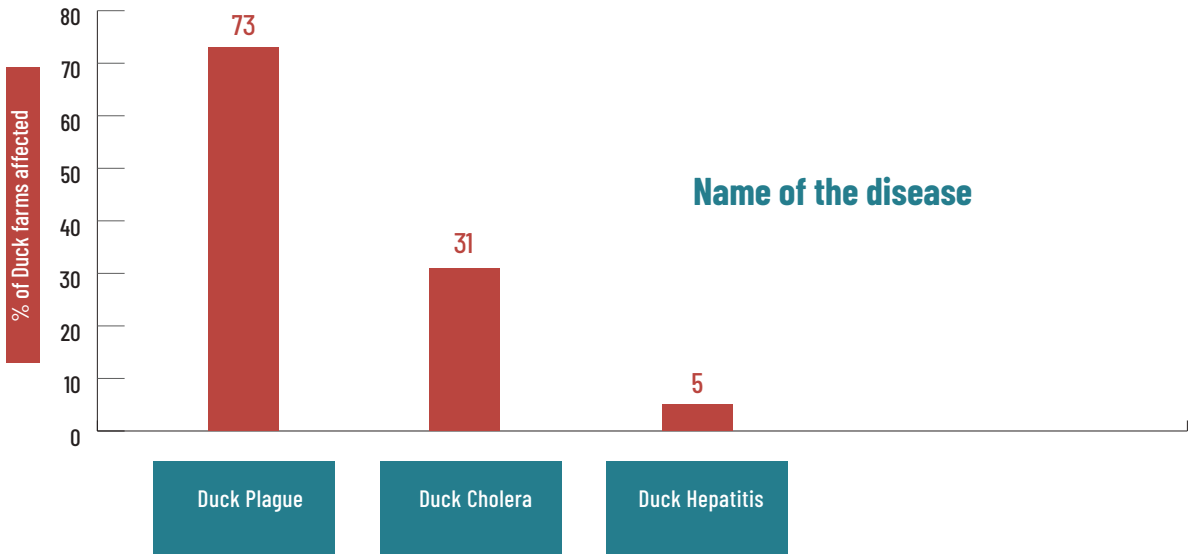


FIGURE 53
Proportion of scavenger duck farms affected by different disease

Table 142 shows that the highest occurrence of duck plague was in Joypurhat district (22 farms) compared to Barisal (20 farms), Noakhali (12 farms), and Gazipur (9 farms). The highest occurrence of duck cholera is also found in Joypurhat district (18 farms) compared to Noakhali (8 farms), and Barisal (1farm). However, only 4 duck farms in the Noakhali district seem to be affected by duck hepatitis during the last year.

Table 142: Geographical distribution of occurrence of infectious diseases in scavenger duck farms

#SL	Name of disease	Number of occurrences of different diseases				Total Duck farms	% of total 86 farms
		Barisal	Gazipur	Joypurhat	Noakhali		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Duck plague	20	9	22	12	63	73
2	Duck Cholera	1	0	18	8	27	31
3	Duck Hepatitis	0	0	0	4	4	5

Source: FAO-LDDP baseline survey, 2021

7.4.3 Vaccination against infectious disease in scavenger chicken farms

Figure 54 presents the proportion of scavenger chicken farmers who use regular vaccination on their farms. It can be seen that chicken rearing farmers use vaccination only for Newcastle, Fowl cholera and infectious Laryngotracheitis. However, only 7%, 5%, and 1% of chicken rearing farmers use vaccination for Newcastle, Fowl cholera and Laryngotracheitis respectively.

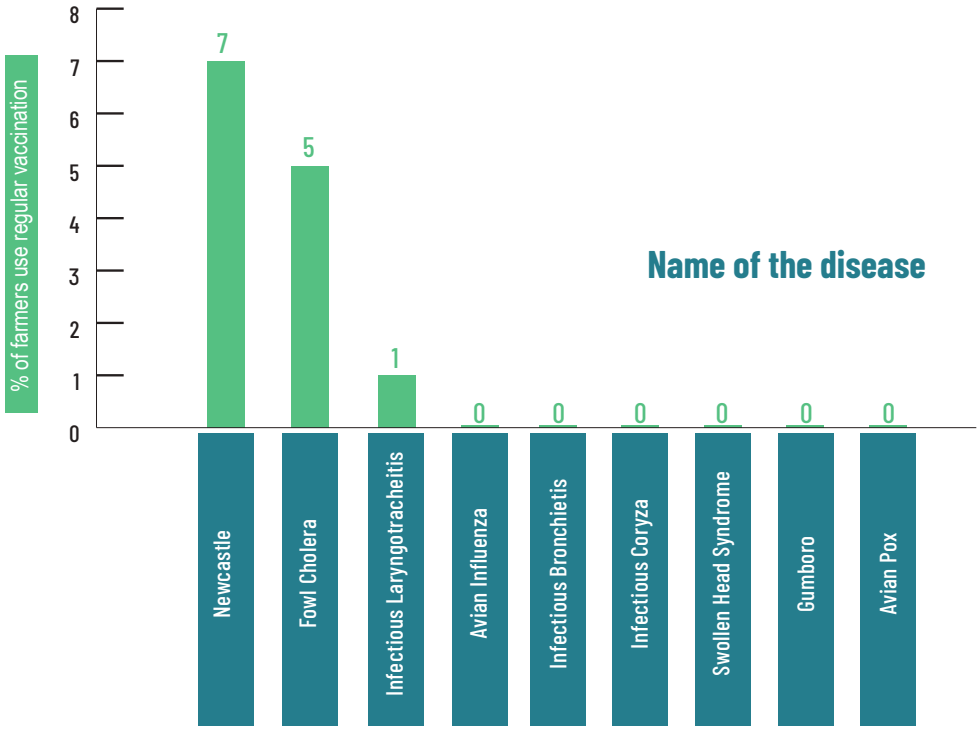


FIGURE 54
Regular vaccination in scavenger chicken farms

Table 143 presents the geographical distribution of regular vaccination by scavenger chicken rearing farmers. It can be seen that a total of 23 chicken farmers use vaccination against Newcastle, of which the majority (19 farmers) are in the Barisal district, following Gazipur (3 farmers), and Joypurhat (1 farmer). While a total of 16 farmers use regular vaccination for Fowl Cholera, all farmers are from the Barisal district. Only one farmer in Gazipur, and one farmer in Barisal use vaccination for Gamboro, and Avan pox respectively.

Table 143: Geographical distribution scavenger chicken farms use regular vaccination

#SL	Name of disease	Number of farms use regular vaccination				Total Chicken farms	% of total 332 farms
		Barisal	Gazipur	Joypurhat	Noakhali		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Avian Influenza	0	0	0	0	0	0
2	Newcastle	19	3	1	0	23	7
3	Infectious bronchietis	0	0	0	0	0	0
4	Infectious Laryngotracheitis	0	0	3	0	3	1
5	Fowl Cholera	16	0	0	0	16	5
6	Infectious coryza	0	0	0	0	0	0
7	Swollen head syndrome	0	0	0	0	0	0
8	Gumboro	0	1	0	0	1	0
9	Avian pox	1	0	0	0	1	0
10	Egg drop syndrome	0	0	0	0	0	0
11	Salmonellosis	0	0	0	0	0	0
12	Coccidiosis	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Figure 55 presents the proportion of scavenger duck farmers who use regular vaccination on their farms. It can be seen that duck rearing farmers use vaccination only for duck plague, and duck cholera. However, only 9% and 5% of duck rearing farmers use vaccination for duck plague and duck cholera respectively.

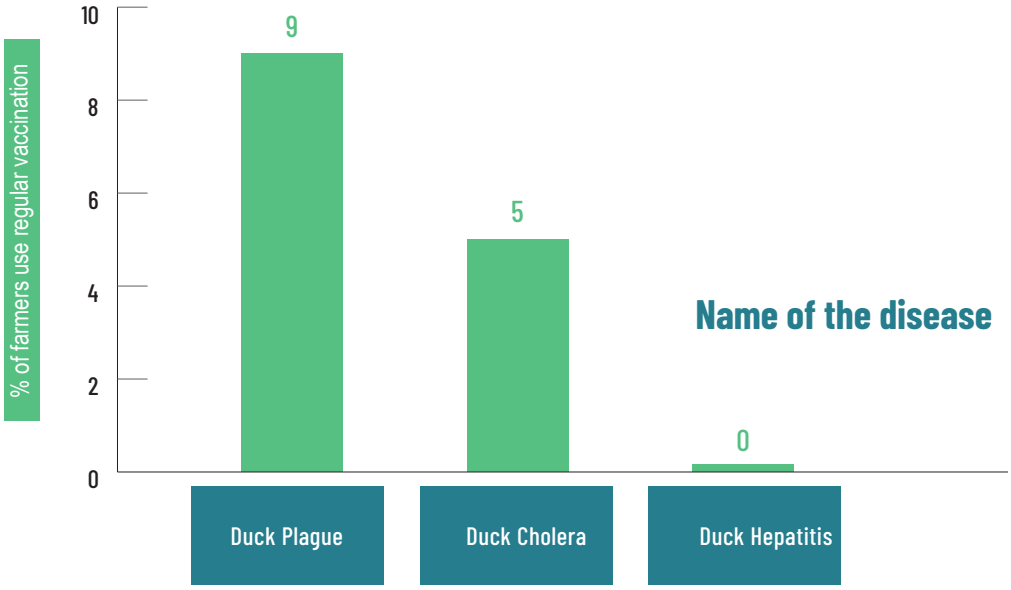


FIGURE 55

Regular vaccination in scavenger duck farms

Table 144 presents the geographical distribution of regular vaccination by scavenger duck rearing farms. It can be seen that a total of 8 duck farmers use vaccination against duck plague of which 5 farmers are in Joypurhat district, 2 farmers are in Barisal district, and 1 farmer in Gazipur district. Besides, a total of 4 farmers use vaccination for duck cholera of which 3 farmers are in Joypurhat district and 1 farmer is in Gazipur district.

Table 144: Geographical distribution scavenger duck farms use regular vaccination

#SL	Name of disease	Number of farms use regular vaccination				Total Duck farms	% of total 86 farms
		Barisal	Gazipur	Joypurhat	Noakhali		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Duck plague	2	1	5	0	8	9
2	Duck Cholera	0	1	3	0	4	5
3	Duck Hepatitis	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.4.4 Death of scavenger poultry due to disease

Figure 56 shows the number of scavenger chickens that died due to different diseases last year. As can be seen, the highest number of chickens died due to Newcastle disease last year. For instance, about 68% of total chicken death was for the Newcastle disease. Besides, about 6%, 5%, and 4% of chickens died due to gumboro, swollen head syndrome, and fowl cholera disease respectively. In addition, about 6% chickens died due to infectious coryza.

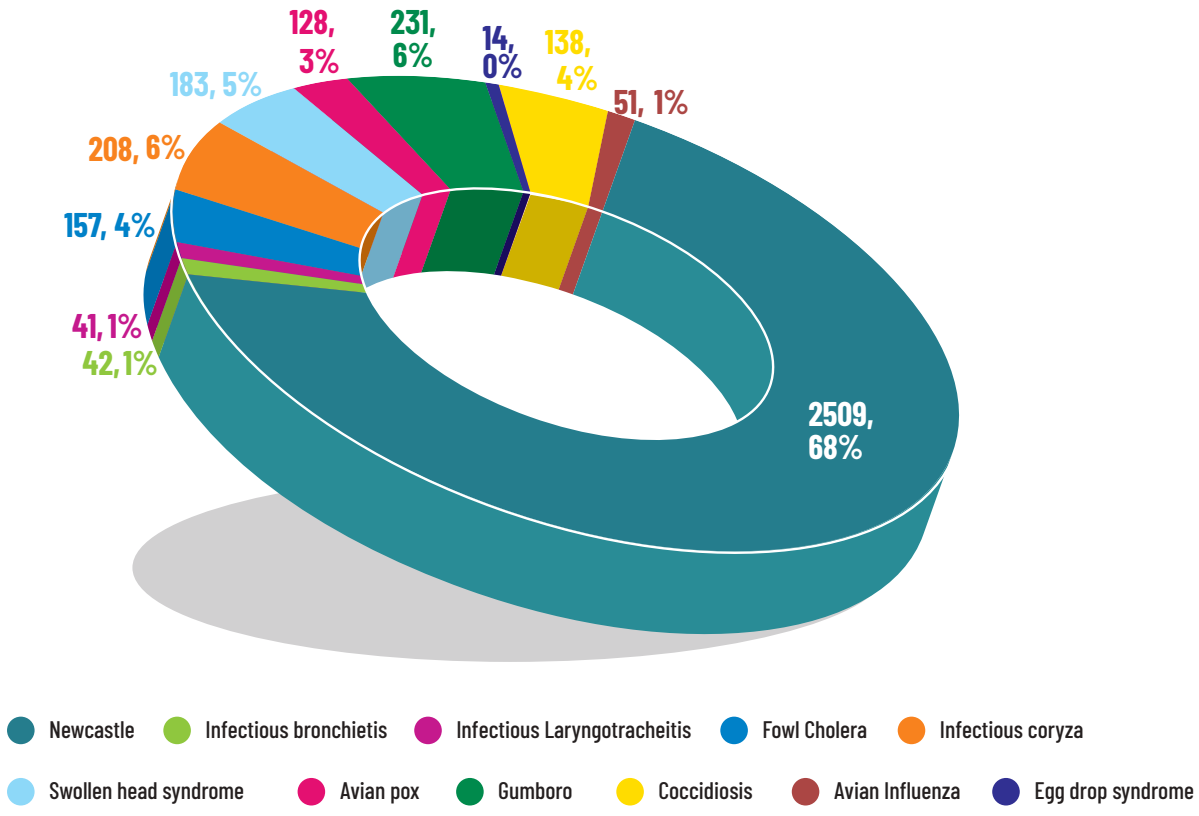


FIGURE 56

Number and Proportion of scavenger chicken died due to disease

Figure 57 shows the number of scavenger ducks that died due to different diseases during the last year. As can be seen, the highest number of ducks died due to duck plague disease during last year. For instance, about 71% of total duck deaths were from this disease. Besides, about 27% and 2% of ducks died due to duck cholera and duck hepatitis respectively.

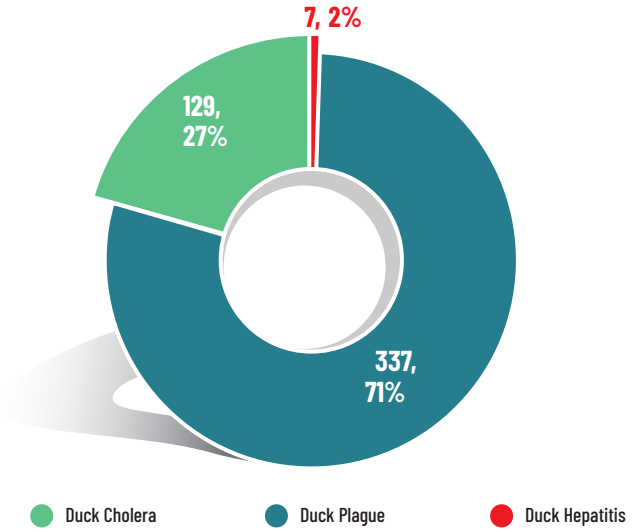


FIGURE 57

Number and proportion of scavenger duck died due to disease

7.5 Feeding practice and management

Figure 58 presents the quantity of different feeds used per day per scavenger poultry. As can be seen on average 0.012Kg and 0.035 Kg of ready-made poultry feed per chicken and duck per day are used respectively. In addition, 0.012 Kg and 0.044 Kg of mixed feed from processed ingredients is used for feed per chicken and duck per day respectively. In terms of home-mixed feed, about 0.026 Kg and 0.043 Kg of feed per chicken and duck per day are used respectively. On average 0.014 Kg and 0.038 Kg of feed from other ingredients is used per chicken and duck per day respectively. Overall, scavenger duck farmers are using more feed compared to chicken rearing farmers.





FIGURE 58

Types of feed used per day per poultry in scavenger poultry farming

7.6 Food safety and certification

Table 145 indicates that only 3% of scavenger poultry rearing farmers regularly clean utensils properly for their poultry. Besides, 5% of chicken rearing farmers and 15% of duck rearing farmers reported that they transport their poultry with comfort. Only 13% of chicken rearing farmers and 8% of duck rearing farmers regularly maintain the drug withdrawal period for their poultry sales. However, farmers did not adopt any other food safety measures in their poultry farming. Hence, proper measures should be taken to increase the adoption of food safety measures in scavenger poultry farming.

Table 145: Use of food safety and certification measures in scavenger poultry farms

#SL	Food safety and certification particulars	Number of chicken farmers	% of total 322 chicken farmers	Number of duck farmers	% of total 86 duck farmers	Number of total farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Do you wash your hand before entering the farm?	0	0	0	0	0	0
2	Do you use foot bath containing disinfectant at the entrance of the farm?	0	0	0	0	0	0
3	Do you control visitor/other animal, bird and pest access on the farm?	0	0	0	0	0	0
4	Do you monitor and maintain records for the above-mentioned activities?	0	0	0	0	0	0
5	Do you keep record of disease, treatment and vaccination information for each poultry batch?	0	0	0	0	0	0
6	Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your poultry feed	0	0	0	0	0	0
7	Do you transport poultry with comfort?	16	5	13	15	29	7
8	Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use?	10	3	3	3	13	3
9	Do you perform regular health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc.)?	0	0	0	0	0	0
10	Do you keep records of health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc.)?	0	0	0	0	0	0
11	Do you maintain withdrawal period of antibiotic /hormone?	41	13	7	8	48	11
12	Do you get any poultry health certificate before sale?	0	0	0	0	0	0
13	Do you use any label/brand for your poultry's eggs or their meat?	0	0	0	0	0	0
14	Did you receive any information related to food safety?	29	9	1	1	30	7

Source: FAO-LDDP baseline survey, 2021

7.6.1 Sources of drinking water in scavenger poultry farming

Different farmers use water from different sources for their scavenger poultry farming. It can be seen from the table below that about 50% of the total surveyed scavenger poultry farmers use scavenger sources as the source of drinking water for their poultry. Besides, about 44% of total scavenger chicken farmers and 49% of duck rearing farmers use water from pond/cannel/river. About 6% of scavenger chicken farmers use tube-well water as the source of their scavenger chicken.

Table 146: Sources of farm animals' drinking water (Scavenger poultry)

#SL	Name of the water source	Number of chicken farmers use this source	% of total 332 chicken farmers use this source	Number of duck farmers use this source	% of total 86 duck farmers who use this source	Number of total farmers use this source	% of total 418 farmers who use this source
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Tube-well	21	6	0	0	21	5
2	Pond/Cannel	147	44	42	49	189	45
3	Supply/ Tap	0	0	0	0	0	0
4	Filtered	0	0	0	0	0	0
5	Scavenger source	164	50	44	51	208	50
6	Sallow tube-well	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.6.2 Sources of food safety related information

It is found that only 30 scavenging poultry farmers (29 chicken and one duck rearing farmers) out of total 418 farmers received any kind of food safety related information during the last one year. Among those who received food safety related information, TV seems to be the most popular medium of information (30 farmers) followed by online media (4 farmers). However, no farmer received food safety information from other sources such as SMS, community radio, and exhibitions.

Table 147: Sources of information related to food safety in scavenger poultry

#SL	Name of the source of food safety information	Number of chicken farmers received information from this source	% of 29 chicken farmers who received food safety related information	Number of duck female farmers who received food safety related information	% of 1 duck female farmers who received food safety related information	Number of total farmers received information from this source	% of 30 farmers who received food safety related information
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Training	0	0	0	0	0	0
2	Mobile app	1	3	0	0	1	3
3	SMS	0	0	0	0	0	0
4	Community radio	0	0	0	0	0	0
5	TV	29	100	1	100	30	100
6	Online media	4	14	0	0	4	13
7	Exhibition	0	0	0	0	0	0
8	Others	0	0	0	0	0	0

7.7 Technology and practices used in scavenger poultry farming

Table 148 shows that only 5% and 3% of total surveyed scavenger chicken farmers adopted routine vaccination and routine deworming in farming. Surprisingly, duck rearing farmers did not adopt any kind of technology and practices. Overall, scavenger poultry farmers did not adopt most of the technology and practices on their farms. Hence, there is a huge room for the improvement in the adoption of technology and practices in scavenger poultry farming.

Table 148: Technology and practices adoption in scavenger poultry farming

#SL	Name of technology	Adoption of technology and practices					
		Number of chicken farms adopted	% of total 322 chicken farms adopted	Number of duck farms adopted	% of total 86 duck farms adopted	Number of total farms adopted	% of total 418 farms adopted
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CSA technologies and practices							
1	Improved breed rearing	0	0	0	0	0	0
2	Ration balancing	0	0	0	0	0	0
3	Manure management	0	0	0	0	0	0
4	Routine vaccination	18	5	0	0	18	4
5	Routine Deworming	10	3	0	0	10	2
6	Climate-resilient housing	0	0	0	0	0	0
Other technologies and practices							
7	Cage rearing	0	0	0	0	0	0
8	Organic egg and meat production	0	0	0	0	0	0
9	Fortified egg production	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.8 Capacity enhancement of scavenger poultry rearing farmers

Table 149 presents the number of farmers who received training on different technologies and practices. As can be seen, very few farmers received training on different technologies and practices during the last year. For instance, only 14 farmers received training on improved breed production during last year. Besides, 20, 13, and 25 scavenger poultry farmers received training on regular vaccination, deworming, and poultry farming. Although a few other farmers (1% to 3%) received training on some other technologies and practices, the rate is very limited. Nevertheless, there is a huge room to enhance the capacity of scavenger poultry farmers through different training.

Table 149: Distribution of farmers received training on different technology and practices

#SL	Capacity enhancement training	Number of farmers received capacity enhancement training					
		Number of chicken farmers received training	% of total 322 chicken farmers received training	Number of duck farmers received training	% of total 86 duck farmers received training	Number of total farmers received training	% of total 418 farmers received training
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Improved breed rearing	13	4	1	1	14	3
2	Biosecurity and biosafety	0	0	0	0	0	0
3	Cage rearing	4	1	0	0	4	1
4	Organic egg and meat production	0	0	0	0	0	0
5	Climate-resilient housing	3	1	1	1	4	1
6	Manure management	0	0	0	0	0	0
7	Fortified egg production	0	0	0	0	0	0
8	Routine vaccination	19	6	1	1	20	5
9	Routine Deworming	12	4	1	1	13	3
10	Poultry farming	23	7	2	2	25	6
11	Poultry meat and egg production	1	0	0	0	1	0
12	Poultry Hatchery rules	0	0	0	0	0	0
13	Poultry Health management	5	2	0	0	5	1
14	Poultry agribusiness	0	0	0	0	0	0
15	Feed formulation	2	1	1	1	3	1
16	Good agricultural practice	8	2	1	1	9	2
17	Food safety	1	0	0	0	1	0
18	Climate shock mitigation	0	0	0	0	0	0
19	Business development skill	0	0	0	0	0	0
20	Training on gender equality	1	0	1	1	2	0
21	Training on using mobile apps	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.9 Housing and management in scavenger poultry farming

Table 150 indicates that about 9% of total surveyed scavenger chicken rearing farmers and 8% of duck rearing farmers use night shelter enclosed/fenced open space adjacent to their homestead for their poultry housing. The majority (72% of total chicken farmers and 58% of duck rearing farmers) use conventional sheds for poultry rearing. About 10% of total surveyed scavenger chicken rearing farmers and 9% of duck rearing farmers use raised floor bricks or brick wall sheds for poultry. However, 9% of the total surveyed scavenger chicken rearing farmers and 24% of duck rearing farmers is use macha (raised floor with wood or bamboo) system house for poultry.



Table 150: Type of housing used for scavenger poultry farms

#SL	Type of housing	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (332) farmers	Number of farmers	% of total (86) farmers	Number of farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Night shelter enclosed fenced open space adjacent to homestead	30	9	7	8	37	9
2	Conventional	238	72	50	58	288	69
3	Raised floor bricks or brick wall shed	34	10	8	9	42	10
4	Multi-storied building	0	0	0	0	0	0
5	Macha system	30	9	21	24	51	12

Source: FAO-LDDP baseline survey, 2021

Column (8) of Table 151 shows that the majority (89%) of scavenger poultry farmers use a free ranging-extensive management system for poultry rearing following a semi-intensive (11% of total farmers) management system.

Table 151: Types of management system used for scavenger poultry farms

#SL	Types of management system	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (332) farmers	Number of farmers	% of total (86) farmers	Number of farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Free ranging-extensive	313	94	58	67	371	89
2	Intensive	0	0	0	0	0	0
3	Semi-intensive	19	6	28	33	47	11

Source: FAO-LDDP baseline survey, 2021

As can be seen from column (8) of Table 152, majority (50%) of total scavenger poultry farmers use ash as litter on the farm following sawdust (12%), sand (15%) and rice husk (8%). However, 15% of scavenger poultry farmers did not use any kind of litter in their poultry houses.



Table 152: Type of litter used for scavenger poultry farms

#SL	Type of litter	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (332) farmers	Number of farmers	% of total(86) farmers	Number of farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Ash	158	48	49	57	207	50
2	Sawdust	39	12	13	15	52	12
3	Sand	60	18	5	6	65	15
4	Rise husk	28	8	4	5	32	8
5	Others (Do not use)	47	14	15	17	62	15

Source: FAO-LDDP baseline survey, 2021

Table 153 presents the distribution of scavenger poultry farmers based on various facilities used in poultry houses. It can be seen that, about 68% of total scavenger poultry farmers have sufficient space for poultry in their house. Besides, about 86% of total farmers reported that the utensils they use on their farms are women friendly. Overall, scavenger poultry farmers did not use most of the facilities in poultry houses, such as ventilation systems, and biosafety plan.

Table 153: Use of different facilities in the scavenger poultry's house

#SL	Facilities in the Scavenger Poultry house	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (332) farmers	Number of farmers	% of total (86) farmers	Number of farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Adequate ventilation system	0	0	0	0	0	0
2	electric fan or exhauster fan	3	1	1	1	4	1
3	Sufficient space for poultry	243	73	43	50	286	68
4	Quarantine facility	0	0	0	0	0	0
5	Biosafety plan	0	0	0	0	0	0
6	Utensils are women friendly	300	90	60	70	360	86

Source: FAO-LDDP baseline survey, 2021

Scavenger farmers are not found to use any kind of biosafety plan on their farms (Table 154). Hence, awareness and capacity enhancement are indeed necessary to increase the biosafety use.

Table 154: Types of biosafety plan used in the scavenger poultry farms

#SL	Types of biosafety plan	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (0) farmers	Number of farmers	% of total (0) farmers	Number of farmers	% of 0 farmers who use biosafety plan
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Foot bath	0	0	0	0	0	0
2	Hand wash facility	0	0	0	0	0	0
3	Others (Disinfectant spray)	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Figure 59 presents the number and proportion of scavenger poultry rearing farmers based on using different energy sources. It can be seen that 78% of total chicken farmers and 82% of total duck farmers do not use any energy sources in their poultry farms. In aggregate, about 79% of total farmers do not use any kind of energy on their poultry farm.

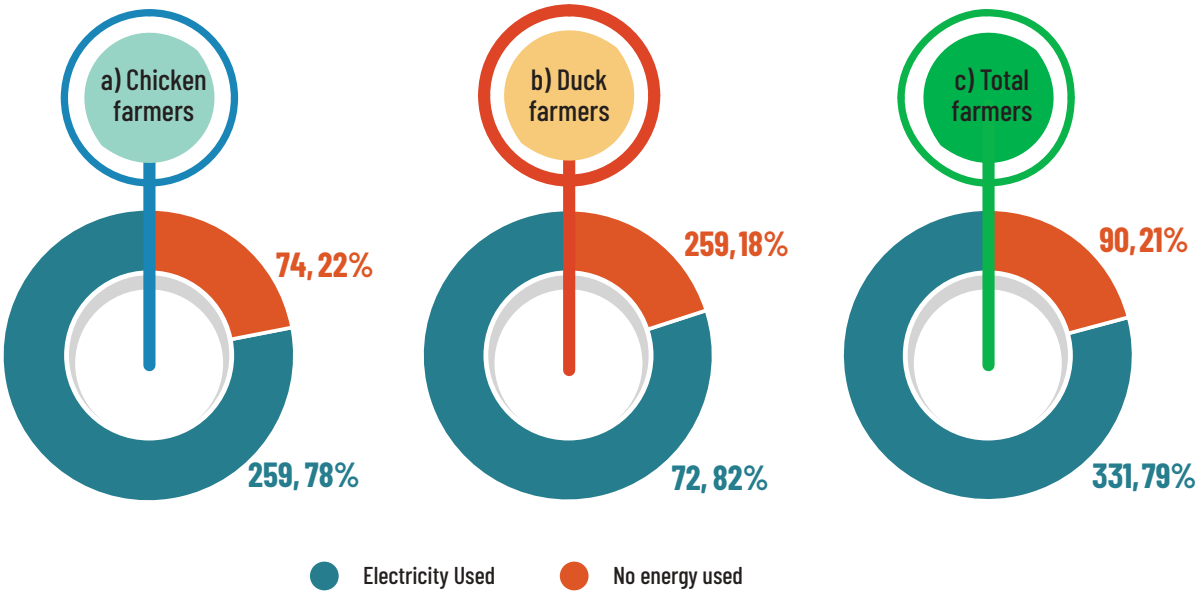


FIGURE 59
Types of energy used in the scavenger poultry farms

7.10 Manure management in Scavenger poultry farms

Table 155 presents the number and proportion of farmers based on different types of manure processing techniques. As can be seen about 29% of scavenger poultry farmers keep manure in open space as solid storage. On the other hand, about 18% of total scavenger poultry farmers dispose manure in covered places as solid storage. However, the majority of farmers (53%) dispose manure on the open space which could be a great worry for environmental issues.

Table 155: Types of manure processing in scavenger poultry farms

#SL	Types of manure processing	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (332) farmers	Number of farmers	% of total(86) farmers	Number of farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Solid storage (Open space)	92	28	31	36	123	29
2	Solid storage (in covered place)	50	15	24	28	74	18
3	Dispose to open space	190	57	31	36	221	53
4	Burned Fuel	0	0	0	0	0	0
5	Anaerobic digestion	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

As can be seen from the figure below, about 74% of chicken rearing farmers and 85% of duck rearing farmers use poultry manure as fertilizer in crop cultivation. In aggregate, 76% of total farmers use manure as fertilizer in their crop fields.

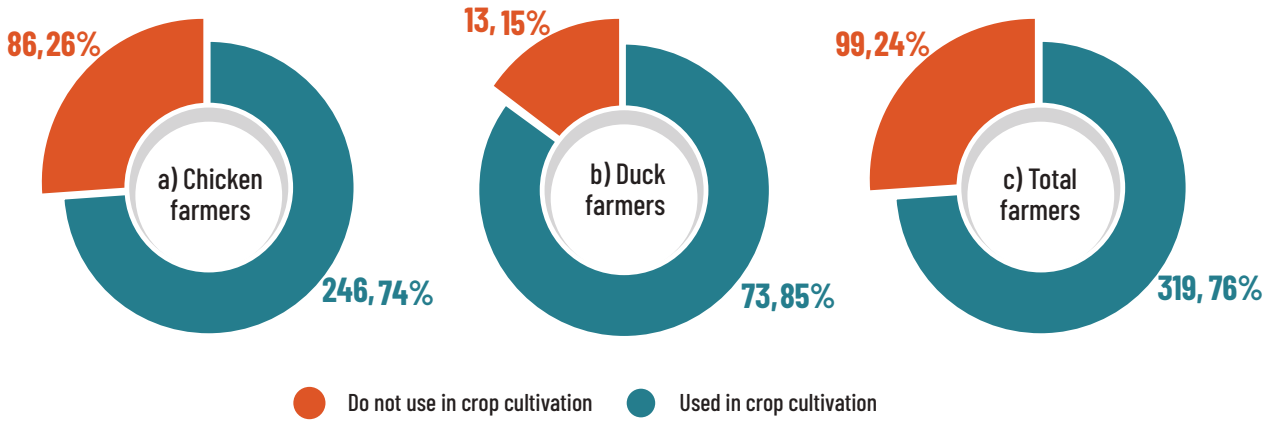


FIGURE 60
Number and Proportion of farmers use manure as fertilizer in crop cultivation

Table 156 presents the number and proportion of scavenger poultry farmers based on different categories of waste disposal on the farm. As can be seen from column (8), about 32% of scavenger poultry farmers keep waste in open space as solid storage. On the other hand, about 11% of total scavenger poultry farmers dispose waste in covered places as solid storage. However, the majority of farmers (57%) dispose manure on the open space which could be a great worry for environmental issues.

Table 156: Waste disposal in chicken and duck farming

#SL	Types of waste disposal	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (332) farmers	Number of farmers	% of total (86) farmers	Number of farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Solid storage (Open space)	96	29	38	44	134	32
2	Solid storage (in covered place)	27	8	18	21	45	11
3	Dispose to open space	209	63	28	33	237	57
4	Burned Fuel	0	0	0	0	0	0
5	Anaerobic digestion	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.11 Climate related risk in chicken and duck farming

Column (8) of Table 157 shows that about 18% of total scavenger poultry farmers were affected by flood/flash flood/waterlogging during the last five years. Besides, about 2% farmers faced problems during the drought in poultry farming. About 11% total farmers faced both tornado/cyclone, and extreme hot weather during the last five years. Besides, about 21% and 6% of total surveyed scavenger poultry farmers reported that their farm has been affected by extreme cold weather and excessive rainfall respectively.

Table 157: Number and proportion of scavenger poultry farmers affected by climatic risk during last five year

#SL	Type of climatic related risk	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total (332) farmers	Number of farmers	% of total (86) farmers	Number of farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Flood/flash flood/waterlogging	39	12	36	42	75	18
2	Draught	8	2	0	0	8	2
3	Tornado/cyclone	40	12	5	6	45	11
4	Extreme hot weather	32	10	16	19	48	11

5	Extreme cold weather	81	25	8	9	89	21
6	Excessive rainfall	16	5	11	13	27	6
7	Salinity	0	0	1	1	1	0

Source: FAO-LDDP baseline survey, 2021

Table 158 shows that a total of 37 farmers of which 13 chicken rearing and 24 duck rearing farmers reported the interruption in chicken/ duck sales due to climatic shocks. In addition, a total of 61 farmers of 31 chicken rearing and 30 duck rearing farmers reported the increase in disease outbreaks and animal deaths due to climatic risks. A total of 36 farmers of which 14 chicken rearing and 22 duck rearing farmers reported the scarcity of concentrate feeds due to different types of climatic risk. Besides, 68 farmers of which 36 chicken rearing and 32 duck rearing farmers faced damage or destruction to poultry houses due to tornado/cyclone. Insufficient input and service due to climatic risk is reported by 16 farmers of which 3 chicken rearing and 13 duck rearing farmers. In terms of feed price, 8 chicken rearing farmers and 15 duck rearing farmers reported an increase in feed price during the climatic risks. Overall, a larger proportion of duck farmers affected by different climatic risks compared to chicken farmers.

Table 158: Effect of different climatic risk on scavenger poultry farming

#SL	Effect of climatic risk	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of (39) farmers	Number of farmers	% of (42) farmers	Number of farmers	% of 75 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Output sale interrupted	13	4	24	28	37	9
2	Animal death and disease outbreak increase	31	10	30	35	61	15
3	Scarcity of concentrate feeds	14	4	22	26	36	9
4	Damage/destruction to livestock house	36	11	32	37	68	16
5	Inadequate input and service (veterinary Treatment, vaccine)	3	1	13	15	16	4
6	Rising of feed prices	8	2	15	17	23	6

Source: FAO-LDDP baseline survey, 2021

7.12 Access to extension service in scavenger poultry farming

Column (8) of Table 159 shows that about 30% of total scavenger poultry farmers have access to veterinarian and consultancy services, 10% have access to improved breed rearing service, 31% have access to routine vaccination services, 19% have access to routine de-worming services, and 19% have access to medication services. Few farmers also have access to other physical and digital extension services; however, the rate is very low (below 7%). Hence, it can be concluded that there is a lot of scope to improve scavenger poultry farming through increasing access to different digital and physical extension services.

Table 159: Number and proportion of scavenger poultry farmers have access to extension services

#SL	Types of extension services	Reported digital and physical extension services is accessible					
		Number of chicken farmers	% of total 332 chicken farmers	Number of duck farmers	% of total 86 duck farmers	Number of total farmers	% of total 418 farmers
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Veterinarian and Consultancy	96	29	30	35	126	30
2	Improved breed rearing	36	11	7	8	43	10
3	Biosecurity and biosafety	0	0	0	0	0	0
4	Cage rearing	26	8	0	0	26	6
5	Organic egg and meat production	0	0	0	0	0	0
6	Climate-resilient housing	10	3	0	0	10	2
7	Manure management	12	4	0	0	12	3
8	Fortified egg production	0	0	0	0	0	0
9	Routine vaccination	113	34	15	17	128	31
10	Routine Deworming	72	22	9	10	81	19
11	Poultry agribusiness	23	7	0	0	23	6
12	Feed formulation	0	0	0	0	0	0
13	Good agricultural practice	0	0	0	0	0	0
14	Food safety	7	2	0	0	7	2
15	Climate shock mitigation	10	3	0	0	10	2
16	Medication	61	18	19	22	80	19
17	Product branding and quality certification	0	0	0	0	0	0
18	Online livestock and product marketing	0	0	0	0	0	0
19	Online knowledge sharing	0	0	0	0	0	0
20	Online treatment	0	0	0	0	0	0
21	Mobile veterinary clinic	0	0	0	0	0	0
22	Waste management	7	2	0	0	7	2

7.13 Household's nutrition awareness related information

The figure below indicates that a total of 343 scavenger poultry farmers of which 296 chicken rearing farmers and 47 duck rearing farmers received nutrition-related information. In terms of proportion, about 82 % of total farmers received nutrition-related information while about 89% of chicken rearing farmers and 55% of duck rearing farmers received nutrition-related information.

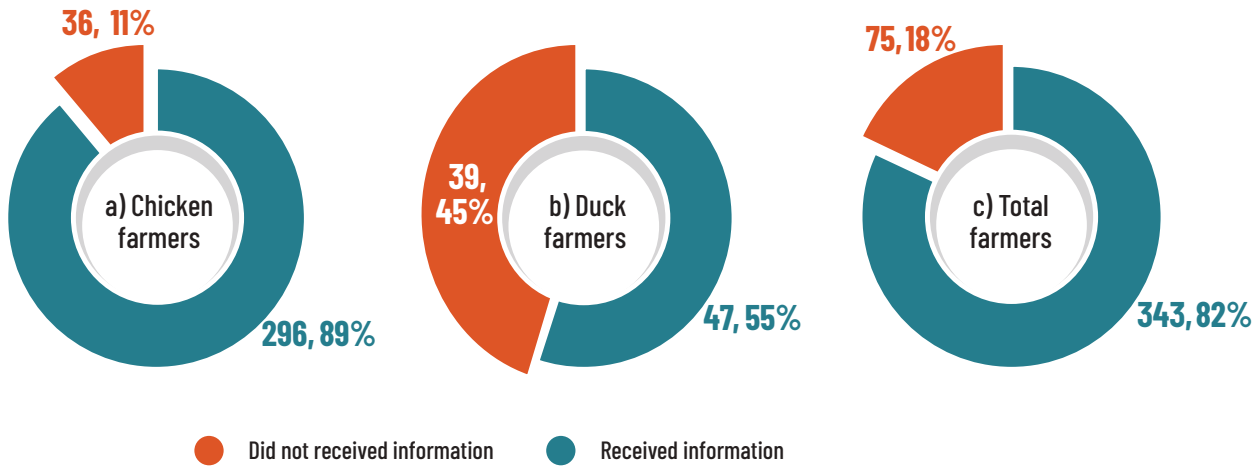


FIGURE 61

Number and Proportions of households received nutrition awareness information

7.14 Gender perspective in managing scavenger poultry value chain

The scavenging poultry value chain is one of the important value chains of the LDDP intervention implemented especially for the women and other vulnerable groups of the community. The women have a great interest in improving the productivity of scavenging poultry to meet the demand for meat, egg and improve the economic condition of the family.

7.14.1 Gender perspective in household management in scavenger poultry value chain

The table below shows that women are mostly taking care of their families as well as farms. Among total surveyed households who responded, female is mainly taking care of children in 93% households (HHs) and both the male and female are taking care of children in 6% HHs. In terms of preparing children for school, females are preparing children in only about 97% HHs while both males and females are preparing children in about 3% HHs. Besides, female are caring elderly members, cleaning and washing clothes, cooking in the family and collecting cooking water in about 90%, 97%, 98% and 88% of HH respectively who responded the respective questions. The overall data amplifies that cooking, raring children, caring elderly people, preparing children for school are dedicatedly taken care of by women. Both males and females has involved in case of caring elderly family members and collecting water.

Table 160: Gender perspective in household management among the PG of Scavenger Poultry

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Manage taking care of children along with farming	1	350	24	0	93	6	375
2	Manage preparing children for their school along with farming	0	350	11	0	97	3	361
3	Manage caring elderly family members along with farming	0	216	24	0	90	10	240
4	Manage Cleaning, washing clothes along with farming	1	400	11	0	97	3	412
5	Manage cooking along with farming	0	410	7	0	98	2	417
6	Manage collecting water along with farming	6	360	41	1	88	10	407

Source: FAO-LDDP baseline survey, 2021



The Scavenger chicken under the poultry value chain is one of the main value chains under LDDP intervention which is mainly taken case of 100 percent female. A significant portion of the protein demand (egg and meat) of a family is fulfilled through scavenger chicken.

For ensuring women empowerment there is a need to develop promotion of the practice of sharing workload especially the household chores together in consensus which will strengthen the family bonding and spend quality time with family members and become more productive.

7.14.2 Gender perspective in farm management in scavenger poultry value chain

The following table presents the gender perspective on farm management in scavenger poultry farming. Among the total surveyed households who responded to the respective questions, as the data shows the majority of households (35% to 50%), male members are mainly selecting the input supplier, contact with input supplier, and contacting the vet services providers. On the other hand, as can be seen the majority of households (55% to 87%) female members are mainly taking decision for buying poultry, chooses of breed, decision for feed rationing, poultry feeding, manure management, waste management, and cleaning and sanitization of the farm. However, in the majority of households (40% to 66%), both male and female members together took the decision to use the income from poultry farming, instead of selling poultry and maintaining contact with the buyers. Overall, Men mostly manage outside work and their mobility is well accepted in society, but women and young girls are mainly responsible for managing the house assignment as their mobility is restricted which is reflected on the farm management assignment as well.

Table 161: Gender perspective in fam management in scavenger poultry value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who takes the decision of buying poultry?	19	206	150	5	55	40	375
2	Who chooses the breed?	17	257	113	4	66	29	387
3	Who takes the decision of feed rationing?	2	355	59	0	85	14	416
4	Who fed animals on the farm?	0	341	77	0	82	18	418
5	Who decide to manage manure?	16	271	108	4	69	27	395
6	Who manages manure and waste on the farm?	12	314	68	3	80	17	394
7	Who perform cleaning and sanitization on the farm?	4	349	46	1	87	12	399
8	Who choose the input supplier?	121	98	126	35	28	37	345
9	Who maintain the contact with the input supplier?	151	88	106	44	26	31	345
10	Who decide where to sale?	59	129	212	15	32	53	400
11	Who maintain the contact with the buyer?	127	104	170	32	26	42	401
12	Who decide the use of money earned from poultry?	18	141	247	4	35	61	406
13	Who maintain the contact with the vet service providers?	169	82	124	45	22	33	375

Source: FAO-LDDP baseline survey, 2021



7.14.3 Gender perspective in access to training and services

As can be seen from the table below, females are mostly participating in training in 66% of households, spending more time in farming in 93% of households and having access to different digital and physical extension services in 48% farm households while male farmers are mostly going out for feed and food product testing in about 40% of farm households.

Table 162: Gender perspective in access to training and services in scavenger poultry value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who participates in the training?	28	204	79	9	66	25	311
2	Who spent more time in farm activities?	5	386	24	1	93	6	415
3	Who mainly have access to finance/ credit?	17	223	98	5	66	29	338
4	Who mainly goes out for feed and food product testing?	37	37	19	40	40	20	93
5	Who have mainly access to different digital and physical extension services?	28	173	159	8	48	44	360

Source: FAO-LDDP baseline survey, 2021

7.14.4 Gender perspective in ownership of the farm and poultry

As can be seen from the table below, in 62% of scavenger poultry farms, male members are the authorized owners of the farm while females are the authorized owners in 25% of farm households and both males and females are the authorized owners in 13% of total scavenger poultry farms. In terms of the authorized owner of the poultry on the farm, male, female and both male and females are the authorized owners of the poultry on 9%, 69% and 22% of the farms, respectively.

Table 163: Gender perspective based on the ownership of the farm and poultry in scavenger poultry value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who is the authorized owner of this farm?	260	103	54	62	25	13	417
2	Who is the authorized owner of poultry?	36	289	93	9	69	22	418

Source: FAO-LDDP baseline survey, 2021

Though the key activities are typically managed by females, but the level of ownership on farm management and poultry is low. So, there is a need to explore the opportunity of increasing the ownership of women in both farm and livestock management to accelerate the path of women empowerment.

7.15 Scavenger poultry rearing farmer's perceptions regarding LDDP services

LDDP is providing different services for increasing productivity, market access and climate-resilient production for the improvement of the livestock sector in Bangladesh. Scavenger chicken and duck farmers were considered for the baseline survey in the scavenger poultry category.

7.15.1 Farmers received asset from DLS/LDDP to start or continue their poultry business last year

It can be seen from the Table below, only 8 farmers of which 6 chicken rearing farmers and 2 duck rearing farmers received cash incentives from DLS/LDDP.

Table 164: Types of assets farmers received from DLS/LDDP during last year

#SL	Asset from LDDP/DLS	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers received this	% of total 332 farmers use this received this	Number of farmers received this	% of total 86 farmers use this received this	Number of farmers received this	% of total 418 farmers use this received this
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Poultry house	0	0	0	0	0	0
2	Utensils like bucket, spade, etc	0	0	0	0	0	0
3	Hygienic cleaning tools	0	0	0	0	0	0
4	Live Bird	0	0	0	0	0	0
5	Cash incentive	6	2	2	2	8	2
6	Feed	0	0	0	0	0	0
7	Others	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.15.2 Farmers received training from LDDP

This survey did not find any scavenger poultry farmers who received training from LDDP during last year. Hence, none has commented regarding the satisfaction with LDDP training.

Table 165: Level of satisfaction regarding LDDP provided training during last one year

#SL	Satisfaction level	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers received training	% of farmers received training	Number of farmers received training	% of farmers received training	Number of farmers received training	% of farmers received training
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Excellent	0	0	0	0	0	0
2	Good	0	0	0	0	0	0
3	Moderate	0	0	0	0	0	0
4	Bad	0	0	0	0	0	0
5	Very bad	0	0	0	0	0	0
6	Not applicable	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

7.15.3 Farmers overall level of satisfaction with LDDP services (scavenger poultry)

The following table shows the overall satisfaction level of farmers who received any kind of asset or assistance from the LDDP. In terms of overall satisfaction regarding LDDP service, all the farmers who received any kind of asset from the LDDP reported about the excellent LDDP service.

Table 166: Farmers overall level of satisfaction with LDDP services (scavenger poultry)

#SL	Overall satisfaction with LDDP services	Chicken farms		Duck farms		Total scavenger poultry farms	
		Number of farmers	% of total 6 farmers who received asset	Number of farmers	% of total 2 farmers who received asset	Number of farmers	% of total 8 farmers who received asset
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Excellent	6	100	2	100	8	100
2	Good	0	0	0	0	0	0
3	Moderate	0	0	0	0	0	0
4	Bad	0	0	0	0	0	0
5	Very bad	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Chapter 8. Baseline Finding of Sonali Chicken



A total of 399 sample Sonali chicken rearing farmers of which 132 female farmers across 7 districts namely Bogura, Comilla, Gaibandha, Gazipur, Mymensingh, Narsingdi, and Tangail have been surveyed during the baseline survey. A number of farms and household characteristics have been collected through this survey that will establish a basis to measure the progress of LDDP stated indicators related to productivity, market access, and climate-resilient production.

8.1 Sonali chicken farm characteristics

Column (3) of Table 167 shows that on average 2,646 Sonali chicken exists per farm. The highest number of Sonali chicken (3,565 chicken) is found in Bogura district while the lowest (1,367 chicken) is found in Gaibandha district.

Table 167: Average number of Sonali chicken in poultry farming

#SL	District	Average number of Sonali chicken per farm
(1)	(2)	(3)
1	Bogura	3,565
2	Comilla	3,181
3	Gaibandha	1,367
4	Gazipur	1,771
5	Mymensingh	2,075
6	Narsingdi	2,824
7	Tangail	2,048
	Grand Total	2,646

Source: FAO-LDDP baseline survey, 2021

The following table presents the distribution of farmers based on different farm sizes in sonali chicken value chain. Sonali chicken rearing farm size is classified as small (1-1000 birds), medium (1001-2000 birds), large (above 2000 birds)[12]. As can be seen that about 28% of total surveyed sonali chicken rearing farmers fall in the category of small farms. Besides, about 27% of total surveyed farmers fall in the category of medium farm and about 45% of total surveyed farmers fall into the category of large farmers. Overall, the majority of farmers are the large farmers in sonali chicken value chain.

[12] Following Jabbar et al., (2005), commercial poultry and sonali chicken farm is classified as small (up to 1000 birds), medium (1001 – 2000 birds), large (above 2000 birds).



Table 168: Distribution of sample farms across different farm size

#SL	Category	Number of farms		
		1 – 1,000 birds (Small farm)	1,001 – 2,000 birds (Medium farm)	>2,000 birds (Large farm)
(1)	(2)	(3)	(4)	(5)
1	Bogura	11	31	61
2	Comilla	21	6	35
3	Gaibandha	23	7	6
4	Gazipur	16	16	7
5	Mymensingh	8	15	15
6	Narsingdi	3	20	37
7	Tangail	29	12	20
	Total	111	107	181
	% total 399 farms	28	27	45

Source: FAO-LDDP baseline survey, 2021

8.2 Productivity of sonali chicken per bird

Meat productivity of sonali chicken is measured by the average live weight and carcass weight per bird during the sale at the slaughtering age. Baseline data shows that sonali chicken farmers usually rear birds on average for 10.71 weeks which ranged from 60 days to 98 days.

8.2.1 Average weight of sonali chicken at the slaughtering age

The following table presents the average live weight and carcass weight per sonali chicken at its slaughtering age at the aggregate level without considering variations in rearing days. As can be seen, that the average live weight of each sonali chicken bird is about 0.87 Kg which ranged from 0.83 Kg per bird to 0.90 Kg per bird across different districts. Coolum (3) shows that average carcass weight of each bird is about 0.57 Kg which is ranged from 0.54 Kg per bird to 0.59 Kg per bird. Noted that the average carcass (dressing percentage) of a sonali bird is considered as 65% of the live weight based on the previous literature (Azharul et al., 2005). In terms of female farmers, columns (5-6) indicate that average live weight and carcass weight of each bird is about 0.86 Kg per bird and 0.56 Kg per bird.

Table 169: Average weight of sonali chicken at the slaughtering age

#SL	District	Average weight of sonali chicken at slaughter age			
		Total farmers		Female farmers	
		Live weight (Kg) per bird	Caracas weight (Kg) per bird	Live weight (Kg) per bird	Caracas weight (Kg) per bird
(1)	(2)	(3)	(4)	(5)	(6)
1	Bogura	0.90	0.59	0.89	0.58
2	Comilla	0.85	0.56	0.90	0.58
3	Gaibandha	0.88	0.57	0.83	0.54
4	Gazipur	0.90	0.59	0.89	0.58
5	Mymensingh	0.83	0.54	0.88	0.57
6	Narsingdi	0.85	0.55	0.81	0.53
7	Tangail	0.84	0.55	0.76	0.50
	Average of Total	0.87	0.57	0.86	0.56

Source: FAO-LDDP baseline survey, 2021

Note: Average weight is calculated by dividing the total carcass weight (Kg) sold on the farm with total number of birds (sold and consumed on farm).



8.2.2 Average price of sonali chicken per bird

The following table presents the average price of sonali chicken during the survey period. The average yearly price is estimated for sonali chicken to overcome the drawback of seasonality in chicken price.

Table 170: Price of sonali chicken

#SL	District	Price of sonali chicken per bird			
		Total farmers		Female farmers	
		Average price live weight Tk/Kg	Average price of carcass weight Tk/Kg	Average price of live weight Tk/Kg	Average price of carcass weight Tk/Kg
(1)	(2)	(3)	(4)	(5)	(6)
1	Bogura	187.96	292.01	184.96	284.55
2	Comilla	185.30	285.08	178.07	273.95
3	Gaibandha	181.70	279.54	185.59	285.53
4	Gazipur	181.97	279.96	184.35	283.62
5	Mymensingh	151.44	232.98	157.64	242.53
6	Narsingdi	175.52	270.04	179.32	275.88
7	Tangail	179.36	275.94	179.98	276.89
	Average of Total	179.74	277.23	180.29	277.37

Source: FAO-LDDP baseline survey, 2021

As can be seen from Column (3) of the table above, the average price per Kg live weight of sonali chicken is about Tk 179.74 per Kg which ranged from Tk 151.44 per Kg to Tk 187.96 per Kg. In terms of female farmers in column (5), average price per Kg live weight of sonali chicken is Tk 180.29 which is almost the same as this for total farmers. Besides, column (4) shows that the average price per Kg carcass weight of sonali chicken is Tk 277.23 which is the same for female farmers (column 6).



8.2.3 Average quantity sold per sonali chicken rearing farm per year

The average quantity of sonali chicken meat (carcass weight) sold per sonali chicken rearing farm per year is presented in the following table. Average quantity is calculated by dividing the total quantity sold (number of birds sold * average carcass weight per bird) by the total number of farms during the baseline period. As can be seen from column (3), each farm sold on average 5,042.24 Kg of sonali chicken meat (carcass weight) per year. However, the highest quantity (6,863.47 Kg) is sold in the Comilla district and the lowest quantity (2,838.91 Kg) is sold in the Tangail district during the baseline period. In terms of female farmers, each female farmer sold on average 4,028.78 Kg of sonali chicken meat (carcass weight) which is highest in Narsingdi district (5,619.36 Kg) and lowest in Tangail district (1,573.55 Kg) during the baseline period.

Table 171: Average quantity (carcass weight) sold per sonali chicken rearing farm per year

#SL	District	Total surveyed farmers	Average quantity (Carcass weight) sold per farm last year (Kg)	
			Total (399 farmers)	Female (132 farmers)
(1)	(2)	(3)	(4)	(5)
1	Bogura	399	5,606.35	4,840.27
2	Comilla		6,863.47	5,041.66
3	Gaibandha		5,348.24	2,110.89
4	Gazipur		4,648.67	3,512.04
5	Mymensingh		3,082.06	2,253.49
6	Narsingdi		5,745.65	5,619.36
7	Tangail		2,838.91	1,573.55
	Total		**5,042.24**	**4,028.78**

Source: FAO-LDDP baseline survey, 2021

8.3 Sonali chicken farm household's access to market

Findings related to market access of sonali chicken rearing households are described in this sub-section. A number of information such as type of buyers, place of selling, mode of transport, and so forth are reported in this sub-section.

8.3.1 To whom sonali chicken farmers sell their chicken

Table 172 shows the number and proportion of sonali chicken rearing farmers based on the buyers where farmers mainly sell their poultry. It can be seen that a total of majority (70% of total farmers and 65% of female farmers) sell their sonali chicken to the traders/paiker/foria. Besides, 15% of total farmers and 23% of female farmers sell their chicken to the consumers. About 8% of total farmers and 8% of female farmers sell their chicken to local shops. Only 1% of farmers sell chicken to the online market. However, about 5% of total farmers are found to sell their sonali chicken to the lenders to repay the loan. Mainly farmers took advance loans from the feed dealers and sell their chicken to the dealers to repay the loan in this case.



Table 172: Distribution of sonali chicken rearing farmers based on the buyers

#SL	Types of buyers	Number and proportion of farmers selling Sonali chicken to different buyers			
		Total farmers	% of total 399 farmers	Female farmers	% of 132 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Consumer	61	15	30	23
2	Trader/piker/foria	280	70	86	65
3	Direct processing company	0	0	0	0

4	Hotel and restaurant	1	0	0	0
5	Local shop	32	8	10	8
6	Online market	4	1	0	0
7	Supermarket	0	0	0	0
8	lender to repay loan	21	5	6	5

Source: FAO-LDDP baseline survey, 2021

8.3.2 Place of selling sonali chicken

Table 173 presents the number and proportion of sonali chicken rearing farmers based on the place of selling their products. It can be seen that about 85% of farmers sell their product at farmgate. Besides, 10% of farmers sell their chicken at the local market while only 2% of total farmers and 2% of female farmers sell chicken at the urban market. Only 3 farmers of which one female farmer sell their chicken at the buyer's places like restaurants. Overall, the majority of farmers sell their chicks at the farmgate and traders/paikers collect the chicken from the farmgate.



Table 173: Number and proportion of sonali chicken rearing farmers based on the place of selling

#SL	Name of location	Number and proportion of farmers based on the place of selling chicken			
		Total farmers	% of total 399 farmers	Female farmers	% of 132 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Farm gate	339	85	112	85
2	Sale within village	10	2	3	3
3	Local market	41	10	13	10
4	Urban market	6	2	3	2
5	At buyer's place	3	1	1	1

Source: FAO-LDDP baseline survey, 2021

8.3.3 Mode of sonali chicken transportation

Table 174 shows the number and proportion of sonali chicken rearing farmers who use transport to sell chicken based on the mode of transport. It can be seen, the highest proportion (57% of total farmers and 60% of female farmers) use auto vehicle for selling their chicken. Besides, 25% of farmers use mini trucks or trucks for chicken transport. About 18% of total farmers and 15% of female farmers use rikshaw/van for chicken transport. Overall, different auto vehicles such as battery or engine operated light vehicles are used by most of the sonali chicken rearing farmers for their product marketing.



Table 174: Distribution of sonali chicken rearing farmers based on the mode of chicken transport

#SL	Mode of transport	Total farmers	% of total 60 farmers	Female farmers	% of total 20 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	On foot	0		0	0

2	Rickshaw/Van/bicycle etc	11	18	3	15
3	Auto vehicle	34	57	12	60
4	Boat	0	0	0	0
5	Truck	15	25	5	25

Source: FAO-LDDP baseline survey, 2021

8.3.4 Types of cages used to transport sonali chicken

The following table presents the distribution of farmers based on the types of cages used for sonali chicken during purchasing and selling. As can be seen majority farmers (62% of total farmers and 61% of female farmers) use iron case for chicken transport. Besides, 19% of total farmers and 17% of female farmers use plastic cage, 12% of total farmers and 15% of female farmers use plastic bag and 7% of farmers use bamboo cage for chicken transport.



Table 175: Number and proportion of farmers based on the type of cage used for sonali chicken transportation

#SL	Types of cage	Total number of sonali chicken rearing farmers	% of total 399 sonali chicken rearing farmers	Female farmers	% of total 132 female farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Bamboo cage	28	7	9	7
2	Plastic cage	77	19	22	17
3	Iron cage	245	62	81	61
4	Others (Plastic bag)	49	12	20	15

Source: FAO-LDDP baseline survey, 2021

8.3.5 Selling processed sonali chicken meat

All of the farmers surveyed reported that they did not sell any processed sonali chicken or portion of sonali chicken during last year.

8.3.6 Sources of feed for sonali chicken

Figure 62 shows the main sources of different purchased feed for sonali chicken farming. As can be seen about 22% of total sonali chicken rearing farmers purchased feed from the local retailers while about 25% of female farmers purchased feed from local retailers. Besides, about 61% of total farmers as well as female farmers purchase feed from the wholesalers. However, about 15% of total farmers and 14% of female farmers are found to purchase feed from the feed dealers directly. About 2% of farmers purchase feed from local mixture entrepreneurs for their sonali chicken farming.

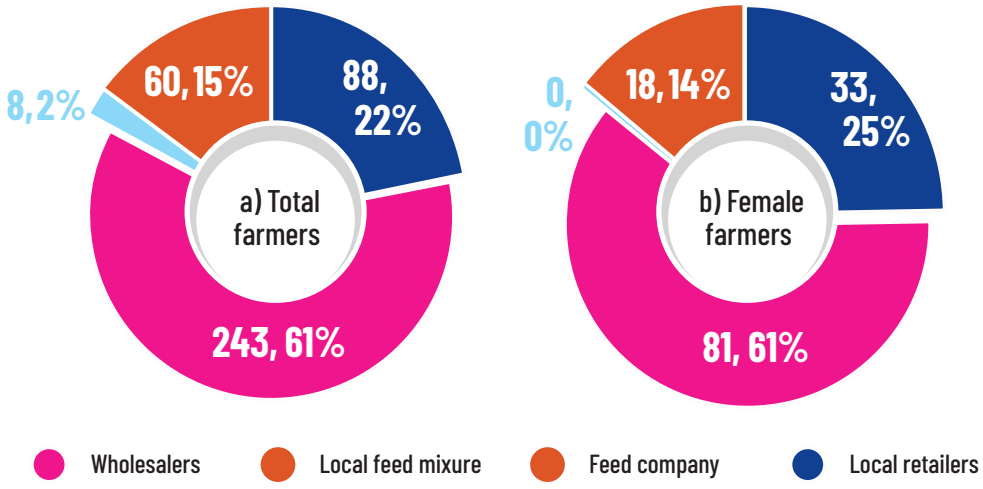


FIGURE 62
Sources of purchased feed for sonali chicken

8.4 Livestock disease management (sonali chicken)

The baseline survey was carried out in 7 districts of Bangladesh for the sonali chicken. To understand the disease frequency faced during the last year by the Producer Groups (PGs) members under the Livestock and Development Project (LDDP), the survey asked disease related questions to the farmers.

8.4.1 Occurrence of diseases in sonali chicken farming

Figure 63 shows that Newcastle has the highest occurring disease in sonali chicken farming following Gumboro and coccidiosis diseases. About 45 % of total surveyed sonali chicken rearing farmers and 43% of female farmers reported that their chicken got affected by Newcastle disease during baseline period.

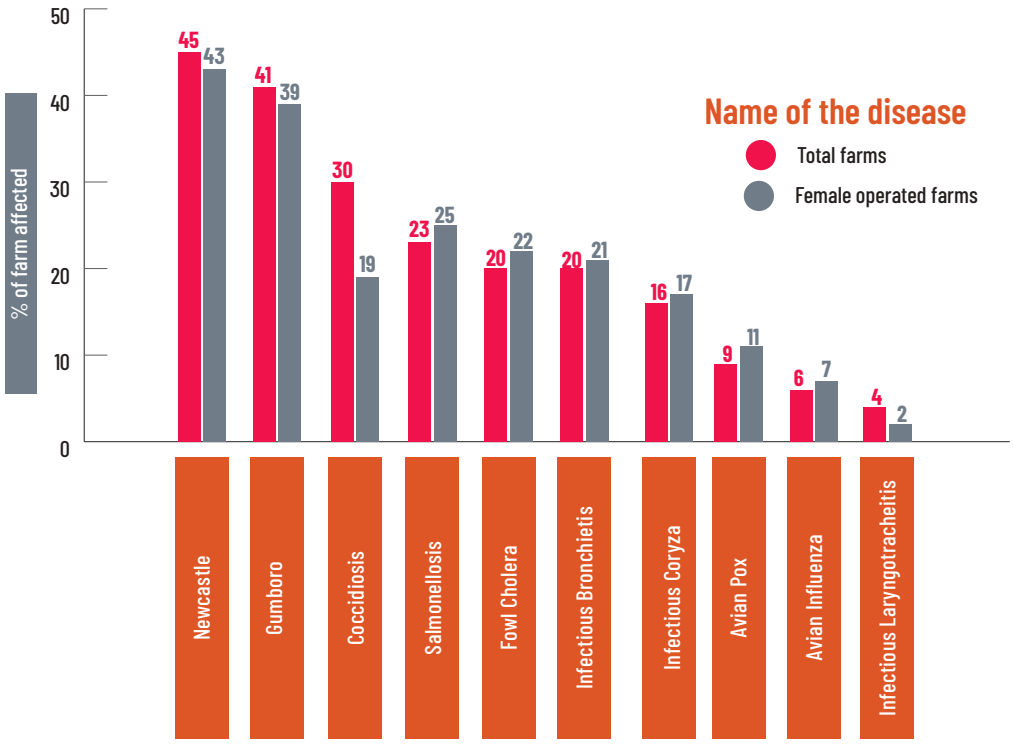


FIGURE 63

Proportion of sonali chicken farms affected by different disease

As can also be seen about 41% of total sonali chicken rearing farms and 39% of female farmers have been faced by gumboro disease on their farms while about 30 % of total farmers and 19% of female farmers reported to be affected by coccidiosis during last year. About 20% to 23% of total farms have been affected by some other disease like bronchitis, fowl cholera, and salmonellosis. Overall, Newcastle and gumboro disease seems to be the major risk in sonali chicken farming based on the occurrence in larger proportion of farms.

Table 176 shows that the highest occurrence of Newcastle, gumboro, and Coccidiosis was in Bogura district compared to other districts.

Table 176: Geographical distribution of occurrence of diseases in sonali chicken farms

#SL	Name of disease	Number of farms affected across district							Total dairy farms affected	% of total 399 farms	Total female operated farms affected	% of total 132 female operated farms
		Bogura	Comilla	Gaibandha	Gazipur	Mymensingh	Narsingdi	Tangail				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Avian Influenza	11	2	5	0	6	1	0	25	6	9	7
2	Newcastle	40	32	27	15	27	15	23	179	45	57	43
3	Infectious bronchitis	4	32	7	0	5	32	0	80	20	28	21
4	Infectious Laryngotracheitis	1	10	3	0	0	2	0	16	4	2	2

5	Fowl Cholera	1	30	8	0	10	25	5	79	20	29	22
6	Infectious coryza	1	33	5	6	3	11	5	64	16	22	17
7	Gumboro	27	23	22	22	24	21	25	164	41	52	39
8	Avian pox	7	12	8	1	2	2	3	35	9	14	11
9	Salmonellosis	25	42	4	3	3	11	5	93	23	33	25
10	Coccidiosis	24	13	20	23	12	13	16	121	30	25	19

Source: FAO-LDDP baseline survey, 2021

8.4.2 Vaccination in sonali chicken farms

Figure 64 presents the proportion of sonali chicken farmers who use regular vaccination on their farms. It can be seen that about 88% of sonali chicken rearing farmers use vaccination for Newcastle while 82% of farmers use vaccination for Gumboro disease. Few farmers (10%-20% of farmers) also have used vaccination for some other disease like bronchitis, laryngotracheitis, fowl cholera, infectious coryza, avian pox, and salmonellosis.

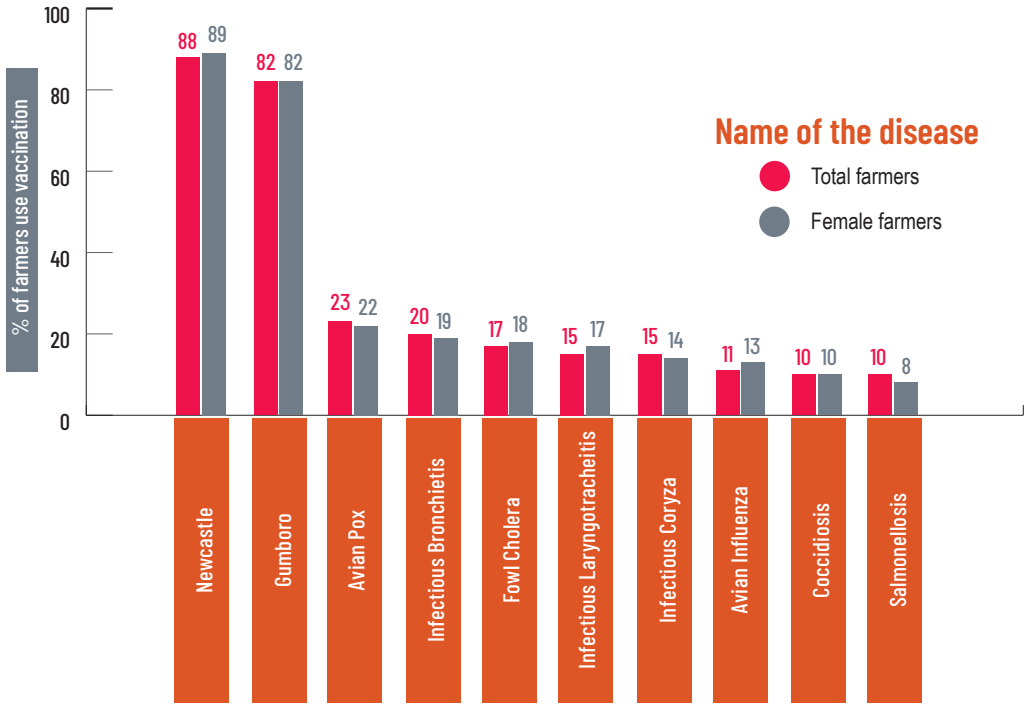


FIGURE 64
Regular vaccination in sonali chicken farms

Table 177 presents the geographical distribution of regular vaccination by sonali chicken rearing farmers. As can be seen, majority of sonali chicken rearing farmers in Bogura, Comilla, Narsindhi and Tangail districts use vaccines for major poultry diseases like Newcastle, and gumboro.

Table 177: Geographical distribution sonali chicken farmers use regular vaccination

#SL	Name of disease	Number of farms use regular vaccination							Total dairy farms affected	% of total 399 farms	Total female operated farms affected	% of total 132 female operated farms
		Bogura	Comilla	Gaibandha	Gazipur	Mymensingh	Narsingdi	Tangail				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Avian Influenza	0	12	7	0	0	25	0	44	11	17	13
2	Newcastle	71	59	36	36	31	58	60	351	88	117	89
3	Infectious bronchitis	0	24	16	0	0	38	0	78	20	25	19
4	Infectious Laryngotracheitis	0	15	16	1	0	28	0	60	15	22	17
5	Fowl Cholera	1	24	15	0	5	22	1	68	17	24	18
6	Infectious coryza	0	15	15	0	8	20	0	58	15	19	14
7	Gumboro	64	61	35	30	29		49	326	82	108	82
8	Avian pox	5	20	16	16	9	23	3	92	23	29	22
9	Salmonellosis	0	6	14	1	0	17	0	38	10	11	8
10	Coccidiosis	6	5	15	0	0	13	0	39	10	13	10

Source: FAO-LDDP baseline survey, 2021

8.4.3 Death of sonali chicken due to disease

Figure 65 shows the number of sonali chickens that died due to different diseases during the baseline period. As can be seen, the highest number of chickens died due to Newcastle disease during the baseline period. For instance, about 49% of the total sonali chicken death was for the Newcastle disease. Besides, about 23% and 14% of chicken death were due to gumboro, and avian influenza disease. The proportion of chicken death for female farmers are almost the same as this for total farmers.

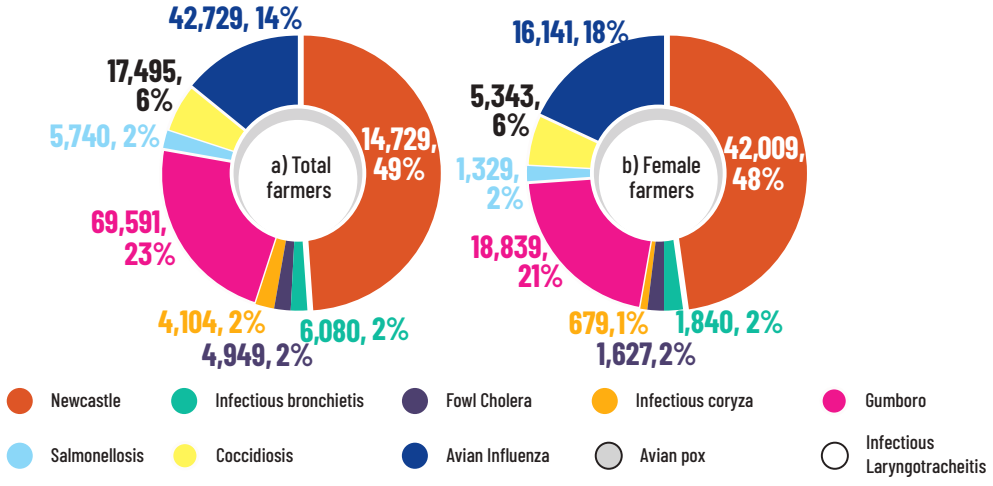


FIGURE 65
Number and Proportion of sonali chicken died due to disease

8.5 Feeding practice and management

Figure 66 presents the quantity of different feeds used per day per sonali chicken. As can be seen on average 0.047 Kg of ready-made poultry feed per bird per day is used. In terms of female farmers, on average 0.049 Kg of ready-made poultry feed is used per bird per day. Although some farmers used a feed from other sources like mixed feed from procured or purchased ingredients, the quantity is very low.



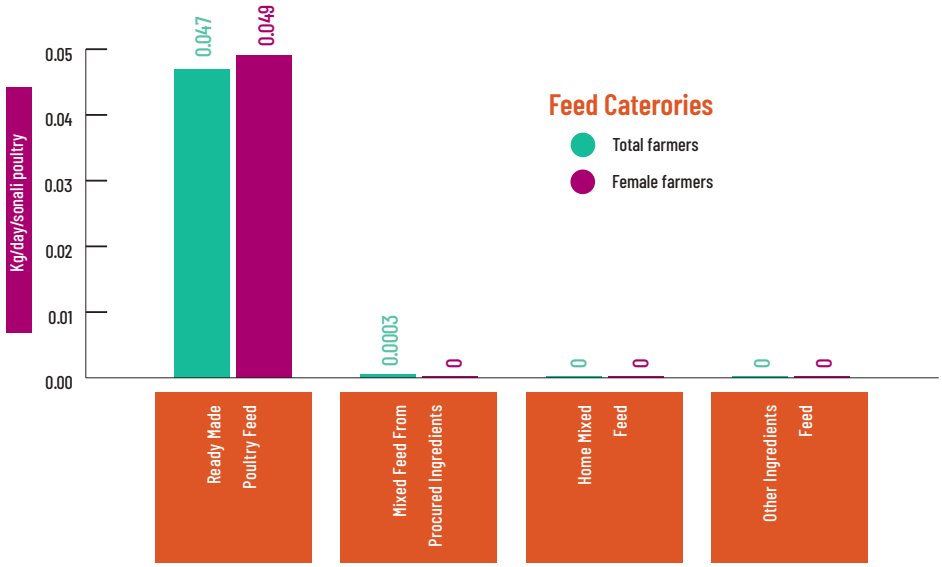


FIGURE 66

Types of feed used per day per bird in Sonali chicken farming

8.6 Food safety and certification

Food safety and certification measures are necessary to ensure the quality of products both from the input and output sides in the sonali chicken farming. Several food safety and certification measures are identified to know the food safety status of the sonali chicken rearing farms. Those farmers who regularly use any measures are considered the adopters of this measure. Table 178 indicates that about 25% of total surveyed sonali chicken farmers and 22% of female farmers regularly wash their hands before entering the poultry house while 39% of total farmers and 35% of female farmers use foot baths. Although 55% of total farmers and 49% of female farmers control visitors/other animals, birds and pest access on the farm only 9% of total farmers and 8 % of female farmers keep a record of these activities. However, 27% of total farmers and 22% of female farmers keep records of different diseases, treatments and vaccination on the farm. About 10% of total farmers and 8% of female farmers reported that they clean the utensils with safe and disinfected water while 15% of total farmers and 11% of female farmers transport chicken with comfort. About 20% of total farmers and 21% of female farmers reported that they maintain the drug withdrawal period. Only 4 farmers are found to test the feed quality and safety for their poultry farming. A total of 73 farmers received food safety related information of which 24 are female.

Table 178: Use of food safety and certification measures in sonali chicken farms

#SL	Food safety and certification particulars	Number of farmers use food safety and certification measure			
		Total farmers use this measure	% of 399 farmers use this measure	Female farmers use this measure	% of total 132 farmers use this measure
(1)	(2)	(3)	(4)	(5)	(6)
1	Do you wash your hand before entering the farm?	100	25	29	22
2	Do you use foot bath containing disinfectant at the entrance of the farm?	154	39	46	35
3	Do you control visitor/other animal, bird and pest access on the farm?	218	55	65	49
4	Do you monitor and maintain records for the above-mentioned activities?	36	9	10	8
5	Do you keep record of disease, treatment and vaccination information for each poultry batch?	108	27	29	22
6	Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your poultry feed	4	1	2	2
7	Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use?	38	10	10	8
8	Do you transport poultry with comfort?	61	15	15	11
9	Do you perform regular health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc)	0	0	0	0
10	Do you keep records of health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc)	0	0	0	0
11	Do you maintain withdrawal period of antibiotic/hormone?	79	20	28	21
12	Do you get any poultry health certificate before sale?	0	0	0	0
13	Do you use any label/brand for your poultry's, poultry's eggs or their meat?	0	0	0	0
14	Did you receive any information related to food safety?	73	18	24	18

Source: FAO-LDDP baseline survey, 2021

It can be seen from the table below that a shallow tube-well/electric pump is the main source of drinking water for sonali chicken birds. About 84% of total farmers and 80% of female farmers use this source for sonali chicken's drinking water on the farm. Another source is the hand tube well. About 16% of total farmers and 20% of female farmers use this source for sonali chicken's drinking water on the farm. Hand tube-well is mainly used in the small farm categories.

Table 179: Sources of farm animals' drinking water (sonali chicken)

#SL	Name of the water source	Number of farmers use different source of drinking water			
		Number of total farmers use this source	% of 399 total farmers who use this source	Female farmers use this source	% of 132 female farmers who use this source
(1)	(2)	(3)	(4)	(5)	(6)
1	Hand Tube-well	63	16	27	20
2	Pond/Cannel	0	0	0	0
3	Supply/ Tap	0	0	0	0
4	Filtered	0	0	0	0
5	Sallow tube-well/ electric pumps	336	84	105	80

Source: FAO-LDDP baseline survey, 2021

Table 180 presents the source of food safety information among those who received food safety-related information during the baseline period. It is found that only 73 sonali chicken rearing farmers out of a total of 399 farmers received any kind of food safety-related information last year (Table 176). Among those who received food safety-related information, TV seems to be the most popular medium of information (66 farmers including 24 females) following online media (50 farmers including 15 females). Few farmers received food safety information from other sources such as training, mobile app, SMS, community radio, and exhibition.

Table 180: Sources of information related to food safety in sonali chicken farming

#SL	Name of the source of food safety information	Number of farmers receive different types of information related to food			
		Total farmers received information from this source	% of 73 total farmers who received foodsafety related information	Female farmers received information from this source	% of 24 female farmers who received food Ssafety related information
(1)	(2)	(3)	(4)	(5)	(6)
1	Training	12	16	3	10
2	Mobile app	2	3	0	0
3	SMS	16	22	1	3
4	Community radio	1	1	0	0
5	TV	66	90	24	83
6	Online media	50	68	15	52
7	Exhibition	8	11	0	0

Source: FAO-LDDP baseline survey, 2021

8.7 Technology and practices used in sonali chicken farming

Technology adoption is defined as the regular use of any technology by the farmers on their farming. Table 181 shows that all the sonali chicken rearing farmers use improved breed in farming. Besides, about 59% of total farmers and 61% of female farmers use regular vaccination of different disease. About 12% of total farmers and 13% of female farmers regularly use ration balancing in sonali chicken rearing farms. About 53% of total farmers and 50% of female farmers use routine deworming which also could be improved for better health management. Very few farmers (3%of total farmers and 5% of female farmers) use manure management technology on their farms. Although climate-resilient housing is greatly associated with the productivity as well as environmental issues with poultry farming, only 17% of total farmers and 13% of female farmers are found to use this technology in farming. Besides, a total of 4 farmers is found to use cage rearing technology in their sonali chicken farming. Overall, the rate of adoption of different technology is very poor and that could be improved to increase the productivity and resilient poultry production.

Table 181: Technology and practices used in sonali chicken rearing farms

#SL	Name of technology	Adoption of technology and practices			
		Number of total farms adopted	% of total 399 farms adopted	Number of female farms adopted	% of total 132 farms adopted
(1)	(2)	(3)	(4)	(5)	(6)
CSA technologies and practices					
1	Improved breed rearing	399	100	132	100
2	Ration balancing	48	12	17	13
3	Routine vaccination	353	59	118	61
4	Routine Deworming	211	53	66	50
5	Manure management	12	3	7	5
6	Climate-resilient housing	67	17	17	13
Other technologies and practices					
7	Cage rearing	4	1	2	2
8	Organic egg and meat production	0	0	0	0
9	Fortified egg production	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

8.8 Capacity enhancement of sonali chicken rearing farmers

Table 182 presents the number and proportion of sonali chicken rearing farmers received training on different technologies and practices.

Table 182: Distribution of farmers received training on different technology and practices

#SL	Capacity enhancement training	Capacity enhancement of sonali chicken farmers			
		Total farmers received training	% of total 399 farmers received training	Female farmers received training	% of total 132 female farmers received training
(1)	(2)	(3)	(4)	(5)	(6)
1	Improved breed rearing	14	4	2	2
2	Biosecurity and biosafety	15	4	3	2
3	Cage rearing	1	0	0	0
4	Organic egg and meat production	0	0	0	0
5	Climate-resilient housing	6	2	3	2
6	Manure management	3	1	1	1
7	Fortified egg production	0	0	0	0
8	Routine vaccination	34	9	5	4
9	Routine Deworming	21	5	4	3
10	Poultry farming	10	3	2	2
11	Poultry meat and egg production	1	0	1	1
12	Poultry Hatchery rules	0	0	0	0
13	Poultry Health management	9	2	2	2
14	Poultry agribusiness	0	0	0	0
15	Feed formulation	3	1	1	1
16	Good agricultural practice	0	0	0	0
17	Food safety	0	0	0	0
18	Climate shock mitigation	1	0	0	0
19	Business development skill	0	0	0	0
20	Training on gender equality	1	0	0	0
21	Training on using mobile apps	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

As can be seen from Table 182, very few farmers received training on different technologies and practices during the baseline period. For instance, only 1% -5% of total farmers received training on improved breed rearing, biosecurity and biosafety, manure management, routine deworming, and poultry health management. However, only 9% of total farmers received training on routine vaccination on poultry farming. The proportion of female farmers received different training are almost the same as this for total farmers except training on vaccination. Nevertheless, there is a huge room to enhance capacity of sonali chicken farmers through different trainings.

8.9 Housing and management in sonali chicken farming

Table 183 presents different housing systems used by the sonali chicken rearing farmers. It can be seen that a total of 120 surveyed farmers (27% of total surveyed farmers) of which 46 females (35% of females) use the conventional type of poultry housing. However, a total of 251 surveyed farmers (63% of total farmers) of which 74 female farmers (56% of female farmers) use raised floors with bricks or brick wall shed for poultry rearing. About 6% of total surveyed farmers and 8% of female farmers use macha system house for sonali chicken rearing. Few farmers are found to use multistorey building (5 farmers of which 1 female) for sonali chicken rearing.



Table 183: Type of housing used for sonali chicken farms

#SL	Type of housing	Total farmers		Female farmers	
		Number of farmers	% of total (399) farmers	Number of farmers	% of total (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Night enclosed/fenced open space adjacent to homestead	0	0	0	0
2	Conventional	120	27	46	35
3	Raised floor bricks or brick wall shed	251	63	74	56
4	Multi-storied building	5	1	2	2
5	Macha system	23	6	10	8

Source: FAO-LDDP baseline survey, 2021

Table 184 shows the management system of sonali chicken rearing. As can be seen from Column (4) of Table 184, the majority (73% of total farmers) of sonali chicken farmers use intensive housing system for sonali chicken rearing following and 27% of total surveyed farmers use semi-intensive housing system. Besides, 70% of female farmers use intensive farming while 30% of female farmers use semi-intensive farming.

Table 184: Types of management system used in sonali chicken farms

#SL	Type of management system in housing	Total farmers		Female farmers	
		Number of farmers	% of total (399) farmers	Number of farmers	% of total (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Free ranging-extensive	0	0	0	0
2	Intensive	290	73	93	70
3	Semi-intensive	109	27	39	30

Source: FAO-LDDP baseline survey, 2021

Table 185 presents the number and proportion of farmers mainly use different types of litter in poultry farming. As can be seen from column (4) of Table 185, majority (63%) of total sonali chicken farmers and 60% of female farmers use rice husk as litter on the farm. Besides, about 34% of total farmers and 36 % of female farmers use sawdust as litter. About 2% of total farmers use sand as litter on their farms while 1% of total farmers use ash as litter on their farms.



Table 185: Type of litter used in sonali chicken farms

#SL	Type of litters	Total farmers		Female farmers	
		Number of farmers	% of total (399) farmers	Number of farmers	% of total (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Ash	3	1	3	2
2	Sawdust	137	34	48	36
3	Sand	9	2	2	2
4	Others (Rice husk)	250	63	79	60

Source: FAO-LDDP baseline survey, 2021

Table 186 presents the distribution of sonali chicken farmers based on various facilities used in the poultry house. It can be seen that about 70% of total farmers and 64% of female farmers have an adequate ventilation system in poultry farms. The majority of farmers (About 99 % of total farmers and 98% of female farmers) have sufficient space in the poultry house. Besides, about 58% of total farmers and 59% of female farmers reported that they use an electric fan or exhauster fan in their poultry house. However, only 6% of total farmers and 8% of female farmers reported that they have quarantine facilities for their disease infected poultry on the farm. About 70% of total farmers and 66% of female farmers use regular biosafety plans in their poultry farming. Nevertheless, the majority (86% of total farmers) of sonali chicken rearing farmers reported that the utensils they use in farming are women friendly.



Table 186: Use of different facilities in the sonali chicken's house

#SL	Facilities in the sonali chicken house	Total farmers		Female farmers	
		Number of farmers	% of total (399) farmers	Number of farmers	% of total (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Adequate ventilation system	279	70	84	64
2	Electric fan or exhauster fan	233	58	78	59
3	Sufficient space for poultry	394	99	130	98
4	Quarantine facility	25	6	10	8
5	Biosafety plan	280	70	87	66
6	Utensils are women friendly	343	86	114	86

Source: FAO-LDDP baseline survey, 2021

Following table shows the number and proportion of farmers among those who use biosafety plan in their poultry house. It can be seen that about 57% of total farmers and 55% of female farmers who use biosafety plan use hand wash facility while about 43% of total farmers and 45% of female farmers use foot bath in their poultry house. Moreover, most of the farmers use different disinfected spray or bleaching powder after finishing one batch of poultry and starting a new batch.

Table 187: Types of biosafety plan used in the sonali chicken farms

#SL	Types of biosafety plan	Total farmers		Female farmers	
		Number of farmers	% of total (280) farmers	Number of farmers	% of (83) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Foot bath	160	57	48	55
2	Hand wash facility	120	43	39	45

Source: FAO-LDDP baseline survey, 2021

The following figure presents the number and proportion of sonali chicken rearing farmers based on using different energy sources in the poultry house. It can be seen that 95% of total sonali chicken farmers and 98% of female farmers use electricity as the energy source in their poultry farms. No farmer was found to use any solar energy on the poultry farm.

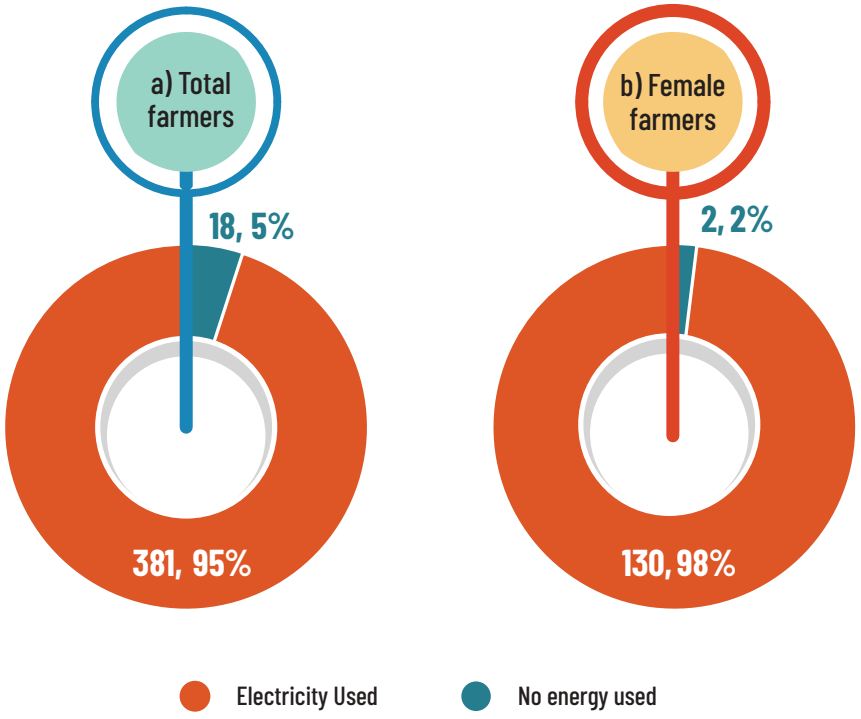


FIGURE 67
Types of energy used in the sonali chicken farms

8.10 Manure management in sonali chicken farms

The following table presents the number and proportion of farmers based on different types of manure processing techniques on the farm. About 29% of total surveyed sonali chicken rearing farmers and 23% of female farmers keep manure in open spaces as solid storage. On the other hand, 44% of total surveyed sonali chicken rearing farmers and 50% of female farmers dispose of manure in a covered place as solid storage. However, 27% of total surveyed sonali chicken rearing farmers and 26% of female farmers dispose of manure in the open space which could be a great worry for environmental issues. Only 2 farmers of which one female found to use anaerobic digestion with poultry manure.

Table 188: Types of manure processing in sonali chicken farms

#SL	Type of manure processing	Total farmers		Female farmers	
		Number of farmers	% of total (399) farmers	Number of farmers	% of total (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	115	29	31	23
2	Solid storage (in covered place)	174	44	66	50
3	Dispose to open space	108	27	34	26
4	Burned Fuel	0	0	0	0
5	Anaerobic digestion	2	1	1	1

Source: FAO-LDDP baseline survey, 2021

As can be seen from the Figure below, about 31% of total farmers and 25% of female farmers use poultry manure as fertilizer in crop cultivation. Farmers do not use manure directly in the crop field. They store manure as solid storage and apply it to the crop field while it becomes compost..

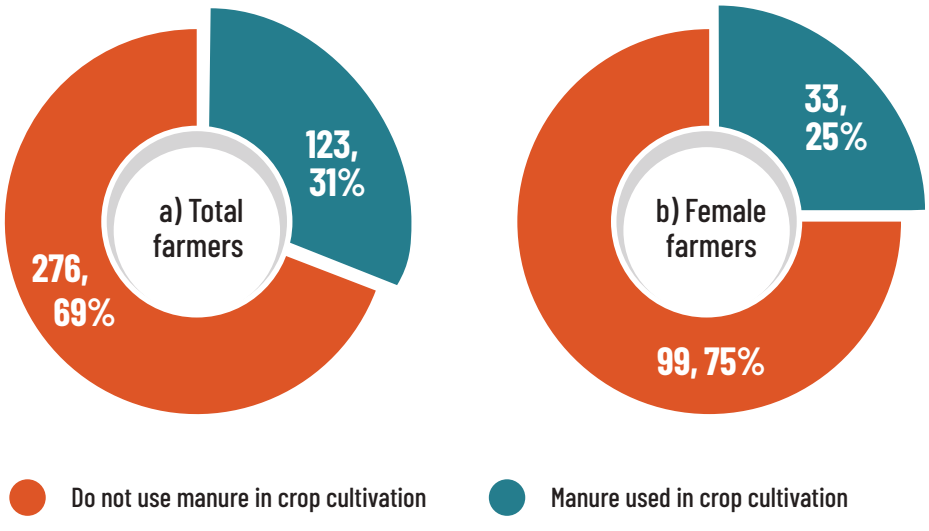


FIGURE 68

Number and Proportion of farmers use manure as fertilizer in crop cultivation

Table 189 presents the number and proportion of sonali chicken rearing farmers based on different categories of waste disposal on the farm. As can be seen 47% of total surveyed sonali chicken rearing farmers and 52% of female farmers dispose of waste in open space as solid storage. On the other hand, 27% of total surveyed sonali chicken rearing farmers and 25% of female farmers dispose of waste in a covered place as solid storage. Besides, 26% of total surveyed sonali chicken rearing farmers and 23% of female farmers dispose of waste in open space. However, 2 farmers of which 1 female is found to use anaerobic digestion with poultry farming waste.

Table 189: Waste disposal in sonali chicken farming

#SL	Types of waste disposal	Total farmers		Female farmers	
		Number of farmers	% of total (399) farmers	Number of farmers	% of total (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	188	47	69	52
2	Solid storage (in covered place)	107	27	33	25
3	Dispose to open space	102	26	30	23
4	Burned Fuel	0	0	0	0
5	Anaerobic digestion	2	1	0	0

Source: FAO-LDDP baseline survey, 2021

8.11 Climate related risk in sonali chicken farming

Column (4) of Table 190 shows that about 7% of total sonali chicken farmers were affected by flood/flash flood/waterlogging and excessive rainfall during last five years. Besides, about 2% farmers faced problem during drought in sonali chicken farming. About 8 % total farmers faced tornado/cyclone, while 18% and 15% of total farmers affected by extreme hot and cold weather during last five years, respectively. Besides, about 7% of total farmers reported that their farm has been affected by excessive rainfall during last five years. The proportion of female farmers got affected by different climatic event are almost the same as this if for the total farmers.

Table 190: Distribution of sonali chicken farms affected by climatic risk during last five years

#SL	Type of climate related risk	Total farms		Female farms	
		Number of farmers	% of (399) farmers	Number of farmers	% of (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Flood/flash flood/waterlogging	29	7	10	8
2	Draught	9	2	3	2
3	Tornado/cyclone	30	8	10	8
4	Extreme hot weather	71	18	23	17
5	Extreme cold weather	61	15	18	14
6	Excessive rainfall	26	7	8	6
7	Salinity	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

The effects of different climatic shocks during last five years are shown in Table 191. As can be seen about 6% of total farmers who affected by climatic shocks during last five years reported that output (poultry sale) was interrupted due to climatic risks. However, the majority (83% of farmers who affected) reported that they faced disease outbreak and poultry death due to climatic risks. In addition, 8% of farmers who got affected by climatic risks faced shortage of inputs and veterinary services during climatic risks. Few farmers (1% -5% of farmers who affected) also faced some other problems such as such as scarcity of concentrate feeds, damage and destruction of poultry house, and rising feed price.

Table 191: Effect of different climatic risk on sonali chicken farms

#SL	Effect of climatic risk	Total farms		Female farms	
		Number of farmers	% of (71) farmers	Number of female farmers	% of (23) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Output sale interrupted	4	6	1	4
2	Animal death and disease outbreak increase	59	83	18	78
3	Scarcity of green grass and concentrate feeds	1	1	0	0
4	Damage/destruction to livestock house	2	3	1	4
5	Inadequate input and service (veterinary Treatment, vaccine)	6	8	2	9
6	Rising of food prices	4	6	1	4
7	Others	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

8.12 Access to extension service in sonali chicken farming

Column (4) of Table 192 shows that about 64% of total sonali chicken farmers and 68% of female farmers have access to veterinarian and consultancy services, about 100% of sonali chicken farmers have access to improved breed rearing service, 17% of total sonali chicken farmers and 16% of female farmers have access to biosafety and biosecurity services, about 58% of total sonali chicken farmers and 57% of female farmers have access to routine vaccination service, about 47% of total sonali chicken farmers and 48% of female farmers have access to routine deworming service, and 54% of total sonali chicken farmers and 53% of female farmers have access to medication services. Few farmers also have access to other physical and digital extension services; however, the rate is very low (below 1% to 6%). Overall, there is a large room to improve the sonali chicken farming through increasing the access to different digital and physical extension services.

Table 192: Number and proportion of sonali chicken farmers have access to extension service's

#SL	Types of extension services	Reported digital and physical extension services is accessible			
		Total farmers have access	% of total 399 farmers	Female farmers have access	% of total 132 duck farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Veterinarian and Consultancy	255	64	90	68
2	Improved breed rearing	399	100	132	100
3	Biosecurity and biosafety	68	17	21	16
4	Cage rearing	13	3	3	2
5	Organic egg and meat production	5	1	0	0
6	Climate-resilient housing	42	11	12	9
7	Manure management	34	9	10	8
8	Fortified egg production	7	2	0	0
9	Routine vaccination	230	58	75	57
10	Routine Deworming	186	47	63	48
11	Poultry agribusiness	9	2	0	0
12	Feed formulation	22	6	5	4
13	Good agricultural practice	8	2	0	0
14	Food safety	19	5	6	5
15	Climate shock mitigation	20	5	2	2
16	Medication	214	54	70	53
17	Product branding and quality certification	7	2	0	0
18	Online livestock and product marketing	7	2	0	0
19	Online knowledge sharing	25	6	5	4
20	Online treatment	0	0	0	0
21	Mobile veterinary clinic	0	0	0	0
22	Waste management	15	4	2	2

Source: FAO-LDDP baseline survey, 2021

8.13 Household's nutrition awareness related information

The figure below indicates that about 55% of the total surveyed sonali chicken rearing farmers and 51% of female farmers received nutrition-related information during the baseline period. Hence, appropriate measures should be taken to increase farmers' nutrition awareness.

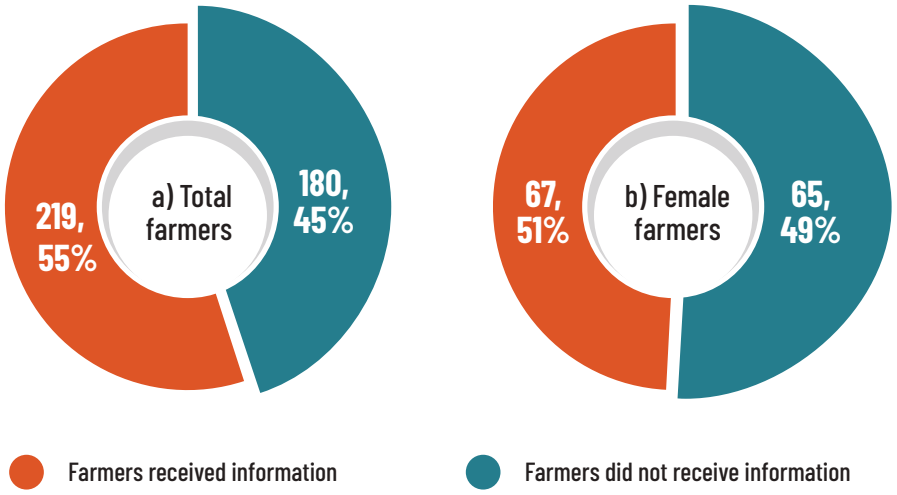


FIGURE 69

Number and Proportion of households received nutrition awareness information

8.14 Gender Perspective in managing sonali chicken value chain

The sonali chicken value chain is one of the important value chains of LDDP intervention implemented especially for the women, youth and other vulnerable community. The women have great interest on improving the productivity of sonali Chicken to meet the demand of the meat, egg and improving the economic condition of the family.

7.14.1 Gender perspective in household management in sonali chicken value chain

The table below shows that women are mostly taking care of their family as well as the farm. Among the total surveyed households who responded, females, are taking care of children in 76% of households (HHs) and both males and females are taking care in 18% HHs. In terms of preparing children for school, females are preparing children in about 87% HHs while both males and females are preparing children in about 10% HHs. Besides, females are caring for elderly members, cleaning and washing clothes, cooking in the family and collecting cooking water in about 66%, 62%, 91 and 38% of HH who responded to the respective questions. The overall data amplifies that cooking, raring children, caring for elderly people, and preparing children for school are dedicatedly taken care of females.

For ensuring women's empowerment there is a need to develop the promotion of the practice of sharing workload especially the household chores together in consensus which will strengthen the family bonding and spent quality time with family members and become more productive.

Table 193: Gender perspective in household management among the sonali chicken rearing farmers

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Manage taking care of children along with farming	20	253	59	6	76	18	332
2	Manage preparing children for their school along with farming	10	274	32	3	87	10	316
3	Manage caring elderly family members along with farming	16	181	78	6	66	28	275
4	Manage Cleaning, washing clothes along with farming	23	228	118	6	62	32	269
5	Manage cooking along with farming	12	335	20	3	91	5	367
6	Manage collecting water along with farming	80	135	142	22	38	40	357

Source: FAO-LDDP baseline survey, 2021

8.14.2 Gender perspective in farm management in sonali chicken value chain

The following table presents the gender perspective in farm management in sonali chicken farming. Among the total surveyed households who responded to the respective questions, as can be seen in the majority of households (60% to 85%), male members are mainly taking decisions for buying poultry, chooses of breed, the decision for feed rationing, selection of input supplier, contact with input supplier, place of selling poultry, and contact with buyers. On the other hand, as can be seen, the female percentage is very low considering the farm management. However, in the majority of households (40% to 60%), both male and female members together do poultry feeding, manure management, waste management, and cleaning of farm utensils and took the decision to use the income from poultry farming. Overall, Men mostly manage outside work and their mobility is well accepted in society, but women and young girls are mainly responsible to manage the housing assignment as their mobility is restricted which is reflected in the farm management assignment as well.

Table 194: Gender perspective in farm management in sonali chicken value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who takes the decision of buying poultry?	244	25	130	61	6	33	399
2	Who chooses the breed?	265	20	114	66	5	29	399
3	Who takes the decision of feed rationing?	247	21	131	62	5	33	399
4	Who fed animals on the farm?	159	36	204	40	9	51	399
5	Who decide to manage manure?	205	19	156	54	5	41	380
6	Who manages manure and waste on the farm?	203	20	165	52	5	43	388

7	Who perform cleaning and sanitization on the farm	162	40	197	41	10	49	399
8	Who choose the input supplier?	314	17	68	79	4	17	399
9	Who maintain the contact with the input supplier?	334	16	49	84	4	12	399
10	Who decide where to sale?	286	15	98	72	4	25	399
11	Who maintain the contact with the buyer?	340	15	44	85	4	11	399
12	Who decide the use of money earned from poultry?	166	16	217	42	4	54	399
13	Who maintain the contact with the vet service providers?	312	21	65	78	5	16	398

Source: FAO-LDDP baseline survey, 2021

8.14.3 Gender perspective in access to training and services

As can see from the table below, men mostly decide and participate in training in 67% of households and spent more time in farming in 58% of households while male farmers are mostly going out for feed and food product testing in about 84% farm households and also access in different digital and physical extension services in 67% farm households.

Table 195: Gender perspective in access to training and services in sonali chicken value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who participates in the training?	172	23	60	67	9	24	255
2	Who spent more time in farm activities?	229	94	71	58	24	18	394
3	Who mainly have access to finance/ credit?	192	63	58	61	20	19	313
4	Who mainly goes out for feed and food product testing?	119	4	19	84	3	13	142
5	Who have mainly access to different digital and physical extension services?	229	17	96	67	5	28	342

Source: FAO-LDDP baseline survey, 2021

8.14.4 Gender perspective in ownership of the farm and poultry

As can be seen from the table below, in 89% of sonali chicken farms, male members are the authorized owner of the farm while females are the authorized owner in 5% farm household and both male and females are the authorized owner in 6% of total sonali chicken farms. In terms of the authorized owner of the poultry on the farm, male, female and both male and females are the authorized owners of the poultry in 82%, 9% and 9% of the farms.

Table 196: Gender perspective based on the ownership of the farm and poultry in sonali chicken value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who is the authorized owner of this farm?	355	21	23	89	5	6	399
2	Who is the authorized owner of poultry?	329	36	34	82	9	9	399

Source: FAO-LDDP baseline survey, 2021

In case of sonali chicken, the key activities are typically managed by both male and female but the level of female ownership on farm management and poultry is low. So, there is a need to explore the opportunity on increasing the ownership of women in both farm and livestock management for accelerating the path of women empowerment.

8.15 Sonali chicken rearing farmer's perceptions regarding LDDP services

LDDP is providing different services for increasing productivity, market access and climate-resilient production for the improvement of the livestock sector in Bangladesh.

8.15.1 Farmers received assets from DLS/LDDP to start or continue their livestock business last year

It can be seen from the Table below, a total of 217 farmers (54% of total surveyed sonali chicken rearing farmers) of which 67 female (51% of female farmers) received cash incentives from DLS/LDDP during last year.

Table 197: Types of assets farmers received from DLS/LDDP during last year

#SL	Asset from LDDP/DLS	Total farmers		Female farmers	
		Number of farmers	% of total (399) farmers	Number of farmers	% of total (132) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Poultry house	0	0	0	0
2	Utensils like bucket, spade, etc	0	0	0	0
3	Hygienic cleaning tools	0	0	0	0
4	Live Bird	1	0	0	0
5	Cash incentive	217	54	67	51
6	Feed	1	0	0	0

Source: FAO-LDDP baseline survey, 2021

8.15.2 Farmers received training from LDDP

This survey did not find any sonali chicken rearing farmers who received training from LDDP during last year. Hence, none has commented regarding the satisfaction about LDDP training.

Table 198: Level of satisfaction regarding LDDP provided training during last one year

#SL	Rate of satisfaction on the training you received from LDDP	Total farmers		Female farmers	
		Number of farmers received this training	% of 0 farmers who received this training	Number of farmers received this training	% of 0 farmers who received this training
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	0	0	0	0
2	Good	0	0	0	0
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0
6	Not applicable	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

8.15.3 Farmers overall level of satisfaction with LDDP services (sonali chicken)

A total of 217 sonali chicken rearing farmers of which 67 were females received any kind of asset from the LDDP to continue their business during the COVID pandemic in the baseline period. The following table shows the overall satisfaction of the farmers who received assets from the LDDP during the baseline period. In terms of overall satisfaction regarding LDDP service, 82% of farmers who received assets reported excellent service from LDDP while 18% of farmers reported excellent service. In terms of females, 25% of farmers reported excellent, and 75% of female farmers reported good service. A majority of farmers did not comment on their satisfaction since they did not receive any assets from the LDDP during the baseline period.

Table 199: Farmers overall level of satisfaction with LDDP services (sonali chicken)

#SL	Overall satisfaction with LDDP services	Total farmers		Female farmers	
		Number of farmers received asset	% of 217 farmers who received assest	Number of farmers received assest	% of 67 farmers who received assest
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	40	18	17	25
2	Good	176	82	50	75
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Chapter 9. Baseline Finding of Commercial Poultry



A total of 423 sample commercial poultry rearing farmers of which 252 commercial broiler rearing and 171 commercial layer rearing farmers across 7 districts namely Bogura, Comilla, Gaibandha, Gazipur, Mymensingh, Narsingdi, and Tangail have been surveyed during the baseline survey. Out of total commercial poultry farmers, a total of 40 female farmers have been surveyed of which 23 were broiler rearing farmers and 17 layer rearing farmers. A number of farms and household characteristics have been collected through this survey that will establish a base to find the progress of LDDP stated indicators related to productivity, market access, and climate-resilient production.

9.1 Commercial poultry farm characteristics

Column (3) of Table 200 shows that on average 1,682 commercial broiler and 2,498 commercial layer exist per farm. Considering both broiler and layer, on average 2,090 poultry exist per farm. The highest number of broiler (2,489 broiler) is found in Comilla district while the lowest (1,053 broiler) is found in Gaibandha district. On the other hand, the highest number of layer (6428 layers) is found in Tangail district, and the lowest number (1,424 layers) is found in Gaibandha district.

Table 200: Average number commercial poultry per farm

#SL	District	Average number of commercial poultry per farm		
		Commercial broiler	Commercial layer	Average
(1)	(2)	(3)	(4)	(5)
1	Bogura	2,259	2,119	2,189
2	Comilla	2,489	3,047	2,768
3	Gaibandha	1,053	1,424	1,239
4	Gazipur	1,183	1,942	1,562
5	Mymensingh	1,352	2,228	1,790
6	Narsingdi	1,639	2,157	1,898
7	Tangail	1,693	6,428	4,060
	Average of Total	1,682	2,498	2,090

Source: FAO-LDDP baseline survey, 2021

From Table 201, we can observe that most of the broiler farms fall in the small (less than 1000 birds) category. In contrast, in the case of layer farms, the large number of farms (38% of layer farms) falls in the large farm category.



Table 201: Number of farmers based on different farm sizes

#SL	Category	Number of farms					
		Commercial broiler (252 farms)			Commercial layer (171 farms)		
		Small farm (1-1,000 birds)	Medium farm (1,001-2,000 birds)	Large farm (>2,000 birds)	Small farm (1-1,000 birds)	Medium farm (1,001-2,000 birds)	Large farm (>2,000 birds)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Bogura	22	19	22	17	11	14
2	Comilla	6	13	5	1	4	10
3	Gaibandha	22	15	0	13	13	5
4	Gazipur	21	14	3	12	7	5
5	Mymensingh	18	18	5	9 0	5	11
6	Narsingdi	12	7	5	2	8	7
7	Tangail	7	12	5	1	3	13
8	Grand Total	108	98	46	55	51	65
	% of total surveyed farms	43	39	18	32	30	38

Source: FAO-LDDP baseline survey, 2021

9.2 Productivity of commercial poultry per bird

The meat productivity of commercial chicken is measured by the average carcass weight and live weight per bird during the sale at the slaughtering age. Baseline data shows that broiler farmers usually rear birds on average for 32 days which ranged from 28 days to 35 days. On the other hand, culled hen (the layer bird which is sold for meat purposes after its laying period) is sold at 75 weeks of age on average which is ranged from 63 weeks to 97 weeks.

9.2.1 Average carcass weight of commercial poultry at the slaughtering age

Table 202 presents the average carcass weight per broiler and culled hen at its slaughtering age at the aggregate level without considering variations in rearing days. As can be seen from column (3) average carcass weight of each broiler bird is about 1.17 Kg which ranged from 1.12 Kg per bird to 1.24 Kg per bird across different districts. Column (4) shows the average carcass weight of each broiler bird for female farmers. As can be seen, the average carcass weight of each broiler for female farmers is slightly lower (1.15 Kg) than this for total farmers. Column (5) shows that the average carcass weight of a culled hen at its slaughter age is about 1.39 Kg per bird and ranged from 1.23 Kg to 1.66 Kg per bird across different districts. In terms of female farmers, the average carcass weight of a culled hen is about 1.38 Kg which ranged from 1.15 Kg to 1.47 Kg per bird across different districts. Column (7) shows the average carcass weight of commercial poultry while both broiler and culled hens considered together. On average, the carcass weight of commercial poultry is about 1.19 Kg per bird.

Table 202: Average carcass weight of commercial poultry at the slaughtering age

#SL	District	Average carcass weight (Kg) per bird at its slaughter age					
		Broiler		Culled hen		Commercial poultry (total farmers)	Commercial poultry (female farmers)
		Total farmer	Female farmer	Total farmer	Female farmer		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Bogura	1.18	1.11	1.23	1.30	1.18	1.12
2	Comilla	1.19	1.10	1.37	1.47	1.21	1.16
3	Gaibandha	1.24	1.15	1.50	1.36	1.27	1.17
4	Gazipur	1.20	1.17	1.66	1.46	1.20	1.18
5	Mymensingh	1.12	1.19	1.35	-	1.13	1.19
6	Narsingdi	1.14	1.20	1.35	1.15	1.15	1.20
7	Tangail	1.15	1.20	1.41	1.36	1.19	1.23
	Average of Total	1.17	1.15	1.39	1.38	1.19	1.17

Source: FAO-LDDP baseline survey, 2021

Note: commercial poultry includes both broiler and culled hen together. Average carcass weight (dressing percentage) of a broiler and culled hen is considered as 70% and 65% of respective live weight based on the previous literature (Azad et al., 2019; Hossain et al., 2006; Mukthulakshmi et al., 2016; Park et al., 2021).

9.2.2 Average live weight of commercial poultry at the slaughtering age

Table 203 presents the average live weight per broiler and culled hen at its slaughtering age at the aggregate level without considering variations in rearing days. As can be seen from column (3) average live weight of each broiler bird is about 1.67 Kg which ranged from 1.60 Kg per bird to 1.77 Kg per bird across different districts. Column (4) shows that average live weight of each broiler bird for female farmers. As can be seen, the average live weight of each broiler for female farmers is 1.64 Kg which is slightly lower than this for total farmers. Column (5) shows that the average live weight of culled hen at its slaughter age which is about 2.14 Kg per bird and ranged from 1.89 Kg to 2.55 Kg per bird across different districts. In terms of female farmers, average live weight of culled hen is about 2.12 Kg which ranged from 1.77 Kg to 2.26 Kg per bird across different districts.



Table 203: Average live weight of commercial poultry at the slaughtering age

#SL	District	Average live weight (Kg) per bird at its slaughter age			
		Broiler		Culled hen	
		Total farmer	Female farmer	Total farmer	Female farmer
(1)	(2)	(3)	(4)	(5)	(6)
1	Bogura	1.69	1.59	1.89	2.00
2	Comilla	1.70	1.57	2.11	2.26
3	Gaibandha	1.77	1.64	2.31	2.09
4	Gazipur	1.71	1.67	2.55	2.25
5	Mymensingh	1.60	1.70	2.08	
6	Narsingdi	1.63	1.71	2.08	1.77
7	Tangail	1.64	1.71	2.17	2.09
	Average of Total	1.67	1.64	2.14	2.12

9.2.3 Average price commercial poultry meat per Kg

Table 204 presents the average price of commercial poultry meat during the survey period. The average yearly price is estimated for commercial poultry to overcome the limitation of seasonality in poultry meat price. As can be seen from Column (3) of the table below, the average price per Kg live weight of broiler is about Tk 130.07 per Kg which ranged from Tk 122.08 per Kg to Tk 135.32 per Kg. Column (4) shows that the average price per Kg carcass weight of broiler was about Tk 185.82 per Kg which ranged from Tk 174.40 per Kg to Tk 193.32 per Kg. In terms of female farmers, average price per Kg live weight (column 5) and carcass weight (column 6) of broiler was Tk 127.61 and Tk 182.30 respectively, which is slightly lower compared to these for total farmers.



The average price of per Kg live weight and carcass weight of culled hen is presents in columns (7-10). As can be seen from Column (7), the average price per Kg live weight of culled hen was about Tk 170.06 per Kg which is ranged from Tk 162.31 per Kg to Tk 179.44 per Kg across different districts. Column (8) shows that the average price per Kg carcass weight of culled hen was about Tk 261.63 per Kg which is ranged from Tk 249.70 per Kg to Tk 276.07 per Kg across districts. In terms of female farmers, average price per Kg live weight (column 9) and carcass weight (column 10) of culled hen was Tk 163.85 and Tk 252.08 respectively, which is slightly lower compared to these for total farmers.

Table 204: Commercial poultry meat price per Kg (carcass weight)

#SL	District	Average price of commercial poultry meat based on live weight and carcass weight (Tk/Kg)							
		Commercial Broiler				Culled hen			
		Total Farmer		Female Farmer		Total Farmer		Female Farmer	
		Average price based on live weight	Average price based on carcass weight	Average price based on live weight	Average price based on carcass weight	Average price based on live weight	Average price based on carcass weight	Average price based on live weight	Average price based on carcass weight
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Bogura	130.73	186.76	121.25	173.21	170.69	262.60	165.01	253.87
2	Comilla	133.68	190.97	126.67	180.95	172.86	265.93	157.50	242.31
3	Gaibandha	135.32	193.32	135.00	192.86	168.13	258.65	160.00	246.15
4	Gazipur	130.14	185.91	127.50	182.14	179.44	276.07	165.00	253.85
5	Mymensingh	128.98	184.25	131.00	187.14	174.82	268.96	–	–
6	Narsingdi	126.25	180.36	132.50	189.29	164.71	253.39	172.50	265.38
7	Tangail	122.08	174.40	117.50	167.86	162.31	249.70	155.00	238.46
	Average of Total	130.07	185.82	127.61	182.30	170.06	261.63	163.85	252.08

Source: FAO-LDDP baseline survey, 2021

Note: Live weight Price (Tk/Kg) of broiler and culled hen has been collected during the baseline period. The price for carcass weight then estimated from the price of live weight (Tk/Kg) considering the respective dressing percentage (carcass weight) as 70% for broiler and 65% for culled hen.

9.2.4 Average quantity of commercial poultry meat (carcass weight) sold per year per farm

Columns (3-4) of the Table 205 presents the average quantity of commercial poultry meat sold during last year per farm. As can be seen, the average quantity of broiler meat (carcass weight) sold per farm during last year is 12,836.55 Kg which ranged from 8,347.65 Kg to 20,657.86 Kg per year. In terms of female farmers (Column 4), average quantity of broiler meat (carcass weight) sold per female operated farm is 9,748.88 Kg per year which is lower compared to this for total poultry farm. Among different districts, the highest quantity of broiler meat sold per farm by female farmers is in Bogura (15,490 Kg) and lowest is in Gaibandha district (3,781.20 Kg) per year.

As can be seen from columns (5), the average quantity of culled hen meat (carcass weight) is sold during last year is 1,318.62 Kg per farm which is ranged from 345.75 Kg to 3,311.47 Kg. In terms of female farmers, average quantity of meat (carcass weight) sold during last year becomes 1,157.47 Kg, which is ranged from 343.60 Kg to 4,029 Kg per farm. However, the average quantity of commercial poultry meat sold during last year per farm seems to be 8,180.37 Kg while both broiler and culled hen are considered together.

Table 205: Quantity of commercial poultry meat sold last year (carcass weight)

#SL	District	Average quantity of carcass weight sold per farm last year (Kg)				
		Broiler		Culled hen		Average
		Total farms (252)	Female operated farms (23)	Total Farms (171)	Female operated Farms (17)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Bogura	16,087.23	15,490.00	592.84	1,201.75	9,889.47
2	Comilla	20,657.86	11,250.67	2,359.47	4,029.00	13,795.96
3	Gaibandha	8,347.65	3,781.20	1,580.81	612.00	5,262.76
4	Gazipur	9,518.93	8,647.75	345.75	343.60	5,968.02
5	Mymensingh	10,475.36	8,305.20	1,093.54	-	6,921.64
6	Narsingdi	12,034.47	14,045.80	1,426.82	575.00	7,636.18
7	Tangail	13,165.42	6,480.00	3,311.47	2,720.00	9,079.63
	Total	**12,836.55**	**9,748.88**	**1,318.62**	**1,157.47**	**8,180.37**

Source: FAO-LDDP baseline survey, 2021

9.2.5 Average quantity of commercial layers egg sold per farm per year

Table 206 presents the average number of eggs sold per farm during the baseline period (1st October 2020 to 30th September 2021). There was a total of 171-layer farmers of which 17 were female farmers. As can be seen, on average a layer farm sold 499,490 eggs last year while female farmers on average sold 378,341 eggs.



Table 206: Average quantity of eggs sold per farm per year

#SL	District	Average quantity of eggs sold per layer farm last year (number)	
		Commercial Layer	
		Total farms (171)	Female operated farms (17)
(1)	(2)	(3)	(4)
1	Bogura	420,187	269,181
2	Comilla	1,010,274	900,900
3	Gaibandha	283,845	247,250
4	Gazipur	329,308	267,000
5	Mymensingh	482,708	340,000
6	Narsingdi	430,753	235,635
7	Tangail	971,635	912,500
	Average of total	499,490	378,341

Source: FAO-LDDP baseline survey, 2021

9.2.6 Commercial layer egg price

The average price per 12 eggs is presented in columns (3-5) of the following table. As can be seen, the average price of layer eggs was Tk 83 per 12 eggs which varies from Tk 75 to Tk 90 per 12 eggs across different districts.



Table 207: Egg price of commercial layer per 12 eggs

#SL	District	Average price of layer egg (Tk/12 eggs)		Average
		Total Farms	Female Farms	
(1)	(2)	(3)	(4)	(5)
1	Bogura	90	80	90
2	Comilla	82	83	82
3	Gaibandha	79	72	79
4	Gazipur	82	83	82
5	Mymensingh	84	88	84
6	Narsingdi	81	81	81
7	Tangail	75	72	75
	Total	83	80	83

Source: FAO-LDDP baseline survey, 2021

9.3 Commercial poultry farm household's access to market

Findings related to market access of commercial poultry rearing households are described in this sub-section. A number of information such as type of buyers, place of selling, mode of transport, and so forth are reported in this sub-section.

9.3.1 To whom commercial poultry farmers mainly sell their product

The following table shows the number and proportion of commercial poultry rearing farmers based on the buyers. The majority of farmers (92% of total farmers) sell their poultry/eggs to the traders/paikers whereas it is 100% in the case of female operated farms. The remaining farmers sell their poultry/eggs to other buyers such as local shops (6%), lenders to repay the loan (1%) and hotels and restaurants (1%).

Table 208: Distribution of commercial poultry rearing farmers based on the buyers

#SL	Types of buyers	Number of farmers selling commercial poultry and egg to various buyers							
		Broiler (252)		Layer (171)		Total farmers	% of total 423 farmers surveyed	Total female farmers	% of total 40 female farmers surveyed
		Total farmers	Female farmers	Total farmers	Female farmers				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Consumer	0	0	0	0	0	0	0	0
2	Trader/Paiker	229	23	160	17	389	92	40	100
3	Direct processing company	1	0	1	0	2	0	0	0
4	Hotel and restaurant	2	0	1	0	3	1	0	0
5	Local shop	15	0	9	0	24	6	0	0
6	Online market	0	0	0	0	0	0	0	0
7	Supermarket	0	0	0	0	0	0	0	0
8	lender to repay loan	5	0	0	0	5	1	0	0
9	Others	0	0	0	0	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

9.3.2 Place of selling commercial poultry

Table 209 presents the number and proportion of commercial poultry rearing farmers based on the place of selling their products.



Table 209: Distribution of commercial poultry rearing farmers based on the place of poultry product selling

#SL	Name of location	Distribution of farmers based on the place of selling poultry product							
		Broiler (252)		Layer (171)		Total farmers	% of total 423 farmers surveyed	Total female farmers	% of total 40 female farmers surveyed
		Total farmers	Female farmers	Total farmers	Female farmers				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Farmgate	223	22	162	17	385	91	39	97
2	Sale within the village	0	0	0	0	0	0	0	0
3	Local market	24	0	6	0	30	7	0	0
4	Urban market	0	0	0	0	0	0	0	0
5	At buyers' place	5	0	3	1	8	2	1	3

Source: FAO-LDDP baseline survey, 2021

It can be seen that a total of 385 farmers (91%) of which 39 female farmers (97%) sell their product at farmgate. In addition, 30 farmers of which 7 females sell products at the local market and 8 farmers of which 1 female sell their poultry products at the buyer's place.

9.3.3 Mode of commercial poultry/egg transportation

The table below shows the number and proportion of commercial poultry rearing farmers based on the mode of transport they use for poultry product marketing. As can be seen a total of 31 farmers of which 1 female sell their chicken by rickshaw/van/bicycle/motorcycle. In addition, 7 farmers use auto vehicles to sell their products. In terms of the proportion, it can be seen from column (8) that, about 7% of total farmers use rickshaws/van etc. and about 2% of farmers use the auto vehicle for poultry product transport. Among 91%, farmers do not use any transport as they sell at farmgate.

Table 210: Distribution of commercial poultry rearing farmers based on the mode of chicken transport

#SL	Mode of transport	Distribution of farmers based on mode of transport of poultry products							
		Broiler (252)		Layer (171)		Total farmers	% of total 423 farmers surveyed	Total female farmers	% of total 40 female farmers surveyed
		Total farmers	Female farmers	Total farmers	Female farmers				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	On foot	0	0	0	0	0	0	0	0
2	Rickshaw/Van/ bicycle/Motorcycle	18	0	13	1	31	7	1	3
3	Auto (battery/ engine vehicle)	1	0	6	0	7	2	0	0
4	Boat	0	0	0	0	0	0	0	0
5	Truck	0	0	0	0	0	0	0	0
6	Others (do not transport)	233	23	152	16	385	91	39	98

Source: FAO-LDDP baseline survey, 2021



9.3.4 Types of cages used for poultry or egg transportation

Most of the farmers do not transport their produced poultry (broiler and culled hen) and layer eggs for selling. Only 31 farmers use transport, and they mainly use iron cages and plastic cages for transportation.

9.3.5 Selling processed commercial poultry meat

All of the surveyed farmers reported that they did not sell any processed broiler or layer or portion of poultry during baseline period.

9.3.6 Sources of purchased feed for commercial poultry

The following figure shows the sources of different purchased feed for commercial poultry farming. As can be seen (figure a) about majority (62%) of total commercial poultry farmers purchased feed from the retailers while about 25% of total farmers purchased feed directly from feed company dealers. In terms of female farmers, 65% of female farmers purchased feed from retailers while only 18 % purchased feed directly from a feed company.

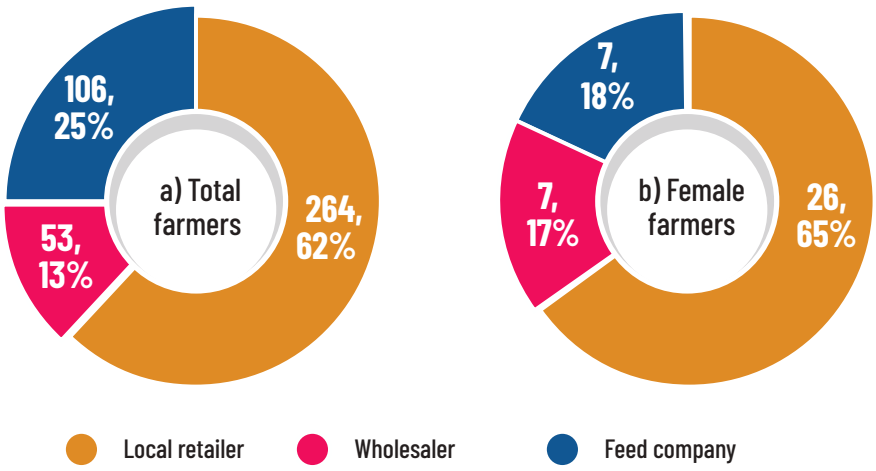


FIGURE 70

Main sources of purchased feed for commercial poultry

9.4 Livestock disease management (commercial poultry)

The baseline survey was carried out in 7 districts of Bangladesh for the commercial poultry value chain. To understand the disease frequency faced during the last year by the Producer Groups (PGs) members under the Livestock and Development Project (LDDP), the survey asked disease-related questions to the farmers.

.

9.4.1 Occurrence of diseases in broiler farming

Figure 71 shows that gumboro is the highest occurring disease in broiler farming following Newcastle diseases among the surveyed broiler farms. About 41% of total broiler rearing farmers and 43% of female broiler rearing farmers reported that their broiler got affected by gumboro disease last year. As can also be seen about 35% of total broiler farms and 30% of female operated broiler farms have been affected by Newcastle disease. Besides about 40% of total broiler farms and 43% of female operated broiler farms have been affected by coccidiosis disease during the last year. About 18% of total broiler farms and 26 % of female operated broiler farms have been affected by colibacillosis. Moreover, about 1% to 12% of broiler farms have been affected by some other diseases such as avian influenza, swollen head syndrome, and aflatoxicosis.

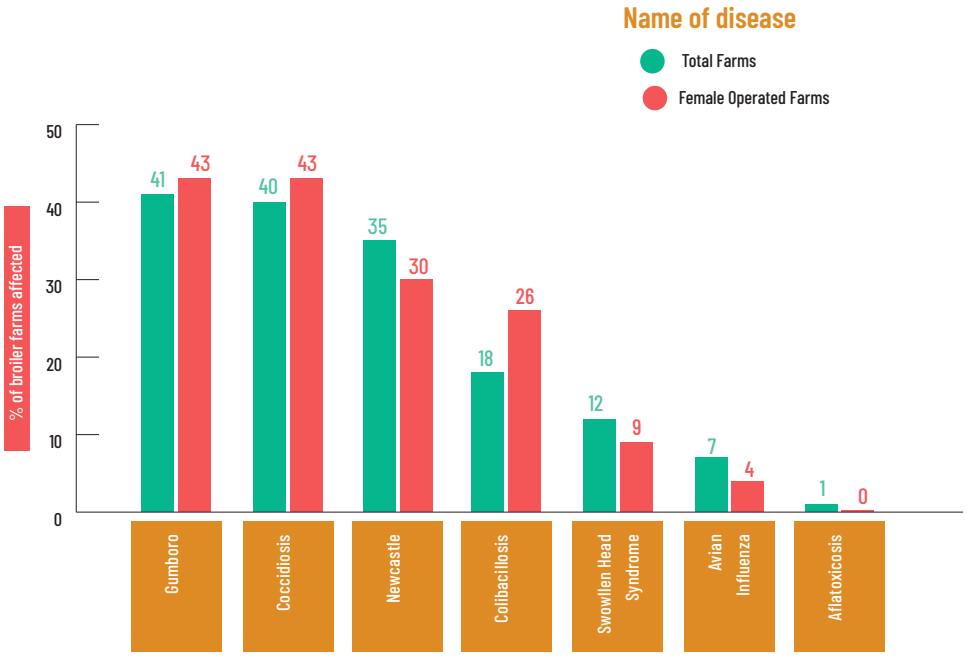


FIGURE 71
Proportion of broiler farms affected by different disease

Table 211 shows that the highest occurrence of Newcastle, gumboro, and Coccidiosis was in Bogura district compared to other districts.

Table 211: Geographical distribution of occurrence of diseases in broiler farms

#SL	Name of disease	Number of occurrences of diseases							Total commercial broiler farms	% of total 252 farms	Female farms	% of female 23 farms
		Bogura	Comilla	Gaibandha	Gazipur	Mymensingh	Narsingdi	Tangail				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Avian Influenza	9	0	4	1	2	0	2	18	7	1	4
2	Newcastle	27	9	12	8	14	8	11	89	35	7	30
3	Swollen head syndrome	1	6	2	1	4	12	3	29	12	2	9
4	Gumboro	27	12	18	8	20	9	10	104	41	10	43
5	Colibacillosis	7	6	3	0	15	12	2	45	18	6	26
6	Aflatoxicosis	1	0	1	0	0	0	1	3	1	0	0
7	Coccidiosis	23	13	15	12	19	10	8	100	40	10	43

Source: FAO-LDDP baseline survey, 2021

9.4.2 Occurrence of diseases in layer farming

Figure 72 shows that Newcastle has the highest occurring disease in layer farming. About 44% of total surveyed layer farmers and 47% of female farmers faced this disease on their farms last year. The second highest occurred disease is coccidiosis in layer farming. About 43% of total surveyed layer farmers and 29% of female farmers faced this disease on their farms last year. Besides, about 36% of total surveyed layer farmers and 41% of female farmers faced fowl cholera disease on their farms last year. About 26% of layer farms and 18% of female operated layer farms were affected by infectious coryza last year. About 29% of layer farms and 18% of female operated layer farms have been affected by gumboro disease. Few farmers (1% to 16%) also reported that their poultry was affected by some other diseases such as avian influenza, egg drop syndrome, and avian pox.

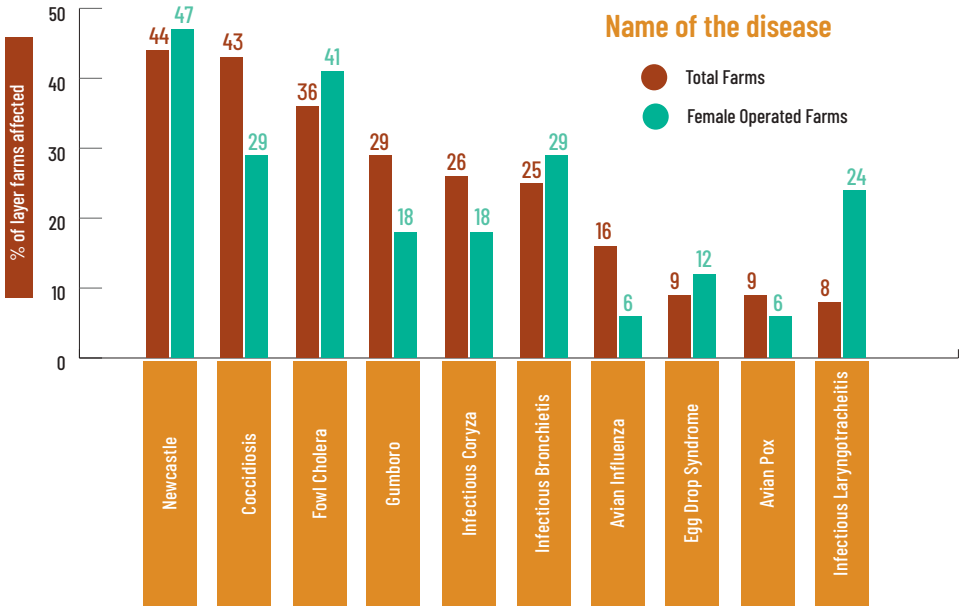


FIGURE 72
Proportion of layer farms affected by different disease

Table 212 shows that the highest occurrence of Newcastle, Fowl cholera, gumboro, Salmonellosis, and Coccidiosis was in Bogura district compared to other districts.

Table 212: Geographical distribution of occurrence of diseases in layer farms

#SL	Name of disease	Number of occurrences of diseases							Total commercial layer farms	% of total 171 farms	Female farms	% of female 17 farms
		Bogura	Comilla	Gaibandha	Gazipur	Mymensingh	Narsingdi	Tangail				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Avian Influenza	3	6	9	3	4	0	2	27	16	1	6
2	Newcastle	23	7	14	5	11	9	7	76	44	8	47
3	Infectious bronchitis	7	7	8	0	3	12	6	43	25	5	29
4	Infectious Laryngotracheitis	0	2	5	0	0	5	1	13	8	4	24
5	Fowl Cholera	10	9	10	6	11	4	11	61	36	7	41
6	Infectious coryza	7	7	5	1	6	11	8	45	26	3	18
7	Gumboro	20	6	11	2	6		5	50	29	3	18
8	Avian pox	5	1	8	0	0	1	0	15	9	1	6
9	Egg drop syndrome	3	5	5	0	1	0	1	15	9	2	12
10	Gumboro	19	11	11	6	10	12	5	74	43	5	29

Source: FAO-LDDP baseline survey, 2021

9.4.3 Vaccination in broiler farms

Following figure presents the proportion of broiler farmers who use regular vaccination on their farms.

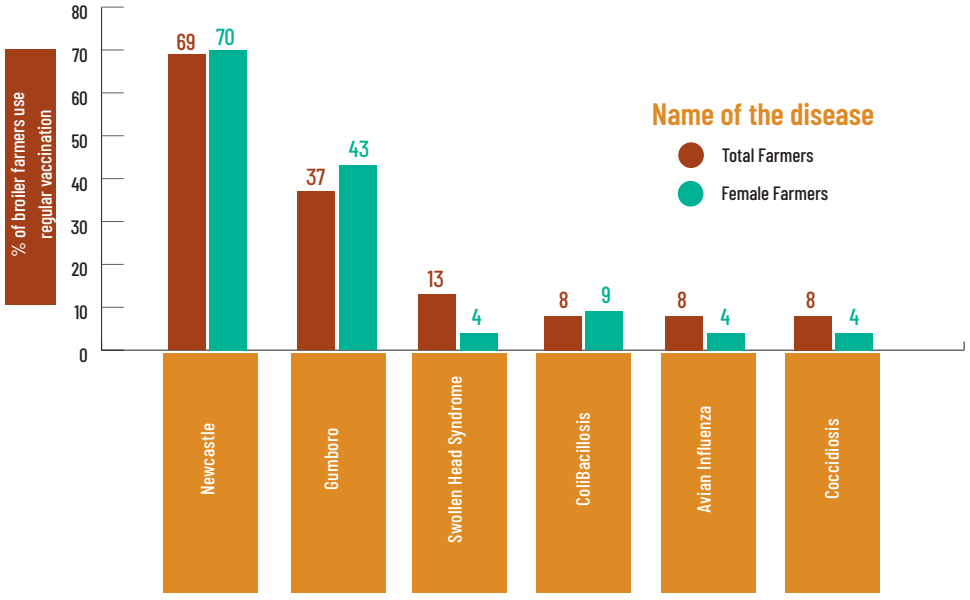


FIGURE 73
Regular vaccination in broiler farmers

It can be seen that about 69 % of broiler rearing farmers (70% of female farmers) use vaccination for Newcastle. 37 % of broiler rearing farmers (43% female farmers) use vaccination for Gumboro. However, a few farmers (4% - 10% of broiler farmers) use vaccine for some other diseases.

Table 213 presents the geographical distribution of regular vaccination by broiler rearing farmers. As can be seen, majority of broiler rearing farmers in Bogura, use vaccines for Newcastle disease. In addition, the rate of use vaccine for Newcastle is comparatively higher in all districts compared to vaccination of other diseases.

Table 213: Geographical distribution broiler farmers use regular vaccination

#SL	Name of disease	Number of farms use regular vaccination							Total commercial broiler farms	% of total 252 farms	Female farms	% of female 23 farms
		Bogura	Comilla	Gaibandha	Gazipur	Mymensingh	Narsingdi	Tangail				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	Avian Influenza	10	0	5	0	4	1	0	20	8	1	4
2	Newcastle	38	14	31	32	21	19	18	173	69	16	70
3	Swollen head syndrome	7	2	11	0	4	0	9	33	13	1	4
4	Gumboro	23	11	17	5	15	9	12	92	37	10	43
5	Colibacillosis	4	0	11	0	4	0	0	19	8	2	9
6	Coccidiosis	7	0	11	0	2	0	1	21	8	1	4

Source: FAO-LDDP baseline survey, 2021

9.4.4 Vaccination in layer farms

As can be seen from the figure below, about 70% to 94% of layer farmers use vaccination for Newcastle, infectious bronchitis, fowl cholera, coryza, and avian pox. About 63% of total farmers use vaccination for avian influenza. Besides, 20% to 40% of total layer farmers use vaccination for other diseases such as Infectious Laryngotracheitis, egg drop syndrome, and coccidiosis. Overall, layer farmers are using regular vaccination of most of the diseases, however, the occurrence of respective diseases is also noticeable. Hence, interventions are indeed necessary to increase the effectiveness of this vaccination.

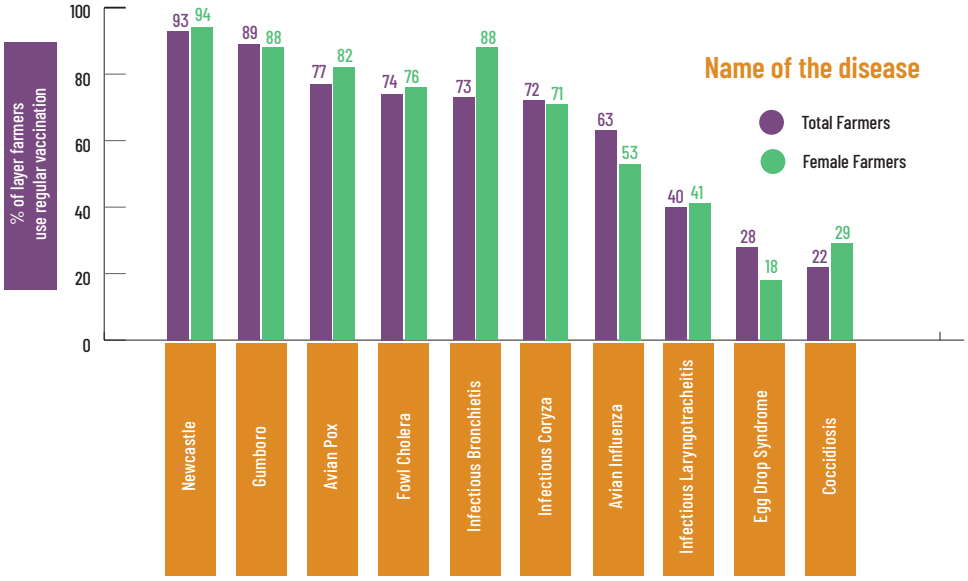


FIGURE 74
Regular vaccination in layer farmers

9.4.5 Death of commercial poultry due to disease

Poultry death due to different diseases become a big challenge in commercial poultry farming. A huge number of commercial poultry birds die (broiler and layer) due to various diseases every year. The following figure shows the number and proportion of total commercial poultry death due to different diseases during the last year.

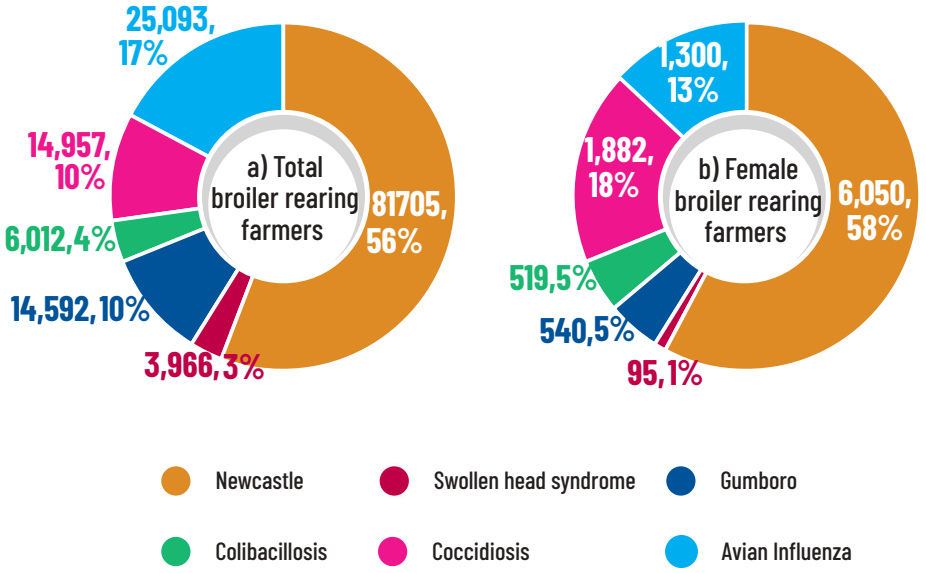


FIGURE 75
Number and proportion of broiler birds died due to different disease

As can be seen, the highest number of broiler birds died due to Newcastle (56% in total farms and 58% of female operated farms) disease last year. Besides, 17% of broiler birds' death (13% on the female operated farm) was due to avian influenza. About 10% of broiler birds' death (5% in female operated farms) was due to gumboro disease. However, few poultry birds (1% to 8%) also died due to some other diseases such as fowl cholera, colibacillosis, and swollen head syndrome.

Figure 76 presents the number and proportion of layer birds' death out of total layer birds' death in total farms and female operated farms. As can be seen about 28% of layer death out of total layer birds' death during last year was due to avian influenza. In terms of a female farmer, about 2% of layer birds' death was due to avian influenza. Newcastle and fowl cholera are another severe disease in layer farming. About 25% of layers birds' death (32% in the female operated farm) was due to Newcastle disease. Besides, about 18% of total layer birds' death was due to fowl cholera disease while about 52% of total layer bird death was due to fowl cholera. Noted that only 17 layer farmers were female in the baseline sample and most of the layer birds' death due to fowl cholera was in three farms. These female farmers faced the outbreak of fowl cholera during the baseline period. However, few proportion of layer birds' death was due to some other disease such as gumboro, bronchitis, laryngotracheitis, coryza, and coccidiosis.

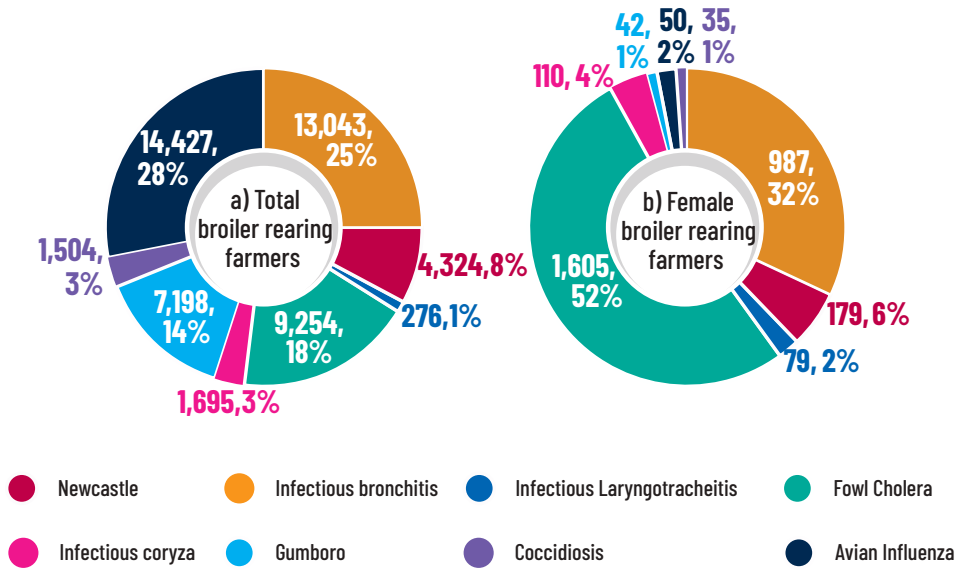


FIGURE 76

Number and proportion of layer birds died due to different disease

9.5 Feeding practice and management

Feed is one of the main inputs in commercial poultry rearing. Following figure present the average quantity of different feeds used per day per commercial poultry. As can be seen on average 0.093 Kg of ready-made poultry feed per broiler bird per day is used. On the other hand, on average 0.114 Kg of ready-made poultry feed is used per layer per day in layer farming.

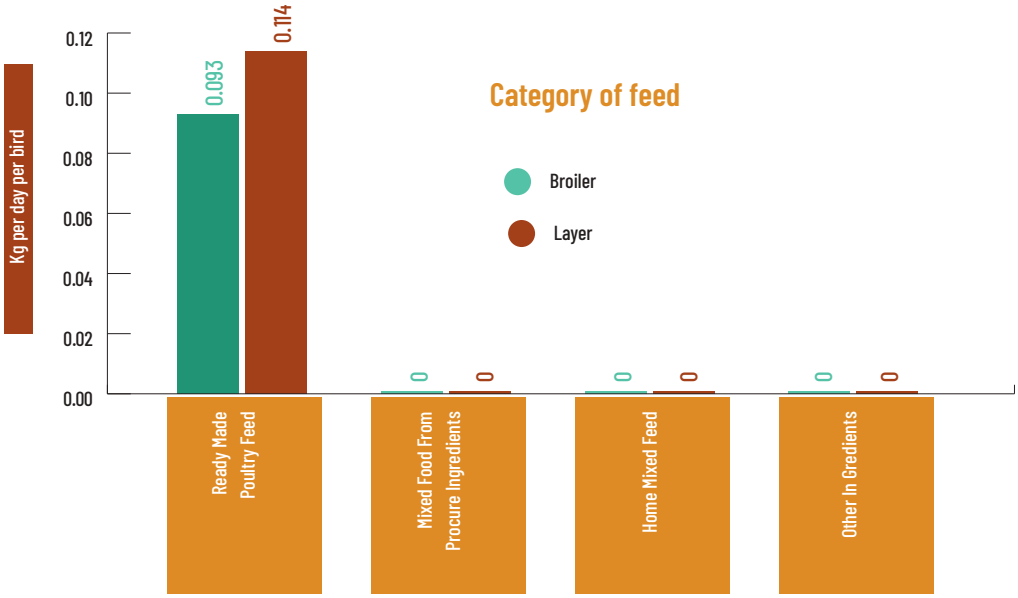


FIGURE 77

Types of feed used per day per bird in commercial poultry farming



9.6 Food safety and certification

Food safety measures are very crucial for quality poultry production. There are 12 food safety and certification related questions have been asked to the farers to gather the information related food safety and certification practice in commercial poultry farming. The following table indicates that about 30% of total farmers and 35% of female farmers wash their hand before entering the poultry house while 31% of total farmers and 43% of female farmers use foot bath in the entrance on their farm. Although 54% of farmers (58% of female) control visitor /other animal, birds and pest access on the farm only 10% of farmers (13% of female) keep record of these activities. Only, 11% of total farmers and 13% of female farmers regularly clean the utensils with safe and disinfected water. About 35% of total farmers and 33% of female farmers transport poultry birds with comfort. Only 5% of total farmers and 3% of female farmers regularly do health check-up of their poultry. However, about 19% of total farmers and 20% of female farmers reported that they maintain the drug withdrawal period

Table 214: Use of food safety and certification measures in commercial poultry farms

#SL	Food safety and certification particulars	Number of farmers use food safety and certification measure			
		Total farmers use this measure	% of 423 farmers use this measure	Female farmers use this measure	% of total 40 farmers use this measure
(1)	(2)	(3)	(4)	(5)	(6)
1	Do you wash your hand before entering the farm?	127	30	14	35
2	Do you use foot bath containing disinfectant at the entrance of the farm?	133	31	17	43
3	Do you control visitor/other animal, bird and pest access on the farm?	229	54	23	58
4	Do you monitor and maintain records for the above-mentioned activities?	42	10	5	13
5	Do you keep record of disease, treatment and vaccination information for each poultry batch?	115	27	17	43
6	Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your poultry feed	10	2	2	5
7	Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use?	46	11	5	13
8	Do you transport poultry with comfort?	147	35	13	33
9	Do you perform regular health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc)	20	5	1	3
10	Do you keep records of health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc)	5	1	0	0
11	Do you maintain withdrawal period of antibiotic/hormone?	80	19	8	20
12	Do you get any poultry health certificate before sale?	0	0	0	0
13	Do you use any label/brand for your poultry's, poultry's eggs or their meat?	0	0	0	0
14	Did you receive any information related to food safety?	47	11	3	8

Source: FAO-LDDP baseline survey, 2021

9.6.1 Sources of drinking water in commercial poultry farming

Clean water is important for poultry production. It can be seen from table below that a total of 44 farmers of which 4 females use tube-well as the source of drinking water for their commercial poultry. Besides, 20 farmers of which 2 female farmers use water from supply/ tap. In addition, a total of 359 farmers of which 34 female farmers reported that they use motor pump to get water. Overall, it seems that all the commercial poultry farmers use clean water for their poultry farming.

Table 215: Sources of commercial poultry's drinking water (commercial farming)

#SL	Name of the water source	Number of farmers use different source of drinking water			
		Number of farmers	% of 423 total farmers who use this source	Female farmers use this source	% of 40 female farmers who use this source
(1)	(2)	(3)	(4)	(5)	(6)
1	Tube-well	44	10	4	10
2	Pond/Cannel	0	0	0	0
3	Supply/ Tap	20	5	2	5
4	Filtered	0	0	0	0
5	Deep tube-well	0	0	0	0
6	Others(Motor pump)	359	85	34	85

Source: FAO-LDDP baseline survey, 2021

9.6.2 Sources of food safety related information

Information related to food safety could encourage farmers to use these measures in their farming. It is found that only 47 commercial poultry rearing farmers out of a total of 423 farmers received any kind of food safety-related information during the last year. Among those who received food safety-related information, TV seems to be the most popular medium of information (42 farmers including 2 females) following online media (23 farmers including one female) and SMS (19 farmers including one female). Few farmers received food safety information from other sources such as training, mobile app, and exhibition.

Table 216: Sources of information related to food safety in commercial poultry farming

#SL	Name of the source of food safety information	Number of farmers receives different types of information related to food safety			
		Total farmers received information from this source	% of 47 total farmers who received food safety related information	Female farmers received information from this source	% of 3 female farmers who received food safety related information
(1)	(2)	(3)	(4)	(5)	(6)
1	Training	9	19	1	3
2	Mobile app	9	19	0	0
3	SMS	19	40	1	3
4	Community radio	0	0	0	0
5	TV	42	89	2	5
6	Online media	23	49	1	3
7	Exhibition	11	23	0	0
8	Others	1	2	0	0

Source: FAO-LDDP baseline survey, 2021

9.7 Technology and practices used in commercial poultry farming

Adoption of different technologies and practices is important for improved productivity in commercial poultry farming. It can be seen from the following table that all 100% of total farmers are rearing improved breed of commercial poultry. About 15% of total farmers using ration balancing in commercial poultry rearing. However, majority of farmers (61%) use regular vaccination while only 19% of total farmers use regular deworming in commercial poultry farming which also could be improved for better health management. About 26 % of total farmers use climate-resilient housing and cage rearing in commercial poultry rearing. The proportion of female farmers use different types of technologies and practices are lower than these for total farmers (column 6). Overall, all commercial poultry rearing farmers use at least one technology such as rearing improved breed. Nevertheless, the rate of adoption of most of the technology and practices is very poor and that could be improved to increase the productivity and resilient poultry production.

Table 217: Technology and practices adoption in commercial poultry rearing farms

#SL	Name of technology	Adoption of technology and practices			
		Number of total farms adopted	% of total 423 farms adopted	Number of female farms adopted	% of total 40 female farms adopted
(1)	(2)	(3)	(4)	(5)	(6)
CSA technologies and practices					
1	Improved breed rearing	423	100	40	100
2	Ration balancing	62	15	4	10
3	Routine vaccination	257	61	17	43
4	Routine Deworming	82	19	5	13
5	Manure management	27	6	2	5
6	Climate-resilient housing	112	26	8	20
Other technologies and practices					
7	Cage rearing	111	26	8	20
8	Organic egg and meat production	0	0	0	0
9	Fortified egg production	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

9.8 Capacity enhancement of commercial poultry rearing farmers

The following table presents the number and proportion of commercial poultry rearing farmers received training on different technologies and practices. As can be seen, very few farmers received training on different technologies and practices during last year. For instance, only 10% -16% of total farmers received training on improved breed rearing, biosecurity and biosafety, and routine vaccination. In addition, about 5% to 9 % of total farmers received training on routine deworming, poultry farming, poultry health management, and feed formulation. The proportion of female farmers received different training are even lower than these for total farmers (column 6). Most of the farmers even do not have any training on different technologies and practices. Nevertheless, there is a huge room to enhance capacity of commercial poultry farmers through different trainings.

Table 218: Distribution of farmers received training on different technology and practices

#SL	Capacity enhancement training	Capacity enhancement of commercial poultry farmers			
		Total farmers received training	% of total 423 farmers received training	Female farmers received training	% of total 40 female farmers received training
(1)	(2)	(3)	(4)	(5)	(6)
1	Improved breed rearing	50	12	3	8
2	Biosecurity and biosafety	42	10	2	5
3	Cage rearing	16	4	0	0
4	Organic egg and meat production	0	0	0	0
5	Climate-resilient housing	12	3	1	3
6	Manure management	16	4	1	3
7	Fortified egg production	0	0	0	0
8	Routine vaccination	68	16	6	15
9	Routine Deworming	33	8	1	3
10	Poultry farming	39	9	2	5
11	Poultry meat and egg production	11	3	1	3
12	Poultry Hatchery rules	0	0	0	0
13	Poultry Health management	31	7	2	5
14	Poultry agribusiness	1	0	0	0
15	Feed formulation	20	5	1	3
16	Good agricultural practice	5	1	1	3
17	Food safety	2	0	0	0
18	Climate shock mitigation	3	1	0	0
19	Business development skill	1	0	0	0
20	Training on gender equality	0	0	0	0
21	Training on using mobile apps	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

9.9 Housing and management in commercial poultry farming

Proper housing is indeed necessary for improved poultry production. The following table indicates that a total of 96 farmers (23% of total farmers) of which 10 females (25% of females) use the conventional type of poultry housing. However, a total of 245 farmers (58% of total farmers) of which 23 female farmers (58% of female farmers) use raised floor bricks or brick wall shed for poultry rearing. About 17% of total farmers and 18% of female farmers use macha system house for poultry rearing. Only 9 male farmers are found to use the multi-storied building for commercial poultry farming.

Table 219: Type of housing used for commercial poultry farms

#SL	Type of housing	Total farmers		Female farmers	
		Number of farmers	% of (423) farmers	Number of farmers	% of (40) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Night enclosed/fenced open space adjacent to homestead	0	0	0	0
2	Conventional	96	23	10	25
3	Raised floor bricks or brick wall shed	245	58	23	58
4	Multi-storied building	9	2	0	0
5	Macha system	73	17	7	18

Source: FAO-LDDP baseline survey, 2021

Column (4) of the following table shows that the majority (91% of total farmers and 83% of female farmers) of farmers use intensive housing system for commercial poultry rearing.

Table 220: Types of management system used in commercial poultry farms

#SL	Type of management system in housing	Total farmers		Female farmers	
		Number of farmers	% of total (423) farmers	Number of farmers	% of (40) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Free ranging-extensive	0	0	0	0
2	Intensive	385	91	33	83
3	Semi-intensive	38	9	7	18

Source: FAO-LDDP baseline survey, 2021



Type of litter used in poultry farm is important for environmental issues. As can be seen from column (4) of the following table, majority (51%) of total commercial poultry farmers and 45% of female farmers use rice husk as litter in the poultry farm. Besides, about 43% of total farmers and 52% of female farmers use sawdust as litter while few farmers (3% of total farmers) use ash and/or sand as litter in the commercial poultry farm.

Table 221: Type of litter used in commercial poultry farms

#SL	Type of litter	Total farmers		Female farmers	
		Number of farmers	% of total (423) farmers	Number of farmers	% of (40) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Ash	13	3	1	3
2	Sawdust	184	43	21	52
3	Sand	12	3	0	0
4	Others (Rice husk)	214	51	18	45

Source: FAO-LDDP baseline survey, 2021

The following table presents the distribution of commercial poultry rearing farmers based on the various facilities used in the poultry house. It can be seen that about 90% - 97% of total farmers have an adequate ventilation system, electric fan or exhaust fan, and sufficient space for poultry in the poultry house. Besides, about 81% and 53 % of total farmers reported that they use women-friendly utensils, and biosafety plan on their farms respectively. Only 4% of total farmers (all male) reported that they have quarantine facilities for their disease infected poultry on the farm. However, the proportion of female farmers who used different facilities are lower compared to those facilities for total farmers.

Table 222: Use of different facilities in the commercial poultry house

#SL	Facilities in the Commercial poultry house	Total farmers		Female farmers	
		Number of farmers	% of total (423) farmers	Number of farmers	% of total (40) Sfarmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Adequate ventilation system	380	90	35	88
2	electric fan or exhauster fan	389	92	34	85
3	Sufficient space for poultry	411	97	39	98
4	Quarantine facility	15	4	0	0
5	Biosafety plan	226	53	26	65
6	Utensils are women friendly	344	81	32	80

Source: FAO-LDDP baseline survey, 2021

A total of 226 commercial poultry farmers out of total 423 surveyed commercial poultry farmers regularly use biosafety plans in their poultry farms. However, different farmers use different types of biosafety plans. Following table shows the number and proportion of farmers among those who use biosafety plan in their poultry house. It can be seen that about 31% of the farmers who use biosafety plan use hand wash facility while about 69% of farmers use foot bath in their poultry house. However, most of the farmers regularly disinfect their farm with bleaching powder or disinfected spray after finishing one batch of poultry.

Table 223: Types of biosafety plan used in the commercial poultry farmers

#SL	Types of biosafety plan	Total farmers		Female farmers	
		Number of farmers	% of total (226) farmers	Number of farmers	% of (26) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Foot bath	156	69	18	45
2	Hand wash facility	70	31	8	20

Source: FAO-LDDP baseline survey, 2021

The following figure presents the number and proportion of commercial poultry rearing farmers based on using different energy sources in the poultry house. It can be seen that the majority (above 90%) of surveyed commercial poultry rearing farmers use electricity on their farms. No farmer was found to use any solar energy on the poultry farm.

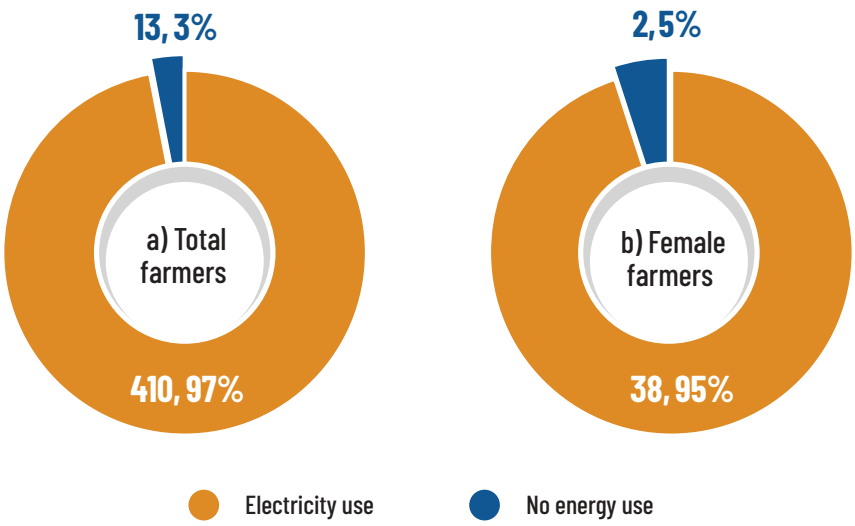


Figure 78

Types of energy used in the commercial poultry farms

9.10 Manure management in commercial poultry farms

Proper manure management could reduce environmental pollution. Commercial poultry farmers dispose of poultry manure in several ways. The following table presents the number and proportion of farmers based on different types of manure processing techniques on the farm. A total of 201 farmers of which 18 are females keep manure in open spaces as solid storage. On the other hand, a total of 150 farmers of which 13 are females dispose of manure in covered places as solid storage. However, a total of 65 farmers of which 8 are females dispose manure in the open space which could be a great worry for environmental issues. Only 7 farmers including one female found to use anaerobic digestion with poultry manure.

Table 224: Types of manure processing in commercial poultry farms

#SL	Types of manure processing	Total farmers		Female farmers	
		Number of farmers	% of total (423) farmers	Number of farmers	% of total (40) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	201	48	18	45
2	Solid storage (in covered place)	150	35	13	33
3	Dispose to open space	65	15	8	20
4	Burned Fuel	0	0	0	0
5	Anaerobic digestion	7	2	1	3

Source: FAO-LDDP baseline survey, 2021

As can be seen from the Figure below, about 43% of total farmers and 18 % of female farmers use poultry manure as fertilizer in crop cultivation.

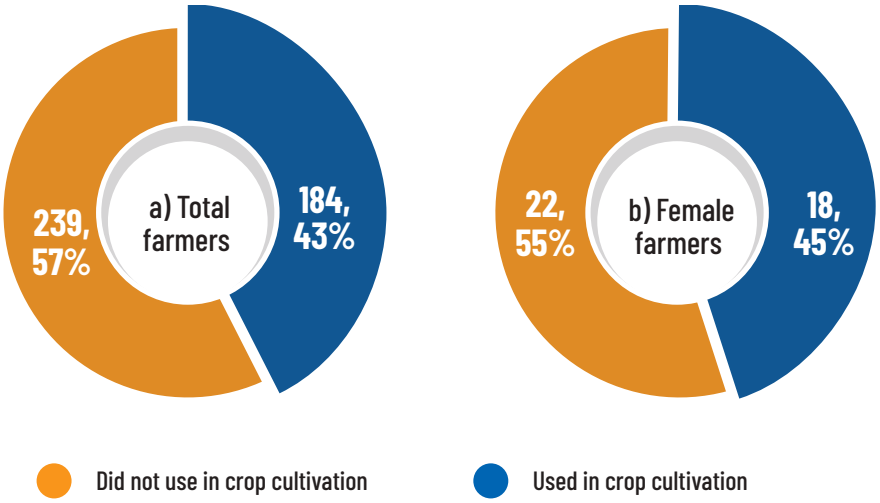


FIGURE 79

Number and Proportion of farmers use manure as fertilizer in crop cultivation

The following table presents the number and proportion of commercial poultry rearing farmers based on different categories of waste disposal on the farm. As can be seen a total of 204 farmers of which 19 females dispose waste in open space as solid storage. On the other hand, a total of 131 farmers of which 13 females dispose waste in covered place as solid storage. Besides, a total of 67 farmers of which 6 females dispose waste in open space. 21 farmers do not dispose waste at all.

Table 225: Waste disposal in commercial poultry farming

#SL	Types of waste disposal	Total farmers		Female farmers	
		Number of farmers	% of total (423) farmers	Number of farmers	% of total (40) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Solid storage (Open space)	204	48	19	48
2	Solid storage (in covered place)	131	31	13	33
3	Dispose to open space	67	16	6	15
4	Burned Fuel	0	0	0	0
5	Not at all	21	5	2	5
6	Anaerobic digestion	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

9.11 Climate related risk in commercial poultry farming

Poultry farming faces different climatic shocks almost every year. Column (4) of the following table shows that about 11% of total surveyed commercial poultry farmers were affected by flood/flash flood/waterlogging during last five years. Besides, about 4% surveyed commercial poultry farmers faced problem due to drought while 3% got affected by tornado/cyclone. However, about 34% and 23% of total surveyed commercial poultry farms affected by extreme hot and cold weather during last five years respectively. Besides, about 8% of total farmers reported that their farm has been affected by excessive rainfall during last five years. Overall, extreme weather seems to be the critical problem along with floods/waterlogging that affect commercial poultry farming. Climate-resilient housing could be an option to mitigate or adapt climatic shocks.

Table 226: Distribution of commercial poultry farms affected by climatic risk during last five year

#SL	Type of climate related risk	Total farmers		Female farmers	
		Number of farmers	% of total (423) farmers	Number of farmers	% of total (40) Sfarmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Flood/flash flood/ waterlogging	48	11	6	15
2	Draught	15	4	2	5
3	Tornado/cyclone	12	3	1	3
4	Extreme hot weather	143	34	11	28
5	Extreme cold weather	99	23	6	15
6	Excessive rainfall	32	8	1	3
7	Salinity	0	0	0	0
8	Others	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Table 227 shows that a total of 59 farmers of which 18 female farmers reported the increase in disease outbreak and poultry death due to climatic risks. However, a few farmers (1% to 6% of total farmers) reported some other effects of climatic risks such as scarcity of concentrate feeds, output sale interrupted, damage and destruction of poultry house, inadequate vet service, and rising feed price.

Table 227: Effect of different climatic risk on commercial poultry farms

#SL	Effect of climatic risk	Total farms		Female farms	
		Number of farmers	% of (71) farmers	Number of farmers	% of (23) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Output sale interrupted	4	6	1	4
2	Animal death and disease outbreak increase	59	83	18	78
3	Scarcity of concentrate feeds	1	1	0	0

4	Damage/destruction to poultry house	2	3	1	4
5	Inadequate input and service (veterinary Treatment, vaccine)	6	8	2	9
6	Rising of food prices	4	6	1	4
7	Others	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

9.12 Access to extension service in commercial poultry farming

Easy access to different digital and physical extension services could influence poultry farmers to be engaged in improved farming. Column (4) of the following table shows that about 69% of total commercial poultry farmers have access to veterinarian and consultancy services, 100% have access to improved breed rearing service, 20% have access to biosafety and biosecurity services, 63% have access to routine vaccination service, 44% have access to routine deworming service, and 45% have access to vaccination and medication services.

Table 228: Commercial poultry farmers access to extension services

#SL	Name of extension services	Number of farmers have access to extension services			
		Total farmers have access to extension services	% of total 423 farmers have access to extension services	Female farmers have access to extension services	% of 40 female farmers have access to extension services
(1)	(2)	(3)	(4)	(5)	(6)
1	Veterinarian and Consultancy	291	69	26	65
2	Improved breed rearing	423	100	40	100
3	Biosecurity and biosafety	83	20	6	15
4	Cage rearing	56	13	2	5
5	Organic egg and meat production	0	0	0	0
6	Climate-resilient housing	28	7	2	5
7	Manure management	37	9	1	3
8	Fortified egg production	0	0	0	0
9	Routine vaccination	205	48	21	53
10	Routine Deworming	187	44	12	30
11	Poultry agribusiness	2	0	0	0
12	Feed formulation	23	5	1	3
13	Good agricultural practice	12	3	2	5
14	Food safety	25	6	1	3
15	Climate shock mitigation	11	3	0	0

16	Medication	191	45	16	40
17	Product branding and quality certification	2	0	0	0
18	Online livestock and product marketing	5	1	1	3
19	Online knowledge sharing	29	7	2	5
20	Online treatment	0	0	0	0
21	Mobile veterinary clinic	0	0	0	0
22	Waste management	28	7	1	3

Source: FAO-LDDP baseline survey, 2021

Few farmers also have access to other physical and digital extension services; however, the rate is very low (below 1% to 10%). In terms of female farmers, lower proportion of surveyed farmers have access to different extension services compared to male farmers. Overall, there is a large room to improve the Commercial poultry chicken farming through increasing the access to different digital and physical extension services.

9.13 Household's nutrition awareness related information

The figure below indicates that a total of 259 commercial poultry rearing farmers of which 23 females received nutrition-related information. In terms of proportion, about 61% of total surveyed commercial poultry farmers and 57% of female farmers received nutrition-related information during last year.

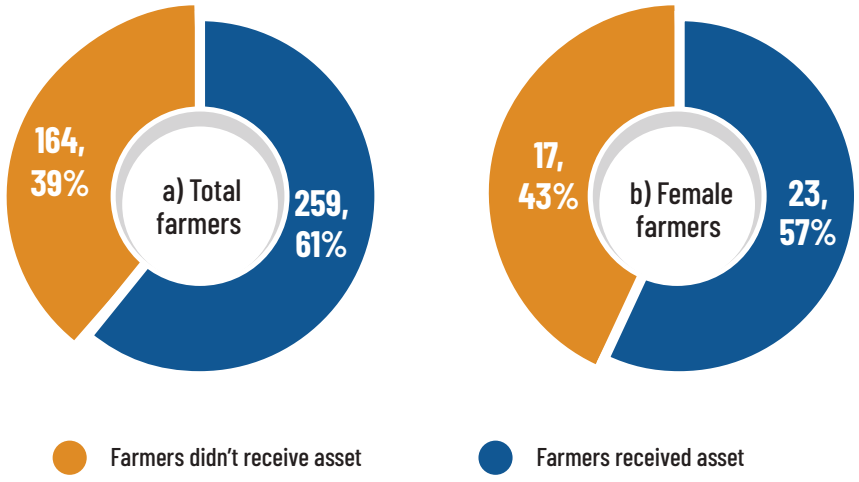


FIGURE 80

Number and proportion of households received nutrition awareness information

9.14 Gender perspective in managing commercial poultry value chain

The commercial poultry value chain is one of the important value chains of LDDP intervention implemented especially for the women and other vulnerable groups of vulnerable community. Both men and women have great interest on improving the productivity of commercial poultry to meet the demand of the meat, egg and improving the economic condition of the family.

9.14.1 Gender perspective in household management in commercial poultry value chain

The table below shows that women are mostly taking care of their family as well as the farm. Among the total surveyed households who responded, females are taking care of children in 75% of households (HHs) and both males and females are taking care in 21% HHs. In terms of preparing children for school, females are preparing children in about 85% HHs while both males and females are preparing children in about 11% HHs. Besides, females are caring for elderly members, cooking in the family and collecting cooking water in about 59%, 93% and 42% of HH who responded to the respective questions. The overall data amplifies that cooking, raring children, caring for elderly people, and preparing children for school are dedicatedly taken care of by females. Male also involved in collecting water.

For ensuring women's empowerment there is a need to develop the promotion of the practice of sharing workload especially the household chores together in consensus which will strengthen the family bonding and spent quality time with family members and become more productive.

Table 229: Gender perspective in household management among the PG of Commercial poultry

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Manage taking care of children along with farming	14	272	75	4	75	21	361
2	Manage preparing children for their school along with farming	13	298	40	4	85	11	351
3	Manage caring elderly family members along with farming	15	180	111	5	59	36	306
4	Manage cooking along with farming	3	353	23	1	93	6	379
5	Manage collecting water along with farming	84	162	136	22	42	36	382

Source: FAO-LDDP baseline survey, 2021

9.14.2 Gender perspective in farm management in commercial poultry value chain

The following table presents the gender perspective in farm management in commercial poultry farming. Among total surveyed households who responded to the respective questions, as can be seen in the majority of households (49% to 92%), male members are mainly taking decision for fodder production, fodder cultivation, selection of input supplier, contact with input supplier, place of selling livestock, contact with buyers, decision for feed rationing, livestock feeding, manure management, waste management, decision to use the income from livestock farming, and cleaning of farm utensils in livestock farming.. Overall, Men mostly manages outside work and their mobility is well accepted in the society but both women and men are mainly responsible to manage the house assignment as their mobility is restricted which is reflected on the farm management assignment as well.

Table 230: Gender perspective in farm management in commercial poultry value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who takes the decision of buying poultry?	336	6	81	79	1	19	423
2	Who chooses the breed?	352	6	65	83	1	16	423
3	Who takes the decision of feed rationing?	327	6	88	78	1	21	421
4	Who fed animals on the farm?	206	9	208	49	2	49	423
5	Who decide to manage manure?	283	9	123	68	2	30	415
6	Who manages manure and waste on the farm?	245	11	157	59	3	38	413
7	Who perform cleaning and sanitization on the farm	207	16	199	49	4	47	422
8	Who choose the input supplier?	380	6	36	90	1	9	422
9	Who maintain the contact with the input supplier?	382	7	33	91	2	7	422
10	Who decide where to sale?	353	4	66	83	1	16	423
11	Who maintain the contact with the buyer?	388	6	28	92	1	8	422
12	Who decide the use of money earned from livestock?	244	5	174	58	1	41	423
13	Who maintain the contact with the vet service providers?	374	9	39	89	2	9	422

Source: FAO-LDDP baseline survey, 2021



9.14.3 Gender perspective in access to training and services

As can be seen from the table below, males are mostly participating in training in 74% of households, spent more time in farming in 70% of households, have access to finance in 71% of farm households, go out for feed and food product testing in about 90% farm households, and access to digital and physical extension services. Overall, males have better access to different digital and physical extension services.

Table 231: Gender perspective in access to training and services in commercial poultry value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who participates in the training?	242	9	77	74	3	23	328
2	Who spent more time in farm activities?	297	41	84	70	10	20	422
3	Who mainly have access to finance/ credit?	268	35	76	71	9	20	379
4	Who mainly goes out for feed and food product testing?	188	3	17	90	1	9	208
5	Who have mainly access to different digital and physical extension services?	297	10	95	74	2	24	402

Source: FAO-LDDP baseline survey, 2021

9.14.4 Gender perspective in ownership of the farm and livestock

As can be seen from the table below, in 93% of commercial poultry farms, male members are the authorized owner of the farm while females are the authorized owner in 3% farm household and both male and females are the authorized owner in 4% of total commercial poultry farms. In terms of the authorized owner of the livestock on the farm, female, male and both male and females are the authorized owners of the livestock in 3%, 90% and 7% of the farms.

Table 232: Gender perspective based on the ownership of the farm and livestock in commercial poultry value chain

#SL	Indicators	Number of members who mainly manage the activity			% of total farm households who responded to this question			Total HH who responded to this question
		Total male	Total female	Both male and female	Total male	Total female	Both male and female	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Who is the authorized owner of this farm?	385	12	15	93	3	4	412
2	Who is the authorized owner of livestock?	374	13	27	90	3	7	414

Source: FAO-LDDP baseline survey, 2021

In case of Commercial poultry, the key activities are managed by both male and female but the level of female ownership on farm management and poultry is very low. So, there is a need to explore the opportunity on increasing the ownership of women in both farm and livestock management for accelerating the path of women empowerment.

9.15 Commercial poultry rearing farmers' perceptions regarding LDDP services

LDDP is providing different services for increasing productivity, market access and climate-resilient production for the improvement of the livestock sector in Bangladesh.

9.15.1 Farmers received assets from DLS/LDDP to start or continue their commercial poultry business last year

It can be seen from the table below, a total of 258 farmers of which 23 female received cash incentives from DLS/LDDP during last year. Besides, one farmer received utensils and another farmer received hygienic cleaning tools.

Table 233: Types of assets farmers received from DLS/LDDP during last year

#SL	Asset from LDDP/DLS	Total farmers		Female farmers	
		Number of farmers	% of total (423) farmers	Number of farmers	% of total (40) farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Poultry house	0	0	0	0
2	Utensils like bucket, spade, etc	0	0	0	0
3	Hygienic cleaning tools	0	0	0	0
4	Live Bird	0	0	0	0
5	Cash incentive	258	61	23	58
6	Feed	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

9.15.2 Farmers received training from LDDP

This survey did not find any commercial poultry rearing farmers who received training from LDDP during last year. Hence, none has commented regarding the satisfaction about LDDP training.

Table 234: Level of satisfaction regarding LDDP provided training during last one year

#SL	Rate of satisfaction on the training you received from LDDP	Total farmers		Female farmers	
		Number of farmers received this training	% of 0 farmers who received this training	Number of farmers received this training	% of 0 farmers who received this training
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	0	0	0	0
2	Good	0	0	0	0
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0
6	Not applicable	0	0	0	0

9.15.3 Farmers overall level of satisfaction with LDDP services (commercial poultry)

In terms of overall satisfaction regarding LDDP service, a total of 258 farmers commented regarding service from LDDP of which 138 (53%) commented excellent, and 120 farmers (47%) commented good service. During response related to LDDP the farmer considers all types of service like training, extension, cash incentive, etc. together.

Table 235: Farmers overall level of satisfaction with LDDP services (commercial poultry)

#SL	Overall satisfaction with LDDP services	Total farmers		Female farmers	
		Number of farmers	% of total 258 farmers	Number of farmers	% of total 23 farmers
(1)	(2)	(3)	(4)	(5)	(6)
1	Excellent	138	53	15	65
2	Good	120	47	8	35
3	Moderate	0	0	0	0
4	Bad	0	0	0	0
5	Very bad	0	0	0	0

Source: FAO-LDDP baseline survey, 2021

Chapter 10. Conclusion



Although adoption of improved technology, better health management, feed management, food safety and so forth are crucial to improve productivity, market access and resilience of production, it is found that there is a huge gap among livestock farmers to adopt or properly use these for improved production. In terms of dairy farming, many farmers are rearing indigenous breeds with very low productivity per day. Moreover, farmers are far away from the use of different improved technologies and food safety measures that could improve farm productivity. Although some farmers are using artificial insemination for their cattle, the occurrence of repeat breeding is also high. Hence the quality of semen, semen transportation, and the source of semen should be monitored on a regular basis. Similarly, the source and use of vaccination should also be monitored for better production along with other factors. Baseline findings show that livestock farmers are using vaccination for their livestock however, the occurrence of the respective disease is also high. Farmers' awareness should also be increased related to the problem of inbreeding in small ruminant farming. Besides, training should be provided for the selection of appropriate cattle breeds in dairy farming as well as beef fattening farming.

The price of cattle feed fluctuates very frequently, and the milk price is also not stable. Hence, a partnership with some established companies could be helpful to sort out this issue. Furthermore, the establishment of some village milk collection centers could also facilitate dairy milk production. Training facilities for the farmers should be provided to enhance the capacity of the farmers for better livestock production and management. Inadequate feed is another hindrance to livestock farming. Hence proper initiatives are needed to encourage farmers to produce improved green fodder for their livestock. Poultry feed prices also fluctuate very frequently. Establishment of local level feed entrepreneurs could be a solution of the feed crisis. Moreover, the government should enhance monitoring of the livestock feed distribution system to ensure the affordable feed price.

A few proportions of farmers are using climate-resilient housing. Moreover, most of the farmers use the conventional type of livestock housing. Hence, an appropriate plan and program should be implemented to increase the use of climate-resilient housing in livestock farming. To ensure safe and quality livestock products, proper plans and programs should be taken to increase the adoption of food safety measures in livestock farming. Training through farmers' field school could be a means to increase the adoption of technology and food safety measures. Most of the rural households have at least some livestock. Surprisingly, most of the farmers are rearing their livestock without any proper business plan. Hence, training on business development skills should be provided to enhance productivity and market access. Moreover, extension services along with animal health-related extension services should be more easily accessible to increase productivity, market access and resilience of livestock production.

Since a small proportion of female farmers are adopting different categories of technologies and practices including CSA technologies, as well as food safety measures, intervention is needed to increase their adoption. Besides, access to different digital and physical extension services should also be enhanced so that female farmers could get benefit from these services. It is found that female farmers have lower farm productivity, lower market access, lower adoption of technology and practices, food safety measures, lower access to extension services, and lower training on technology and practices compared to male farmers. Hence, there is a need to explore the opportunity for female on increasing productivity, market access, and resilience production in livestock farming through providing these services.

Chapter 11. References

7th FYP. Seventh Five Year Plan FY 2016-FY2020, General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh.

Ahmed, F., Alam, G.M., Al-Amin, A. Q., and Hassan, C. H. B. (2013). The Impact of Climate Change on Livestock Sector: Challenging Expe rience from Bangladesh, Asian Journal of Animal and Veterinary Advances, 8(1), 29-40

Ahmed, T., Hashem, M.A., Khan, M.O., Rahman., M.F. and Hossain, M.M. (2012). Factors related to small scale cattle fattening in rural areas of Bangladesh, Bangladesh Journal of Animal Science, 39(1-2)

Akhter, A., Das, S.C., Hasan, M.S., Akter, T., Sultana, M., Faruque, S., Rashid, M.A., Dey, B., Hossain, M.A., Akter, A., and Retee, N.N.(2018). Growth performance of local and genetically improved chicken of Bangladesh, Bang. J. Anim. Sci. 47 (2):76-84

Amin, M.R. and Afroz, F. (2021). Pabna cattle of Bangladesh: A review, IOSR Journal of Agriculture and Veterinary Science, 14 (8) 25-32

Azharul, I. M., Ranvig, H., and Howlider, M.A.R. (2005). Comparison of growth rate and meat yield characteristics of cockerels between Fayoumi and sonali under village conditions in Bangladesh, Livestock Research for Rural Development, 17(2), 1-6

Bartlett, J. E., Kotrlik, J. W., and Higgins, C.C. (2001). Information Technology, Learning, and Performance Journal, 19(1), 43-50

BDP 2100 Bangladesh Delta Plan (BDP) 2100 (First Draft): Salient Features (gwp.org)

Belgrad, J. P., Rahman, M. A., Abdullah, M. S., Rashid, M. H., Sayeed, M. A., Anwer, M. S., & Hoque, M. A. (2018). Newcastle disease sero and viro-prevalence in rural poultry in Chittagong, Bangladesh. Preventive veterinary medicine, 160, 18–25. https://doi.org/10.1016/j.prevetmed.2018.09.015

BER (2020). Bangladesh Economic Review, The Ministry of Planning, The people's republic of Bangladesh

Biswas, J.C., Haque, M.M., Moniruzzaman, M., Ali, M.H. and Kalra, N. (2019). Natural hazards and livestock damage in Bangladesh, Natural Hazards, 99, 705-714

Biswas, P.K, Christensen J.P., Ahmed, S.S., Barua, H., Das A., Rahman, M.H., Giasuddin, M., Hannan, A.S., Habib, M.A., Ahad, A., Rahman, A.S., Faruque, R., Debnath, N.C. (2008). Avian influenza outbreaks in chickens, Bangladesh. Emerg Infect Dis. 14(12):1909-12. Climate smart Agriculture investment plan, Bangladesh-Climate-Smart-Investment-Plan-Investment-opportunities-in-the-agriculture-sector-s-transition-to-a-climate-resilient-growth-path.pdf

Das NG, Islam MR, Sarker NR, Jalil MA and Clark CEF (2021). Red Chittagong Cattle: An Indigenous Breed to Help Tackle the Challenges of Modern Animal Production Systems. Front. Sustain. Food Syst. 5:688641. doi: 10.3389/fsufs.2021.688641

Datta, A. K., Haider, M. Z., & Ghosh, S. K. (2018). Economic analysis of dairy farming in Bangladesh. Tropical Animal Health and Production. doi:10.1007/s11250-018-1659-7

DLS (2007). National Livestock Development Policy, Department of Livestock and Fisheries, Government of the People's Republic of Ban gladesh, Ministry of Fisheries and Livestock, available at National Livestock Development Policy (2007) • National Designated Authority to GCF (erd.gov.bd)

DLS(2021).Updated Livestock Economy, Department of Livestock and Fisheries, Government of the People's Republic of Bangladesh, Ministry of Fisheries and Livestock, available at Updated Livestock Economy (2018-2019).doc accesses on 27 May 2021

FAO (2013). Participatory Rural Communication Appraisal (fao.org)

FAO. (2015). Comparative performance of sonali chickens, commercial broilers, layers and local non-descript (deshi) chickens in select ed areas of Bangladesh. Animal Production and Health Working Paper. No. 14. Rome

FAO (2018a). Guidelines for the measurement of productivity and efficiency in agriculture, Food and Agricultural Organizations of the United Nations, Rome, Italy.

FAO (2018b). Ministry of Agriculture, Livestock and Fisheries, Climate smart agriculture: Training Manual for Agricultural Extension Agents in Kenya

FAO _ Standard seed security assessment, Sampling and Sample Size, available at http://www.fao.org/fileadmin/user_upload/food-se curity-capacity-building/docs/Seeds/Training_Material/ParticipantsManual/Day_3/Day_3_-_S7-a_Sample_size_Handout.pdf

Gelman, A., and Hill, J. (2006). Sample size and power calculations. In Data Analysis Using Regression and Multilevel/Hierarchical Models (Analytical Methods for Social Research, 437-456). Cambridge: Cambridge University Press. Doi:10.1017/CBO9780511790942.026

Gulliford M, Figueroa-Munoz J, Morgan M, Hughes D, Gibson B, Beech R, Hudson M. (2002). What does 'access to health care' mean? J Health Serv Res Policy. 7(3):186-8. doi: 10.1258/135581902760082517. PMID: 12171751.

Hasib, F.M.Y., Islam, M.S., Das, T., Rana, E. A., Uddin, M.H., Bayzid, M., Nath, C., Hossain, M.A., Masuduzzaman, M., Das, S. and Alim, M.A. (2021). Lumpy skin disease outbreak in cattle population of Chattogram, Bangladesh, Veterinary Medicine and Science, 7(5), 1616-1624

Hossain, M. A., Roy, B.C., Islam, M.M., and Miah, M.Y. (2016). Performance of Broiler Fed with Different Commercial Compound Feeds of Bangladesh, Bangl. J. Vet. Med.. 4 (2): 97–101

Iarossi, G. (2006). The power of survey design: a user's guide for managing surveys, interpreting results, and influencing respondents, The World Bank, Washington DC

IFAD (2020). Core Outcome Indicators Measurement Guidelines, Operational Policy and Results, Rome, Italy.

Islam, M. A., Khan, M. J., Debi, M.R., and Rahman, M.M. (2012). Meat yield characteristics of three genotypes of ducks in coastal region of Bangladesh, Bang. J. Anim. Sci. 41 (2): 79-82

Mamun, M.J.A, Khan, M. A. S., Sarker, M.A.S. and Islam, M. N (2015). Productive and reproductive perform ance of Holstein Friesian cross bred and indigenous cow under sm all holder farm ing system, Bang. J. Anim . Sci. 4 4 (3), 166 – 170

MoEF. (2012). Climate Change and Fisheries & Livestock, Information brief, Ministry of Environment and Forests, Government of the People's Republic of Bangladesh with technical support from IUCN Bangladesh, funded by DFID and DANIDA, available at 01 (iucn.org) accessed on 27 May 2021

Muthulakshmi, M., Muthukumar, M., Rajkumar, R.S., Girish P. S., and Mooventhan, P. (2016). Carcass Characteristics and Meat Quality Attributes of Commercial Culled Layer Hen, International Journal of Science, Environment and Technology, 5(5), 3352 – 3361

Nabi, M.R., Hossain, M.S., Saha, S., Alam, J. and Giasuddin, M. (2018). Molecular Epidemiology of Peste Des Petits Ruminants (PPR) in Goat, International Journal of Scientific & Technology Research 7(3), 7-12

Nandi, D., Roy, S., Bera, S., Kesh, S.S., Samanta, A.K. (2011). The rearing system of Black Bengal Goat and their farmers in West Bengal, India, Veterinary World, 2011, Vol.4(6): 254-257, DOI :10.5455/vetworld.4.254

Park, S. Y., Byeon, D. S., Kim, G. W., & Kim, H. Y. (2021). Carcass and retail meat cuts quality properties of broiler chicken meat based on the slaughter age. Journal of animal science and technology, 63(1), 180–190. https://doi.org/10.5187/jast.2021.e2

Paul A. K., Abdullah-Al-Maruf, Jha, P. K., and Alam, M. G. S. (2013). Reproductive Performance of Crossbred and Indigenous (Desi) Dairy Cows under Rural Context at Sirajgonj District of Bangladesh, J. Emb. Trans. 28, (4), 319-324

Quddus, M. A. (2012). Adoption of dairy farming technologies by small farm holders: practices and constraints, Bang. J. Anim. Sci. 41 (2): 124-135

Rabbi, F., Mannan, M.S., Imtiaz, M., Chowdhury, S., & Prodhan, M.A. (2014). A Survey of Livestock and Poultry along with Mortality Trends of Goat at Kaunia Upzilla, Rangpur, Bangladesh. Bangladesh Journal of Veterinary Medicine, 12, 155-160.

Rahman S, Begum I A and Alam M J (2014). Livestock in Bangladesh: distribution, growth, performance and potential, Livestock Research for Rural Development. Volume 26, Article #173. Retrieved May 26, 2021, from http://www.lrrd.org/lrrd26/10/rahm26173.html

Redoy, M., Shuvo, A. Al-Mamu, M (2017). A review on present status, problems and prospects of quail farming in Bangladesh Bang. J. Anim. Sci. 46 (2): 109-120

Sample size calculation and development of sample plan, available at https://docs.wfp.org/api/documents/WFP-0000107641/download/

Sarker S., Talukder S., Haque M.H., Islam M.H. and Gupta S.D. (2011). Epidemiological Study on Foot-And-Mouth Disease in Cattle: Preva lence and Risk Factor Assessment in Rajshahi, Bangladesh, Wayamba Journal of Animal Science, 71-73

Siddiky, N.A., ed. (2017). Sustainable Goat Farming for Livelihood Improvement in South Asia. SAARC Agriculture Centre, Dhaka-1215, Bangladesh, p.190

Talukder, A. I., Rahman, A. M., Miah A.H., Shahjahan, M., ALi, Y., Alam, M. A., Kabir, M. H., Munira, S., Billah, M. and Habib, M (2018). Prevalence of different dairy cattle diseases in selected dairy areas and farms of Bangladesh, Asian Australliasian. J. Biosci. Biotechnol. 3 (3), 231-236

Wassenich , P. (2007). Data for impact evaluation (English). Doing impact evaluation series; no. 6 Washington, D.C. : World Bank Group.

World Bank (2017). Climate-Smart Agriculture in Bangladesh. CSA Country Profiles for Asia Series. International Center for Tropical Agriculture (CIAT); World Bank. Washington, D.C. 28 p. Climate-Smart Agriculture in Bangladesh (cgiar.org)

Chapter 12. Annexure

Annexure 1. Revised results framework and monitoring

The Project Development Objective (PDO) is to improve productivity, market access, and resilience of small - holder farmers and agro-entrepreneurs operating in selected livestock value chains in target areas.			
PDO Level Results Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
PDO Indicator -1: Farmers adopting improved agricultural technology (Direct beneficiaries) (CRI)[13]	#	66%	The adoption of technology and practices refers to the regular use of the technologies and practices identified in the baseline. 66% of total surveyed farmers adopt at least one technology and practices. On average each surveyed farmers adopted 1.61 technologies and practices
PDO Indicator-1. a: Farmers adopting improved agricultural technology - Female (CRI)	#	44%	The adoption of technology and practices refers to the regular use of the technologies and practices identified in the baseline. 44% of total surveyed female farmers adopt at least on technology and practices. On average each surveyed farmers adopted 0.97 technologies and practices
PDO Indicator-2: Increased productivity of targeted species by direct beneficiaries			
2.a Dairy cattle	(%)	Cow: 5.81 litres Buffalo: 2.17 litres	Average milk per day per cattle during the lactation period. The average is estimated as the average of milk production at the early lactation, mid lactation, and end lactation period per cattle. Productivity in female farmers is 5.41 litres per cow per day, and 2.13 per buffalo per day.
2.b Beef fattening	(%)	247.74 Kg	Average live weight (Kg) per beef cattle at its slaughter age is considered as the productivity of beef cattle. Slaughter age defined as the time when a farmer sells his/her beef cattle for slaughter purpose. Average live weight (Kg) per cattle is estimated by dividing the total quantity of live weight (number of beef cattle sold during last year* average live weight per cattle) with the total number of surveyed farmers. For female farmers, average live weight was 239.67 Kg per cattle at the slaughter age.
2.c Small ruminant fattening	(%)	Goat: 14.96 Kg (live weight) Sheep: 11.91 Kg (live weight)	Average live weight (Kg) per goat/sheep at its slaughter age is considered as the productivity of goat and sheep. Slaughter age defined as the time when a farmer sells his/her goat and sheep for slaughter purpose. Average live weight (Kg) per goat and sheep is estimated by dividing the total quantity of live weight (number of goat or sheep sold during last year* average live weight per goat and sheep) with the total number of surveyed farmers. Average liveweight for goat and sheep is calculated separately.

[13] Improved technology- calf wining pan, udder management, milk processing, milk replacer, machine milking, floor feeding, hydroponic fodder production, early pregnancy, animal identification, business development skill, kid's replacer and brooding, cage rearing, organic egg and meat production, poultry heath management, agribusiness including CSA technologies.

The Project Development Objective (PDO) is to improve productivity, market access, and resilience of small - holder farmers and agro-entrepreneurs operating in selected livestock value chains in target areas.			
PDO Level Results Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
2.d Sonali chicken	(%)	0.57 Kg (carcass weight) per bird	Average carcass weight (Kg) per bird at its slaughter age is considered as the productivity of sonali chicken meat. Slaughter age defined as the time when a farmer sells his/her birds for slaughter purpose. Average carass weight (Kg) per bird is estimated by dividing the total quantity of carcass weight (number of birds sold during last year* average carcass weight per bird) with the total number of surveyed farmers. Carcass weight percentage of each sonali chicken is considered as 65% of liveweight. The average carcass weight for female farmers was 0.56 Kg per bird.
PDO Indicator-3: Increase in market access reflected in incremental sales (aggregated over all targeted value-chains) in real-value in the project areas (Market Access)	(%)	Tk 728,680,128	Total sales value (Dairy, beef fattening, small ruminant, and sonali chicken) = sum of total sale value of each value chains. Total quantity sold in each value chain during baseline = average quantity sold per farm* number of farms of each value chain* average price per unit.
3.a: Sales increase among Female producers. Increase for female producers	(%)	Tk 201,442,550	Total sales value (Dairy, beef fattening, small ruminant, and sonali chicken) of female farmers= sum of total sale value by female farmers of each value chains. Total quantity sold by female in each value chain during baseline = average quantity sold per female farm* number of female farms of each value chain* average price per unit in female farm.
Risk management and resilience			
PDO Indicator-4: Farmers and value chain actors have adopted practices to improve resilience to selected risks	(#)	53%	Selected risks for different value chains have been identified based on the severity and frequency of the risks. For dairy, selected risks are FMD, LSD, Mastitis, Lack of climate resilient housing, and inadequate improved fodder cultivation. For beef fattening, selected risks are, FMD, LSD, Lack of climate resilient housing, and inadequate improved fodder cultivation. For small ruminants, selected risks are PPR, FMD, Lack of climate resilient housing, and inadequate improved fodder cultivation. For scavenger poultry, selected risks are Newcastle, fowl cholera, avian influenza, duck plague, duck cholera, and Lack of climate resilient housing. For sonali and commercial poultry, selected risks are Newcastle, fowl cholera, avian influenza, gumboro, and Lack of climate resilient housing. Resilience will increase if a farmers adopt any measures against selected risks, such as vaccination, climate resilient housing, and fodder cultivation (where appropriate). At the baseline, 53 % of total surveyed farmers adopt at least one

The Project Development Objective (PDO) is to improve productivity, market access, and resilience of small - holder farmers and agro-entrepreneurs operating in selected livestock value chains in target areas.			
PDO Level Results Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
			measures against selected risks. On average each farmer adopts only one measures. At the baseline, 37 % of female farmers adopt at least 1.00 measures against selected risks. On average each farmer adopts only 0.60 measures.
PDO Indicator-5: Farmers and value chain actors implement food safety measures	(#)	41%	If a farmer regularly uses any food safety measures, then it is considered as the user of this measure. A list of selected food safety measures is presented in Table 22 as well as each section of respective value chain in the baseline. At the baseline 41% of total surveyed farmers uses at least one food safety measures. On average each farmer uses 0.87 food safety measures. At the baseline 29% of total surveyed female farmers uses at least one food safety measures. On average, each female farmer uses 0.47 food safety measures.
PDO Indicator-6: Number of farmers who benefitted from cash transfer schemes and/or marketing services to enhance farm resilience at the time of COVID19	(#)	0.00	
PDO Indicator-6.a: Number of female beneficiaries (25%)	(#)	0.00	

INTERMEDIATE RESULTS: COMPONENT-A

Intermediate Result-A: Productivity Improvement			
Intermediary Result Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
IR Indicator -7: Producer organization facilitated and operational	#	0.00	
IR Indicator -7a: Producer organization facilitated and operational – led by females	#	0.00	
IR Indicator -8: Farmers have received business development skills training	#	0.00	At the baseline only one farmer out of 2723 surveyed farmers received business development skill related training.
IR Indicator -8a: Farmers have received business development skills training – females	#	0.00	No female farmer received business development skill related training.

Intermediate Result-A: Productivity Improvement			
Intermediary Result Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
IR Indicator-9: Farmers have access to livestock CSA technologies and practices[14]	#	66%	In Bangladesh, technology or practice is considered a CSA if it could enhance food security as well as at least one of the other objectives of CSA (adaptation and/or mitigation of climate change (World Bank, 2017). A list of CSA technologies and practices are identified in Table 14 in the baseline report. At baseline, 66% of total surveyed farmers have access to CSA technologies and practices. On average each farmer has access to 1.53 CSA technologies and practices.
IR Indicator-9.1a: Farmers have access to livestock CSA technologies and practices-Female	#	44%	At baseline, 44% of total surveyed female farmers have access to CSA technologies and practices. On average, each farmer has access to 0.95 CSA technologies and practices.
IR Indicator-10: Reduced GHG emission per unit of milk produced per farmer in project areas	(%)	0.00	
IR Indicator-10.a: Reduced GHG emission per unit of milk produced per farmer in project areas (female farmer)	(%)	0.00	

INTERMEDIATE RESULTS: COMPONENT-B

Intermediate Result-B: Market Linkages and Value-Chain Development			
Intermediary Result Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
IR Indicator -11: PPs/ sub-projects established and financed and operational	#	0.00	
IR Indicator -12: Slaughtering Facilities /milk processing / cooling facilities renovated and made climate smart	#	0.00	
IR Indicator -13: Systems and devices for renewable energy production and energy efficiency gains established	#	0.00	
IR Indicator – 14: Schools under School Milk Program (Government primary school co-education- boys & girls)	#	0.00	

[14] CSA technology- Improved fodder production, silage making, total mixed ration, ration balancing, UMS, UMMB, artificial insemination, routine vaccination, routine deworming, manure management, waste management, climate resilient housing

INTERMEDIATE RESULTS: COMPONENT-C

Intermediate Result-C: Improving Risk Management and Climate Resilience of Livestock Production Systems			
Intermediary Result Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
IR Indicator -15: DLS and project staff adopting skills learned during training on animal health, food safety, nutrition, and new technologies	%	0.00	0.00
IR Indicator -15.a: DLS and project staff adopting skills learned during training on animal health, food safety, nutrition, and new technologies - Females	%	0.00	0.00
IR Indicator -16: Government staff graduating from MSCs, PhDs, and certificates/diploma program supported by the project	#	0.00	0.00
IR Indicator -16.a: Government staff graduating from MSCs, PhDs, and certificates/diploma program supported by the project - female	#	0.00	0.00
IR Indicator – 17: Number of tests of food and feed samples carried out at laboratory facilities	#	0.00	0.00
IR Indicator – 18: Stakeholders (persons) reached with food safety & nutrition information through training, exhibitions, mobile apps, SMS, and video-based tools	#	8%	Farmers who have received information related both food safety and nutrition are considered. At baseline 8% of total surveyed farmers received both food safety and nutrition related information. At baseline 5% of total surveyed female farmers received both food safety and nutrition related information.
IR Indicator 19: Cattle included in the pilot animal identification and recording system (Dairy cattle only)	#	0.00	0.00
IR Indicator 20: Farmers satisfied by the emergency activities provided by the project	%	0.00	0.00
IR Indicator 20.a: Farmers satisfied by the emergency activities provided by the project-females	%	0.00	0.00
IR Indicator 21: Number of farmers with access to animal health services	#	34%	Five health facilities have been considered to measure the access to health services in the livestock sector for baseline survey such as access to veterinary and consultancy services, access to vaccination services, access to deworming services, access to mobile veterinary services, and access to online treatment services. Since most of the services selected above are an integral part of the animal health service, it is considered that a farmer has access to animal health services

Intermediate Result-C: Improving Risk Management and Climate Resilience of Livestock Production Systems			
Intermediary Result Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
			if this farmer has access to at least three of the listed health services. At baseline, 34% of total surveyed farmers has access to animal health service.
IR Indicator 21.a Number of farmers with access to animal health services - Female	#	26%	At baseline, 26% of total surveyed female farmers has access to animal health service.

INTERMEDIATE RESULTS: COMPONENT – D

Intermediate Result Component D: Management and Monitoring and Evaluation			
Intermediary Result Indicators	**Unit of Measure**	**Baseline**	**Description, definition of indicators including calculation and formula if required**
IR Indicator 22: Targeted livestock producers satisfied with the livestock services received from the project	%	28.27%	28.27% are found to be satisfied with LDDP services. These 28.27% (770 out of 2723) respondent farmers have received cash incentive from the CERC-EAP.
IR Indicator 22.a: Targeted livestock producers satisfied with the livestock services received from the project - females	%	16.29%	16.29% are found to be satisfied with LDDP services. These 16.29% (228 out of 1402) respondent farmers have received cash incentive from the CERC-EAP.
IR Indicator 23: Proportion of overall project staff and implementers (LEOs, LFAs and LSPs) trained adopting skills on gender household approach	%	0.00	0.00
IR Indicator 23.a: Proportion of overall project staff and implementers (LEOs, LFAs and LSPs) trained adopting skills on gender household approach-females	%	0.00	0.00
IR Indicator – 24: Farmers reached with agricultural assets or services (CRI)	#	88.28%	88.28% of total farmers have access to at least one agricultural services or assets. In this calculation, services and assets are considered together. Extension services are considered as services and assets provided through LDDP are considered as assets. Breakdown shows that 83.84% of total survey farmers have access to at least one extension services and 26.88% farmers have access to at least one agricultural assets
IR Indicator – 24.a: Farmers reached with agricultural assets or services - Females (CRI)	#	83.57%	83.57% of total female farmers have access to at least one agricultural services or assets. Breakdown shows that about 81.43% of total survey farmers have access to to at least one extension service and 13.29% farmers have access to at least one agricultural asset.

Annexure 2 Upazila wise distribution of samples for dairy value chain

District	Upazila	No. of existing PGs		Total PG Member	Total Required Sample	Gender based sample			
		Dairy	Buffalo			Dairy cow		Buffalo	
						Male	Female	Male	Female
Netrokona	Mohonganj	6	0	180	42	25	17	-	-
	Khaliajhuri	2	0	71	40	24	16	-	-
Barguna	Barguna Sadar	7	1	284	42	22	15	3	2
	Taltoli	5	2	214	40	19	12	5	4
Cox's Bazar	Chokoria	5	2	273	42	19	13	6	4
	Cox's Bazar Sadar	5	1	183	40	21	14	3	2
Satkhira	Satkhira Sadar	15	0	600	42	25	17	-	-
	Tala	12	0	360	40	24	16	-	-
Sirajgonj	Shajadpur	14	0	445	42	25	17	-	-
	Belkuchi	4	0	160	40	24	16	-	-
Nilphamari	Sadar	3	0	91	40	24	16	-	-
	Domar	11	0	367	42	25	17	-	-
Dhaka	Savar	9	1	346	42	24	16	1	1
	Nawabganj	9		311	40	24	16	-	-
Sylhet	Osmaninagar	6		180	82	48	34	-	
Total					656	387	269	18	13

Annexure 3 Upazila wise distribution of samples for beef value chain

District	Upazila	No. of existing PGs	Total PG Member	Total Required Sample	Gender based sample	
					Male	Female
Mymensingh	Ishwargonj	2	60	28	21	7
	Gouripur	2	80	58	44	15
	Fulpur	1	30	20	15	5
Patuakhali	Patuakhali Sadar	3	116	46	35	12
	Baufal	5	180	60	45	15
Jassore	Monirampur	2	60	25	19	6
	Sharsha	2	60	25	19	6
	Jassore Sadar	3	100	53	40	13
Dinajpur	Chirirbandar	2	60	60	45	15
	khansama	1	40	40	30	10
Total				415	311	104

Annexure 4: Upazila wise distribution of samples for goat & sheep value chain

District	Upazila	No. of existing PGs		Total PG Member	Total Required Sample	Gender based sample			
						Goat		Sheep	
		Goat	Sheep			Male	Female	Male	Female
Kushtia	Kumarkhali	2	1	90	50	-	20	-	30
	Kushtia Sadar	4	1	140	53	-	26	-	27
Kurigram	Kurigram Sadar	7	0	271	103	-	103	-	-
Rajshahi	Charghat	3	0	119	50	-	50	-	-
	Godagari	3	1	120	53	-	23	-	30
Rajbari	Rajbari Sadar	2	0	80	50	-	50	-	-
	Goalanda	2	0	80	53	-	53	-	-
Total					412	-	325	-	87

Annexure 5: Upazila wise distribution of samples for scavenger poultry value chain

District	Upazila	No. of existing PGs		Total PG Member	Total Required Sample	Gender based sample			
						Chicken		Duck	
		Chicken	Duck			Male	Female	Male	Female
Joypurhat	Kalai	3	1	155	52	-	40	-	12
	Khetlal	4	1	193	52	-	40	-	12
Gazipur	Kapasia	4		160	52	-	52	-	-
	Sreepur	3	1	122	52	-	40	-	12
Barishal	Barishal Sadar	4	2	200	75	-	50	-	25
	Bakergonj	2		80	30	-	30	-	
Noakhali	Hatia	2		80	29	-	29	-	-
	Subornochar	2	2	154	75	-	51	-	24
Total					417		332		85

Annexure 6: Sample of sonali chicken and commercial poultry

District	Upazila	Sonali chicken			Commercial Poultry					Total Sample
					Layer		Broiler			
		Required sample	Male	Female	Male	Female	Male	Female	Required Sample	
Bogura	Sariakandi	20	13	7	9	1	14	1	25	45
	Shibganj	20	13	7	11	1	17	1	30	50
	Gabtoli	23	15	8					0	23
	Kahalu	20	13	7	8		11	1	20	40
	Bagura Sadar	20	13	7	11	1	17	1	30	50
Gazipur	Kaliakoir	20	13	7	11	1	17	1	30	50
	Gazipur Sadar	20	13	7	11	1	17	1	30	50
Mymensingh	Fulbaria	20	13	7	8		11	1	20	40
	Muktagacha	20	13	7	8		11	1	20	40
	Tarakanda				10		13	1	24	24
Gaibandha	Sundarganj	20	13	7	8		11	1	20	40
	Sadullahpur	20	13	7	8		11	1	20	40
	Shahghata				10		13	1	24	24
Comilla	Adorsho Sador	20	13	7	8		11	1	20	40
	Choddogram	20	13	7	8		11	1	20	40
	Doutkandi	22	14	8					0	22
Narshigdi	Raipura	20	13	7	8		11	1	20	40
	Shibpur	20	13	7	8		11	1	20	40
	Monohordi	20	13	7					0	20
Tangail	Sokhipur	20	13	7	8		11	1	20	40
	Ghatail	20	13	7	8		11	1	20	40
	Tangail Sadar	22	14	8					0	22
Total		407	264	143	161	5	229	18	413	820

Annexure 7: Questionnaire for the FAO-LDDP baseline study

FAO of the UN: Package: LDDP/SD-65

Household Baseline Survey Questionnaire 2021 for Dairy Value Chain Farms

Survey designed and supervised by: FAO of the UN

ডেইরী ভ্যালু চেইন খামারিদের জন্য বেইসলাইন জরীপের প্রশ্নপত্র-২০২১

জাতিসংঘের খাদ্য ও কৃষি সংস্থার তত্ত্বাবধানে এলডিডিপি প্রকল্পের জরীপের উদ্দেশ্যে প্রস্তুতকৃত

Section 1: General Information (অংশ ১: সাধারণ তথ্য)

GPS location (জিপিএস অবস্থান):	Latitude (অক্ষাংশ): _____^{0}North (^{0}উত্তর)	Longitude (দ্রাঘিমাংশ): _____^{0}East (^{0}পূর্ব)	Questionnaire No (প্রশ্নপত্র নং):

Name of the Interviewer (প্রশ্নকর্তার নাম):			Date (dd-mm-yyyy) [তারিখ (দিন/মাস/বছর)]:	
Geographic Location of farmer (খামারীর ভৌগলিক অবস্থান):				
a) Division (বিভাগ):	b) District (জেলা):		c) Upazila (উপজেলা):	
d) Postal Code (পোস্ট কোড):	e) Union (ইউনিয়ন): f) Ward (ওয়ার্ড):		g) Village (গ্রাম)/Mohalla (মহল্লা):	
1.2 Information of the respondent farmer (উত্তদাতা খামারীর তথ্য): Picture of the respondent farmer will automatically be captured by the data collection devise (উত্তরদাতা খামারীর ছবি (তথ্য সংগ্রহকারীর ট্যাব এর মাধ্যমে স্বয়ংক্রিয়ভাবে নিতে হবে)				
a) Respondent's Name (উত্তদাতার নাম):	b) Respondent's Age (years) [উত্তদাতার বয়স (বছর)]:	c) Respondent's Sex (উত্তদাতার লিঙ্গ) i. Male (পুরুষ) ii. Female (মহিলা) iii. Transgender (ট্রান্সজেন্ডার)	d) Respondent's picture (উত্তরদাতার ছবি)	e. Respondent's marital status (উত্তরদাতার বৈবাহিক অবস্থা) i. Single ii. Married iii. Widow iv. Divorced v. Separated
f) Respondent's Years of schooling (formal/informal) [উত্তদাতার শিক্ষাকাল বছর (আনুষ্ঠানিক/ অনানুষ্ঠানিক)]	g) Respondent's Mobile No (উত্তদাতার মোবাইল নম্বর):	h) Respondent's National ID No (উত্তদাতার জাতীয় পরিচয়পত্র নম্বর) ছবি নিতে হবে:	i) Respondent's Father's Name (উত্তদাতার বাবার নাম):	
j) Respondent's Mother's name (উত্তদাতার মায়ের নাম):	k) Respondent's Husband/wife's name (উত্তদাতার স্বামী / স্ত্রীর নাম):			

l) Farmers relation with head of HH (পরিবার প্রধানের সাথে উত্তদাতা খামারীর সম্পর্ক): i. Himself/herself (নিজেই) ii. Son (ছেলে) iii. Daughter (মেয়ে) iv. Husband/wife (স্বামী / স্ত্রী) v. Father/Mother (বাবা/মা) vi. Others (specify) অন্যান্য (উল্লেখ করুন)]	m) Age of the head of HH (years) [(পরিবার প্রধানের বয়স কত (বছর)]:	n. Sex of the head of HH (পরিবার প্রধানের লিঙ্গ): i. Male (পুরুষ) ii. Female (মহিলা) iii.Transgender (ট্রান্সজেন্ডার)

1.3. How much land do you have? (decimal) [আপনার কি পরিমান জমি আছে? (শতাংশ)]	a) Homestead (বসতবাড়ি)	b) Cultivable (নিজস্ব চাষযোগ্য)	c) Mortgage in/leased in (বন্ধক নেয়া/বর্গা নেয়া)	d) Pastureland (চারণ-ভূমি)	e) Fallow land (পতিত জমি)	e) Farm Land (খামার জমি)

1.4 Are you a member of any PG? (আপনি কি কোনো উৎপাদক গ্রুপ (পিজি) এর সদস্য?	i. Yes (হ্যাঁ) ii. No (না)
1.4a What is your PG name? (আপনার পিজি এর নাম কী?)	

1.5 Do you face any social obstacles to participate in PG? (আপনি কি পিজি তে অংশ নিতে কোনও সামাজিক বাঁধার সম্মুখীন হন?)	i) Yes (হ্যাঁ): ii) No (না):
1.6 If yes what specific social obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের সামাজিক বাধার সম্মুখীন হন?)	i. Restriction from family member (পরিবারের সদস্য থেকে নিষেধাজ্ঞা) ii. Religious barrier (ধর্মীয় বাধা) iii. Mobility is restricted (চলাফেরা সীমাবদ্ধ) iv. Abusive word from the neighbor (প্রতিবেশীদের কাছ থেকে কটু কথা) v. Road safety during transportation (পরিবহনের সময় সড়ক নিরাপত্তার অভাব) vi. Insensitive behavior of the service provider (সেবা প্রদানকারীর অসংবেদনশীল আচরণের অভাবের কারণে নিরুৎসাহিত)

Section 2: Farmer's HH profile (অংশ 2: খামারীর পরিবারের তথ্য)

SL (ক্রমিক নং)	Age group (বয়সের গ্রুপ)	Sex (লিঙ্গ)			Highest Education level (সর্বোচ্চ শিক্ষাগত যোগ্যতা)					
		Male (পুরুষ)	Female (মহিলা)	Transgender (ট্রান্সজেন্ডার)	Primary (class 1-5)		Secondary (Class 6-10)		Post secondary and above	
					Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)
1	Children (0-4 years) [শিশু, ০-৪ বছর]									
2	Children (5-14 years) [শিশু, ৫-১৪ বছর]									
3	Youth early working (15-24 years) [যুবক/ যুবতী, ১৫-২৪ বছর]									

4	Prime working (25-54 years) [প্রধানত কর্মক্ষম, ২৫-৫৪ বছর]									
5	Mature working (55-65 years) [বয়স্ক কর্মক্ষম, ৫৫-৬৫ বছর]									
6	Elderly (65 and above years) [বয়স্ক, ৬৫ বছর এবং উর্ধে]									
	Total (মোট)									

2.a. How many members are engaged in dairy farming? (আপনার পরিবারে কতজন দুগ্ধজাত পশুপালনে নিযুক্ত)?

i) Male (পুরুষ): _____ ii) Female (মহিলা): _____ iii) Transgender (ট্রান্সজেন্ডার)

2.b) Do you have any person with disability in your family (আপনার পরিবারে কি কোনো প্রতিবন্ধী লোক আছে)?

i) Yes (হ্যাঁ)) ii) No (না)

2.c) If yes, How many (যদি থাকে তবে কতজন) ?

i) Male (পুরুষ): _____ ii) Female (মহিলা): ___ iii) Transgender (ট্রান্সজেন্ডার)

What type of livestock are you farming for dairy in your farm? (আপনি আপনার খামারে দুগ্ধজাতকরণের জন্য কোন ধরনের গবাদিপশু পালন করেন?)

i) Cattle farming (গরুর খামার)
ii) Buffalo farming (মহিষের খামার)

Sectin 3: Farm characteristics (অংশ ৩: খামারের বৈশিষ্ট্য)

Which of the following type of livestock do you have (আপনার খামারে নিম্নের কোন ধরণের গবাদিপশু রয়েছে?)	**How many of the following livestock do you have? (নীচের কতগুলো গবাদিপশু আপনার রয়েছে?)**	
	No (নং):	**Total value (Tk) [মোট (টাকা)]:**
3.1Name (নাম)	**3.2**	**3.3**
Cattle (গরু)		
Lactating cows (দুধালো গাভী)		
Dry cows (শুষ্ক গাভী)		
Bull calves (এড়ে বাছুর, বয়স ১ বছর বা তার কম)		
Heifer calves (বকনা-বাছুর, বয়স ১ বছর বা তার কম)		
Heifers (বকনা, বয়স ১ -২ বছর)		
Bulls (ষাঁড়, বয়স ১ বছরের বেশি)		

Buffalo (মহিষ)		
Lactating Buffalo (দুধালো মহিষ)		
Dry Buffalo (শুষ্ক মহিষ)		
Bull calves (এড়ে বাছুর, বয়স ১ বছর বা তার কম)		
Heifer calves (বকনা-বাছুর, বয়স ১ বছর বা তার কম)		
Heifers (বকনা, বয়স ১ -২ বছর)		
Bull (ষাঁড়, বয়স ১ বছরের বেশি)		

Section 4: Production and productivity characteristics (অংশ 4: উৎপাদন এবং উৎপাদনশীলতার বৈশিষ্ট্য)

During last 1 year, October 1 2020 to September 30, 2021. (গত ১ বছর, ১ অক্টোবর ২০২০ থেকে ৩০ সেপ্টেম্বর ২০২১***) / প্রতিটি গভীর জন্য আলাদা করে তথ্য নিতে হবে।***

Sl. of cows (ক্রমিক নং)	Breed type (জাতের ধরন)	Age in years (বয়স)	4a.1.iii) How many days was the lactation period during last year (গত ১২ মাসে দুগ্ধদানের সময়কাল কতদিন ছিল)	4a.1.iv) How much milk on average per day you produce during this lactation period? (উক্ত দুগ্ধদানের সময়কালে গড়ে প্রতিতিন কত লিটার দুধ উৎপাদন করেছেন?)	
	Code 1 (কোড ১)				
1					
2					
3					
4					
5					

4.1) How much milk you produced last year? (গত বছর আপনি কত লিটার দুধ উৎপাদন করেছেন?)

4.1a) What type of breed do you prefer most for artificial insemination? [কৃত্রিম প্রজননের (এ.আই) জন্য আপনি কোন ধরণের জাতকে সর্বোচ্চ প্রাধান্য দেন/পছন্দ করেন?]

Code 1: Breed type (জাতের ধরন)

Local breed/Deshi (দেশীয়/স্থানীয় জাত).1 (১) Holstein-Friesian (হলস্টেইন-ফ্রিজিয়ান).....2 (২) Holstein-Friesian crosse (হলস্টেইন-ফ্রিজিয়ান ক্রস)...3 (৩) Jersey (জার্সি).....4 (৪) Jersey crosse (জার্সি ক্রস).....5 (৫) Gir (গির).....6 (৬) Sindhi (সিন্ধী).....7 (৭)	Sindhi crosse (সিন্ধী ক্রস).....8 (৮) Sahiwal (শাহিওয়াল).....9 (৯) Sahiwal crosse (শাহিওয়াল ক্রস)..10 (১০) Munshiganj (মুন্সীগঞ্জ).....11 (১১) Red Chittagong (রেড চিটাগাং).....12 (১২) Pabna breed (পাবনা জাত) .....13 (১৩) Others (cow) [অন্যান্য (গরু)]..... 14 (১৪)	Buffalo Local (মহিষ দেশী)..... 15 (১৫) Buffalo (crossbreed) [মহিষ (ক্রস ব্রিড)]..16 (১৬) Buffalo (Nilli-Ravi) [মহিষ (নীলী-রাভি...17 (১৭) Buffalo (Murrah) [মহিষ (মুররাহ)]... .. 18 Others (specify) [অন্যান্য (উল্লেখ করুন)]... 19

4.2a. What was the amount of total milk sold last year (liter) [গত বছর কি পরিমান দুধ বিক্রি করেছেন (লিটার)]? _____

4.2b. What was the average price of milk/ liter last year (গত বছর দুধের গড়ে দাম কত ছিল (টাকা/লিটার)? _____

4.3a What was the total number of bulls sold last year [গত বছর কতটি ষাঁড় বিক্রি করেছেন]? _____

4.3b. Average live weight of sold bull (Kg) [বিক্রিত ষাঁড় এর গড় ওজন (কেজি)]_____

4.3c. Estimated average price of sold bull (Tk) [বিক্রিত ষাঁড় এর গড় দাম কত ছিল]?

4.5a. Did you produce any processed milk /milk product last year (আপনি কি গত বছর প্রক্রিয়াজাত দুগ্ধ / দুগ্ধজাত কোনো পণ্য প্রস্তুত করেছেন)?

i. Yes (হ্যাঁ) ii. No (না)

4.5b If yes, please provide the dairy product details produced last year (যদি করে থাকেন তবে গত বছর প্রস্তুতকৃত দুগ্ধজাত পণ্যের তথ্য দিন)

Sl no. (ক্রমিক নং)	Description (বিবরণ)	Unit (একক)	Quantity produced (উৎপাদনের পরিমান)	Quantity sold (বিক্রির পরিমান)	Price per unit (টাকা / একক)
1	Pasteurized milk (পাস্তুরিত দুধ)	liter (লিটার)			
2	Cream (ক্রিম)	Kg (কেজি)			
3	Ghee (ঘি)	Kg (কেজি)			
4	Cheese (পনির)	Kg (কেজি)			
5	Yoghurt (মিষ্টি দই)	Kg (কেজি)			
6	Sweetmeats (মিষ্টি)	Kg (কেজি)			
7	Butter (মাখন)	Kg (কেজি)			
8	Chana (ছানা)	Kg (কেজি)			
9	Whey (ঘোল)	Kg (কেজি)			
10	Others (specify) [অন্যান্য (উল্লেখ করুন)]				

Section 5. Housesholds nutrition awareness related information (অংশ 5: খামারির পরিবারে পুষ্টি সচেতনতা সম্পর্কিত তথ্য**)**

5.1 Did any member of your household receive any nutrition awareness information last year? (আপনার পরিবারের কেউ কি গত বছর পুষ্টি সচেতনতা সম্পর্কিত কোনো তথ্য পেয়েছেন?)

i. Yes (হ্যাঁ) ii. No (না)

5.2 If yes, what was the source? যদি পেয়ে থাকেন তবে কথা থেকে পেয়েছেন?

i. Training (প্রশিক্ষণ) ii. SMS (এস এম এস), iii. TV (টেলিভিশন), iv. Bill Board (বিল বোর্ড) v. Online media (অনলাইন মাধ্যম) vi. Exhivision (প্রদর্শনী) vii. Milk day (দুগ্ধ দিবস) viii. Community radio (কমিউনিটি রেডিও) ix) Others___ specify [অন্যান্য (উল্লেখ করুন)]

5.3 If yes, how many members of your family including you receive this information (যদি পেয়ে থাকেন তবে আপনি অথবা আপনার পরিবারের কতজন সদস্য এই তথ্য পান?)

Section 6: Market Access (অংশ ৬: বাজারে প্রবেশ)

During last 1 year, October 1, 2020, to September 30, 2021. (গত ১ বছর, ১ অক্টোবর ২০২০ থেকে ৩০ সেপ্টেম্বর ২০২১) ।

SL	Marketing options (বিপণনের বিকল্পগুলো)	Response (উত্তর)		
6.1	To whom do you mainly sell your milk? (আপনি প্রধানত কার কাছে দুধ বিক্রি করেন?)	i) To consumer (সরাসরি গ্রাহকের নিকট) ii) To sweet manufacturers [ময়রাদের কাছে (যে মিস্টি বানায়)]/Local manufacturers and processors (স্থানীয় প্রক্রিয়াজাতকারী) iii) LDDP supported VMCC (এলডিডিপি এর সহযোগিতায় চালিত ভিএমসিসিতে) iv) VMCC which is not supported by LDDP (অন্যান্য ভিএমসিসি) v) Formal processing company (আনুষ্ঠানিক প্রক্রিয়াজাতকারী সংস্থা)	vi) Milk trader (দুধ ব্যাবসায়ী) vii) Online (অনলাইন) viii) To lender to repay loan (ঋণ পরিশোধ করার জন্য ঋণদাতার কাছে) ix) Sale to call center (কল সেন্টার এর কাছে) x) Others___ specify [অন্যান্য (উল্লেখ করুন)] xi) Did not sale (বিক্রি করা হয় নাই)	
6.2	Where do you mainly sell your milk? (আপনি প্রধানত কোথায় দুধ বিক্রি করেন?)	i) Farm gate (নিজ-খামার হতে) ii) Sale within the village (নিজ গ্রামেই বিক্রি) iii) Local market (স্থানীয় বাজার) iv) Urban market (শহরের বাজারে বিক্রি)	v) At buyers' place (ক্রেতার বাসায় পৌঁছে দেয়া) vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]	
6.3a	Do you transport milk (আপনি কি দুধ বিক্রির জন্য পরিবহন করেন)?	Yes (হ্যাঁ)	No (না)	
6.3b	If yes, what is the main mode of transport? (যদি করেন তবে পরিবহনের প্রধান মাধ্যম কী)?	i) Bicycle/Motorcycle (সাইকেল/মোটরসাইকেল) ii) Rikshaw/Van (রিকশা / ভ্যান) iii) Auto (battery/engine vehicle) [অটো (ব্যাটারি / ইঞ্জিনের গাড়ি)]	iv) Boat (নৌকা) v) On foot (পায়ে হেঁটে) vi) Others____ (specify) [অন্যান্য (উল্লেখ করুন)]	
6.3c	How long do you wait before transport of milk for sale after milking (দুধ দোহনের পর বিক্রির জন্য পরিবহনের ক্ষেত্রে কতক্ষন অপেক্ষা করেন)?	_____ Hours (ঘন্টা)		
6.4	How many times milk spoilage during transportation and when? [পরিবহন এর সময় কতবার দুধ নষ্ট হয় এবং কখন?]	Summer (গ্রীষ্মকাল)------%	Winter (শীতকাল)--------%	Not at all (একদমই না)
6.5	What is the off-farm feed sources (Roughage & Concentrate)? [নিজ-খামার বর্হিভূত খাদ্য-উৎস্য (ঘাস/খড় ও দানাদার) গুলো কি কি?	i) Local retailers (স্থানীয় খুচরা বিক্রেতা) ii) Wholesalers (পাইকারী বিক্রেতা) iii) Local feed mixers (স্থানীয় ফিড মিক্সার) iv) Feed company (ফিড কোম্পানি) v) Others (specify) [অন্যান্য (উল্লেখ করুন)] vi) Do not use (ব্যবহার করা হয় না)		
6.6	Who usually go to the market for buying feed/selling milk/milk product? (পশুখাদ্য কিনতে বা দুধ / দুগ্ধজাত পণ্য বিক্রি করতে কে বাজারে যায়?)	Male (পুরুষ) Female (মহিলা) Transgender (ট্রান্সজেন্ডার)		

6.7a	Do you face any social obstacles in selling or buying feed/selling milk/milk product due to gender? (পশুখাদ্য ক্রয় বা দুধ /দুগ্ধজাত পণ্য বিক্রয়ে পুরুষ/মহিলা হিসেবে আপনি কি কোনও সামাজিক বাধার সম্মুখীন হন?)	Yes (হ্যাঁ)	No (না)
6.7b	1.6 If yes, what specific social obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের সামাজিক বাধার সম্মুখীন হন?)	i. Restriction from family member (পরিবারের সদস্য থেকে নিষেধাজ্ঞা) ii. Religious barrier (ধর্মীয় বাধা) iii. Mobility is restricted (চলাফেরা সীমাবদ্ধ) iv. Abusive word from the neighbor (প্রতিবেশীদের কাছ থেকে কটু কথা) v. Road safety during transportation (পরিবহনের সময় সড়ক নিরাপত্তার অভাব) vi. Insensitive behavior of the service provider (সেবা প্রদানকারীর অসংবেদনশীল আচরণের অভাবের কারণে নিরুৎসাহিত) vii. I am not interested to go to the market (আমি বাজারে যেতে আগ্রহী নই)	

Section 7: Disease management (অংশ ৭: রোগ ব্যবস্থাপনা)

Disease name (রোগের নাম)	Did your livestock face this disease during last 12 months' period? (আপনার খামারের গবাদিপশুর গত ১২ মাসে নিচের কোন রোগ হয়েছিল)?		If yes, how many livestock had been affected (যদি হয়ে থাকে তবে কতগুলো গবাদিপশুর হয়েছিল)?	Did you apply any vaccine for this disease? (আপনি কি এই রোগের জন্য কোনো টিকা দিয়েছেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) iii. Not at all (কখনো দেয়া হয়নি)			Did you apply any treatment for this disease? (আপনি কি এই রোগের জন্য কোনো চিকিৎসা করিয়েছেন)?		Did your animal die last year for this disease? (গতবছর এই রোগে কি কোনো গবাদিপশু মারা গিয়েছিলো?)		If died, how many? (যদি মারা গিয়ে থাকে তাহলে কতগুলো)?
7.1 Contagious and infectious (ছোঁয়াচে এবং সংক্রামক)											
i)FMD (এফএমডি/ক্ষুরা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Mastitis (ওলান প্রদাহ/ওলান ফোলা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii) Lumpy Skin Disease (গলদ চর্মরোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iv) Anthrax (অ্যানথ্রাক্স/তড়কা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
v) Black Quarters (ব্ল্যাক কোয়ার্টারস/ বাদলা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vi) Bovine Tuberculosis (বোভাইন যক্ষ্মা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vii) Hemorrhagic Septicaemia (হেমোরেজিক সেপ্টিকেইমিয়া/ গলাফোলা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

viii) Calf Diarrhea (বাছুরের ডায়রিয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.2 Reproductive (প্রজনন সংশ্লিষ্ট)											
i)Repeat-Breeding (পুনঃ প্রজনন)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii)Metritis (জরায়ু প্রদাহ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii) Retained placenta (গর্ভ ফুল আটকানো /রিটেন্ড প্লাসেন্টা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iv) Anoestrous (গরম না হওয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
v) Abortion (গর্ভপাত হওয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vi) Dystocia (প্রসবকালীন বাচ্চা আটকে যাওয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vii) Uterian prolapse **(জরায়ু বের হয়ে যাওয়া)**	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
viii) Infertile cow (অনুর্বর গাভী)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ix) Infertile Heifer (অনুর্বর বকনা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
x) Calf death during delivery (প্রসবের সময়েই বাছুর মারা যায়)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.3 Metabolic and others (বিপাকীয় ও অন্যান্য রোগ)											
i) Milk Fever **(দুধজ্বর)**	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Ketosis (কেটোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii) Acidosis **(অ্যাসিডোসিস)**	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iv) Bloat (পেট ফাঁপা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
v) Poisoning **(বিষক্রিয়া)**	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vi) Respiratory related complication (শ্বাসকষ্ট জনিত জটিলতা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.4 Others অন্যান্য											
i)Affected by worms (কৃমি দ্বারা আক্রান্ত হওয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Rabies (জলাতঙ্ক)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii)Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

Section 8: Feed production and management (অংশ ৮: পশুখাদ্য উৎপাদন এবং ব্যবস্থাপনা)

8.1 Do you cultivate green grass (আপনি কি সবুজ ঘাস চাষ করেন)?

i) Yes (হ্যাঁ) ii) No (না)

8.2 If yes, Provide information below (যদি করেন তবে নিম্নের তথ্যগুলো প্রদান করুন)

SL no. (ক্রমিক নং)	Type of land (জমির প্রকার)	Area (decimal) [পরিমান (শতাংশ)]	Type of grass (ঘাসের প্রকার) Nepier (নেপিয়ার)/pakchun (পাকচুঁন) ii) German (জার্মান) iii) Maiz (ভুট্টা) iv) Kesheri (খেসারী) v) Hydroponic grass (হাইড্রোপনিক ঘাস) vi) Others (অন্যান্য)	During last one year (গত এক বছরে)			
				Production (Kg) [উৎপাদন (কেজি)]	On farm consumption (নিজ খামারে খাওয়ানো (কেজি))	Sell (বিক্রি)	
						Quantity (কেজি)]	Total value (Tk) মোট মূল্য (টাকা)
1	Homestead land (বসতভিটা)						
2	Fallow land (পতিত জমি)						
3	Leased/mortgaged in land (বন্দক নেয়া বা বর্গা নেয়া জমি)						
4	Own cultivable land (নিজস্য চাষযোগ্য জমি)						

8.3 Feeding Practices (পশুখাদ্য খাওয়ানো)

Item (তালিকা)	Used from On-farm (নিজ-খামার)	Used from off-Farm (নিজ-খামার বর্হিভুত)
Name (নাম)	Qty (Kg)/day (পরিমাণ (কেজি) / দিন)	Qty (Kg)/day (পরিমাণ (কেজি) / দিন)
8.3a	8.3b	8.3c
a) Roughage (খড়)		
i) Straw (Paddy/Wheat) (ধান / গমের খড়)		
ii) Green fodder (Nepier/Pakchun, German, Maiz, Kheshari, Hydroponic grass, local grass) (নেপিয়ার/ পাকচুঁন, জার্মান, ভুট্টা , খেসারী, হাইড্রোপনিক ঘাস, স্থানীয় সবুজ ঘাস)		
iii) Hay (শুকনো ঘাস)		
iv) Silage (সাইলেজ)		
v) UMS (ইউএমএস)		
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
b) Grains (শস্য)		
i) Corn (ভূট্টা)		
ii) Wheat (গম)		
iii) Brans (ভুষি)		

iv) Rice/ Broken rice (চাল/খুদ)		
v) Khesari (খেসারী)		
vi) Masur (মসুর)		
vii) Gram (কলাই)		
viii) Mashkalai (মাশকালাই)		
ix) Dubli (ডাবলি)		
x) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
c) Oil cake & Meals (খৈল এবং খাবার)		
i) Soyabean meal (সয়াবিনের খৈল)		
ii) Sesame oil cake (তিলের খৈল)		
iii) Mustard Oil cake (সরিষার খৈল)		
iv) Coconut oil cake (নারকেল খৈল)		
v) Sunflower oil cake (সূর্যমুখীর খৈল)		
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
d) Commercial ready feed (বাজারে প্রস্তুতকৃত পশুখাদ্য)		
e) Minerals and Vitamins (খনিজ ও ভিটামিন)		
i) DCP (ডিসিপি)		
ii) Common salt (সাধারণ লবণ)		
iii) Limestone powder (চুনের গুঁড়া)		
iv) Rock Salt (খনিজ লবণ)		
v) Premix minerals & vitamins (প্রস্তুতকৃত খনিজ ও ভিটামিন)		
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
f) Molasses (গুড়)		
g) Urea (ইউরিয়া)		
h) UMMB (ইউ এম এম বি)		
i) UMB ((ইউ এম বি)		
j) Others (specify) [অন্যান্য (উল্লেখ করুন)]		

Section 9: Production cost (অংশ ৯: উৎপাদন খরচ)

9a Operating/recurring cost (৯ক পরিচালনা / নির্বাহী খরচ)

SL	Item name (তালিকা)	Response (উত্তর)				
9a.1	How much feed cost incurred during last year? (গতবছর পশুখাদ্য বাবদ আপনার কত খরচ হয়েছিল?)	Tk. (টাকা)				
9a.2	How many family labour hours per day did you use for dairy farming? [দুগ্ধজাত গবাদি পশুপালনে প্রতিদিন নিজ-পরিবার হতে কত ঘন্টা সময় দেন?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years) (যুবক) (১৫- ২৪ বছর)]:	Young girls (aged 15-24 years) [যুবতী (১৫- ২৪ বছর)]:	Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.3	How many hired labour per day did you use for dairy farming? [দুগ্ধজাত গবাদিপশু পালনে প্রতিদিন মুজুরীর বিনিময়ে কত শ্রমঘণ্টা ব্যবহার করেন?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years) (যুবক) (১৫- ২৪ বছর)]:	Young girls (aged 15-24 years) [যুবতী (১৫- ২৪ বছর)]:	Not at all (একেবারেই ব্যবহার করা হয়নি)

9a.4	What is the average wage rate of labour? (শ্রমিকদের দৈনিক গড় মজুরি কত ছিলো?)	Male labour (পুরুষ শ্রমিক) Tk/day (টাকা/দিন)	Female labour (মহিলা শ্রমিক) Tk/day (টাকা/দিন)	Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.5	How much cost incurred for input and output transport during last year? (গতবছর উৎপাদন এবং উপকরণ পরিবহন বাবদ ব্যয় কত ছিল?)	Tk. (টাকা)		
9.a6	How much breeding cost incurred during last year? (গত বছর প্রজনন বাবদ কত খরচ হয়েছিলো?)	Tk. (টাকা)		
9a.7	How much veterinary cost (treatment, vaccination, deworming) incurred during last year? (গত বছর পশুচিকিৎসা (চিকিৎসা, ভ্যাকসিনেশন, কৃমিনাশক প্রয়োগ) বাবদ ব্যয় কত ছিল)?	Tk. (টাকা)		
9a.8	How much was the utility (electricity, moskuito coil, net, etc.) and other costs during last one year (গত বছরের উপযোগ (বিদ্যুৎ, মশারি, মশার কয়েল ইত্যাদি) এবং অন্যানো খরচ)	Tk. (টাকা)		
9a.9	How much cost incurred for rental house per month (ভাড়াকৃত ঘরের জন্য প্রতি মাসে কত খরচ হয়েছিলো)	Tk. (টাকা)		

9b. Investment cost (বিনিয়োগ খরচ)

Item (তালিকা)	Investment cost (Tk.) [বিনিয়োগ খরচ (টাকা)]	Lifespan (years) [টেকসইকাল (বছর)]	Salvage value (Tk.) [অবশিষ্ট মান (টাকা)]
9b.1 Cattle house (গবাদিপশুর ঘর)			
9b.2 Generator/IPS (জেনারেটর/আইপিএস)			
9b.3 Water pump (পানির পাম্প)			
9b.4 Electric fan (বৈদ্যুতিক পাখা)			
9b.5 Other farm machineries (অন্যান্য খামার যন্ত্রপাতি)			

Section 10: Food safety and certification [অংশ ১০ (খাদ্য নিরাপদতা এবং সনদপত্র)]

Criteria (মানদন্ড)	Response (উত্তর)		
10.1 Do you wash your hand before entering the farm? (আপনি কি খামারে প্রবেশের আগে হাত ধোয়ে থাকেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.2 Do you use foot bath containing disinfectant at the entrance of the farm? (আপনি কি খামারের প্রবেশদ্বারে জীবাণুমুক্তকারক দিয়ে পা ভিজিয়ে খামারের প্রবেশ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.3 Do you control visitor/other animal, bird and pest access in the farm? (আপনি কি খামারে দর্শনার্থীদের এবং খামার বহির্ভুত পশু-পাখি ও কীটপতঙ্গ প্রবেশ নিয়ন্ত্রণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.4 Do you monitor and maintain records for the above mentioned activities? (আপনি কি উপরোল্লিখিত কার্যাবলী নিয়মিত তদারকি এবং এর তথ্য সংরক্ষণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.5 Do you keep record of parent's information, treatment, vaccination and AI information for each farm animal? {আপনি কি খামারের প্রতিটি	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)

গবাদিপশুর পিতামাতার তথ্য, চিকিৎসা, টিকা এবং এআই এর তথ্য নিয়মিত লিপিবদ্ধ করেন?)}			
10.6 Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your livestock feed regularly? (আপনি কি নিয়মিত পশুখাদ্যের গুণগত মান (পুষ্টির উপাদান) এবং নিরাপদতা (অ্যান্টিবায়োটিক, ভারী ধাতু, কীটনাশকের অবশিষ্টাংশ, অণুজীব দূষক) পরীক্ষা করান?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.7 If yes, where did you test? (যদি করে থাকেন, তাহলে কোথা থেকে পরীক্ষা করান?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other Public labs (অন্যান্য পাবলিক পরীক্ষাগার) iii) Private Feed testing lab (বেসরকারী পশুখাদ্য পরীক্ষাগার) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.8 Have you ever seen any cattle/buffalo disease incidence for unsafe feed? (অনিরাপদ পশুখাদ্যের কারণে আপনার খামারে কি কখনো কোনও রোগের প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.9 From which source you collect farm animal's drinking water? (কোন উৎস থেকে আপনি গোবাদিপশুর খাবার পানি সংগ্রহ করেন?)	1. Tube Well water (টিউবয়েলের পানি) 2. Pond/Cannel water (পুকুরের/ খালের পানি) 3. Supply/ Tap water (সাপ্লাই / টেপের পানি) 4. Filtered water (পরিশোধিত পানি) 5. Shallow tube well/electric pump (অগভীর নলকূপ/বৈদ্যুতিক পাম্প) 6. Others (Specify) (অন্যান্য উল্লেখ করুন)		
10.10 Do you transport animal with animal comfort? (আপনি কি গবাদিপশু আরামদায়কভাবে পরিবহন করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.11 Do you test mastitis of milking cow regularly? (আপনি কি নিয়মিত দুগ্ধবতী গাভীর ওলান ফোলা, পরীক্ষা করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.12 Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use? (দুধ দোহনের আগে এবং পরে দুধের সরঞ্জামাদি কি নিরাপদ পানি দিয়ে সঠিকভাবে পরিষ্কার এবং জীবাণুনাশক দ্বারা জীবাণুমুক্ত করা হয়?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.13 Do you wash your hand, clean and disinfectant milking cow's udder before milking? (আপনি কি দুধ দোহনের পূর্বে আপনার হাত ও দুধের গাভীর ওলান জীবাণুনাশক সাবান দিয়ে পরিষ্কার করে নেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.14 Do you keep milk in cleaned covered pan on height to prevent urine and cow dung cross contamination into the milk? (আপনি কি দুধে প্রস্রাব এবং গোবরের পারস্পরিক দূষণ রোধ করতে দুধ দোহনের পর ঢাকনাযুক্ত পরিষ্কার পাত্রে উঁচু স্থানে দুধ সংরক্ষণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.15 Do you preserve milk below 5^0 C (cool temperature) after milking? (আপনি কি গরুর দুধ দোহনের পরে পাঁচ ডিগ্রি সেলসিয়াস তাপমাত্রার নিচে (শীতল তাপমাত্রা) দুধ সংরক্ষণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.16 Do you transport and sell milk by maintaining cool chain below 5^0 C? milk before marketing? (আপনি কি পাঁচ ডিগ্রি সেলসিয়াস তাপমাত্রার নিচে (শীতল তাপমাত্রা) বজায় রেখে দুধ পরিবহন এবং বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.17 Do you use any preservatives to prevent milk spoilage before marketing? (আপনি কি বিপণনের আগে দুধের পঁচন রোধ করতে কোনও প্রিজারভেটিভস ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.18 Have you ever seen any disease incident from farm animal to farm worker or vise versa? (আপনি কি কখনও খামারের গবাদিপশু থেকে খামার কর্মী বা খামার কর্মী থেকে খামারের গবাদিপশুতে কোনও রোগের প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.19 Do you perform regular health check-up of animals and farm workers (TB, Jaundice, Brucellosis etc.)? [আপনার খামারে কি গবাদি পশু এবং কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষা করেন (যেমন যক্ষা, ব্রুসেলোসিস, জন্ডিস, ইত্যাদি)?]	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)

10.20 Do you keep records of health check-up of animals and farm workers (TB, Brucellosis, etc)? (আপনি কি গবাদিপশু এবং কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষার তথ্য সংরক্ষণ করেন (যেমন যক্ষা, ব্রুসেলোসিস, জন্ডিস ইত্যাদি)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.21 Do you use antibiotics or added growth hormones in animal feed? (আপনি কি গবাদিপশুর খাদ্যে অ্যান্টিবায়োটিক বা হরমোন ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.22 Have you ever seen any disease/illness incidence of customer for your farm's milk/milk products? (আপনি কি আপনার খামারের দুধ ও দুগ্ধজাত পণ্যের জন্য ভোক্তাদের মধ্যে কোন রোগের/ অসুস্থতার প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.23 Do you test quality (Fat%, SNF) and food safety (microbial count, antibiotics, and heavy metals) parameters of your farm's milk and milk products? {আপনি কি দুধ এবং দুগ্ধজাত পণ্যের গুণগত (ফ্যাট %, এসএনএফ%) এবং নিরাপদতার (অণুজীব দুষক, এন্টিবায়োটিক ও ভারী ধাতু) মান পরীক্ষা করান?}	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.24 If yes, where did you test? (যদি করে থাকেন, তাহলে কোথা থেকে পরীক্ষা করান?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other Public labs (অন্যান্য পাবলিক পরীক্ষাগার) iii) Private Veterinary diagnostic lab (বেসরকারী ভেটেরিনারি পরীক্ষাগার) iv) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
10.25 Have your cow's milk ever rejected from the buyer? (আপনার গরুর দুধ কি কখনও ক্রেতার কাছ থেকে প্রত্যাখ্যাত হয়েছে?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.26 If yes, for what reason? (যদি হয়ে থাকে, তবে কোন কারণে প্রত্যাখ্যাত হয়েছে?)	Milk Spoilage (দুধের পঁচন) Antibiotic (অ্যান্টিবায়োটিক) Heavy metal (ভারী ধাতু) Preservatives (প্রিজারভেটিভ)		
10.27 Do you sell diseased (Mastitis, Tuberculosis, Jaundice, Brucellosis, etc.) cow's milk? (আপনি কি ওলান ফোলা, যক্ষা, জন্ডিস, ব্রুসেলোসিস ইত্যাদি রোগ দ্বারা আক্রান্ত গাভীর দুধ বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.28 Do you sell under treatment cow's milk with antibiotics, hormone and steroid? (আপনি কি এন্টিবায়োটিক, হরমোন, স্টেরয়েড দ্বারা চিকিৎসাধীন গাভীর দুধ বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.29 Do you maintain withdrawal period of antibiotic/hormone? (আপনি কি দুধ বিক্রির ক্ষেত্রে এন্টিবায়োটিক/হরমোন দিয়ে চিকিৎসার পর ড্রাগ প্রত্যাহারের সময়কাল মেনে চলেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.30 Do you test any milk safety parameters (e.g. microbiological, antibiotic, heavy metals) before sale? (আপনি কি বিক্রির আগে দুধের নিরাপদতার (যেমন, অণুজীব দূষণ, এন্টিবায়োটিক,ভারী ধাতু)মান পরীক্ষা করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.31 If yes, from where you test? (যদি করেন, তাহলে আপনি কোথা থেকে এই পরীক্ষা করেন?)	i) Collection Centre BSTI (বিএসটিআই) ii) DLS/BLRI (ডিএলএস / বিএলআরআই) iii) Other govt. authority (অন্যান্য সরকারী কর্তৃপক্ষ) iv) Private Veterinary diagnostic lab (বেসরকারী ভেটেরিনারি পরীক্ষাগার) v) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
10.32 Do you use any label/brand for your cow's milk? (আপনি কি আপনার খামারের দুধের জন্য কোন লেবেল / ব্র্যান্ড ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.33 If yes, from where you get this label/brand certification? (যদি করেন, তাহলে আপনি কোথায় থেকে এই লেবেল / ব্র্যান্ডের সার্টিফিকেশন পান?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other govt authority (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private authority (বেসরকারী কর্তৃপক্ষ) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.34 Did you receive any information related to food safety (আপনি কি খাদ্য নিরাপদতা সম্পর্কিত কোনো তথ্য পেয়েছেন)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.35 If yes, by which means (যদি পেয়ে থাকেন তবে কিভাবে)?	i)Training (প্রশিক্ষণ)		

	ii)Mobile app (মোবাইল আপ্লস) iii)SMS (এস এম এস) iv) Community Radio (কমিউনিটি রেডিও) iv) TV (টেলিভিশন) v) Online media (অনলাইন মাধ্যম) vi) Exhivision (প্রদর্শনী) vii) Community Radio (কমিউনিটি রেডিও) viii) Others (specify) [অন্যান্য (উল্লেখ করুন)]

Section 11: Technology and practices (অংশ ১১: প্রযুক্তি ও অনুশীলন)

Q. no. (প্রশ্ন নং)	Items (বিষয়)	Do you follow the following technology or practices in your farm? (আপনি কি আপনার খামারে নিম্নের প্রযুক্তি ও পদ্ধতি ব্যবহার করেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) iii. Not at all (কখনো দেয়া হয়নি)	If yes, from where did you know about this technology/practice? (যদি করে থাকেন, তবে আপনি কোথা থেকে এই প্রযুক্তি /পদ্ধতি সম্পর্কে জানতে পেরেছেন)? 1.DLS (ডিএলএস)/LDDP 2.BLRI (বিএলআরআই) 3.University (বিশ্ববিদ্যালয়) 4.Abroad (বিদেশ) 5.Own (নিজস্ব) 6.Friends (বন্ধুবান্ধব) 7.Online media/mass media (অনলাইন / গণমাধ্যম) 8.Private sector/NGO (বেসরকারী খাত / এনজিও) 9 Others_(specify) [অন্যান্য (উল্লেখ করুন)]	Is this technology/parcice women friendly (এই প্রযুক্তি/ পদ্ধতিটি কি মহিলাবান্ধব)?	
11.1	Artificial insemination (কৃত্রিম প্রজনন)			Yes (হ্যাঁ)	No (না)
11.2	Ration balancing (রেশন ভারসাম্যকরণ)			Yes (হ্যাঁ)	No (না)
11.3	Total Mixed Ration (রেশন মিশ্রন)			Yes (হ্যাঁ)	No (না)
11.4	Calf winning pan (বাছুরকে খাঁচায় আলাদা করে রাখা)			Yes (হ্যাঁ)	No (না)
11.5	Milk replacer for calf (বাছুরকে দুধের পরিবর্তে অন্য বিকল্প খাবার খাওয়ানো)			Yes (হ্যাঁ)	No (না)
11.6	Improved fodder production (উন্নত ঘাস উৎপাদন)			Yes (হ্যাঁ)	No (না)
11.7	Silage making (সাইলেজ প্রস্তুতকরণ)			Yes (হ্যাঁ)	No (না)
11.8	UMS (ইউ এম এস)			Yes (হ্যাঁ)	No (না)
11.9	UMMB (ইউ এম এম বি)/ UMB ((ইউ এম বি)			Yes (হ্যাঁ)	No (না)
11.10	Floor feeding (মেঝেতে ছড়িয়ে খাওয়ানো)			Yes (হ্যাঁ)	No (না)
11.11	Hydroponic fodder production (k)			Yes (হ্যাঁ)	No (না)
11.12	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging			Yes (হ্যাঁ)	No (না)

	(জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)				
11.13	Machine milking (মেশিন দিয়ে দুধ দোয়ানো)			Yes (হ্যাঁ)	No (না)
11.14	Milk processing technology eg. Cream separator/ cheese/ yogurt/ ghee flavored milk,/and pasteurized milk etc (দুধ প্রক্রিয়াজাতকরণ প্রযুক্তি, যেমন, ক্রীম/ চীজ/ দই/ ঘি/ ফ্লেভার্ড দুধ/ পা পাস্তুরিত দুধ ইত্যাদি)			Yes (হ্যাঁ)	No (না)
11.15	Early pregnancy diagnosis tool (গর্ভাবস্থার প্রাথমিক অবস্থায় সনাক্তকরণ)			Yes (হ্যাঁ)	No (না)
11.16	Manure management like Biogas, composting pit (গোবর /ম্যানউর ব্যবস্থাপনা, যেমন, বায়োগ্যাস, জৈবসার এর পিট, ইত্যাদি)			Yes (হ্যাঁ)	No (না)
11.16a) Do you have access to climate resilient manure entrepreneurs (আপনার কি জলবায়ু সহিষ্ণু ম্যানুয়ারে উদ্যোক্তাদের কাছে প্রবেশাধিকারের সুযোগ আছে?) i. Yes (হ্যাঁ) ii. No (না)					
11.17	Waste management (বর্জ্য ব্যবস্থাপনা)				
11.18	Routine deworming (নিয়মিত কৃমিনাশক প্রয়োগ)			Yes (হ্যাঁ)	No (না)
11.19	Routine vaccination (নিয়মিত টিকাদান)				
11.20	Improved udder management (উন্নত উপায়ে ওলান ব্যাবস্থাপনা)			Yes (হ্যাঁ)	No (না)
11.21	Animal Identification (পশু সনাক্তকরণ)			Yes (হ্যাঁ)	No (না)
11.22	Others (specify) [অন্যান্য (উল্লেখ করুন)]			Yes (হ্যাঁ)	No (না)

Section 12: Capacity enhancement (অংশ ১২: সক্ষমতা বৃদ্ধি)

Q. no. (প্রশ্ন নং)	Items (বিষয়)	Did you receive any training? (আপনি কি কোন প্রশিক্ষণ পেয়েছেন?)		If yes, from where did you get this training? (যদি নিয়ে থাকেন, তবে আপনি কোথা থেকে এই প্রশিক্ষণ পেয়েছেন?) LDDP.....1 (এলডিডিপি) Private sector...2 (বেসরকারী খাত) NGO.....3 (এনজিও) Others_(specify).....4 [অন্যান্য (উল্লেখ করুন)]
12.1	Artificial insemination (কৃত্রিম প্রজনন)	Yes (হ্যাঁ)	No (না)	
12.2	Ration balancing (রেশন ভারসাম্যকরণ)	Yes (হ্যাঁ)	No (না)	
12.3	Total Mixed Ration (রেশন মিশ্রন)	Yes (হ্যাঁ)	No (না)	
12.4	Calf winning pan (বাছুরকে খাঁচায় আলাদা করে রাখা)	Yes (হ্যাঁ)	No (না)	

12.5	Milk replacer for claf (বাছুরকে দুধের পরিবর্তে অন্য বিকল্প খাবার খাওয়ানো)	Yes (হ্যাঁ)	No (না)	
12.6	Improved fodder production (উন্নত ঘাস উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.7	Silage making (সাইলেজ প্রস্তুতকরণ)	Yes (হ্যাঁ)	No (না)	
12.8	UMS (ইউ এম এস)	Yes (হ্যাঁ)	No (না)	
12.9	UMMB (ইউ এম এম বি)/ UMB (ইউ এম বি)	Yes (হ্যাঁ)	No (না)	
12.10	Floor feeding (মেঝেতে ছড়িয়ে খাওয়ানো)	Yes (হ্যাঁ)	No (না)	
12.11	Hydroponic fodder production (হাইড্রোপনিক ঘাস উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.12	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.13	Machine milking (মেশিন দিয়ে দুধ দোয়ানো)	Yes (হ্যাঁ)	No (না)	
12.14	Milk processing technology eg. Cream separator/ cheese/ yogurt/ ghee flavored milk,/and pasteurized milk etc (দুধ প্রক্রিয়াজাতকরণ প্রযুক্তি, যেমন, ক্রীম/ চীজ/ দই/ ঘি/ ফ্লেভার্ড দুধ/ পাস্তুরিত দুধ ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.15	Early pregnancy diagnosis tool (গর্ভাবস্থার প্রাথমিক অবস্থায় সনাক্তকরণ)	Yes (হ্যাঁ)	No (না)	
12.16	Manure and waste management like Biogas, composting pit (গোবর /ম্যানউর এবং বর্জ্য ব্যবস্থাপনা, যেমন, বায়োগ্যাস, জৈবসার এর পিট, ভার্মিকম্পোস্ট, ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.17	Rotinue Deworming (নিয়মিত কৃমিনাশক প্রয়োগ)	Yes (হ্যাঁ)	No (না)	
12.18	Improved udder management (উন্নত উপায়ে ওলান ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)	
12.19	Agribusiness and value chain (কৃষি-ব্যবসা এবং ভ্যালু চেইন)	Yes (হ্যাঁ)	No (না)	
12.19a	Business development skill training including input marketing, supports and financial services (উপকরণ বিপণন, সহায়তা এবং আর্থিক পরিষেবাসহ ব্যবসায়িক উন্নয়ন দক্ষতা বিষয়ক প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.20	Good agricultural practice (উত্তম কৃষি পদ্ধতি)	Yes (হ্যাঁ)	No (না)	
12.21	Food safety (খাদ্য নিরাপদতা)	Yes (হ্যাঁ)	No (না)	
12.22	Climate shock mitigation/adaptation (জলবায়ুর অভিঘাত প্রশমন/উপযোগীকরণ)	Yes (হ্যাঁ)	No (না)	
12.23	Animal Identification (পশুসনাক্তকরণ)	Yes (হ্যাঁ)	No (না)	
12.24	Animal health card and certification (পশুস্বাস্থ্য কার্ড এবং সনদপত্র)	Yes (হ্যাঁ)	No (না)	
12.25	Training on gender equality issues (জেন্ডার সমতা সম্পর্কিত বিষয়)	Yes (হ্যাঁ)	No (না)	
12.26	Training on using mobile apps (মোবাইল অ্যাপ ব্যবহারের প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.27	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)	

12.26a Did you receive any asset from LDDP/DLS to start/continue your livestock business (আপনি কি আপনার গবাদিপশু ব্যবসা শুরু করতে /চালিয়ে যেতে LDDP/DLS থেকে কোনো সম্পদ পেয়েছেন?)

i. Yes (হ্যাঁ) ii. No (না)

12.26b If yes, what kind of asset did you receive (যদি পেয়ে থাকেন তবে কি ধরণের সম্পদ পেয়েছেন)?

i) Livestock house (গবাদিপশুর আবাসন),

ii) Utensiles like bucket, spade, etc. (বালতি, কোদাল, বেলচা ইত্যাদি)

iii) Cream separator (ক্রিম আলাদাকরণ যন্ত্র)

iv) Feed mixure machine (খাদ্য মিশ্রণ যন্ত্র)

v) Hyginic cleaning tools (স্বাস্থ্যকরভাবে পরিষ্কার করার যন্ত্র)

vi) Roughage shredder machine (রাফেজ শ্রেডার মেশিন)

vii) Grass chopper machine (ঘাস কাটার মেশিন)

viii) Live animal / Bird (জীবন্ত পশু/ পাখি)

ix) Cash incentive (আর্থিক অনুদান)

x) Feed (পশুখাদ্য)

xi) Others (specify) [অন্যান্য (উল্লেখ করুন)]

Section 13: Housing and management (অংশ ১৩: আবাসন ও ব্যবস্থাপনা)

Question number (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
13.1	What type of house do you mainly use for your livestock? (আপনি আপনার গবাদিপশুর জন্য প্রধানত কোন ধরণের ঘর ব্যবহার করেন?)	1. Single row permanent made with brick (floor) and tin (roof) (পাকা ফ্লোর এবং টিনের চাল/ছাদ দেয়া একক সারির স্থায়ী ঘর) .....1 (১) 2. Double row permanent made with brick or tin (পাকা ফ্লোর এবং টিনের চাল/ছাদ দেয়া দুই সারির স্থায়ী ঘর).....2 (২) 3. Single row make-shift (শিফট ভিত্তিক একক সারির স্থায়ীঘর).....3 (৩) 4. Double row make shift (শিফট ভিত্তিক দুই সারির স্থায়ী ঘর).....4 (৪) 5. Conventional (প্রচলিত কাঁচাঘর).....5 (৫	
13.2	Do you use floor mat for livestock (আপনি কি গবাদিপশুর জন্য ফ্লোর মাদুর ব্যবহার করেন)?	Yes (হ্যাঁ)	No (না)
13.3	Does this huse has electric fan or exaustor fan for cooling (ঘরটি ঠান্ডা রাখার জন্য কি কোনো ইলেকট্রিক ফ্যান অথবা এক্সস্টর ফ্যান ব্যবহার করা হয়)?	Yes (হ্যাঁ)	No (না)
13.4	Does this house have mechanical manure management option? (ঘরটিতে কি যান্ত্রিক ভাবে গোবর /ম্যানউর ব্যবস্থাপনার উপায় রয়েছে?)	Yes (হ্যাঁ)	No (না)
13.5	Does this house have mechanical watering and washing option? (ঘরটিতে কি যান্ত্রিক উপায়ে পানি সরবরাহের ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.6	Does this house covers biosafety plan? (ঘরটিতে কি জীবসুরক্ষা ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.7a	If Yes, then what are those? (যদি হ্যাঁ হয়, তাহলে সেগুলো কি কি?)	**i)** Foot bath (পা জীবাণুমুক্ত করার ব্যবস্থা) ii) Hand wash facility (হাত ধোয়ার ব্যবস্থা) iii) Mosquito net (মশারি)	

		iv) Others (specify) অন্যান্য (উল্লেখ করুন)	
13.7b	Does this house have proper ventilation system? (এই ঘরে কি বায়ু চলাচলের পর্যাপ্ত ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.8	Is there sufficient space for livestock in this house? (এই ঘরে গবাদিপশুর জন্য পর্যাপ্ত জায়গা আছে কি না)?	Yes (হ্যাঁ)	No (না)
13.9	What kind of energy source do you use in this house? (ঘরটিতে কোন ধরণের বিদ্যুৎ ব্যবহার করেন?)	**i)** Electricity (বিদ্যুৎ) ii) Solar energy (সৌরশক্তি) iii) Others (specify) [অন্যান্য (উল্লেখ করুন)] iv). No electricity use (কোনো বিদ্যুৎ ব্যবহার করা হয় না)	
13.10	Do you maintain quarantine & isolation in your farm? (খামারের পশু কোয়ারান্টিন বা পৃথকীকরণ করার ব্যবস্থা আছে কি)?	Yes (হ্যাঁ)	No (না)
13.11	Does utensils and mechineries used int the farm are women friendly (খামারে ব্যবহৃত সরঞ্জামাদি এবং যন্ত্রপাতি কি মহিলাবান্ধব)?	Yes (হ্যাঁ)	No (না)

Section 14: Manure management (অংশ ১৪: গোবর /ম্যানউর ব্যবস্থাপনা)

Q. No. (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
14.1	How much manure did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান গোবর/ম্যানিউর উৎপাদন হয়েছিল)	Kg (কেজি)___	
14.2	How did you mainly process manure? (আপনি প্রধানত কিভাবে গোবর /ম্যানিউর ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1 (১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.3	How much manure you used for crop fertilization? (ফসলে দেওয়ার জন্য আপনি কি পরিমান গোবর/ম্যানিউর সার হিসেবে ব্যবহার করেছিলেন?)	Kg_____/Year_____(কেজি_____/বছর_____)	
14.4	How much waste did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান আবর্জনা উৎপাদন হয়েছিল)	Kg (কেজি)___	
14.5	How did you mainly dispose waste? (আপনি প্রধানত কিভাবে আবর্জনা ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1 (১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.6	Do you face social conflicts due to conventional manure management? (প্রচলিত ম্যানিউর ব্যবস্থাপনায় আপনি কি সামাজিক সমস্যার সম্মুখীন হন?)	Yes (হ্যাঁ)	No (না)
14.7	How do you manage this social conflict? (আপনি এই সামাজিক দ্বন্দকে কিভাবে মোকাবিলা করবেন?)	Follow standard method for manure disposal/process (গোবর/ম্যানিউর ফেলে দেওয়া/প্রক্রিয়াজাতকরণের জন্য মানসম্মত পদ্ধতির অনুসরণ করেন) .....1 (১) Do nothing (কিছুই করেন না) .....2 (২) Others (specify) [অন্যান্য (উল্লেখ করুন)])-----3 (৩)	

Section 15: Climate related risks in dairy (cattle and buffalo) production (অংশ ১৫: {গাভী (গরু এবং মহিষ) উৎপাদনে জলবায়ু জনিত ঝুঁকি সমূহ}

Climate related risks (জলবায়ু জনিত ঝুঁকি)	Did you affect by any of the following risk during last five years? (গত পাঁচ বছরে আপনি কি নিম্নোক্ত কোন ঝুঁকিতে ক্ষতিগ্রস্ত হয়েছিলেন?)		Effect of Climatic risk (জলবায়ু জনিত ঝুঁকির প্রভাব) 1. Output sale interruption (পণ্য বিক্রয়ে ব্যাঘাত ঘটা) 2. Animal death and disease outbreak increase (পশুমৃত্যু এবং রোগের প্রাদুর্ভাব বেড়ে যায়) 3. Scarcity of green grass and concentrate feeds (সবুজ ঘাসের ও দানাদার খাদ্যের ঘাটতি) 4. Damage/destruction to livestock house (পশুর আবাসের ক্ষতি /ধ্বংস) 5. Inadequate input and service (veterinary Treatment, AI, vaccine) (অপর্যাপ্ত কাঁচামাল এবং পরিসেবা (পশুচিকিৎসা সেবা , এ আই , টিকা) 6. Rising of food prices (খাদ্যের দাম বেড়ে যাওয়া) 7. Others (specify) [অন্যান্য উল্লেখ করুন)]	What are the strategy you have taken to address these risks? (এই ঝুঁকিগুলো হ্রাস করার জন্য আপনি কি কি কৌশল অবলম্বন করেছেন?) 1. Use of emergency shelter (গবাদি পশু দের আশ্রয় কেন্দ্রে নিয়ে যাওয়া) 2. Avail Emergency service for rescue and treatment (উদ্ধার ও চিকিৎসার জন্য জরুরী সেবা গ্রহণ) 3. Construct climate resilient farmhouse (জলবায়ু সহিষ্ণু খামারবাড়ি নির্মাণ) 4. Sell dairy cattle/buffalo with very low price (খুব কম দামে দুগ্ধবতী গরু / মহিষ বিক্রি) 5. Receive institutional support from institutions (প্রতিষ্ঠান গুলো থেকে অনুদান সহায়তা পেয়ে থাকেন) 6. Feed alternative low quality and low nutritive values concentrate feed and fodder (বিকল্প এবং নিম্ন মানের দানাদার খাদ্য ও ঘাস খাওয়ান) 7. Get insurance benefit from the insurance company after disaster (দূর্যোগের পরে বীমা সংস্থা থেকে বীমা সুবিধা নিয়ে থাকেন) 8. others (specify) [অন্যান্য (উল্লেখ করুন)] 9. No strategy taken কোন কৌশল নেয়া হয়নি)	
15.1 Flood/flash flood/waterlogging (বন্যা / আকস্মিক বন্যা / জলাবদ্ধতা)	Yes (হ্যাঁ)	No (না)		
15.2 Drought (খরা)	Yes (হ্যাঁ)	No (না)		
15.3 Tornado/Cyclone (টর্নেডো/ ঘূর্ণিঝড়)	Yes (হ্যাঁ)	No (না)		
15.4 Extreme hot weather (প্রচন্ড গরম আবহাওয়া)	Yes (হ্যাঁ)	No (না)		
15.5 Extreme cold weather (প্রচন্ড ঠান্ডা আবহাওয়া)	Yes (হ্যাঁ)	No (না)		
15.6 Excessive rainfall (অতিরিক্ত বৃষ্টিপাত)	Yes (হ্যাঁ)	No (না)		
15. 7 Salinity (লবণাক্ততা)	Yes (হ্যাঁ)	No (না)		
15.8 Other (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)		

Section 16: Digital and physical extension services (অংশ ১৬: ডিজিটাল এবং স্ব-শরীরে সম্প্রসারণ সেবা)

	Item (বিষয়)	Is this service accisible (সেবাগুলো কি অভিগম্য / পাওয়া যায়)?		Who is the service provider? (কে তথ্যগুলো দেয়?) DLS/LDDP.....1 (ডিএলএস) Private Services..2 (বেসরকারি পরিষেবা) Dairy Producer Organizations---3 (ডেইরী পিও) NGOs .....4 (এনজিও) Others (specify) [অন্যান্য (উল্লেখ করুন)]	If available, how would you rate your satisfaction with the services (যদি পাওয়া যায় তবে আপনি সেবাগুলো সম্পর্কে আপনার মন্তব্য কি)? i.Excelent (খুব ভালো) ii. Good (ভালো) iii.Moderate (মোটামুটি) iv) Bad (খারাপ) v. Very bad (খুব খারাপ) vi) Not applicable (প্রযোজ্য নয়)	Is this service gender friendly (for example - Provide the service without making any discrimination- or bias; Provide the service with dignity and respect etc.) এই সেবাগুলো কি (কোন বৈষম্য বা পক্ষপাত না করে সেবা প্রদান; মর্যাদা ও সম্মান ইত্যাদি দিয়ে সেবা প্রদান) মহিলাবান্ধব)?)?
	Name (নাম)	Yes (হ্যাঁ)	No (না)			
16.1	Veterinarian and Consultancy (পশু চিকিৎসক এবং পরামর্শসেবা)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.2	Artificial Insemination (কৃত্রিম প্রজনন)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.3	Vaccination (টিকাদান)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.4	Pregnancy test (গর্ভধারণ পরীক্ষা)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.5	Deworming (কৃমিনাশক প্রয়োগ)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.6	Agro-enterprise development (কৃষি-ব্যবসা উন্নয়ন)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.7	Fodder production, cutting and distribution (ঘাস উৎপাদন, কাটা এবং বিতরণ)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.8	Livestock feeding and management services (গবাদিপশুকে খাওয়ানো এবং ব্যবস্থাপনা সেবা)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.9	Local & global market information (স্থানীয় এবং বিশ্বব্যাপী বাজার সম্পর্কিত তথ্য)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.10	Product and input quality control services (পণ্য এবং কাচাঁমালের মান নিয়ন্ত্রণ সেবা)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)

16.11	Product branding and quality certification (পণ্য ব্র্যান্ডিং এবং গুনগত মানের সার্টিফিকেশন)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.12	Online Database (অনলাইন ভিত্তিক ডাটাবেস)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.13	Online livestock and product marketing (অনলাইন ভিত্তিক গবাদিপশু এবং পণ্য বিপণন)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.14	Online knowledge sharing related to food safety, marketing, amimal health, livestock production etc. (খাদ্য নিরাপদতা, বিপণন, পশুস্বাস্থ্য, গবাদিপশু উৎপাদন ইত্যাদি সম্পর্কে জ্ঞানের বিস্তার)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.15	Online treatment (অনলাইন চিকিৎসা সেবা)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.16	Mobile veterinary clinic (মোবাইল পশুচিকিৎসা ক্লিনিক)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.17	Waste management (বর্জ্য ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.18	Manure management (গোবর ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)
16.19	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)			Yes (হ্যাঁ) No (না)

16.a Did you attended any of LDDP provided training last year (আপনি কি গত বছর LDDP প্রদানকৃত কোনো ট্রেনিং এ অংশগ্রহণ করেছেন?

i) Yes (হ্যাঁ) ii) No (না)

16.b If yes, how would you rate your satisfaction on the training you received from LDDP (যদি করে থাকেন, তবে LDDP থেকে ট্রেনিং পেয়ে আপনি কটুকু সন্তুষ্ট) ?

i.Excelent (খুব ভালো)

ii. Good (ভালো)

iii.Moderate (মোটামুটি)

iv) Bad (খারাপ)

v. Very bad (খুব খারাপ)

vi) Not applicable (প্রযোজ্য নয়)

16.b.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)_

16.c. How would you rate your overall satisfaction with LDDP service (LDDP থেকে সেবা পেয়ে আপনি কতটুকু সন্তুষ্ট?)

i.Excelent (খুব ভালো)

ii. Good (ভালো)

iii.Moderate (মোটামুটি)

iv) Bad (খারাপ)

v. Very bad (খুব খারাপ)

vi) Not applicable (প্রযোজ্য নয়)

16.c.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)_____

Section 17: Livestock decision-making practice: Gender Perspective by gender (অংশ ১৭ – গবাদিপশু প্রতিপালনে লিঙ্গভিত্তিক সিদ্ধান্ত গ্রহণ)

SL		Gender (লিঙ্গ)			Youth		
17.1	Who is the authorized owner of this farm? (এই খামারের আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.2	Who is the authorized owner of livestock? (এই খামারের গবাদিপশুর আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.3	Who takes the decision of buying livestock? (গবাদিপশু কেনার সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.4	Who chooses the breed? (গবাদিপশুর জাতকে নির্বাচন কে করে?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.5	Who takes the decision of fodder production? (ঘাস উৎপাদনের সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.6	Who cultivates fodder? (ঘাস উৎপাদনে কে জমিতে কাজ করেন?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.7	Who collect fodder from field (কে জমি থেকে ঘাস সংগ্রহ করে)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)

17.8	Who takes the decision of feed rationing? (কে খাবারের পরিমাণ নির্দিষ্ট করার সিদ্ধান্ত নেন?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.9	Who fed animals in the farm? (খামারে গবাদিপশু কে খাবার দেয়?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.10	Who in the family mainly involve in milk processing (পরিবারের মধ্যে প্রধানত কে দুগ্ধ প্রক্রিয়াজাত করেন)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.11	Who have mainly access to different digital and physical extension services (বিভিন্ন ডিজিটাল এবং স্বশরীরে সম্প্রসারণ সেবা প্রধানত কার জন্য অভিগম্য/প্রবেশযোগ্য)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.12	Who decide to manage manure? (কে গোবর /ম্যানিউর ব্যবস্থাপনার সিদ্ধান্ত নেয়?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.13	Who manages manure and waste in the farm? (খামারে কে গোবর এবং বর্জ্য ব্যবস্থাপনা করে?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.14	Who perform cleaning and sanitization in the farm? (খামারে কে পরিষ্কার পরিচ্ছন্নতা ও জীবাণুমুক্তকরণ কার্য সম্পন্ন করেন?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.15	Who choose the input supplier? (কে উপকরণ সরবরাহকারী নির্বাচন করে?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.16	Who maintain the contact with the input supplier? (কে উপকরণ সরবরাহকারীর সাথে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.17	Who decide where to sale? (কার কাছে এবং কোথায় বিক্রি করবে এই সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.18	Who maintain the contact with the buyer? (ক্রেতার সাথে যোগাযোগ করেন কে?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.19	Who decide the use of money earned from livestock? (গবাদিপশু পালন থেকে উপার্জিত অর্থ ব্যবহারে কে সিদ্ধান্ত গ্রহণ করে?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.20	Who maintain the contact with the vet service providers? (পশুচিকিৎসা সেবা সরবরাহকারীদের সাথে কে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.21	Who decide the participants of training? (পরিবার থেকে প্রশিক্ষণে কে অংশগ্রহণ করবে সেই সিদ্ধান্তকে নেয়?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable

							(প্রযোজ্য নয়)
17.22	Who participates in the training? (প্রশিক্ষণে কে অংশগ্রহণ করেন?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.23	Who spent more time in farm activities? (খামারের কাজে কে বেশি সময় দেয়?)	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.24	Who mainly have access to finance/ credit (আর্থিক/ঋণ এর ক্ষেত্রে কার প্রবেশযোগ্যতা বেশি)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25	Who mainly goes out for feed and food product testing (কে প্রধানত উৎপাদন এবং উপকরণ পরীক্ষা করতে নিয়ে যায়)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26	Who manage the household chores listed below along with farming কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি নীচে তালিকাভুক্ত গৃহস্থালির কাজগুলি পরিচালনা করে						
17.26a	Who manage taking care of children along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি বাচ্চাদের দেখাশোনা পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26b	Who manage preparing children for their school along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি তাদের ছেলে মেয়েদের স্কুলের জন্য প্রস্তুত করে)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26c	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিবারের বৃদ্ধ সদস্যদের দেখাশোনা করেন)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26d	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিষ্কার, ধোয়া এবং ঝাড়ু পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26e	Who manage cooking along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি রান্না পরিচালনা করেন)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26f	Who manage collecting water along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পানি সংগ্রহ করে)?	Male (পুরুষ)	Female (মহিলা)	Both (ট্রান্সজেন্ডার)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.27	Why men- women are practicing this, Please specify the reason (কেন পুরুষ-মহিলারা এটি অনুশীলন করছেন, দয়া করে কারণটি উল্লেখ করুন)	i. Learn from the family (পরিবার থেকে শিক্ষা) ii. Ask to do so by in laws (e.i Father in law, mother in law, mother, father) (শ্বশুর, শাশুড়ি, মা, বাবা করতে বলার জন্য) iii. Due to the abusive word of the neighbor's and community pressure (প্রতিবেশীর গালিগালাজের এবং কমিউনিটির চাপের কারণে) iv. Due to religious pressure (ধর্মীয় চাপের কারণে) v. Others (specify) [অন্যান্য (উল্লেখ করুন)]					

FAO of the UN: Package: LDDP/SD-65
Household Baseline Survey Questionnaire 2021 for Beef Fattening Value Chain
Survey designed and supervised by: FAO of the UN
গরু হৃষ্টপুষ্টকরণ ভ্যালু চেইন খামারিদের জন্য বেইসলাইন জরীপের প্রশ্নপত্র-২০২১
জাতিসংঘের খাদ্য ও কৃষি সংস্থার তত্ত্বাবধানে এলডিডিপি প্রকল্পের জরীপের উদ্দেশ্যে প্রস্তুতকৃত

Section 1: General Information (অংশ ১: সাধারণ তথ্য)

GPS location (জিপিএস অবস্থান):	Latitude (অক্ষাংশ): _____^{0}North (^{0}উত্তর)	Longitude (দ্রাঘিমাংশ): _____^{0}East (^{0}পূর্ব)	Questionnaire No (প্রশ্নপত্র নং):
Name of the Interviewer (প্রশ্নকর্তার নাম):		Date (dd-mm-yyyy) [তারিখ (দিন/মাস/বছর)]:	
1.1 Geographic Location of farmer (খামারীর ভৌগলিক অবস্থান):			
a) Division (বিভাগ):	b) District (জেলা):	c) Upazila (উপজেলা):	
d) Postal Code (পোস্ট কোড):	e) Union (ইউনিয়ন): f) Ward (ওয়ার্ড):	g) Village (গ্রাম)/Moholla (মহল্লা):	
1.2 Information of the respondent Farmer (উত্তদাতা খামারীর তথ্য): Picture of the respondent farmer will automatically be captured by the data collection devise (উত্তরদাতা খামারীর ছবি (তথ্য সংগ্রহকারী ট্যাব এর মাধ্যমে স্বয়ংক্রিয়ভাবে নিতে হবে)			
b) Respondent's Name (উত্তদাতার নাম):	b) Respondent's Age (years) [উত্তদাতার বয়স (বছর)]:	c) Respondent's Sex (উত্তদাতার লিঙ্গ) i. Male (পুরুষ) ii. Female (মহিলা) iii. Transgender (ট্রান্সজেন্ডার)	d) Respondent's picture (উত্তরদাতার ছবি)
e) Respondent's marital status (উত্তরদাতার বৈবাহিক অবস্থা) i. Single ii. Married iii. Widow iv. Divorced v. Separated		f) Respondent's Years of schooling (formal/informal) [উত্তদাতার শিক্ষাকাল বছর (আনুষ্ঠানিক/ অনানুষ্ঠানিক)]	g) Respondent's Mobile No (উত্তদাতার মোবাইল নম্বর):
h) Respondent's National ID No (উত্তদাতার জাতীয় পরিচয়পত্র নম্বর) ছবি নিতে হবে:	i) Respondent's Father's Name (উত্তদাতার বাবার নাম):	j) Respondent's Mother's name (উত্তদাতার মায়ের নাম):	k) Respondent's Husband/wife's name (উত্তদাতার স্বামী / স্ত্রীর নাম):
l) Farmers relation with head of HH (পরিবার প্রধানের সাথে খামারীর সম্পর্ক): i. Himself/herself (নিজেই) ii. Son (ছেলে) iii. Daughter (মেয়ে) iv. Husband/wife (স্বামী / স্ত্রী) v. Father/Mother (বাবা/মা) vi. Others (specify) অন্যান্য (উল্লেখ করুন)]		m) Age of the head of HH (years) [(পরিবার প্রধানের বয়স (বছর)]:	n. Sex of the head of HH (পরিবার প্রধানের লিঙ্গ): i. Male (পুরুষ) ii. Female (মহিলা) iii.Transgender (ট্রান্সজেন্ডার)

1.3. How much land do you have? (decimal) [আপনার কি পরিমান জমি আছে? (শতাংশ)]	a) Homestead (বসতবাড়ি)		b) Cultivable (নিজস্ব চাষযোগ্য)		c) Mortgage in/leased in (বন্ধক নেয়া/বর্গা নেয়া)		d) Pasturelan d (চারণ-ভূমি)		e) Fallow land (পতিত জমি)		e) Farm Land (খামার জমি)
1.4 Are you a member of any PG? (আপনি কি কোনো উৎপাদক গ্রুপ এর সদস্য?	i. Yes (হ্যাঁ) ii. No (না)										
1.4a What is your PG name? (আপনার কৃষক গ্রুপ এর নাম কী?)											

1.5 Do you face any social obstacles to participate in PG? ((আপনি কি পিজি তে অংশ নিতে কোনও সামাজিক বাঁধার সম্মুখীন হন?)	Yes (হ্যাঁ):	No (না):
1.6 If yes, what specific social obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের সামাজিক বাধার সম্মুখীন হন?)	i. Restriction from family member (পরিবারের সদস্য থেকে নিষেধাজ্ঞা) ii. Religious barrier (ধর্মীয় বাধা) iii. Mobility is restricted (চলাফেরা সীমাবদ্ধ) iv. Abusive word from the neighbor (প্রতিবেশীদের কাছ থেকে কটু কথা) v. Road safety during transportation (পরিবহনের সময় সড়ক নিরাপত্তার অভাব) vi. Insensitive behavior of the service provider (সেবা প্রদানকারীর অসংবেদনশীল আচরণের অভাবের কারণে নিরুৎসাহিত)	

Section 2: Farmer's HH profile (অংশ 2: খামারির পরিবারের তথ্য)

SL (ক্রমিক নং)	Age group (বয়সের গ্রুপ)	Sex (লিঙ্গ)			Highest Education level (সর্বোচ্চ শিক্ষাগত যোগ্যতা)					
		Male (পুরুষ)	Female (মহিলা)	Transgender (ট্রান্সজেন্ডার)	Primary (Class 1-5)		Secondary (Class 6-10)		Post secondary and above	
					Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)
1	Children (0-4 years) [শিশু, ০-৪ বছর]									
2	Children (5-14 years) [শিশু, ৫-১৪ বছর]									
3	Youth early working (15-24 years) [যুবক/ যুবতী, ১৫-২৪ বছর]									
4	Prime working (25-54 years) [প্রধানত কর্মক্ষম, ২৫-৫৪ বছর]									
5	Mature working (55-65 years) [বয়স্ক কর্মক্ষম, ৫৫-৬৫ বছর]									
6	Elderly (65 and above years) [বয়স্ক, ৬৫ বছর এবং উর্ধে]									
	Total (মোট)									

2.a. How many members are engaged in beef fattening? (আপনার পরিবারে কতজন গরু হৃষ্টপুষ্টকরণে নিযুক্ত)?

i) Male (পুরুষ): _____ ii) Female (মহিলা): _____ iii) Transgender (ট্রান্সজেন্ডার)

2.b) Do you have any person with disability in your family (আপনার পরিবারে কি কোনো প্রতিবন্ধী লোক আছে)?

i) Yes (হ্যাঁ)) ii)) No (না)

2.c) If yes, How many (যদি থাকে তবে কতজন)?

i) Male (পুরুষ): _____ ii)) Female (মহিলা): ____ iii) Transgender (ট্রান্সজেন্ডার)

What type of livestock are you rearing in your farm? (আপনি আপনার খামারে গরু হৃষ্টপুষ্ট করণের জন্য কোন ধরনের গবাদিপশু পালন করেন?)

i) Cattle farming (গরুর খামার)
ii) Buffalo farming (মহিষের খামার)

Section 3: Farm characteristics (অংশ ৩: খামারের বৈশিষ্ট্য)

Which of the following type of livestock do you have (আপনার খামারে নিম্নের কোন ধরণের গবাদিপশু রয়েছে?)	How many of the following livestock do you have? (নীচের কতগুলো গবাদিপশু আপনার রয়েছে?)	
	Number (সংখ্যা)	Total value (মোট মূল্য) Tk (টাকা)
Name (নাম)	3.2	3.3
Cattle (গরু)		
Bull (ষাঁড়, বয়স ১ বছরের বেশি)		
Lactating cows (দুধালো গাভী)		
Dry cows (শুষ্ক গাভী)		
Bull calves (এড়ে বাছুর, বয়স ১ বছর বা তার কম)		
Heifer calves (বকনা-বাছুর, বয়স ১ বছর বা তার কম)		
Heifers (বকনা, বয়স ১ -২ বছর)		
Buffalo (মহিষ)		
Bull (ষাঁড়, বয়স ১ বছরের বেশি)		
Dry Buffalo (শুষ্ক মহিষ)		
Bull calves (এড়ে বাছুর, বয়স ১ বছর বা তার কম)		
Heifer calves (বকনা-বাছুর, বয়স ১ বছর বা তার কম)		
Heifers (বকনা, বয়স ১ -২ বছর)		

Section 4: Production and productivity characteristics (অংশ ৪ - প্রাণি উৎপাদন এবং উৎপাদনশীলতার বৈশিষ্ট্য)

Please provide information about fattened beef cattle during last 1 year, October 1, 2020 to September 30, 2021 *(গত ১ বছর,* ১ অক্টোবর ২০২০ থেকে ৩০ সেপ্টেম্বর ২০২১ *এর মধ্যে হৃষ্টপুষ্টকৃত গরুর সম্পর্কে তথ্য দিন)*

4.1 আপনি কি গত এক বছরে হৃষ্টপুষ্টকৃত কোনো গরু বিক্রি করেছেন? i) Yes (হ্যাঁ)) ii)) No (না)	If yes, please provide following information (যদি বিক্রি করে থাকেন তবে নিম্নের তথ্যগুলো দিন)			
	Breed type (জাতের ধরন) Code 1 (কোড ১)	No. (সংখ্যা)	Average live weight of beef (Kg) [জীবন্ত অবস্থায় গরুর গড় ওজন (কেজি)]	Average price per fattening beef (Tk.) [জীবন্ত অবস্থায় গরুর গড় দাম (টাকা / গরুর)]

4.2 আপনি কি গত এক বছরে হৃষ্টপুষ্টকৃত কোনো গরু খেয়েছেন? i) Yes (হ্যাঁ)) ii)) No (না)	If yes, please provide following information (যদি বিক্রি করে থাকেন তবে নিম্নের তথ্যগুলো দিন)			
	Breed type (জাতের ধরন) Code 1 (কোড ১)	No. (সংখ্যা)	Average live weight of beef (Kg) [জীবন্ত অবস্থায় গরুর গড় ওজন (কেজি)]	Average price per fattening beef (Tk.) [জীবন্ত অবস্থায় গরুর গড় দাম (টাকা / গরুর)]

4.3 Please provide information of fattening beef at present by breed (জাতের ধরণ অনুযায়ী বর্তমানে বিদ্যমান হৃষ্টপুষ্টকৃত গরুর তথ্য দিন)		
Breed type (জাতের ধরন) Code 1 (কোড ১)	No. (সংখ্যা)	Average live weight of beef (Kg) [জীবন্ত অবস্থায় গরুর গড় ওজন (কেজি)]

Code 1 (কোড ১): Breed type (জাতের ধরন)

Local breed/Deshi (দেশীয়/স্থানীয় জাত).....1 (১) Munshiganj (মুন্সিগঞ্জ).....2 (২) North Bengal Gre (উত্তরবঙ্গ গ্রে).....3 (৩) Red Chittagong (রেড চিটাগাং).....4 (৪) Brahman cross (ব্রাহমা সংকর) ..... 5 (৫) Pabna breed (পাবনা জাত) 6 (৬)	Holstein cross (হলস্টাইন সংকর)..... 7 (৭) Jersey cross (জার্সি সংকর)..... 8 (৮) Sahiwal cross (শাহিওয়াল সংকর).. 9 (৯) Others cattle (specify) [অন্যান্য গরু (উল্লেখ করুন)]..... 10 (১০)	Buffalo Local (দেশী মহিষ)..... 11 (১১) Buffalo (crossbreed) [মহিষ (সংকর ব্রিড)] 12(১২) Buffalo (Nilli-Ravi) [মহিষ (নীলী-রাভি)] 13 (১৩) Buffalo (Murrah) [মহিষ (মুররাহ)].... 14 (১৪)

Section 5. Household's nutrition awareness related information (অংশ 5: খামারির পরিবারে পুষ্টি সচেতনতা সম্পর্কিত তথ্য)

5.1 Did any member of your household receive any nutrition awareness information last year? (আপনার পরিবারের কেউ কি গত বছর পুষ্টি সচেতনতা সম্পর্কিত কোনো তথ্য পেয়েছেন?) i. Yes (হ্যাঁ) ii. No (না)

5.2 If yes, what was the source? যদি পেয়ে থাকেন তবে কথা থেকে পেয়েছেন?

i. Training (প্রশিক্ষণ) ii. SMS (এস এম এস), iii. TV (টেলিভিশন), iv. Bill Board (বিল বোর্ড) v. Online media (অনলাইন মাধ্যম) vi. Exhivision (প্রদর্শনী) vii. Milk day (দুগ্ধ দিবস) viii. Community radio (কমিউনিটি রেডিও) ix) Others___ specify [অন্যান্য (উল্লেখ করুন)]

5.3 If yes, how many members of your family including you receive this information (যদি পেয়ে থাকেন তবে আপনি অথবা আপনার পরিবারের কতজন সদস্য এই তথ্য পান?)

Section 6: Market Access (অংশ ৬: বাজারে প্রবেশ)

Please provide information about fattened beef cattle during last 1 year, October 1, 2020, to September 30, 2021 (গত ১ বছর, গত ১ বছর, ১ অক্টোবর ২০২০ থেকে ৩০ সেপ্টেম্বর ২০২১)

Marketing options (বিপণনের মাধ্যম)	Response (উত্তর)	
6.1 To whom do you mainly sell your beef fattening cattle? (আপনি হৃষ্টপুষ্ট করা গবাদিপ্রাণি প্রধানত কার কাছে বিক্রি করেন?)	i) Consumer (সরাসরি গ্রাহকের নিকট) ii) Trader/paiker (ব্যবসায়ী/পাইকার) iii) Roadside butcher with no fixed slaughtering space (রাস্তার-পাশের মাংস বিক্রেতার নিকট) iv) Butcher in local market with fixed slaughtering space (বাজারের মাংস-বিক্রেতার নিকট) v) Direct to meat processing company (সরাসরি মাংস প্রক্রিয়াকরণ কোম্পানি)	vi) To lender to repay loan (ঋণ পরিশোধ করার জন্য ঋণদাতার কাছে) vii) Online market (অনলাইন বাজার) viii) Sale to call center (কল সেন্টার এর কাছে) ix) Others___ specify [অন্যান্য (উল্লেখ করুন)] x) Did not sale (বিক্রি করা হয় নাই)
6.2 Where do you mainly sell your beef fattening cattle? (আপনি প্রধানত কোথায় হৃষ্টপুষ্টকৃত গবাদিপ্রাণি বিক্রি করেন?)	i) Farm gate (নিজ-খামার হতে) ii) Sale within the village (নিজ গ্রামেই বিক্রি) iii) Local market (স্থানীয় বাজার) iv) Urban market (শহরের বাজারে বিক্রি)	v) At buyers' place (ক্রেতার বাসায় পৌঁছে দেয়া) vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]
6.3 What is the main mode of transport? (পরিবহণের প্রধান মাধ্যম কী কী?)	i) On foot (হেঁটে) ii) Rikshaw/Van (রিকশা /ভ্যান) iii) Auto (battery/engine vehicle) অটো (ব্যাটারি/ইঞ্জিন গাড়ী)	iv) Boat (নৌকা) v) Truck (ট্রাক) vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]
6.4 Do you sell processed or portion of beef? (আপনি কি প্রক্রিয়াজাত করে গরুর মাংস সম্পূর্ণ বা আংশিক বিক্রি করেন?)	Yes (হ্যাঁ)	No (না)
6.5 What is the off-farm feed sources (Roughage & Concentrate, vitamins/minerals/medicines, and feed additives for beef fattening) of collection? নিজ-খামার বর্হিভূত খাদ্য-উৎস্য গুলো (আঁশজাতীয় ও দানাদার, ভিটামিন / খনিজ / ওষুধ) কি?	i) Local retailers (স্থানীয় খুচরা বিক্রেতা) ii) Wholesalers (পাইকারী বিক্রেতা) iii) Local feed mixers (স্থানীয় ফিড মিক্সার) iv) Feed company (ফিড কোম্পানি) v) Others (specify) [অন্যান্য (উল্লেখ করুন)] vi) Do not use (ব্যবহার করা হয় না)	
6.6 Who usually go to the market for buying feed/selling fattened beef cattle? (প্রাণিখাদ্য কিনতে বা গবাদিপ্রাণি বিক্রি করতে কে বাজারে যায়?)	i. Male (পুরুষ): ii. Female (মহিলা): iii) Transgender (ট্রান্সজেন্ডার)	
6.7a Do you face any social obstacles in selling or buying feed/selling beef cattle due to gender? (খাদ্য ক্রয় বা প্রাণি বা মাংস বিক্রয়ে পুরুষ/মহিলা হিসেবে কোন সামাজিক বাধার সম্মুখীন হন)?	Yes (হ্যাঁ)	No (না)
6.7b. If yes, what specific obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের বাধার সম্মুখীন হন?)	i. Restriction from family member (পরিবারের সদস্য থেকে নিষেধাজ্ঞা) ii. Religious barrier (ধর্মীয় বাধা) iii. Mobility is restricted (চলাফেরা সীমাবদ্ধ) iv. Abusive word from the neighbor (প্রতিবেশীদের কাছ থেকে কটু কথা) v. Road safety during transportation (পরিবহনের সময় সড়ক নিরাপত্তার অভাব) vi. Insensitive behavior of the service provider (সেবা প্রদানকারীর অসংবেদনশীল আচরণের অভাবের কারণে নিরুৎসাহিত) vii. I am not interested to go to the market (আমি বাজারে যেতে আগ্রহী নই)	

Section 7: Disease management (অংশ ৭: রোগ ব্যবস্থাপনা)

Disease name (রোগের নাম)	Did your livestock face this disease during last 12 months' period? (আপনার খামারের গবাদিপশুর গত ১২ মাসে নিচের কোন রোগ হয়েছিল)?		If yes, how many livestock had been affected (যদি হয়ে থাকে তবে কতগুলো গবাদিপশুর হয়েছিল)?	Did you apply any vaccine for this disease? (আপনি কি এই রোগের জন্য কোনো টিকা দিয়েছেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) Not at all (কখনো দেয়া হয়নি)			Did you apply any treatment for this disease? (আপনি কি এই রোগের জন্য কোনো চিকিৎসা করিয়েছেন)?		Did your animal die last year for this disease? (গতবছর এই রোগে কি কোনো গবাদিপশু মারা গিয়েছিলো?)		If died, how many? (যদি মারা গিয়ে থাকে তাহলে কতগুলো)?
7.1 Contagious and infectious (ছোঁয়াচে এবং সংক্রামক)											
i)FMD (এফএমডি/ক্ষুরা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Lumpy Skin Disease (গলদ চর্মরোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii) Anthrax (অ্যানথ্রাক্স/তড়কা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iv) Black Quarters (ব্ল্যাক কোয়ার্টারস/ বাদলা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
v) Bovine Tuberculosis (বোভাইন যক্ষ্মা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vi) Hemorrhagic Septicaemia (হেমোরেজিক সেপ্টিকেইমিয়া/ গলাফোলা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vii) Calf Diarrhea (বাছুরের ডায়রিয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.2 Metabolic and others (বিপাকীয় ও অন্যান্য রোগ)											
i) Ketosis (কেটোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Acidosis (অ্যাসিডোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii) Bloat (পেট ফাঁপা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iv) Poisoning (বিষক্রিয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
v) Respiratory related complication (শ্বাসকষ্ট জনিত জটিলতা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.3 Others অন্যান্য											
i)Affected by worms (কৃমি দ্বারা আক্রান্ত হওয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Lameness (পঙ্গুত্ব)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Brucellosis (ব্রুসেলেসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

ii) Rabies (জলাতঙ্ক)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii)Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

Section 8: Feed production and management (অংশ ৮: পশুখাদ্য উৎপাদন এবং ব্যবস্থাপনা)

8.1 Do you cultivate green grass (আপনি কি সবুজ ঘাস চাষ করেন)?

i) Yes (হ্যাঁ) ii) No (না)

8.2 If yes, Provide information below (যদি করেন তবে নিম্নের তথ্যগুলো প্রদান করুন)

SL no. (ক্রমিক নং)	Type of land (জমির প্রকার)	Area (decimal) [পরিমান (শতাংশ)]	Type of grass (ঘাসের প্রকার) i) Nepier (নেপিয়ার)/pakchun (পাকচুঁন) ii) German (জার্মান) iii) Maiz (ভুট্টা) iv) Kesheri (খেসারী) v) Hydroponic grass (হাইড্রোপনিক ঘাস) vi) Others (অন্যান্য)	During last one year (গত এক বছরে)			
				Production (Kg) [উৎপাদন (কেজি)]	On farm consumption (নিজ খামারে খাওয়ানো (কেজি))	Sell (বিক্রি)	
						Quantity (কেজি)]	Total value (Tk) মোট মূল্য (টাকা)
1	Homestead land (বসতভিটা)						
2	Fallow land (পতিত জমি)						
3	Leased/mortgaged in land (বন্দক নেয়া বা বর্গা নেয়া জমি)						
4	Own cultivable land (নিজস্য চাষযোগ্য জমি)						

8.3 Feeding Practices (পশুখাদ্য খাওয়ানো)

Item (তালিকা)	Used from On-farm (নিজ-খামার)	Used from off-Farm (নিজ-খামার বর্হিভূত)
Name (নাম)	Qty (Kg)/day (পরিমাণ (কেজি) / দিন)	Qty (Kg)/day (পরিমাণ (কেজি) / দিন)
8.3a	8.3b	8.3c
k) Roughage (খড়)		
i) Straw (Paddy/Wheat)`(ধান / গমের খড়)		
ii) Green fodder (Nepier/Pakchun, German, Maiz, Kheshari, Hydroponic grass, local grass) (নেপিয়ার/ পাকচুঁন, জার্মান, ভুট্টা , খেসারী, হাইড্রোপনিক ঘাস, স্থানীয় সবুজ ঘাস)		
iii) Hay (শুকনো ঘাস)		
iv) Silage (সাইলেজ)		

v) UMS (ইউএমএস)		
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
l) Grains (শস্য)		
i) Corn (ভূট্টা)		
ii) Wheat (গম)		
iii) Brans (ভুষি)		
iv) Rice/ Broken rice (চাল/খুদ)		
v) Khesari (খেসারী)		
vi) Masur (মসুর)		
vii) Gram (কলাই)		
viii) Mashkalai (মাশকালাই)		
ix) Dubli (ডাবলি)		
x) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
m) Oil cake & Meals (খৈল এবং খাবার)		
i) Soyabean meal (সয়াবিনের খৈল)		
ii) Sesame oil cake (তিলের খৈল)		
iii) Mustard Oil cake (সরিষার খৈল)		
iv) Coconut oil cake (নারকেল খৈল)		
v) Sunflower oil cake (সূর্যমুখীর খৈল)		
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
n) Commercial ready feed (বাজারে প্রস্তুতকৃত পশুখাদ্য)		
o) Minerals and Vitamins (খনিজ ও ভিটামিন)		
i) DCP (ডিসিপি)		
ii) Common salt (সাধারণ লবণ)		
iii) Limestone powder (চুনের গুঁড়া)		
iv) Rock Salt (খনিজ লবণ)		
v) Premix minerals & vitamins (প্রস্তুতকৃত খনিজ ও ভিটামিন)		
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
p) Molasses (গুড়)		
q) Urea (ইউরিয়া)		
r) UMMB (ইউ এম এম বি)		
s) UMB ((ইউ এম বি)		
t) Others (specify) [অন্যান্য (উল্লেখ করুন)]		

Section 9: Production cost (অংশ ৯: উৎপাদন খরচ)

9a Operating/recurring cost (৯ক পরিচালনা / নির্বাহী খরচ)

SL	Item name (তালিকা)	Response (উত্তর)				
9a.1	How much feed cost incurred during last year? (গতবছর পশুখাদ্য বাবদ আপনার কত খরচ হয়েছিল?)	Tk. (টাকা)				
9a.2	How many family labour hours per day did you use for beef fattening? [গরু হৃষ্টপুষ্টকরণে প্রতিদিন নিজ-পরিবার হতে কত ঘন্টা সময় দেন?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years) (যুবক) (১৫- ২৪ বছর)]:	Young girls (aged 15-24 years) [যুবতী (১৫- ২৪ বছর)]:	Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.3	How many hired labour per day did you use for beef fattening? [গরু হৃষ্টপুষ্টকরণে প্রতিদিন মুজুরীর বিনিময়ে কত শ্রমঘণ্টা ব্যবহার করেন?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years) (যুবক)	Young girls (aged 15-24 years) [যুবতী	Not at all (একেবারেই ব্যবহার করা হয়নি)

				(১৫- ২৪ বছর)]:	(১৫- ২৪ বছর)]:	
9a.4	What is the average wage rate of labour? (শ্রমিকদের দৈনিক গড় মুজুরী কত ছিলো?)	Male labour (পুরুষ শ্রমিক) Tk/day (টাকা/দিন)		Female labour (মহিলা শ্রমিক) Tk/day (টাকা/দিন)		Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.5	How much cost incurred for input and output transport during last year? (গতবছর উৎপাদন এবং উপকরণ পরিবহন বাবদ ব্যয় কত ছিল?)	Tk. (টাকা)				
9.a6	How much veterinary cost (treatment, vaccination, deworming) incurred during last year? (গত বছর পশুচিকিৎসা (চিকিৎসা, ভ্যাকসিনেশন, কৃমিনাশক প্রয়োগ) বাবদ ব্যয় কত ছিল)?	Tk. (টাকা)				
9a.7	How much was the utility (electricity, moskuito coil, net, etc.) and other costs during last one year (গত বছরের উপযোগ (বিদ্যুৎ, মশারি, মশার কয়েল ইত্যাদি) এবং অন্যান্যে খরচ)	Tk. (টাকা)				
9a.8	How much cost incurred for rental house per month (ভাড়াকৃত ঘরের জন্য প্রতি মাসে কত খরচ হয়েছিলো)	Tk. (টাকা)				

9b. Investment cost (বিনিয়োগ খরচ)

Item (তালিকা)	Investment cost (Tk.) [বিনিয়োগ খরচ (টাকা)]	Lifespan (years) [টেকসইকাল (বছর)]	Salvage value (Tk.) [অবশিষ্ট মান (টাকা)]
5b.1 Cattle house (গবাদিপশুর ঘর)			
5b.2 Generator/IPS (জেনারেটর / আইপি.এস)			
5b.3 Water pump (পানির পাম্প)			
5b.4 Electric fan (বৈদ্যুতিক পাখা)			
5b.5 Straw Chopper Blower (ঘাস কাটার মেশিন)			
5b.6 Other machineries (অন্যান্য যন্ত্রপাতি)			

Section 10: Food safety and certification [অংশ ১০ (খাদ্য নিরাপদতা এবং সনদপত্র)]

Criteria (মানদণ্ড)	Response (উত্তর)		
10.1 Do you wash your hand before entering the farm? (আপনি কি খামারে প্রবেশের আগে হাত ধোয়ে থাকেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.2 Do you use foot bath containing disinfectant at the entrance of the farm? (আপনি কি খামারের প্রবেশদ্বারে জীবাণুমুক্তকারক দিয়ে পা ভিজিয়ে খামারের প্রবেশ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.3 Do you control visitor/other animal, bird and pest access in the farm? (আপনি কি খামারে দর্শনার্থীদের এবং খামার বহির্ভুত পশু-পাখি ও কীটপতঙ্গ প্রবেশ নিয়ন্ত্রণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.4 Do you monitor and maintain records for the above mentioned activities? (আপনি কি উপরোল্লিখিত কার্যাবলী নিয়মিত তদারকি এবং এর তথ্য সংরক্ষণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.5 Do you keep record of parent's information, treatment, vaccination and AI information for each farm animal? (আপনি কি খামারের প্রতিটি গবাদিপশুর পিতামাতার তথ্য, চিকিৎসা, টিকা এবং এআই এর তথ্য নিয়মিত লিপিবদ্ধ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.6 Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your cattle/buffalo feed? {আপনি কি নিয়মিত পশুখাদ্যের গুণগত মান (পুষ্টির উপদান) এবং নিরাপদতা	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)

(অ্যান্টিবায়োটিক, ভারী ধাতু, কীটনাশকের অবশিষ্টাংশ, অণুজীব দূষক) পরীক্ষা করান?}			
10.7 If yes, where did you test? (যদি করে থাকেন, তাহলে কোথায় পরীক্ষা করেন?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other Public labs (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private Feed testing lab (বেসরকারী প্রাণিখাদ্য পরীক্ষাগার) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.8 Have you ever seen any cattle/buffalo disease incidence for unsafe animal feed? (অনিরাপদ পশুখাদ্যের কারণে আপনার খামারে কি কখনো কোনও রোগের প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.9 From which source you collect farm animal's drinking water? (কোন উৎস থেকে আপনি গবাদিপশুর খাবার পানি সংগ্রহ করেন?)	1. Tube Well water (টিউবয়েলের পানি) 2. Pond/Cannel water (পুকুরের/ খালের পানি) 3. Supply/ Tap water (সাপ্লাই / টেপের পানি) 4. Filtered water (পরিশোধিত পানি) 5. Shallow tube-well/electric motor (অগভীর নলকূপ/বৈদ্যুতিক মটর) 6. Others (Specify) (অন্যান্য (উল্লেখ করুন)		
10.10 Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use? (আপনি কি খামারের সরঞ্জামাদি ব্যবহারের আগে এবং পরে নিরাপদ পানি দিয়ে সঠিকভাবে পরিষ্কার এবং জীবাণুনাশক দ্বারা জীবাণুমুক্ত করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.11 Do you transport animal with animal comfort? (আপনি কি গবাদিপশু আরামদায়কভাবে পরিবহন করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.12 Have you ever seen any disease incident from farm animal to farm worker or vise versa? (আপনি কি কখনও খামারের গবাদিপশু থেকে খামার কর্মী বা খামার কর্মী থেকে খামারের গবাদিপশুতে কোনও রোগের প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.13 Do you perform regular health check-up of animals and farm workers (TB, Jaundice, Brucellosis etc.)? [আপনার খামারে কি গবাদি পশু এবং কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষা করেন (যেমন যক্ষা, ব্রূসেলোসিস, জন্ডিস, ইত্যাদি)?]	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.14 Do you keep records of health check-up of animals and farm workers (TB, Brucellosis etc)? (আপনি কি গবাদিপশু এবং কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষার তথ্য সংরক্ষণ করেন (যেমন যক্ষা, ব্রূসেলোসিস, জন্ডিস ইত্যাদি)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.15 Do you use antibiotics or added growth hormones in animal feed? (আপনি কি গবাদিপশুর খাদ্যে অ্যান্টিবায়োটিক বা হরমোন ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.16 Have you ever seen any disease/illness incidence of customer for your farm animal's meat? (আপনি কি আপনার খামারের গবাদিপশুর মাংসের জন্য ভোক্তাদের মধ্যে কোন রোগের/ অসুস্থতার প্রকোপ দেখেছেন??)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.17 Do you sell diseased (Tuberculosis, Jaundice, Brucellosis, etc.) beef cattle/buffalo for slaughtering purpose? (আপনি কি যক্ষা, জন্ডিস, ব্রূসেলোসিস, ইত্যাদি রোগ দ্বারা আক্রান্ত অসুস্থ গরু/মহিষ জবাইয়ের উদ্দ্যেশ্যে বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.18 Do you sell under treatment cattle/buffalo with antibiotics, hormone and steroid for slaughtering purpose? (আপনি কি এন্টিবায়োটিক, হরমোন, স্টেরয়েড দ্বারা চিকিৎসাধীন গরু/মহিষ জবাইয়ের উদ্দ্যেশ্যে বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.19 Do you maintain withdrawal period of antibiotic/hormone? (আপনি কি এন্টিবায়োটিক/হরমোন দিয়ে চিকিৎসার পর ড্রাগ প্রত্যাহারের সময়কাল মেনে চলেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.20 Do you get any cattle health certificate before sale? (আপনি কি বিক্রির আগে গরু/মহিষের স্বাস্থ্য-সনদ গ্রহণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.21 If yes, from where did you get this? (যদি করে থাকেন, তাহলে কোথায় থেকে স্বাস্থ্য-সনদ গ্রহণ করেন?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other govt. authority (অন্যান্য সরকারী কর্তৃপক্ষ)		

	iii) Private Veterinary diagnostic lab (বেসরকারী ভেটেরিনারি পরীক্ষাগার) iv) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
10.22 Have your cattle/buffalo ever rejected from the buyer? (আপনার গরু/মহিষ কি কখনও ক্রেতার কাছ থেকে প্রত্যাখ্যাত হয়েছে?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.23 If yes, for what reason? (যদি হয়ে থাকে, তবে কোন কারণে প্রত্যাখ্যাত হয়েছে?)	Disease conditions/ill (রোগাক্রান্ত/ অসুস্থ) Emaciation (হাড্ডিসার) Pregnancy (গর্ভবতী) Others (specify) (অন্যান্য(নির্দিষ্ট করুন)		
10.24 Do you use any label/brand for your beef cattle? (আপনি কি আপনার গবাদি প্রাণির জন্য কোন লেবেল / ব্র্যান্ড ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.25 If yes, from where you get this label/brand certification? (যদি করেন, তাহলে আপনি কোথায় থেকে এই লেবেল / ব্র্যান্ডের সার্টিফিকেশন পান?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other govt. authority (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private authority (বেসরকারী কর্তৃপক্ষ) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.26 Did you receive any information related to food safety (আপনি কি খাদ্য নিরাপদটা সম্পর্কিত কোনো তথ্য পেয়েছেন)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.27 If yes, by which means (যদি পেয়ে থাকেন তবে কিভাবে)?	i)Training (প্রশিক্ষণ) ii)Mobile app (মোবাইল আপ্লস) iii)SMS (এস এম এস) iv) Community Radio (কমিউনিটি রেডিও) iv) TV (টেলিভিশন) v) Online media (অনলাইন মাধ্যম) vi) Exhivision (প্রদর্শনী) vii) Community Radio (কমিউনিটি রেডিও) viii) Others (specify) [অন্যান্য (উল্লেখ করুন)]		

Section 11: Technology and practices (অংশ ১১: প্রযুক্তি ও অনুশীলন)

Q. no. (প্রশ্ন নং)	Items (বিষয়)	Do you follow the following technology or practices in your farm? (আপনি কি আপনার খামারে নিম্নের প্রযুক্তি ও পদ্ধতি ব্যবহার করেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) iii. Not at all (কখনো দেয়া হয়নি)			If yes, from where did you know about this technology/practice? (যদি করে থাকেন, তবে আপনি কোথা থেকে এই প্রযুক্তি /পদ্ধতি সম্পর্কে জানতে পেরেছেন)? 1.DLS (ডিএলএস)/LDDP 2.BLRI (বিএলআরআই) 3.University (বিশ্ববিদ্যালয়) 4.Abroad (বিদেশ) 5.Own (নিজস্ব) 6.Friends (বন্ধুবান্ধব) 7.Online media/mass media (অনলাইন / গণমাধ্যম) 8.NGO (এনজিও) 9 Others_(specify) [অন্যান্য (উল্লেখ করুন)]	Is this technology/parcic e women friendly (এই প্রযুক্তি/ পদ্ধতিটি কি মহিলাবান্ধব)?	
11.1	Artificial insemination (কৃত্রিম প্রজনন)					Yes (হ্যাঁ)	No (না)
11.2	Ration balancing (রেশন ভারসাম্যকরণ)					Yes (হ্যাঁ)	No (না)
11.3	Total Mixed Ration (রেশন মিশ্রন)					Yes (হ্যাঁ)	No (না)

11.4	Improved fodder production (উন্নত ঘাস উৎপাদন)					Yes (হ্যাঁ)	No (না)
11.5	Silage making (সাইলেজ প্রস্তুতকরণ)					Yes (হ্যাঁ)	No (না)
11.6	UMS (ইউ এম এস)					Yes (হ্যাঁ)	No (না)
11.7	UMMB (ইউ এম এম বি)					Yes (হ্যাঁ)	No (না)
11.8	Floor feeding (মেঝেতে ছড়িয়ে খাওয়ানো)					Yes (হ্যাঁ)	No (না)
11.9	Hydroponic fodder production (হাইড্রোপনিক ঘাস উৎপাদন)					Yes (হ্যাঁ)	No (না)
11.10	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)					Yes (হ্যাঁ)	No (না)
11.11	Manure management like Biogas, composting pit (গোবর /ম্যানউর ব্যবস্থাপনা, যেমন, বায়োগ্যাস, জৈবসার এর পিট ইত্যাদি)					Yes (হ্যাঁ)	No (না)
11.12	Waste management (বর্জ্য ব্যবস্থাপনা)					Yes (হ্যাঁ)	No (না)
11.13	Rotinue Deworming (নিয়মিত কৃমিনাশক প্রয়োগ)					Yes (হ্যাঁ)	No (না)
11.14	Animal Identification (পশু সনাক্তকরণ)					Yes (হ্যাঁ)	No (না)
11.15	Routine vaccination (নিয়মিত টিকাদান)					Yes (হ্যাঁ)	No (না)
11.16	Others (specify) [অন্যান্য (উল্লেখ করুন)]					Yes (হ্যাঁ)	No (না)

Section 12: Capacity enhancement (অংশ ১২: সক্ষমতা বৃদ্ধি)

Q. no. (প্রশ্ন নং)	Items (বিষয়)	Did you receive any training? (আপনি কি কোন প্রশিক্ষণ পেয়েছেন?)		If yes, from where did you get this training? (যদি নিয়ে থাকেন, তবে আপনি কোথা থেকে এই প্রশিক্ষণ পেয়েছেন?) LDDP.....1 (এলডিডিপি) Private sector...2 (বেসরকারী খাত) NGO.....3 (এনজিও) Others_(specify).....4 [অন্যান্য (উল্লেখ করুন)]
12.1	Artificial insemination (কৃত্রিম প্রজনন)	Yes (হ্যাঁ)	No (না)	
12.2	Ration balancing (রেশন ভারসাম্যকরণ)	Yes (হ্যাঁ)	No (না)	
12.3	Total Mixed Ration (রেশন মিশ্রন)	Yes (হ্যাঁ)	No (না)	
12.4	Improved fodder production (উন্নত ঘাস উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.5	Silage making (সাইলেজ প্রস্তুতকরণ)	Yes (হ্যাঁ)	No (না)	
12.6	UMS (ইউ এম এস)	Yes (হ্যাঁ)	No (না)	
12.7	UMMB (ইউ এম এম বি)	Yes (হ্যাঁ)	No (না)	
12.7a	UMB (ইউ এম বি)	Yes (হ্যাঁ)	No (না)	
12.8	Floor feeding (মেঝেতে ছড়িয়ে খাওয়ানো)	Yes (হ্যাঁ)	No (না)	

12.9	Hydroponic fodder production (হাইড্রোপনিক ঘাস উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.10	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.11	Manure management like Biogas, composting pit (গোবর /ম্যানউর ব্যবস্থাপনা, যেমন, বায়োগ্যাস, জৈবসার এর পিট ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.12	Waste management (বর্জ্য ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)	
12.13	Rotinue Deworming (নিয়মিত কৃমিনাশক প্রয়োগ)	Yes (হ্যাঁ)	No (না)	
12.14	Agribusiness and value chain (কৃষি-ব্যবসা এবং ভ্যালু চেইন)	Yes (হ্যাঁ)	No (না)	
12.14a	Business development skill training including input marketing, supports and financial services (উপকরণ বিপণন, সহায়তা এবং আর্থিক পরিষেবাসহ ব্যবসায়িক উন্নয়ন দক্ষতা বিষয়ক প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.15	Good agricultural practice (উত্তম কৃষি পদ্ধতি)	Yes (হ্যাঁ)	No (না)	
12.16	Food safety training (খাদ্য নিরাপদতা প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.17	Climate shock mitigation/adaptation (জলবায়ুর অভিঘাত প্রশমন/উপযোগীকরণ)	Yes (হ্যাঁ)	No (না)	
12.18	Animal Identification (পশুসনাক্তকরণ)	Yes (হ্যাঁ)	No (না)	
12.19	Animal health card and certification (পশুস্বাস্থ্য কার্ড এবং সনদপত্র)	Yes (হ্যাঁ)	No (না)	
12.19a	Training on gender equality issues (জেন্ডার সমতা সম্পর্কিত বিষয়)	Yes (হ্যাঁ)	No (না)	
12.19b	Training on using mobile apps (মোবাইল অ্যাপ ব্যবহারের প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.20	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)	

12.26a Did you receive any asset from LDDP/DLS to start/continue your livestock business (আপনি কি আপনার গবাদিপশু ব্যবসা শুরু করতে /চালিয়ে যেতে LDDP/DLS থেকে কোনো সম্পদ পেয়েছেন?)

i. Yes (হ্যাঁ) ii. No (না)

12.26b If yes, what kind of asset did you receive (যদি পেয়ে থাকেন তবে কি ধরণের সম্পদ পেয়েছেন)?

i) Livestock house (গবাদিপশুর আবাসন),

ii) Utensiles like bucket, spade, etc. (বালতি, কোদাল, বেলচা ইত্যাদি)

iii) Cream separator (ক্রিম আলাদাকরণ যন্ত্র)

iv) Feed mixure machine (খাদ্য মিশ্রণ যন্ত্র)

v) Hyginic cleaning tools (স্বাস্থ্যকরভাবে পরিষ্কার করার যন্ত্র)

vi) Roughage shredder machine (রাফেজ শ্রেডার মেশিন)

vii) Grass chopper machine (ঘাস কাটার মেশিন)

viii) Live animal / Bird (জীবন্ত পশু/ পাখি)

ix) Cash incentive (আর্থিক অনুদান)

x) Feed (পশুখাদ্য)

xi) Others (specify) [অন্যান্য (উল্লেখ করুন)]

Section 13: Housing and management (অংশ ১৩: আবাসন ও ব্যবস্থাপনা)

Question number (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
13.1	What type of house do you use mainly for your livestock? (আপনি আপনার গবাদিপশুর জন্য প্রধানত কোন ধরণের ঘর ব্যবহার করেন?)	1. Single row permanent made with brick (floor) and tin (roof) (পাকা ফ্লোর এবং টিনের চাল/ছাদ দেয়া একক সারির স্থায়ী ঘর).....1(১) 2. Double row permanent made with brick or tin (পাকা ফ্লোর এবং টিনের চাল/ছাদ দেয়া দুই সারির স্থায়ী ঘর).....2 (২) 3. Single row make-shift (শিফট ভিত্তিক একক সারির স্থায়ীঘর).....3 (৩) 4. Double row make shift (শিফট ভিত্তিক দুই সারির স্থায়ী ঘর).....4 (৪) 5. Conventional (প্রচলিত কাঁচাঘর).....5 (৫	
13.2	Do you use floor mat for livestock (আপনি কি গবাদিপশুর জন্য ফ্লোর মাদুর ব্যবহার করেন)?	Yes (হ্যাঁ)	No (না)
13.3	Does this house have air cooling? (ঘরটিতে কি বায়ু শীতলীকরণ ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.4	Does this huse has electric fan or exaustor fan for cooling (ঘরটি ঠান্ডা রাখার জন্য কি কোনো ইলেকট্রিক ফ্যান অথবা এক্সস্টর ফ্যান ব্যবহার করা হয়)?	Yes (হ্যাঁ)	No (না)
13.5	Does this house have mechanical manure management option? (ঘরটিতে কি যান্ত্রিক ভাবে গোবর /ম্যানউর ব্যবস্থাপনার উপায় রয়েছে?)	Yes (হ্যাঁ)	No (না)
13.6	Does this house have mechanical watering and washing option? (ঘরটিতে কি যান্ত্রিক উপায়ে পানি সরবরাহের ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.7a	Does this house covers biosecurity plan? (ঘরটিতে কি জীবসুরক্ষা ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.7b	If Yes, then what are those? (যদি হ্যাঁ হয়, তাহলে সেগুলো কি কি?)	i) Foot bath (পা জীবাণুমুক্ত করার ব্যবস্থা) ii) Hand wash facility (হাত ধোয়ার ব্যবস্থা) iii) Mosquito net (মশারি) iv) Others (specify) অন্যান্য (উল্লেখ করুন)	
13.8	Does this house have proper ventilation system? (এই ঘরে কি বায়ু চলাচলের পর্যাপ্ত ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.9	Is there sufficient space for livestock in this house? (এই ঘরে গবাদিপশুর জন্য পর্যাপ্ত জায়গা আছে কি না)?	Yes (হ্যাঁ)	No (না)
13.10	What kind of energy source do you use in this house? (ঘরটিতে কোন ধরণের বিদ্যুৎ ব্যবহার করেন?)	i) Electricity (বিদ্যুৎ) ii) Solar energy (সৌরশক্তি) iii) Others (specify) [অন্যান্য (উল্লেখ করুন)] iv). No electricity use (কোনো বিদ্যুৎ ব্যবহার করা হয় না)	
13.11	Do you maintain quarantine & isolation in your farm? (খামারের পশু কোয়ারান্টিন বা পৃথকীকরণ করার ব্যবস্থা আছে কি)?	Yes (হ্যাঁ)	No (না)
13.12	Does utensils and mechineries used int the farm are women friendly (খামারে ব্যবহৃত সরঞ্জামাদি এবং যন্ত্রপাতি কি মহিলাবান্ধব)?	Yes (হ্যাঁ)	No (না)

Section 14: Manure management (অংশ ১৪: গোবর /ম্যানউর ব্যবস্থাপনা)

Q. No. (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
14.1	How much manure did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান গোবর/ম্যানিউর উৎপাদন হয়েছিল)	Kg (কেজি)___	
14.2	How did you mainly process manure? (আপনি প্রধানত কিভাবে গোবর/ম্যানিউর ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1(১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.3	How much manure you used for crop fertilization? (ফসলে দেওয়ার জন্য আপনি কি পরিমান গোবর/ম্যানিউর সার হিসেবে ব্যবহার করেছিলেন?)	Kg_____/Year_____(কেজি_____/বছর_____)	
14.4	How much waste did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান আবর্জনা উৎপাদন হয়েছিল)	Kg (কেজি)___	
14.5	How did you mainly dispose waste? (আপনি প্রধানত কিভাবে আবর্জনা ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1 (১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.6	Do you face social conflicts due to conventional manure management? (প্রচলিত ম্যানিউর ব্যবস্থাপনায় আপনি কি সামাজিক সমস্যার সম্মুখীন হন?)	Yes (হ্যাঁ)	No (না)
14.7	How do you manage this social conflict? (আপনি এই সামাজিক দ্বন্দকে কিভাবে মোকাবিলা করবেন?)	Follow standard method for manure disposal/process (গোবর/ম্যানিউর ফেলে দেওয়া/প্রক্রিয়াজাতকরণের জন্য মানসম্মত পদ্ধতির অনুসরণ করেন) .....1 (১) Do nothing (কিছুই করেন না) .....2 (২) Others (specify) [অন্যান্য (উল্লেখ করুন)])-----3 (৩)	

Section 15: Climate related risks in beef cattle production (অংশ ১৫: {ষাঁড় (গরু এবং মহিষ) উৎপাদনে জলবায়ু জনিত ঝুঁকি সমূহ}

Climate related risks (জলবায়ু জনিত ঝুঁকি)	Did you affect by any of the following risk during last five years? (গত পাঁচ বছরে আপনি কি নিম্নোক্ত কোন ঝুঁকিতে ক্ষতিগ্রস্ত হয়েছিলেন?)		Effect of Climatic risk (জলবায়ু জনিত ঝুঁকির প্রভাব) 1. 1. Output sale interruption (পণ্য বিক্রয়ে ব্যাঘাত ঘটা) 2. Animal death and disease outbreak increase (পশুমৃত্যু এবং রোগের প্রাদুর্ভাব বেড়ে যায়) 3. Scarcity of green grass and concentrate feeds (সবুজ ঘাসের ও দানাদার খাদ্যের ঘাটতি) 4. Damage/destruction to livestock house (পশুর আবাসের ক্ষতি /ধ্বংস) 5. Inadequate input and service (veterinary Treatment, AI, vaccine) (অপর্যাপ্ত কাঁচামাল এবং পরিসেবা(পশুচিকিৎসা সেবা , এ আই , টিকা) 6. Rising of food prices (খাদ্যের দাম বেড়ে যাওয়া) 7. Others (specify) [অন্যান্য উল্লেখ করুন)]	What are the strategy you have taken to address these risks? (এই ঝুঁকিগুলো হ্রাস করার জন্য আপনি কি কি কৌশল অবলম্বন করেছেন?) 1. Use of emergency shelter (গবাদিপশু দের আশ্রয় কেন্দ্রে নিয়ে যাওয়া) 2. Avail Emergency service for rescue and treatment (উদ্ধার ও চিকিৎসার জন্য জরুরী সেবা গ্রহণ) 3. Construct climate resilient farmhouse (জলবায়ু সহিষ্ণু খামারবাড়ির নির্মাণ) 4. Sell cattle/buffalo with very low price (খুব কম দামে গরু / মহিষ বিক্রি করেন) 5. Receive institutional support from institutions (প্রতিষ্ঠান গুলো থেকে অনুদান সহায়তা পেয়ে থাকেন) 6. Feed alternative low quality and low nutritive values concentrate feed and fodder (বিকল্প এবং নিম্ন মানের দানাদার খাদ্য ও ঘাস খাওয়ান) 7. Get insurance benefit from the insurance company after disaster (দূর্যোগের পরে বীমা সংস্থা থেকে বীমা সুবিধা নিয়ে থাকেন) 8. others (specify) [অন্যান্য (উল্লেখ করুন)] 9. No strategy taken কোন কৌশল নেয়া হয়নি)	
15.1 Flood/flash flood/waterlogging (বন্যা / আকস্মিক বন্যা / জলাবদ্ধতা)	Yes (হ্যাঁ)	No (না)		
15.2 Drought (খরা)	Yes (হ্যাঁ)	No (না)		
15.3 Tornado/Cyclone (টর্নেডো/ ঘূর্ণিঝড়)	Yes (হ্যাঁ)	No (না)		
15.4 Extreme hot weather (প্রচন্ড গরম আবহাওয়া)	Yes (হ্যাঁ)	No (না)		
15.5 Extreme cold weather (প্রচন্ড ঠান্ডা আবহাওয়া)	Yes (হ্যাঁ)	No (না)		
15.6 Excessive rainfall (অতিরিক্ত বৃষ্টিপাত)	Yes (হ্যাঁ)	No (না)		
15. 7 Salinity (লবণাক্ততা)	Yes (হ্যাঁ)	No (না)		
15.7 Other (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)		

Section 16: Digital and physical extension services (অংশ ১৬: ডিজিটাল এবং স্ব-শরীরে সম্প্রসারণ সেবা)

	Item (বিষয়)	Is this service acceble (সেবাগুলো কি অভিগম্য / পাওয়া যায়)?		Who is the service provider? (কে তথ্যগুলো দেয়?) DLS/LDDP.....1 (ডিএলএস) Private Services..2 (বেসরকারি পরিষেবা) Dairy Producer Organizations---3 (ডেইরী পিও) NGOs .....4 (এনজিও) Others (specify) [অন্যান্য (উল্লেখ করুন)]	If available, how would you rate your satisfaction with the services (যদি পাওয়া যায় তবে আপনি সেবাগুলো সম্পর্কে আপনার মন্তব্য কি)? i.Excelent (খুব ভালো) ii. Good (ভালো) iii.Moderate (মোটামুটি) iv) Bad (খারাপ) v. Very bad (খুব খারাপ) vi) Not applicable (প্রযোজ্য নয়)	Is this service gender friendly (for example - Provide the service without making any discrimination- or bias; Provide the service with dignity and respect etc.)? (এই সেবাগুলো কি মহিলাবান্ধব (উদাহরণস্বরূপ - কোন বৈষম্য না করে সেবা প্রদান বা পক্ষপাতিত্ব না করা; মর্যাদা ও সম্মান এর সাথে সেবা প্রদান ইত্যাদি)?
	Name (নাম)	Yes (হ্যাঁ)	No (না)			
16.1	Veterinarian and Consultancy (পশু চিকিৎসক এবং পরামর্শসেবা)	Yes (হ্যাঁ)	No (না)			
16.2	Artificial Insemination (কৃত্রিম প্রজনন)	Yes (হ্যাঁ)	No (না)			
16.3	Vaccination (টিকাদান)	Yes (হ্যাঁ)	No (না)			
16.4	Deworming (কৃমিনাশক প্রয়োগ)	Yes (হ্যাঁ)	No (না)			
16.5	Agro-enterprise development (কৃষি-ব্যবসা উন্নয়ন)	Yes (হ্যাঁ)	No (না)			
16.6	Fodder production, cutting and distribution (ঘাস উৎপাদন, কাটা এবং বিতরণ)	Yes (হ্যাঁ)	No (না)			
16.7	Livestock feeding and management services (গবাদিপশুকে খাওয়ানো এবং ব্যবস্থাপনা সেবা)	Yes (হ্যাঁ)	No (না)			
16.8	Local & global market information (স্থানীয় এবং বিশ্বব্যাপী বাজার সম্পর্কিত তথ্য)	Yes (হ্যাঁ)	No (না)			
16.9	Product and input quality control services (পণ্য	Yes (হ্যাঁ)	No (না)			

	এবং কাচাঁমালের মান নিয়ন্ত্রণ সেবা)					
16.10	Product branding and quality certification (পণ্য ব্র্যান্ডিং এবং গুনগত মানের সার্টিফিকেশন)	Yes (হ্যাঁ)	No (না)			
16.11	Online Database (অনলাইন ভিত্তিক ডাটাবেস)	Yes (হ্যাঁ)	No (না)			
16.12	Online livestock and product marketing (অনলাইন ভিত্তিক গবাদিপশু এবং পণ্য বিপণন)	Yes (হ্যাঁ)	No (না)			
16.13	Online knowledge sharing related to food safety, marketing, amimal health, livestock production etc. (খাদ্য নিরাপদতা, বিপণন, পশুস্বাস্থ্য, গবাদিপশু উৎপাদন ইত্যাদি সম্পর্কে জ্ঞানের বিস্তার)	Yes (হ্যাঁ)	No (না)			
16.14	Online treatment (অনলাইন চিকিৎসা সেবা)	Yes (হ্যাঁ)	No (না)			
16.15	Mobile veterinary clinic (মোবাইল পশুচিকিৎসা ক্লিনিক)	Yes (হ্যাঁ)	No (না)			
16.16	Waste management (বর্জ ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)			
16.17	Manure management (গোবর ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)			
16.18	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)			

16.a Did you attended any of LDDP provided training last year (আপনি কি গত বছর LDDP প্রদানকৃত কোনো ট্রেনিং এ অংশগ্রহণ করেছেন?

i) Yes (হ্যাঁ) ii) No (না)

16.b If yes, how would you rate your satisfaction on the training you received from LDDP (যদি করে থাকেন, তবে LDDP থেকে ট্রেনিং পেয়ে আপনি কটুকু সন্তুষ্ট) ?

i.Excelent (খুব ভালো)

ii. Good (ভালো)

iii.Moderate (মোটামুটি)

iv) Bad (খারাপ)

v. Very bad (খুব খারাপ)

vi) Not applicable (প্রযোজ্য নয়)

16.b.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)_

16.c. How would you rate your overall satisfaction with LDDP service (LDDP থেকে সেবা পেয়ে আপনি কতটুকু সন্তুষ্ট?)

i.Excelent (খুব ভালো)

ii. Good (ভালো)

iii.Moderate (মোটামুটি)

iv) Bad (খারাপ)

v. Very bad (খুব খারাপ)

vi) Not applicable (প্রযোজ্য নয়)

16.c.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)_____

Section 17: Livestock decision-making by gender (অংশ ১৭ – গবাদিপশু প্রতিপালনে লিঙ্গভিত্তিক সিদ্ধান্ত গ্রহণ)

Sl. no (ক্রমিক নং)	Decision criteria (সিদ্ধান্তের মানদণ্ড)	Gender (লিঙ্গ)			Youth		
17.1	Who is the authorized owner of this farm? (এই খামারের আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.2	Who is the authorized owner of livestock? (এই খামারের গবাদিপশুর আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.3	Who takes the decision of buying livestock? (গবাদিপশু কেনার সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.4	Who chooses the breed? (গবাদিপশুর জাতকে নির্বাচন কে করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.5	Who takes the decision of fodder production? (ঘাস উৎপাদনের সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.6	Who cultivates fodder? (ঘাস উৎপাদনে কে জমিতে কাজ করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.7	Who collect fodder from field (কে জমি থেকে ঘাস সংগ্রহ করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.8	Who takes the decision of feed rationing? (কে খাবারের পরিমাণ নির্দিষ্ট করার সিদ্ধান্ত নেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)

17.9	Who fed animals in the farm? (খামারে গবাদিপশু কে খাবার দেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.10	Who have mainly access to different digital and physical extension services (বিভিন্ন ডিজিটাল এবং স্বশরীরে সম্প্রসারণ সেবা প্রধানত কার জন্য অভিগম্য/প্রবেশযোগ্য)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.11	Who decide to manage manure? (কে গোবর /ম্যানিউর ব্যবস্থাপনার সিদ্ধান্ত নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.12	Who manages manure and waste in the farm? (খামারে কে গোবর এবং বর্জ্য ব্যবস্থাপনা করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.13	Who perform cleaning and sanitization in the farm? (খামারে কে পরিষ্কার পরিচ্ছন্নতা ও জীবাণুমুক্তকরণ কার্য সম্পন্ন করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.14	Who choose the input supplier? (কে উপকরণ সরবরাহকারী নির্বাচন করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.15	Who maintain the contact with the input supplier? (কে উপকরণ সরবরাহকারীর সাথে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.16	Who decide where to sale? (কার কাছে এবং কোথায় বিক্রি করবে এই সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.17	Who maintain the contact with the buyer? (ক্রেতার সাথে যোগাযোগ করেন কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.18	Who decide the use of money earned from livestock? (গবাদিপশু পালন থেকে উপার্জিত অর্থ ব্যবহারে কে সিদ্ধান্ত গ্রহণ করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.19	Who maintain the contact with the vet service providers? (পশুচিকিৎসা সেবা সরবরাহকারীদের সাথে কে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.20	Who decide the participants of training? (পরিবার থেকে প্রশিক্ষণে কে অংশগ্রহণ করবে সেই সিদ্ধান্তকে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.21	Who participates in the training? (প্রশিক্ষণে কে অংশগ্রহণ করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.22	Who spent more time in farm activities? (খামারের কাজে কে বেশি সময় দেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.23	Who mainly have access to finance/ credit (আর্থিক/ঋণ এর ক্ষেত্রে কার প্রবেশযোগ্যতা বেশি)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.24	Who mainly goes out for feed and food product testing (কে প্রধানত উৎপাদন এবং উপকরণ পরীক্ষা করতে নিয়ে যায়)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25	Who manage the household chores listed below along with farming কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি নীচে তালিকাভুক্ত গৃহস্থালির কাজগুলি পরিচালনা করে						

17.25a	Who manage taking care of children along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি বাচ্চাদের দেখাশোনা পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25b	Who manage preparing children for their school along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি তাদের ছেলে মেয়েদের স্কুলের জন্য প্রস্তুত করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25c	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিবারের বৃদ্ধ সদস্যদের দেখাশোনা করেন)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25d	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিষ্কার, ধোয়া এবং ঝাড়ু পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25e	Who manage cooking along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি রান্না পরিচালনা করেন)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25f	Who manage collecting water along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পানি সংগ্রহ করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26	Why men- women are practicing this, Please specify the reason (কেন পুরুষ-মহিলারা এটি অনুশীলন করছেন, দয়া করে কারণটি উল্লেখ করুন)	i. Learn from the family (পরিবার থেকে শিক্ষা) ii. Ask to do so by in laws (e.i Father in law, mother in law, mother, father) (শ্বশুর, শাশুড়ি, মা, বাবা করতে বলার জন্য) iii. Due to the abusive word of the neighbor's and community pressure (প্রতিবেশীর গালিগালাজের এবং কমিউনিটির চাপের কারণে) iv. Due to religious pressure (ধর্মীয় চাপের কারণে) v. Others (specify) [অন্যান্য (উল্লেখ করুন)]					

FAO of the UN: Package: LDDP/SD-65

Household Baseline Survey Questionnaire 2021 for Small Ruminant Value Chain

Survey designed and supervised by: FAO of the UN

ছাগল/ভেড়া ভ্যালু চেইন খামারিদের জন্য বেইসলাইন জরীপের প্রশ্নপত্র-২০২১

জাতিসংঘের খাদ্য ও কৃষি সংস্থার তত্ত্বাবধানে এলডিডিপি প্রকল্পের জরীপের উদ্দেশ্যে প্রস্তুতকৃত

Section 1: General Information (অংশ ১: সাধারণ তথ্য)

GPS location (জিপিএস অবস্থান):	Latitude (অক্ষাংশ): ____0North (0উত্তর)	Longitude (দ্রাঘিমাংশ): ____0East (0পূর্ব)	Questionnaire No (প্রশ্নপত্র নং):
Name of the Interviewer (প্রশ্নকর্তার নাম):		Date (dd-mm-yyyy) [তারিখ (দিন/মাস/বছর)]:	
1.1 Geographic Location of farmer (খামারীর ভৌগলিক অবস্থান):			
a) Division (বিভাগ):	b) District (জেলা):	c) Upazila (উপজেলা):	
d) Postal Code (পোস্ট কোড):	e) Union (ইউনিয়ন): f) Ward (ওয়ার্ড):	g) Village (গ্রাম)/Moholla (মহল্লা):	
1.2 Information of the respondent Farmer (উত্তদাতা খামারীর তথ্য): Picture of the respondent farmer will automatically be captured by the data collection devise (উত্তরদাতা খামারীর ছবি (তথ্য সংগ্রহকারী ট্যাব এর মাধ্যমে স্বয়ংক্রিয়ভাবে নিতে হবে)			
Respondent's Name (উত্তদাতার নাম):	b) Respondent's Age (years) [উত্তদাতার বয়স (বছর)]:	c) Respondent's Sex (উত্তদাতার লিঙ্গ) i. Male (পুরুষ) ii. Female (মহিলা) iii. Transgender (ট্রান্সজেন্ডার)	d) Respondent's picture (উত্তরদাতার ছবি)
e) Respondent's marital status (উত্তরদাতার বৈবাহিক অবস্থা) i. Single ii. Married iii. Widow iv. Divorced v. Separated		f) Respondent's Years of schooling (formal/informal) [উত্তদাতার শিক্ষাকাল বছর (আনুষ্ঠানিক/ অনানুষ্ঠানিক)]	g) Respondent's Mobile No (উত্তদাতার মোবাইল নম্বর):
h) Respondent's National ID No (উত্তদাতার জাতীয় পরিচয়পত্র নম্বর) ছবি নিতে হবে:	i) Respondent's Father's Name (উত্তদাতার বাবার নাম):	j) Respondent's Mother's name (উত্তদাতার মায়ের নাম):	k) Respondent's Husband/wife's name (উত্তদাতার স্বামী / স্ত্রীর নাম):
l) Farmers relation with head of HH (পরিবার প্রধানের সাথে খামারীর সম্পর্ক): i. Himself/herself (নিজেই) ii. Son (ছেলে) iii. Daughter (মেয়ে) iv. Husband/wife (স্বামী / স্ত্রী) v. Father/Mother (বাবা/মা) vi. Others (specify) অন্যান্য (উল্লেখ করুন)]		m) Age of the head of HH (years) [(পরিবার প্রধানের বয়স (বছর)]:	n. Sex of the head of HH (পরিবার প্রধানের লিঙ্গ): i. Male (পুরুষ) ii. Female (মহিলা) iii.Transgender (ট্রান্সজেন্ডার)

1.3. How much land do you have? (decimal) [আপনার কি পরিমান জমি আছে? (শতাংশ)]	a) Homestead (বসতবাড়ি)		b) Cultivable (নিজস্ব চাষযোগ্য)		c) Mortgage in/leased in (বন্ধক নেয়া/বর্গা নেয়া)		d) Pasturelan d (চারণ-ভূমি)		e) Fallow land (পতিত জমি)		e) Farm Land (খামার জমি)

1.4 Are you a member of any PG? (আপনি কি কোনো উৎপাদক গ্রুপ এর সদস্য?)	i. Yes (হ্যাঁ) ii. No (না)		
1.4a What is your PO name? (আপনার পিও/ কৃষক গ্রুপ এর নাম কী?)			
1.5 Do you face any social obstacles to participate in PG? ((আপনি কি পিজি তে অংশ নিতে কোনও সামাজিক বাঁধার সম্মুখীন হন?)		Yes (হ্যাঁ):	No (না):
1.6 If yes, what specific social obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের সামাজিক বাধার সম্মুখীন হন?)	i. Restriction from family member (পরিবারের সদস্য থেকে নিষেধাজ্ঞা) ii. Religious barrier (ধর্মীয় বাধা) iii. Mobility is restricted (চলাফেরা সীমাবদ্ধ) iv. Abusive word from the neighbor (প্রতিবেশীদের কাছ থেকে কটু কথা) v. Road safety during transportation (পরিবহনের সময় সড়ক নিরাপত্তার অভাব) vi. Insensitive behavior of the service provider (সেবা প্রদানকারীর অসংবেদনশীল আচরণের অভাবের কারণে নিরুৎসাহিত)		

Section 2: Farmer's HH profile (অংশ 2: খামারির পরিবারের তথ্য)

SL (ক্রমিক নং)	Age group (বয়সের গ্রুপ)	Sex (লিঙ্গ)			Highest Education level (সর্বোচ্চ শিক্ষাগত যোগ্যতা)					
		Male (পুরুষ)	Female (মহিলা)	Transgender (ট্রান্সজেন্ডার)	Primary (Class 1-5)		Secondary (Class 6-10)		Post secondary and above	
					Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)
1	Children (0-4 years) [শিশু, ০-৪ বছর]									
2	Children (5-14 years) [শিশু, ৫-১৪ বছর]									
3	Youth early working (15-24 years) [যুবক/ যুবতী, ১৫-২৪ বছর]									
4	Prime working (25-54 years) [প্রধানত কর্মক্ষম, ২৫-৫৪ বছর]									
5	Mature working (55-65 years) [বয়স্ক কর্মক্ষম, ৫৫-৬৫ বছর]									
6	Elderly (65 and above years) [বয়স্ক, ৬৫ বছর এবং উর্ধে]									
	Total (মোট)									

2.a. How many members are engaged in goat/sheep rearing? (আপনার পরিবারে কতজন ছাগল/ভেড়া পালনে নিযুক্ত)?

i) Male (পুরুষ): _____ ii) Female (মহিলা): _____ iii) Transgender (ট্রান্সজেন্ডার)

2.b) Do you have any person with disability in your family (আপনার পরিবারে কি কোনো প্রতিবন্ধী লোক আছে)?

i) Yes (হ্যাঁ)) ii)) No (না)

2.c) If yes, How many (যদি থাকে তবে কতজন)?

i) Male (পুরুষ): _____ ii)) Female (মহিলা): ___ iii) Transgender (ট্রান্সজেন্ডার)

What type of livestock are you rearing in your farm? (আপনি কোন ধরনের গবাদিপশু পালন করেন?)

i) Goat farming (ছাগলের খামার)
ii) Sheep farming (ভেড়ার খামার)

Section 3: Goat farm characteristics (অংশ ৩: ছাগলের খামারের বৈশিষ্ট্য)

Breed type (জাতের ধরণ)	How many of the following goat do you have? (আপনার নীচের কতগুলো ছাগল রয়েছে?)								Did you sell any of the following goat during last one year? (আপনি কি গত এক বছরে কতটি ছাগল বিক্রি করেছেন?)			Did you consume any of the following goat during last one year? (আপনি কি গত এক বছরে কতটি ছাগল খেয়েছেন?)		
	Bucks (পাঁঠা)		Does (ছাগী)		Castrated Goat (খাসি)		Kids (বাচ্চা)							
	No. (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No. (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No. (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No. (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No. (সংখ্যা)	Average live weight of goat (Kg) [গড় ওজন (কেজি)]	Average price per goat (Tk.) [গড় দাম (টাকা /ছাগল)]	No. (সংখ্যা)	Averae live weight of goat (Kg) [গড় ওজন (কেজি)]	Average price per goat (Tk.) [গড় দাম (টাকা /ছাগল)]
3.1 Name (নাম)	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10	3.11	3.12	3.13	3.14	3.15
i) Black Bengal Goat (ব্ল্যাক বেঙ্গল ছাগল)														
ii) Black Bengal Goat Crosses (ব্ল্যাক বেঙ্গল সংকর)														
iii) Jamunapari (যমুনাপারি)														
iv) Beetal (বিটল)														
v) Boer (বোয়ার)														
vi) Cross (শংকর জাত)														
vii) Others (specify)														

[অন্যান্য (উল্লেখ করুন)]														

Section 4: Sheep farm characteristics (মডিউল ৪: ভেড়ার খামারের বৈশিষ্ট্য)

How many of the following sheep do you have? (আপনার নীচের কতগুলো ভেড়া রয়েছে?)

Breed type (জাতের ধরণ)	How many of the following livestock do you have? (নীচের কতগুলো গবাদিপশু আপনার রয়েছে?)								Did you sell any of the following sheep during last one year? (আপনি কি গত এক বছরে কোনো ভেড়া বিক্রি করেছেন?)			Did you consume any of the following sheep during last one year? (আপনি কি গত এক বছরে কোনো ভেড়া খেয়েছেন?)		
	Rams (পাঁঠা)		Ewes (ভেড়ি)		Wethers (castrated) (খাসি)		Lamb (বাচ্চা)							
	No. (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No. (সংখ্যা)	Average live weight of sheep (Kg) [গড় ওজন (কেজি)]	Average price per sheep (Tk.) [গড় দাম (টাকা / ভেড়ার)]	No. (সংখ্যা)	Average live weight of sheep (Kg) [গড় ওজন (কেজি)]	Average price per sheep (Tk.) [গড় দাম (টাকা / ভেড়ার)]
4.1 Name (নাম)	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	4.10	4.11	4.12	4.13	4.14	4.15
i) Local (দেশীয়/স্থানীয়)														
ii) Garol (গাড়োল)														
iii) Others (specify) [অন্যান্য (উল্লেখ করুন)]														

4a. Breeding management (৪ক. প্রজনন ব্যবস্থা)

4a.1 How do you breed Does/Ewes? (ছাগী/ ভেড়ি কিভাবে প্রজনন করান)?	i. Natural mating in own farm (নিজ খামার পাল দেয়া) ii. Off-farm Paid natural mating (নিজ খামার বহির্ভুত টাকার বিনিময়ে পাল দেয়া) iii. AI service (কৃত্রিম প্রজনন) iv. Others (specify) [অন্যান্য (উল্লেখ করুন)]
4a.2 in case of off farm, who provide breeding service? (নিজ খামার বহির্ভুত ক্ষেত্রে কে প্রজনন সেবা প্রদান করেন)?	i.Govt. breeding center (সরকারী প্রজনন কেন্দ্র) ii. Community breeding center (কমিউনিটি প্রজনন কেন্দ্র) iii. Others (specify) [অন্যান্য (উল্লেখ করুন)]

4b.3 Do you practice inbreeding in your farm (আপনি কি আপনার খামারে আন্তঃপ্রজনন করান)	Yes (হ্যাঁ)	No (না)
4b.4 if yes, Do you know the problem of inbreeding? (যদি করান তবে আপনি কি আন্তঃপ্রজনন এর সমস্যাগুলি সম্পর্কে জানেন)?	Yes (হ্যাঁ)	No (না)

4a.4 In case of AI which breed do you prefer most? (এ.আই. এর ক্ষেত্রে আপনি কোন জাতকে প্রাধান্য দেন?)	Black Bengal Goat (ব্ল্যাক বেঙ্গল ছাগল) Black Bengal Goat Crosses (ব্ল্যাক বেঙ্গল সংকর) Jamunapari (যমুনাপারি) Beetal (বিটল) Boer (বোয়ার) Others (specify) [অন্যান্য (উল্লেখ করুন)] Did not use AI service (এ.আই. ব্যবহার করা হয় নাই|)
4a.5 On average, how many kids your goat/sheep give birth (আপনার একটি ছাগল/ভেরি একসাথে গড়ে কতটি করে বাচ্ছা দেয়)?	Number (সংখ্যা):

Section 5. Housesholds nutrition awareness related information (অংশ 5: খামারির পরিবারে পুষ্টি সচেতনতা সম্পর্কিত তথ্য)

5.1 Did any member of your household receive any nutrition awareness information last year? (আপনার পরিবারের কেউ কি গত বছর পুষ্টি সচেতনতা সম্পর্কিত কোনো তথ্য পেয়েছেন?) i. Yes (হ্যাঁ) ii. No (না)

5.2 If yes, what was the source? যদি পেয়ে থাকেন তবে কথা থেকে পেয়েছেন?

i. Training (প্রশিক্ষণ) ii. SMS (এস এম এস), iii. TV (টেলিভিশন), iv. Bill Board (বিল বোর্ড) v. Online media (অনলাইন মাধ্যম) vi. Exhivision (প্রদর্শনী) vii. Milk day (দুগ্ধ দিবস) viii. Community radio (কমিউনিটি রেডিও) ix) Others___ specify [অন্যান্য (উল্লেখ করুন)]

5.3 If yes, how many members of your family including you receive this information (যদি পেয়ে থাকেন তবে আপনি অথবা আপনার পরিবারের কতজন সদস্য এই তথ্য পান)

Section 6: Market Access (অংশ ৬: বাজারে প্রবেশ)

During last 1 year, October 1, 2020 to September 30, 2021 (গত ১ বছর, ১ অক্টোবর ২০২০ থেকে ৩০ সেপ্টেম্বর ২০২১)

Marketing options (বিপণনের বিকল্প গুলো)	Response (উত্তর)	
6.1 To whom do you mainly sell your goat/sheep? (আপনি প্রধানত কার কাছে ছাগল/ভেড়া বিক্রি করেন?)	i) Consumer (সরাসরি গ্রাহকের নিকট) ii) Trader/paiker (ব্যবসায়ী/পাইকার) iii) Roadside butcher with no fixed slaughtering space (রাস্তার-পাশের মাংস বিক্রেতার নিকট) iv) Butcher in local market with fixed slaughtering space (বাজারের মাংস-বিক্রেতার নিকট) v) Direct to meat processing company (সরাসরি মাংস প্রক্রিয়াকরণ কোম্পানি)	vi) To lender to repay loan (ঋণ পরিশোধ করার জন্য ঋণদাতার কাছে) vii) Online market (অনলাইন বাজার) viii) Sale to call center (কল সেন্টার এর কাছে) ix) Others___ specify [অন্যান্য (উল্লেখ করুন)] x) Did not sale (বিক্রি করা হয় নাই)

6.2 Where do you mainly sell your goat/sheep? (আপনি প্রধানত কোথায় ছাগল/ভেড়া বিক্রি করেন?)	i) Farmgate (নিজ-খামার হতে) ii) Sale within the village (নিজ গ্রামেই বিক্রি) iii) Local market (স্থানীয় বাজার) iv) Urban market (শহরের বাজারে বিক্রি)	v) At buyers' place (ক্রেতার বাসায় পৌঁছে দেয়া) vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]
6.3 What is the main mode of transport? (ছাগল/ভেড়া পরিবহনের প্রধান মাধ্যম কী?)	i) On foot (পায়ে হেঁটে) ii) Rikshaw/Van/bicycle, Motorcycle (রিকশা/ভ্যান/ বাইসাইকেল/মোটরসাইকেল) iii) Auto (battery/engine vehicle) [অটো (ব্যাটারি/ইঞ্জিনের গাড়ি)]	iv) Boat (নৌকা) v) Truck (ট্রাক) vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]
6.4 Do you sell goat/sheep meat? (আপনি কি ছাগল/ভেড়ার মাংস বিক্রি করেন?)	Yes (হ্যাঁ)	No (না)
6.5 What is the off-farm feed sources (Roughage & Concentrate, vitamins/minerals/medicines, and feed additives for goat/sheep) of collection? নিজ-খামার বর্হিভূত খাদ্য-উৎস্যগুলো (আঁশজাতীয় ও দানাদার, ভিটামিন / খনিজ / ওষুধ) কি?	i) Local retailers (স্থানীয় খুচরা বিক্রেতা)	
	ii) Wholesalers (পাইকারী বিক্রেতা)	
	iii) Local feed mixers (স্থানীয় ফিড মিক্সার)	
	iv) Feed company (ফিড কোম্পানি)	
	v) Others (specify) [অন্যান্য (উল্লেখ করুন)]	
	vi) Do not use (ব্যবহার করা হয় না)	
6.6 Who usually go to the market for buying feed/selling goat/sheep? (পশুখাদ্য কিনতে বা ছাগল/ভেড়া বিক্রি করতে কে সাধারণত বাজারে যায়?)	i. Male (পুরুষ): ii. Female (মহিলা): iii) Transgender (ট্রান্সজেন্ডার)	
6.7a Do you face any social obstacles in selling or buying feed/selling of animals/meat due to gender? (পশুখাদ্য ক্রয়/ পশু বা মাংস বিক্রয়ে পুরুষ/মহিলা হিসেবে কোনো সামাজিক বাধার সম্মুখীন হন?)	Yes (হ্যাঁ)	No (না)
6.7b. If yes, what specific obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের বাধার সম্মুখীন হন?)	i. Restriction from family member (পরিবারের সদস্য থেকে নিষেধাজ্ঞা) ii. Religious barrier (ধর্মীয় বাধা) iii. Mobility is restricted (চলাফেরা সীমাবদ্ধ) iv. Abusive word from the neighbor (প্রতিবেশীদের কাছ থেকে কটু কথা) v. Road safety during transportation (পরিবহনের সময় সড়ক নিরাপত্তার অভাব) vi. Insensitive behavior of the service provider (সেবা প্রদানকারীর অসংবেদনশীল আচরণের অভাবের কারণে নিরুৎসাহিত) vii. I am not interested to go to the market (আমি বাজারে যেতে আগ্রহী নই)	

Section 7: Disease management (অংশ ৭: রোগ ব্যবস্থাপনা)

Disease name (রোগের নাম)	Did your goat/sheep face this disease during last 12 months' period? (আপনার খামারের ছাগল/ভেড়ার গত ১২ মাসে নিচের কোন রোগ হয়েছিল)?		If yes, how many goat/sheep had been affected (যদি হয়ে থাকে তবে কতগুলো ছাগল/ভেড়ার হয়েছিল)?	Did you apply any vaccine for this disease? (আপনি কি এই রোগের জন্য কোনো টিকা দিয়েছেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) Not at all (কখনো দেয়া হয়নি)			Did you apply any treatment for this disease? (আপনি কি এই রোগের জন্য কোনো চিকিৎসা করিয়েছেন)?		Did your goat/sheep die last year for this disease? (গতবছর এই রোগে কি কোনো ছাগল/ভেড়া মারা গিয়েছিলো?)		If died, how many? (যদি মারা গিয়ে থাকে তাহলে কতগুলো)?
7.1 Contagious and infectious (ছোঁয়াচে এবং সংক্রামক)											
i) PPR (পিপিআর)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) FMD (এফএমডি/ক্ষুরা রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii) Goat/Sheep pox (ছাগলের পক্স/বসন্ত)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
v) Pneumonia (নিউমোনিয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vi) Diarrhea (ডায়রিয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vii) Mastitis (ওলান প্রদাহ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
viii) Enterotoxaemia (এন্টারোটক্সেমেয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ix) Anthrax (অ্যানথ্রাক্স/তড়কা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
x) Actinomycosis (এক্টিনোমাইকোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
x)Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.2 Reproductive, Metabolic and others (প্রজনন, মেটাবোলিক ও অন্যান্য)											
i) Repeat breeding (পুনঃপ্রজনন)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ii) Dystocia (প্রসবকালীন বাচ্চা আটকে যাওয়া)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iii) Abortion (গর্ভপাত)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
iiv) Urolithiasis (মূত্রথলিতে পাথর)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
v) Tympany/Bloat (পেট ফাঁপা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vi) Gid disease (গিড ডিজিজ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
vii) Skin disease (চর্মরোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
viii) Ecthyma (মুখে ঘাঁ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
ix) Bloat (পেট ফাঁপা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

x) Worm (কৃমি)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
xi) Others (Specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

Section 8: Feed production and management (অংশ ৮: পশুখাদ্য উৎপাদন এবং ব্যবস্থাপনা)

8.1 Do you cultivate green grass (আপনি কি সবুজ ঘাস চাষ করেন)?

i) Yes (হ্যাঁ) ii) No (না)

8.2 If yes, Provide information below (যদি করেন তবে নিম্নের তথ্যগুলো প্রদান করুন)

SL no. (ক্রমিক নং)	Type of land (জমির প্রকার)	Area (decimal) [পরিমান (শতাংশ)]	Type of grass (ঘাসের প্রকার) i) Nepier (নেপিয়ার) ii) Jamboo (জাম্বো) iii) Rosi (রোজি) iv) Maiz (ভুট্টা) v) Leaf (Dhoincha, Ipilipil) (ধইঞ্চা, ইপিলিপিল ইত্যাদির পাতা) vi) Others (অন্যান্য)	During last one year (গত এক বছরে)			
				Production (Kg) [উৎপাদন (কেজি)]	On farm consumption (নিজ খামারে খাওয়ানো (কেজি))	Sell (বিক্রি)	
						Quantity (কেজি)]	Total value (Tk) মোট মূল্য (টাকা)
1	Homestead land (বসতভিটা)						
2	Fallow land (পতিত জমি)						
3	Leased/mortgaged in land (বন্দক নেয়া বা বর্গা নেয়া জমি)						
4	Own cultivable land (নিজস্য চাষযোগ্য জমি)						

8a. Feeding practices (৮ ক. খাদ্য পদ্ধতি)

Questions (প্রশ্ন)	Response (উত্তর)
8a.1 Which of the following feeding practice do you follow for goat/sheep farming? (ছাগল/ভেড়া পালনের জন্য নিম্নলিখিত কোন খাদ্য পদ্ধতিটি অনুসরণ করেন?)	i) Browsing (চড়ানো) ii) Stall-feeding (ষ্টল-ফিডিং) iii) Both browsing and stall-feeding (চড়ানো এবং ষ্টল-ফিডিং উভয়ই)
8a.2 If browsing, where do you take goat/sheep for grazing? (যদি চড়ানো হয় তবে আপনি ছাগল/ভেড়া কোথায় চড়ান?)	i) Roadside (রাস্তার পাশে) ii) Agricultural land (কৃষি জমি) iii) Forest land (বনভূমি) iv) Village fallow land (গ্রামের পতিত জমি) v) Pastureland (চারণভূমি) vi) Others (Specify) [অন্যান্য (উল্লেখ করুন)]

8b. Feed production and management (৮খ. পশুখাদ্য উৎপাদন এবং ব্যবস্থাপনা)

Item (তালিকা)	Used from On-farm (নিজ-খামার)	Used from off-Farm (নিজ-খামার বর্হিভূত)
Name (নাম)	Quantity(Kg/day) [পরিমাণ(কেজি/দিন)]	Quantity (Kg/day) [পরিমাণ (কেজি/দিন)]
4.c.1	4.c.2	4.c.3
Green grass/leaves (সবুজ ঘাস/পাতা)		
Grains (শস্য-দানা)		
i) Corn (ভূট্টা)		
ii) Wheat (গম)		
iii) Rice/Broken rice (চাল/খুদ)		
iv) Gram (কলাই)		
v) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
Brans (কুড়া)		
i) Wheat brans (গমের কুড়া)		
ii) Rice (চাল)		
iii) Khesari (খেসারী)		
iv) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
Oil cake & Meals (খৈল এবং মিল)		
i) Soyabean meal (সয়াবিন-মিল)		
ii) Sesame /Mustard oil cake (সরিষার খৈল)		
iii) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
Market ready feed (বাজারে প্রাপ্ত তৈরী পশুখাদ্য)		
Minerals and Vitamins (খনিজ ও ভিটামিন)		
i) DCP (ডিসিপি)		
ii) Common salt (সাধারণ লবণ)		
iii) Premix minerals & vitamins (বাজারে প্রাপ্ত খনিজ ও ভিটামিন)		
iv) UMMB (ইউ এম এম বি)		
v) UMB ((ইউ এম বি)		
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]		
Others (specify) [অন্যান্য (উল্লেখ করুন)]		

Section 9: Production cost (অংশ ৯: উৎপাদন খরচ)

9a. Operating/recurring cost (৯ ক. পরিচালনা /নির্বাহী খরচ)

SL	Item name (তালিকা)	Response (উত্তর)				
9a.1	How much feed cost incurred during last year? (গতবছর ছাগল/ভেড়ার খাদ্য বাবদ আপনার কত খরচ হয়েছিল?)	Tk. (টাকা)				
9a.2	How many family labour hours per day did you use for goat/sheep farming? [ছাগল/ভেড়া পালনে প্রতিদিন নিজ-পরিবার হতে কত ঘন্টা সময় দেন?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years) (যুবক) (১৫-২৪ বছর)]:	Young girls (aged 15-24 years) [যুবতী (১৫- ২৪ বছর)]:	Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.3	How many hired labour per day did you use for goat/sheep farming? [ছাগল/ভেড়া পালনে প্রতিদিন মুজুরীর বিনিময়ে কত শ্রমঘণ্টা ব্যবহার করেন?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years)	Young girls (aged 15-24 years) [যুবতী	Not at all (একেবারেই

				(যুবক) (১৫-২৪ বছর)]:	(১৫- ২৪ বছর)]:	ব্যবহার করা হয়নি)
9a.4	What is the average wage rate of labour? (শ্রমিকদের দৈনিক গড় মুজুরী কত ছিলো?)	Male labour (পুরুষ শ্রমিক) Tk/day (টাকা/দিন)		Female labour (মহিলা শ্রমিক) Tk/day (টাকা/দিন)		Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.5	How much cost incurred for input and output transport during last year? (গতবছর উৎপাদন এবং উপকরণ পরিবহন বাবদ ব্যয় কত ছিল?)	Tk. (টাকা)				
9.a6	How much veterinary cost (treatment, vaccination, deworming) incurred during last year? (গত বছর পশুচিকিৎসা (চিকিৎসা, ভ্যাকসিনেশন, কৃমিনাশক প্রয়োগ) বাবদ ব্যয় কত ছিল)?	Tk. (টাকা)				
9a.7	How much was the utility (electricity, moskuito coil, net, etc.) and other costs during last one year (গত বছরের উপযোগ (বিদ্যুৎ, মশারি, মশার কয়েল ইত্যাদি) এবং অন্যানো খরচ)	Tk. (টাকা)				
9a.8	How much cost incurred for rental house per month (ভাড়াকৃত ঘরের জন্য প্রতি মাসে কত খরচ হয়েছিলো)	Tk. (টাকা)				

9b. Investment cost (৯ খ বিনিয়োগ খরচ)

Item (তালিকা)	Investment cost (Tk) [বিনিয়োগ খরচ (টাকা)]	Lifespan (Years) [টেকসইকাল (বছর)]	Salvage value (Tk) [অবশিষ্ট মূল্য (টাকা)]
5b.1 Goat/sheep house (ছাগল/ভেড়ার ঘর)			
5b.2 Generator/IPS (জেনারেটর / আইপিএস)			
5b.3 Water pump (পানির পাম্প)			
5b.4 Electric fan (বৈদ্যুতিক পাখা)			
5b.5 Other machineries (অন্যান্য যন্ত্রপাতি)			

Section 10: Food safety and certification [অংশ ১০ (খাদ্য নিরাপদতা এবং সনদপত্র)]

Criteria (মানদন্ড)	Response (উত্তর)		
10.1 Do you wash your hand before entering the farm? (আপনি কি খামারে প্রবেশের আগে হাত ধোয়ে থাকেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.2 Do you use foot bath containing disinfectant at the entrance of the farm? (আপনি কি খামারের প্রবেশদ্বারে জীবাণুমুক্তকারক দিয়ে পা ভিজিয়ে খামারের প্রবেশ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.3 Do you control visitor/other animal, bird and pest access in the farm? (আপনি কি খামারে দর্শনার্থীদের এবং খামার বহির্ভুত পশু-পাখি ও কীটপতঙ্গ প্রবেশ নিয়ন্ত্রণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.4 Do you monitor and maintain records for the above mentioned activities? (আপনি কি উপরোল্লিখিত কার্যাবলী নিয়মিত তদারকি এবং এর তথ্য সংরক্ষণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)

10.5 Do you keep record of parent's information, treatment, vaccination and breeding information for each farm animal? {আপনি কি খামারের প্রতিটি ছাগল/ভেড়ার পিতামাতার তথ্য, চিকিৎসা, টিকা এবং প্রজনন এর তথ্য নিয়মিত লিপিবদ্ধ করেন?)}	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.6 Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your goat/sheep feed? {আপনি কি নিয়মিত পশুখাদ্যের গুণগত মান (পুষ্টির উপাদান) এবং নিরাপদতা (অ্যান্টিবায়োটিক, ভারী ধাতু, কীটনাশকের অবশিষ্টাংশ, অণুজীব দূষক) পরীক্ষা করান?}	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.7 If yes, where did you test? (যদি করে থাকেন, তাহলে কোথায় পরীক্ষা করেন?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other Public labs (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private Feed testing lab (বেসরকারী প্রাণিখাদ্য পরীক্ষাগার) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.8 Have you ever seen any disease incidence for unsafe animal feed? (অনিরাপদ পশুখাদ্যের কারণে আপনার খামারে কি কখনো কোনও রোগের প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.9 From which source you collect farm animal's drinking water? (কোন উৎস থেকে আপনি ছাগল/ভেড়ার খাবার পানি সংগ্রহ করেন?)	1. Tube Well water (টিউবয়েলের পানি) 2. Pond/Cannel water (পুকুরের/ খালের পানি) 3. Supply/ Tap water (সাপ্লাই / টেপের পানি) 4. Filtered water (পরিশোধিত পানি) 5. Shallow tube-well/electric motor (অগভীর নলকূপ/বৈদ্যুতিক মটর) 6. Others (Specify) (অন্যান্য (উল্লেখ করুন)		
10.10 Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use? (আপনি কি খামারের সরঞ্জামাদি ব্যবহারের আগে এবং পরে নিরাপদ পানি দিয়ে সঠিকভাবে পরিষ্কার এবং জীবাণুনাশক দ্বারা জীবাণুমুক্ত করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.11 Do you transport animal with animal comfort? (আপনি কি ছাগল/ভেড়াকে আরামদায়কভাবে পরিবহন করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.12 Have you ever seen any disease incident from farm animal to farm worker or vise versa? (আপনি কি কখনও খামারের ছাগল/ভেড়া থেকে খামার কর্মী বা খামার কর্মী থেকে খামারের ছাগল/ভেড়াতে কোনও রোগের প্রকোপ দেখেছেন??)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.13 Do you perform regular health check-up of animals and farm workers (Brucellosis, Tetanus, etc.)? [আপনার খামারে কি ছাগল/ভেড়া এবং কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষা করেন (যেমন, ব্রুসেলোসিস, ধনুষ্টঙ্কার, ইত্যাদি)?]	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.14 Do you keep records of health check-up of animals and farm workers (Brucellosis, Tetanus, etc.)? (আপনি কি ছাগল/ভেড়ার এবং কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষার তথ্য সংরক্ষণ করেন (যেমন, ব্রুসেলোসিস, ধনুষ্টঙ্কার, ইত্যাদি)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.15 Do you use antibiotics or add growth hormones in sheep /goat feed? (আপনি কি ছাগল/ভেড়ার খাদ্যে অ্যান্টিবায়োটিক বা হরমোন ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.16 Have you ever seen any disease/illness incidence of customer for your farm animal's meat? (আপনি কি আপনার খামারের ছাগল/ভেড়ার মাংসের জন্য ভোক্তাদের মধ্যে কোন রোগের/ অসুস্থতার প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.17 Do you sell diseased (Mastitis, PPR, Brucellosis, etc.) goat/sheep? (আপনি কি ওলান ফোলা, পিপিআর,	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)

ব্রুসেলোসিস ইত্যাদি রোগ দ্বারা আক্রান্ত অসুস্থ ছাগল/ভেড়া জবাইয়ের উদ্দেশ্যে বিক্রি করেন?)			
10.18 Do you sell under treatment goat/sheep with antibiotics, hormone and steroid? (আপনি কি এন্টিবায়োটিক, হরমোন, স্টেরয়েড দ্বারা চিকিৎসাধীন ছাগল/ভেড়া জবাইয়ের উদ্দেশ্যে বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.19 Do you maintain withdrawal period of antibiotic/hormone? (আপনি কি এন্টিবায়োটিক/হরমোন দিয়ে চিকিৎসার পর ড্রাগ প্রত্যাহারের সময়কাল মেনে চলেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.20 Have your goat/sheep ever rejected from the buyer? (আপনার ছাগল/ভেড়া কি কখনও ক্রেতার কাছ থেকে প্রত্যাখ্যাত হয়েছে?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.21 If yes, for what reason? (যদি হয়ে থাকে, তবে কোন কারণে প্রত্যাখ্যাত হয়েছে?)	Disease conditions/ill (রোগাক্রান্ত/ অসুস্থ) Emaciation (হাড্ডিসার) Pregnancy (গর্ভবতী) Others(specify) (অন্যান্য(নির্দিষ্ট করুন)		
10.22 Do you get any goat/sheep health certificate before sale? (আপনি কি বিক্রির আগে ছাগল/ভেড়ার কোন স্বাস্থ্য-সনদপত্র গ্রহণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.23 If yes, from where did you get this? (যদি করেন, তবে কোথা থেকে সনদপত্র গ্রহণ করেন?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other govt. authority (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private authority (বেসরকারী কর্তৃপক্ষ) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.24 Do you use any label/brand for your goat/sheep or their meat? (আপনি কি ছাগল/ভেড়ার মাংসের জন্য কোনও লেবেল/ব্র্যান্ড ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.25 If yes, from where you get this label/brand certification? (যদি করেন, তাহলে আপনি কোথা থেকে এই লেবেল / ব্র্যান্ডের সনদপত্র পান?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other govt. authority (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private authority (বেসরকারী কর্তৃপক্ষ) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.26 Did you receive any information related to food safety (আপনি কি খাদ্য নিরাপদটা সম্পর্কিত কোনো তথ্য পেয়েছেন)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.27 If yes, by which means (যদি পেয়ে থাকেন তবে কিভাবে)?	i)Training (প্রশিক্ষণ) ii)Mobile app (মোবাইল আপ্লস) iii)SMS (এস এম এস) iv) Community Radio (কমিউনিটি রেডিও) iv) TV (টেলিভিশন) v) Online media (অনলাইন মাধ্যম) vi) Exhivision (প্রদর্শনী) vii) Community Radio (কমিউনিটি রেডিও) viii) Others (specify) [অন্যান্য (উল্লেখ করুন)]		

Section 11: Technology and practices (অংশ ১১: প্রযুক্তি ও অনুশীলন)

Q. no. (প্রশ্ন নং)	Items (বিষয়)	Do you follow the following technology or practices in your farm? (আপনি কি আপনার খামারে নিম্নের প্রযুক্তি ও পদ্ধতি ব্যবহার করেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) iii. Not at all (কখনো দেয়া হয়নি)			If yes, from where did you know about this technology/practice? (যদি করে থাকেন, তবে আপনি কোথা থেকে এই প্রযুক্তি /পদ্ধতি সম্পর্কে জানতে পেরেছেন)? 1.DLS (ডিএলএস)/LDDP 2.BLRI (বিএলআরআই) 3.University (বিশ্ববিদ্যালয়) 4.Abroad (বিদেশ) 5.Own (নিজস্ব) 6.Friends (বন্ধুবান্ধব) 7.Online media/mass media (অনলাইন / গণমাধ্যম) 8. NGO (এনজিও) 9 Others_(specify) [অন্যান্য (উল্লেখ করুন)]	Is this technology/parcic e women friendly (এই প্রযুক্তি/ পদ্ধতিটি কি মহিলাবান্ধব)?	
11.1	Artificial insemination (কৃত্রিম প্রজনন)					Yes (হ্যাঁ)	No (না)
11.2	Improved fodder production (উন্নত ঘাস উৎপাদন)					Yes (হ্যাঁ)	No (না)
11.3	UMS (ইউ এম এস)					Yes (হ্যাঁ)	No (না)
11.4	UMMB (ইউ এম এম বি)					Yes (হ্যাঁ)	No (না)
11.5	Kids replacer (ছাগল/ভেড়ার বাচ্ছাকে বিকল্প ফর্মুলা খাওয়ানো)					Yes (হ্যাঁ)	No (না)
11.6	Kids brooding (ছাগল/ভেড়ার বাচ্চাকে তাপ দেওয়া)					Yes (হ্যাঁ)	No (না)
11.7	Ration balancing (রেশন ভারসাম্যকরণ)					Yes (হ্যাঁ)	No (না)
11.8	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)					Yes (হ্যাঁ)	No (না)
11.9	Manure management like Biogas, composting pit (গোবর /ম্যানউর ব্যবস্থাপনা, যেমন, বায়োগ্যাস, জৈবসার এর পিট ইত্যাদি)					Yes (হ্যাঁ)	No (না)
11.10	Waste management (বর্জ্য ব্যবস্থাপনা)						
11.11	Rotinue vaccination (নিয়মিত টিকাদান)					Yes (হ্যাঁ)	No (না)
11.12	Rotinue Deworming (নিয়মিত কৃমিনাশকরণ)					Yes (হ্যাঁ)	No (না)
11.13	Others (specify) [অন্যান্য (উল্লেখ করুন)]					Yes (হ্যাঁ)	No (না)

Section 12: Capacity enhancement (অংশ ১২: সক্ষমতা বৃদ্ধি)

Q. no. (প্রশ্ননং)	Items (বিষয়)	Did you receive any training? (আপনি কি কোনো প্রশিক্ষণ পেয়েছেন?)		If yes, from where did you get this training? (যদি নিয়ে থাকেন, তবে আপনি কোথা থেকে এই প্রশিক্ষণ পেয়েছেন?) LDDP (এলডিডিপি).....1 (১) NGO (এনজিও) ...2 (২) Others_(specify) [অন্যান্য (উল্লেখ করুন)] 3 (৩)
12.1	Artificial insemination (কৃত্রিম প্রজনন)	Yes (হ্যাঁ)	No (না)	
12.2	Improved fodder production (উন্নত ঘাস উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.3	UMS (ইউ এম এস)	Yes (হ্যাঁ)	No (না)	
12.4	UMMB/UMB (ইউ এম এম বি)/ (ইউ এম বি)	Yes (হ্যাঁ)	No (না)	
12.5	Kids replacer (ছাগল/ভেড়ার বাচ্ছাকে বিকল্প ফর্মুলা খাওয়ানো)	Yes (হ্যাঁ)	No (না)	
12.6	Kids brooding (ছাগলের/ভেড়ার বাচ্চাকে তাপ দেয়া)	Yes (হ্যাঁ)	No (না)	
12.7	Ration balancing (রেশন ভারসাম্যকরণ)	Yes (হ্যাঁ)	No (না)	
12.8	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.9	Manure management like Biogas, composting pit (গোবর /ম্যানউর ব্যবস্থাপনা, যেমন, বায়োগ্যাস, জৈবসার এর পিট ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.9a	Waste management (বর্জ্য ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)	
12.10	Rotine vaccination (নিয়মিত টিকাদান)	Yes (হ্যাঁ)	No (না)	
12.11	Rotinue Deworming (নিয়মিত কৃমিনাশক প্রয়োগ)	Yes (হ্যাঁ)	No (না)	
12.12	Goat fattening and Shee pproduction practices (ছাগল হৃষ্টপুষ্ট করণ এবং ভেড়া উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.13	Animal health card and certification (পশুস্বাস্থ্য কার্ড এবং সনদপত্র)	Yes (হ্যাঁ)	No (না)	
12.14	Agribusiness and value chain (কৃষি-ব্যবসা এবং ভ্যালু চেইন)	Yes (হ্যাঁ)	No (না)	
12.14a	Business development skill training including input marketing, supports and financial services (উপকরণ বিপণন, সহায়তা এবং আর্থিক পরিষেবাসহ ব্যবসায়িক উন্নয়ন দক্ষতা বিষয়ক প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.15	Good agricultural practice (উত্তম কৃষি পদ্ধতি)	Yes (হ্যাঁ)	No (না)	
12.16	Food safety training (খাদ্য নিরাপদতা প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.17	Climate shock mitigation/adaptation (জলবায়ুর অভিঘাত প্রশমন/উপযোগীকরণ)	Yes (হ্যাঁ)	No (না)	
12.18	Animal health card and certification (পশুস্বাস্থ্য কার্ড এবং সনদপত্র)	Yes (হ্যাঁ)	No (না)	
12.19	Training on gender equality issues (জেন্ডার সমতা সম্পর্কিত বিষয়)	Yes (হ্যাঁ)	No (না)	
12.20	Training on using mobile apps (মোবাইল অ্যাপ ব্যবহারের প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.21	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)	

12.26a Did you receive any asset from LDDP/DLS to start/continue your livestock business (আপনি কি আপনার গবাদিপশু ব্যবসা শুরু করতে /চালিয়ে যেতে LDDP/DLS থেকে কোনো সম্পদ পেয়েছেন?)

i. Yes (হ্যাঁ) ii. No (না)

12.26b If yes, what kind of asset did you receive (যদি পেয়ে থাকেন তবে কি ধরণের সম্পদ পেয়েছেন)?

i) Livestock house (গবাদিপশুর আবাসন),

ii) Utensiles like bucket, spade, etc. (বালতি, কোদাল, বেলচা ইত্যাদি)

iii) Cream separator (ক্রিম আলাদাকরণ যন্ত্র)

iv) Feed mixure machine (খাদ্য মিশ্রণ যন্ত্র)

v) Hyginic cleaning tools (স্বাস্থ্যকরভাবে পরিষ্কার করার যন্ত্র)

vi) Roughage shredder machine (রাফেজ শ্রেডার মেশিন)

vii) Grass chopper machine (ঘাস কাটার মেশিন)

viii) Live animal (জীবন্ত পশু)

ix) Cash incentive (আর্থিক অনুদান)

x) Feed (পশুখাদ্য)

xi) Others (specify) [অন্যান্য (উল্লেখ করুন)]

Section 13: Housing and management (অংশ ১৩: আবাসন ও ব্যবস্থাপনা)

Q. No. (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
13.1	What type of house mainly do you use for your goat/sheep? (আপনি ছাগল/ভেড়ার জন্য প্রধানত কোন ধরণের ঘর ব্যবহার করেন?)	Enclosed/fenced open space adjacent to homestead (বাড়ির পাশে ঘের দেওয়া খোলা জায়গা).....1 (১) Covered kachha shed (Little high from ground with bamboo and tin) (মাটির কিছু উপরে বাঁশ ও টিন দিয়ে তৈরি মাচা ঘর).....2 (২) Raised floor houses (উঁচু পাকা ঘর).....3 (৩) Cattle and Goat mixed shelters (অন্যান্য গবাদিপশুর সাথে একত্রে).....4 (৪) Others (specify) [অন্যান্য (উল্লেখ করুন)].....5 (৫)	
13.2a	Does this house cover biosecurity plan? (ঘরটিতে কি জীবসুরক্ষা ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
12.2b	If yes, then what are those? (যদি হ্যাঁ হয়, তাহলে সেগুলো কি কি?)	i) Foot bath (পা জীবাণুমুক্ত করার ব্যবস্থা) ii) Hand wash facility (হাত ধোয়ার ব্যবস্থা) iii) Mosquito net (মশারি) iv) Others (specify) অন্যান্য (উল্লেখ করুন)	
13.3	Does this house have adequate ventilation system? (ঘরে কি পর্যাপ্ত বায়ু চলাচলের ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.4	Does this house have proper drainage system? (ঘরে কি সঠিক পয়ঃনিষ্কাশন ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)

13.5	Is there sufficient space for livestock in this house? (এই ঘরে প্রতিটি ছাগল/ভেড়ার জন্য কি পর্যাপ্ত জায়গা আছে)?	Yes (হ্যাঁ)	No (না)
13.6	What kind of energy source do you use in this house? (ঘরটিতে কোন ধরণের বিদ্যুৎ ব্যবহার করেন?)	i) Electricity (বিদ্যুৎ) ii) Solar energy (সৌরশক্তি) iii) Others (specify) [অন্যান্য (উল্লেখ করুন)] iv). No electricity use (কোনো বিদ্যুৎ ব্যবহার করা হয় না)	
13.7	Do you have quarantine & isolation facility in your farm? (খামারের প্রাণি সঙ্গঃনিরোধ ও পৃথকীকরণ করার ব্যবস্থা আছে?)	Yes (হ্যাঁ)	No (না)
13.8	Does utensils and mechineries used int the farm are women friendly (খামারে ব্যবহৃত সরঞ্জামাদি এবং যন্ত্রপাতি কি মহিলাবান্ধব)?	Yes (হ্যাঁ)	No (না)

Section 14: Manure management (অংশ ১৪: গোবর /ম্যানউর ব্যবস্থাপনা)

Q. No. (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
14.1	How much manure did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান গোবর/ম্যানিউর উৎপাদন হয়েছিল)	Kg (কেজি)___	
14.2	How did you mainly process manure? (আপনি প্রধানত কিভাবে গোবর/ম্যানিউর ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1 (১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.3	How much manure you used for crop fertilization? (ফসলে দেওয়ার জন্য আপনি কি পরিমান গোবর/ম্যানিউর সার হিসেবে ব্যবহার করেছিলেন?)	Kg_____/Year____(কেজি_____/বছর_____)	
14.4	How much waste did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান আবর্জনা উৎপাদন হয়েছিল)	Kg (কেজি)___	
14.5	How did you mainly dispose waste? (আপনি প্রধানত কিভাবে আবর্জনা ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1 (১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.6	Do you face social conflicts due to conventional manure management? (প্রচলিত ম্যানিউর ব্যবস্থাপনায় আপনি কি সামাজিক সমস্যার সম্মুখীন হন?)	Yes (হ্যাঁ)	No (না)
14.7	How do you manage this social conflict? (আপনি এই সামাজিক দ্বন্দকে কিভাবে মোকাবিলা করবেন?)	Follow standard method for manure disposal/process (গোবর/ম্যানিউর ফেলে দেওয়া/প্রক্রিয়াজাতকরণের জন্য মানসম্মত পদ্ধতির অনুসরণ করেন) .....1 (১) Do nothing (কিছুই করেন না) .....2 (২) Others (specify) [অন্যান্য (উল্লেখ করুন)])-----3 (৩)	

Section 15: Climate related risks in goat and sheep production (অংশ ১৫: ছাগল এবং ভেড়া উৎপাদনে জলবায়ু জনিত ঝুঁকি সমূহ)

Climate related risks (জলবায়ু জনিত ঝুঁকি)	Did you affect by any of the following risk during last five years? (গত পাঁচ বছরে আপনি কি নিম্নোক্ত কোন ঝুঁকিতে ক্ষতিগ্রস্ত হয়েছিলেন?)		Effect of Climatic risk (জলবায়ু জনিত ঝুঁকির প্রভাব) 1. Output sale interruption (পণ্য বিক্রয়ে ব্যাঘাত ঘটা) 2. Animal death and disease outbreak increase (পশুমৃত্যু এবং রোগের প্রাদুর্ভাব বেড়ে যায়) 3. Scarcity of green grass and concentrate feeds (সবুজ ঘাসের ও দানাদার খাদ্যের ঘাটতি) 4. Damage/destruction to livestock house (পশুর আবাসের ক্ষতি /ধ্বংস) 5. Inadequate input and service (veterinary Treatment, AI, vaccine) (অপর্যাপ্ত কাঁচামাল এবং পরিসেবা(প্রাণি চিকিৎসা সেবা , এ আই , টিকা) 6. Rising of food prices (খাদ্যের দাম বেড়ে যাওয়া) 7. Others (specify) [অন্যান্য উল্লেখ করুন)]	What are the strategy you have taken to address these risks? (এই ঝুঁকিগুলো হ্রাস করার জন্য আপনি কি কি কৌশল অবলম্বন করেছেন?) 1. Use of emergency shelter (গবাদি পশু দের আশ্রয় কেন্দ্রে নিয়ে যাওয়া) 2. Avail Emergency service for rescue and treatment (উদ্ধার ও চিকিৎসার জন্য জরুরী সেবা গ্রহণ) 3. Construct climate resilient farmhouse (জলবায়ু সহিষ্ণু খামারবাড়ির নির্মাণ) 4. Sell goat and sheep with very low price (খুব কম দামে ছাগল এবং .ভেড়া বিক্রি করেন) 5. Receive institutional support from institutions (প্রতিষ্ঠান গুলো থেকে অনুদান সহায়তা পেয়ে থাকেন) 6. Feed alternative low quality and low nutritive values concentrate feed and fodder (বিকল্প এবং নিম্ন মানের দানাদার খাদ্য ও ঘাস খাওয়ান) 7. Get insurance benefit from the insurance company after disaster (দূর্যোগের পরে বীমা সংস্থা থেকে বীমা সুবিধা নিয়ে থাকেন) 8. others (specify) [অন্যান্য (উল্লেখ করুন)] 9. No strategy taken কোন কৌশল নেয়া হয়নি)
15.1 Flood/flash flood/waterlogging (বন্যা / আকস্মিক বন্যা / জলাবদ্ধতা)	Yes (হ্যাঁ)	No (না)		
15.2 Drought (খরা)	Yes (হ্যাঁ)	No (না)		
15.3 Tornado/Cyclone (টর্নেডো/ ঘূর্ণিঝড়)	Yes (হ্যাঁ)	No (না)		
15.4 Extreme hot weather (প্রচন্ড গরম আবহাওয়া)	Yes (হ্যাঁ)	No (না)		
15.5 Extreme cold weather (প্রচন্ড ঠান্ডা আবহাওয়া)	Yes (হ্যাঁ)	No (না)		
15.6 Excessive rainfall (অতিরিক্ত বৃষ্টিপাত)	Yes (হ্যাঁ)	No (না)		
15. 7 Salinity (লবণাক্ততা)	Yes (হ্যাঁ)	No (না)		
15.7 Other (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)		

Section 16: Digital and physical extension services (অংশ ১৬: ডিজিটাল এবং স্ব-শরীরে সম্প্রসারণ সেবা)

	Item (বিষয়)	Is this service acceble (সেবাগুলো কি অভিগম্য / পাওয়া যায়)?		Who is the service provider? (কে তথ্যগুলো দেয়?) DLS/LDDP.....1 (ডিএলএস) Private Services..2 (বেসরকারি পরিষেবা) Dairy Producer Organizations---3 (ডেইরী পিও) NGOs .....4 (এনজিও) Others (specify) [অন্যান্য (উল্লেখ করুন)]	If available, how would you rate your satisfaction with the services (যদি পাওয়া যায় তবে আপনি সেবাগুলো সম্পর্কে আপনার মন্তব্য কি)? i.Excelent (খুব ভালো) ii. Good (ভালো) iii.Moderate (মোটামুটি) iv) Bad (খারাপ) v. Very bad (খুব খারাপ) vi) Not applicable (প্রযোজ্য নয়)	Is this service gender friendly (for example - Provide the service without making any discrimination- or bias; Provide the service with dignity and respect etc.)? (এই সেবাগুলো কি মহিলাবান্ধব (উদাহরণস্বরূপ - কোন বৈষম্য না করে সেবা প্রদান বা পক্ষপাতিত্ব না করা; মর্যাদা ও সম্মান এর সাথে সেবা প্রদান ইত্যাদি)?
	Name (নাম)	Yes (হ্যাঁ)	No (না)			
16.1	Veterinarian and Consultancy (পশু চিকিৎসক এবং পরামর্শসেবা)	Yes (হ্যাঁ)	No (না)			
16.2	Artificial Insemination (কৃত্রিম প্রজনন)	Yes (হ্যাঁ)	No (না)			
16.3	Vaccination (টিকাদান)	Yes (হ্যাঁ)	No (না)			
16.4	Deworming (কৃমিনাশকরণ)	Yes (হ্যাঁ)	No (না)			
16.5	Agro-enterprise development (কৃষি-ব্যবসা উন্নয়ন)	Yes (হ্যাঁ)	No (না)			
16.6	Fodder production, cutting and distribution (ঘাস উৎপাদন, কাটা এবং বিতরণ)	Yes (হ্যাঁ)	No (না)			
16.7	Livestock feeding and management services (গবাদিপশুকে খাওয়ানো এবং ব্যবস্থাপনা সেবা)	Yes (হ্যাঁ)	No (না)			
16.8	Local & global market information (স্থানীয় এবং বিশ্বব্যাপী বাজার সম্পর্কিত তথ্য)	Yes (হ্যাঁ)	No (না)			
16.9	Product and input quality control services (পণ্য এবং কাচাঁমালের মান নিয়ন্ত্রণ সেবা)	Yes (হ্যাঁ)	No (না)			
16.10	Product branding and quality certification (পণ্য ব্র্যান্ডিং এবং গুনগত মানের সার্টিফিকেশন)	Yes (হ্যাঁ)	No (না)			
16.11	Online Database (অনলাইন ভিত্তিক ডাটাবেস)	Yes (হ্যাঁ)	No (না)			
16.12	Online livestock and product marketing (অনলাইন ভিত্তিক গবাদিপশু এবং পণ্য বিপণন)	Yes (হ্যাঁ)	No (না)			
16.13	Online knowledge sharing related to food safety,	Yes (হ্যাঁ)	No (না)			

	marketing, amimal health, livestock production etc. (খাদ্য নিরাপদতা, বিপণন, পশুস্বাস্থ্য, গবাদিপশু উৎপাদন ইত্যাদি সম্পর্কে জ্ঞানের বিস্তার)				
16.14	Online treatment (অনলাইন চিকিৎসা সেবা)	Yes (হ্যাঁ)	No (না)		
16.15	Mobile veterinary clinic (মোবাইল পশুচিকিৎসা ক্লিনিক)	Yes (হ্যাঁ)	No (না)		
16.16	Waste management (বর্জ ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)		
16.17	Manure management (গোবর ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)		
16.18	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)		

16.a Did you attended any of LDDP provided training last year (আপনি কি গত বছর LDDP প্রদানকৃত কোনো ট্রেনিং এ অংশগ্রহণ করেছেন?

i) Yes (হ্যাঁ) ii) No (না)

16.b If yes, how would you rate your satisfaction on the training you received from LDDP (যদি করে থাকেন, তবে LDDP থেকে ট্রেনিং পেয়ে আপনি কটুকু সন্তুষ্ট) ?

i.Excelent (খুব ভালো)

ii. Good (ভালো)

iii.Moderate (মোটামুটি)

iv) Bad (খারাপ)

v. Very bad (খুব খারাপ)

vi) Not applicable (প্রযোজ্য নয়)

16.b.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)_

16.c. How would you rate your overall satisfaction with LDDP service (LDDP থেকে সেবা পেয়ে আপনি কতটুকু সন্তুষ্ট?)

i.Excelent (খুব ভালো)

ii. Good (ভালো)

iii.Moderate (মোটামুটি)

iv) Bad (খারাপ)

v) Very bad (খুব খারাপ)

vi) Not applicable (প্রযোজ্য নয়)

16.c.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)

Section 17: Livestock decision-making by gender (অংশ ১৭ – গবাদিপশু প্রতিপালনে লিঙ্গভিত্তিক সিদ্ধান্ত গ্রহণ)

Sl. no (ক্রমিক নং)	Decision criteria (সিদ্ধান্তের মানদণ্ড)	Gender (লিঙ্গ)			Youth		
17.1	Who is the authorized owner of this farm? (এই খামারের আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.2	Who is the authorized owner of livestock? (এই খামারের গবাদিপশুর আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.3	Who takes the decision of buying livestock? (গবাদিপশু কেনার সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.4	Who chooses the breed? (গবাদিপশুর জাতকে নির্বাচন কে করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.5	Who takes the decision of fodder production? (ঘাস উৎপাদনের সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.6	Who cultivates fodder? (ঘাস উৎপাদনে কে জমিতে কাজ করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.7	Who collect fodder from field (কে জমি থেকে ঘাস সংগ্রহ করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.8	Who takes the decision of feed rationing? (কে খাবারের পরিমাণ নির্দিষ্ট করার সিদ্ধান্ত নেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.9	Who fed animals in the farm? (খামারে গবাদিপশু কে খাবার দেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.10	Who have mainly access to different digital and physical extension services (বিভিন্ন ডিজিটাল এবং স্বশরীরে সম্প্রসারণ সেবা প্রধানত কার জন্য অভিগম্য/প্রবেশযোগ্য)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.11	Who decide to manage manure? (কে গোবর /ম্যানিউর ব্যবস্থাপনার সিদ্ধান্ত নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.12	Who manages manure and waste in the farm? (খামারে কে গোবর এবং বর্জ্য ব্যবস্থাপনা করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.13	Who perform cleaning and sanitization in the farm? (খামারে কে পরিষ্কার পরিচ্ছন্নতা ও জীবাণুমুক্তকরণ কার্য সম্পন্ন করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.14	Who choose the input supplier? (কে উপকরণ সরবরাহকারী নির্বাচন করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.15	Who maintain the contact with the input supplier? (কে উপকরণ সরবরাহকারীর সাথে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)

17.16	Who decide where to sale? (কার কাছে এবং কোথায় বিক্রি করবে এই সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.17	Who maintain the contact with the buyer? (ক্রেতার সাথে যোগাযোগ করেন কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.18	Who decide the use of money earned from livestock? (গবাদিপশু পালন থেকে উপার্জিত অর্থ ব্যবহারে কে সিদ্ধান্ত গ্রহণ করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.19	Who maintain the contact with the vet service providers? (পশুচিকিৎসা সেবা সরবরাহকারীদের সাথে কে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.20	Who decide the participants of training? (পরিবার থেকে প্রশিক্ষণে কে অংশগ্রহণ করবে সেই সিদ্ধান্তকে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.21	Who participates in the training? (প্রশিক্ষণে কে অংশগ্রহণ করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.22	Who spent more time in farm activities? (খামারের কাজে কে বেশি সময় দেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.23	Who mainly have access to finance/ credit (আর্থিক/ঋণ এর ক্ষেত্রে কার প্রবেশযোগ্যতা বেশি)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.24	Who mainly goes out for feed and food product testing (কে প্রধানত উৎপাদন এবং উপকরণ পরীক্ষা করতে নিয়ে যায়)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25	Who manage the household chores listed below along with farming কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি নীচে তালিকাভুক্ত গৃহস্থালির কাজগুলি পরিচালনা করে						
17.25a	Who manage taking care of children along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি বাচ্চাদের দেখাশোনা পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25b	Who manage preparing children for their school along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি তাদের ছেলে মেয়েদের স্কুলের জন্য প্রস্তুত করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25c	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিবারের বৃদ্ধ সদস্যদের দেখাশোনা করেন)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25d	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিষ্কার, ধোয়া এবং ঝাড় পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25e	Who manage cooking along with farming (কে প্রধানত ফার্ম	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)

	ব্যবস্থাপনার পাশাপাশি রান্না পরিচালনা করেন)?						
17.25f	Who manage collecting water along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পানি সংগ্রহ করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26	Why men- women are practicing this, Please specify the reason (কেন পুরুষ-মহিলারা এটি অনুশীলন করছেন, দয়া করে কারণটি উল্লেখ করুন)	i. Learn from the family (পরিবার থেকে শিক্ষা) ii. Ask to do so by in laws (e.i Father in law, mother in law, mother, father) (শ্বশুর, শাশুড়ি, মা, বাবা করতে বলার জন্য) iii. Due to the abusive word of the neighbor's and community pressure (প্রতিবেশীর গালিগালাজের এবং কমিউনিটির চাপের কারণে) iv. Due to religious pressure (ধর্মীয় চাপের কারণে) v. Others (specify) [অন্যান্য (উল্লেখ করুন)]					

FAO of the UN: Package: LDDP/SD-65
Household Baseline Survey Questionnaire 2021 for Poultry Value Chain Farms
Survey designed and supervised by: FAO of the UN

পোল্ট্রি ভ্যালু চেইন খামারিদের জন্য বেইসলাইন জরীপের প্রশ্নপত্র-২০২১
জাতিসংঘের খাদ্য ও কৃষি সংস্থার তত্ত্বাবধানে এলডিডিপি প্রকল্পের জরীপের উদ্দেশ্যে প্রস্তুতকৃত

Section 1: General Information (অংশ ১: সাধারণ তথ্য)

GPS location (জিপিএস অবস্থান):	Latitude (অক্ষাংশ): _____^{0}North (^{0}উত্তর)	Longitude (দ্রাঘিমাংশ): _____^{0}East (^{0}পূর্ব)	Questionnaire No (প্রশ্নপত্র নং):

Name of the Interviewer (প্রশ্নকর্তার নাম):		Date (dd-mm-yyyy) [তারিখ (দিন/মাস/বছর)]:
Geographic Location of farmer (খামারীর ভৌগলিক অবস্থান):		
a) Division (বিভাগ):	b) District (জেলা):	c) Upazila (উপজেলা):
d) Postal Code (পোস্ট কোড):	e) Union (ইউনিয়ন): f) Ward (ওয়ার্ড):	g) Village (গ্রাম)/Moholla (মহল্লা):

1.2 Information of the respondent Farmer (উত্তদাতা খামারীর তথ্য):
Picture of the respondent farmer will automatically be captured by the data collection devise (উত্তরদাতা খামারীর ছবি (তথ্য সংগ্রহকারীর ট্যাব এর মাধ্যমে স্বয়ংক্রিয়ভাবে নিতে হবে))

Respondent's Name (উত্তদাতার নাম):	b) Respondent's Age (years) [উত্তদাতার বয়স (বছর)]:	c) Respondent's Sex (উত্তদাতার লিঙ্গ) i. Male (পুরুষ) ii. Female (মহিলা) iii. Transgender (ট্রান্সজেন্ডার)	d) Respondent's picture (উত্তরদাতার ছবি)
e) Respondent's marital status (উত্তরদাতার বৈবাহিক অবস্থা) i. Single ii. Married iii. Widow iv. Divorced v. Separated		f) Respondent's Years of schooling (formal/informal) [উত্তদাতার শিক্ষাকাল বছর (আনুষ্ঠানিক/ অনানুষ্ঠানিক)]	g) Respondent's Mobile No (উত্তদাতার মোবাইল নম্বর):
h) Respondent's National ID No (উত্তদাতার জাতীয় পরিচয়পত্র নম্বর) ছবি নিতে হবে:	i) Respondent's Father's Name (উত্তদাতার বাবার নাম):	j) Respondent's Mother's name (উত্তদাতার মায়ের নাম):	k) Respondent's Husband/wife's name (উত্তদাতার স্বামী / স্ত্রীর নাম):
l) Farmers relation with head of HH (পরিবার প্রধানের সাথে খামারীর সম্পর্ক): i. Himself/herself (নিজেই) ii. Son (ছেলে) iii. Daughter (মেয়ে) iv. Husband/wife (স্বামী / স্ত্রী) v. Father/Mother (বাবা/মা) vi. Others (specify) অন্যান্য (উল্লেখ করুন)]		m) Age of the head of HH (years) [(পরিবার প্রধানের বয়স (বছর)]:	n. Sex of the head of HH (পরিবার প্রধানের লিঙ্গ): i. Male (পুরুষ) ii. Female (মহিলা) iii.Transgender (ট্রান্সজেন্ডার)

1.3. How much land do you have? (decimal) [আপনার কি পরিমান জমি আছে? (শতাংশ)]	a) Homestead (বসতবাড়ি)		b) Cultivable (নিজস্ব চাষযোগ্য)		c) Mortgage in/leased in (বন্ধক নেয়া/বর্গা নেয়া)		d) Pastureland (চারণ-ভূমি)		e) Fallow land (পতিত জমি)		e) Farm Land (খামার জমি)

1.4 Are you a member of any PG? (আপনি কি কোনো উৎপাদক গ্রুপ এর সদস্য?	i. Yes (হ্যাঁ) ii. No (না)		
1.4a What is your PG name? (আপনার পিজি এর নাম কী?)			
1.5 Do you face any social obstacles to participate in PG? (আপনি কি উৎপাদক গ্রুপ তে অংশ নিতে কোনও সামাজিক বাঁধার সম্মুখীন হন?)		Yes (হ্যাঁ):	No (না):
1.6 If yes, what specific social obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের সামাজিক বাধার সম্মুখীন হন?)	i. Restriction from family member (পরিবারের সদস্য থেকে নিষেধাজ্ঞা) ii. Religious barrier (ধর্মীয় বাধা) iii. Mobility is restricted (চলাফেরা সীমাবদ্ধ) iv. Abusive word from the neighbor (প্রতিবেশীদের কাছ থেকে কটু কথা) v. Road safety during transportation (পরিবহনের সময় সড়ক নিরাপত্তার অভাব) vi. Insensitive behavior of the service provider (সেবা প্রদানকারীর অসংবেদনশীল আচরণের অভাবের কারণে নিরুৎসাহিত)		

Section 2: Farmer's HH profile (অংশ 2: খামারীর পরিবারের তথ্য)

SL (ক্রমিক নং)	Age group (বয়সের গ্রুপ)	Sex (লিঙ্গ)			Education level (শিক্ষাগত যোগ্যতা)					
		Male (পুরুষ)	Female (মহিলা)	Transgender (ট্রান্সজেন্ডার)	Primary (class 1-5)		Secondary (Class 6-10)		Post secondary and above	
					Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)	Male (পুরুষ)	Female (মহিলা)
1	Children (0-4 years) [শিশু, ০-৪ বছর]									
2	Children (5-14 years) [শিশু, ৫-১৪ বছর]									
3	Youth early working (15-24 years) [যুবক/ যুবতী, ১৫-২৪ বছর]									
4	Prime working (25-54 years) [প্রধানত কর্মক্ষম, ২৫-৫৪ বছর]									
5	Mature working (55-65 years) [বয়স্ক কর্মক্ষম, ৫৫-৬৫ বছর]									
6	Elderly (65 and above years) [বয়স্ক, ৬৫ বছর এবং উর্ধে]									
	Total (মোট)									

2.a. How many members are engaged in poultry farming? (আপনার পরিবারে কতজন পোল্ট্রি পালনে নিযুক্ত)?
i) Male (পুরুষ): _____ ii)) Female (মহিলা): _____ iii) Transgender (ট্রান্সজেন্ডার)

2.b) Do you have any person with disability in your family (আপনার পরিবারে কি কোনো প্রতিবন্ধী লোক আছে)?
i) Yes (হ্যাঁ)) ii)) No (না)

2.c) If yes, How many (যদি থাকে তবে কতজন) ?
i) Male (পুরুষ): _____ ii)) Female (মহিলা): ___ iii) Transgender (ট্রান্সজেন্ডার)__

What type of poultry are you rearing in your farm? (আপনি আপনার খামারে কোন ধরনের পোল্ট্রি পালন করেন?)
Scavenging chicken (দেশি মুরগি)
Scavenging duck (দেশী হাঁস)
Sonali (সোনালী মুরগি)
Commercial layer (বাণিজ্যিক লেয়ার)
Commercial broiler (বাণিজ্যিক ব্রয়লার)

Module 3: Poultry production characteristics (অংশ ৩: হাঁস- মুরগির উৎপাদনের বৈশিষ্ট্য)

Name of poultry (পোল্ট্রির নাম)	How many of the following poultry do you have? (আপনার নিচের কতগুলো পোল্ট্রি রয়েছে?)		Did you sell any of the following poultry during last one year? (আপনি কি গত এক বছরে কোনো পোল্ট্রি বিক্রি করেছেন?)			At which age do you sell your poultry batch? (পোল্ট্রি ব্যাচ আপনি কত বয়সে বিক্রি করেন?)	Did you consume any of the following poultry during last one year? (আপনি কি গত এক বছরে কোনো পোল্ট্রি খেয়েছেন?)		
	No. (সংখ্যা)	Value (Tk.) [মূল্য (টাকা)]	No. (সংখ্যা)	Average carcass weight (Kg) [গড় ভক্ষণ যোগ্যও জন (কেজি)	Average price/kg (Tk.) [দাম (টাকা/কেজি)]	Day (দিন)	No. (সংখ্যা)	Average carcass weight (Kg) [গড় ভক্ষণযোগ্যওজন (কেজি)	Average price/kg (Tk.) [দাম (টাকা/কেজি)]
Scavenging chicken (দেশি মুরগি)									
Scavenging duck (দেশী হাঁস)									
Sonali (সোনালী মুরগি)									
Commercial layer (বাণিজ্যিক লেয়ার)									
Commercial broiler (বাণিজ্যিক ব্রয়লার)									

Module 4: Egg production characteristics (অংশ ৪: ডিম উৎপাদনের বৈশিষ্ট্য)

Please provide information during last 1 year, October 1, 2020 to September 30, 2021 (গত ১ বছর, ১ অক্টোবর ২০২০ থেকে ৩০ সেপ্টেম্বর ২০২১ সম্পর্কে তথ্য দিন)

SL (ক্রমিক নং)	Name of item (বিষয়)	How many eggs produced in your farm last year? (গত বছর আপনার খামারে কি পরিমান ডিম উৎপাদন হয়েছে?)	How much was the average price of egg? (ডিমের গড় দাম কত ছিল?)
		No. (সংখ্যা)	(Tk/12 eggs) (টাকা/১২ ডিম)
4.1	Scavenging chicken eggs (দেশী মুরগীর ডিম)		

4.2	Commercial chicken egges (বাণিজ্যিক মুরগীর ডিম)		
4.3	Scavenging duck eggs (দেশী হাঁসের ডিম)		

Section 5. Housesholds nutrition awareness related information (অংশ 5: খামারির পরিবারে পুষ্টি সচেতনতা সম্পর্কিত তথ্য)

5.1 Did any member of your household receive any nutrition awareness information last year? (আপনার পরিবারের কেউ কি গত বছর পুষ্টি সচেতনতা সম্পর্কিত কোনো তথ্য পেয়েছেন?) i. Yes (হ্যাঁ) ii. No (না)

5.2 If yes, what was the source? যদি পেয়ে থাকেন তবে কথা থেকে পেয়েছেন?
i. Training (প্রশিক্ষণ) ii. SMS (এস এম এস), iii. TV (টেলিভিশন), iv. Bill Board (বিল বোর্ড) v. Online media (অনলাইন মাধ্যম) vi. Exhivision (প্রদর্শনী) vii. Milk day (দুগ্ধ দিবস) viii. Community radio (কমিউনিটি রেডিও) ix) Others___ specify [অন্যান্য (উল্লেখ করুন)]

5.3 If yes, how many members of your family including you receive this information (যদি পেয়ে থাকেন তবে আপনি অথবা আপনার পরিবারের কতজন সদস্য এই তথ্য পান?)

Section 6: Market Access (অংশ ৬: বাজারে প্রবেশ)

During last 1 year, October 1, 2020 to September 30, 2021 (১ অক্টোবর ২০২০ থেকে ৩০ সেপ্টেম্বর ২০২১)

Marketing options (বিপণনের বিকল্পগুলো)	Response (উত্তর)	
6.1 To whom do you mainly sell your live broiler and other birds/ poultry meat/ egg (আপনি প্রধানত কার কাছে জীবন্ত ব্রয়লার এবং অন্যান্য পাখি/ ডিম / হাঁস-মুরগির মাংস বিক্রি করেন)?	i) Consumer (সরাসরি গ্রাহক) ii) Trader/paiker (ব্যবসায়ী/পাইকার) iii) Direct to processing company (সরাসরি প্রক্রিয়াজাতকারী সংস্থায়) iv) Hotel and restaurant (হোটেল এবং রেস্তোঁরায়) v) Local shop (স্থানীয় দোকানে) vi) Online market (অনলাইন বাজারে)	vii) Supermarket (সুপার মার্কেটে) viii) To lender to repay loan (ঋণ পরিশোধ করার জন্য ঋণদাতার কাছে) ix) Sale to call center (কল সেন্টার এর কাছে) x) Others (specify) [অন্যান্য (উল্লেখ করুন)]
6.2 Where do you mainly sell your live broiler and other birds/ poultry meat/ egg (আপনি প্রধানত কোথায় জীবন্ত ব্রয়লার এবং অন্যান্য পাখি/ ডিম / হাঁস-মুরগির মাংস বিক্রি করেন)?	i) Farm gate (নিজ-খামার হতে) ii) Sale within the village (নিজ গ্রামেই বিক্রি) iii) Local market (স্থানীয় বাজার) iv) Urban market (শহরের বাজারে)	v) At buyers' place (ক্রেতার বাসায় পৌঁছে দেয়া) vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]
6.3 What is the main mode of transport for poultry and their eggs? (হাঁস-মুরগি ও ডিম পরিবহনের প্রধান মাধ্যম কী?)	i) On foot (পায়ে হেঁটে) ii) Rikshaw/Van (রিকশা / ভ্যান) iii) Auto (battery/engine vehicle) (অটো (ব্যাটারি / ইঞ্জিনের গাড়ি)	iv) Boat (নৌকা) v) Truck (ট্রাক) vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]
6.4 What type of cage mainly do you use to transport the poultry/eggs? (হাঁস-মুরগি/ পাখি /ডিম পরিবহনের জন্য প্রধানত আপনি কি ধরণের খাঁচা ব্যাবহার করেন?)	i) Iron cage (লোহার খাঁচা) ii) Plastic cage (প্লাস্টিকের খাঁচা) iii) Cartoon (কার্টুন করে)	iv) Bamboo cage (বাঁশের খাঁচা) v) Others (specify) [অন্যান্য (উল্লেখ করুন)]

6.5 From where do you purchase feed/vitamins/minerals /medicines and feed additives for poultry rearing? (কোথা থেকে আপনি হাঁস-মুরগির জন্য খাদ্য/ভিটামিন/খনিজ/ওষুধ এবং ফিড অ্যাডিটিভ কিনেন?)	i) Local retailers (স্থানীয় খুচরা বিক্রেতা) ii) Wholesalers (পাইকারী বিক্রেতা) iii) Local feed mixers (স্থানীয় ফিড মিক্সার) iv) Feed company (ফিড কোম্পানী) v) Others (specify) [অন্যান্য (উল্লেখ করুন)] vi) Do not use these (এগুলো ব্যবহার করেন না)
6.6 Who usually go to the market for buying feed/selling poultry and eggs? (সাধারণত হাঁস-মুরগি/ পাখির খাবার কিনতে এবং ডিম বিক্রি করতে কে বাজারে যায়?) i. Male (পুরুষ) ii. Female (মহিলা) iii) Transgender (ট্রান্সজেন্ডার)	
6.7a. Do you face any social obstacles in selling or buying feed/selling poultry/eggs due to gender? (আপনি কি হাঁস-মুরগি/ পাখির খাবার কিনতে এবং ডিম বিক্রয়ে পুরুষ/মহিলা হিসেবে কোন সামাজিক বাধার সম্মুখীন হন?) i.Yes (হ্যাঁ) ii.No (না)	6.7b. If yes, what specific obstacles have you faced due to your gender identity? (লিঙ্গ ভিত্তিক পরিচয়ের জন্য আপনি কোন কোন ধরনের বাধার সম্মুখীন হন?)

Section 7: Disease management (অংশ ৭: রোগ ব্যবস্থাপনা)

Disease name (রোগের নাম)	Did your poultry face this disease during last 12 months' period? (আপনার খামারের পোল্ট্রির গত ১২ মাসে কি নিচের কোন রোগ হয়েছিল)?		If yes, how many poultry had been affected (যদি হয়ে থাকে তবে কতগুলো পোল্ট্রির হয়েছিল)?	Did you apply any vaccine for this disease? (আপনি কি এই রোগের জন্য কোনো টিকা দিয়েছেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) Not at all (কখনো দেয়া হয়নি)			Did you apply any treatment for this disease? (আপনি কি এই রোগের জন্য কোনো চিকিৎসা করিয়েছেন)?		Did your animal die last year for this disease? (গতবছর এই রোগে কি কোনো পোল্ট্রি মারা গিয়েছিলো?)		If died, how many? (যদি মারা গিয়ে থাকে তাহলে কতগুলো)?
7.1 Avian influenza (এভিয়ান ইনফ্লুয়েঞ্জা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.2 Newcastle disease (রাণীক্ষেত রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.3 Infections bronchitis (ইনফেকশাসব্র ঙ্কাইটিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.4 Infectious Laryngotracheitis (ইনফেকশাস ল্যারিনগোট্রাকাইটিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.5 Fowl cholera (ফাউল কলেরা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

7.6 Infectious coryza (ইনফেকশাস কোরাইজা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.7 Swollen head syndrome (মাথা ফোলার লক্ষণ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.8 Duck plague (ডাক প্লেগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.9 Duck/fowl cholera (ডাক কলেরা)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.10 Gumboro Disease (গামবোরো রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.11 Avian pox (বসন্ত রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.12 Egg drop syndrome (এগ ড্রপ সিনড্রম)									Yes (হ্যাঁ)	No (না)	
7.13 Salmonellosis (সালমোনেলোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.14 Colibacillosis (কলিবেসিলোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.15 Avian leukosis (এভিয়ান লিউকোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.16 Duck hepatitis (ডাক হেপাটাইটিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.17 Aflatoxicosis (আফলাটক্সিকোসিস)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.18 Parasitic infestation (পরজিবী রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.19 Nutritional deficiency (পুষ্টি ঘাটতি জনিত রোগ)	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.20 Coccidiosis (রক্ত আমাশয়)							Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	
7.21 Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)					Yes (হ্যাঁ)	No (না)	Yes (হ্যাঁ)	No (না)	

Section 8: Feeding practices and management (অংশ ৮: খাদ্য পদ্ধতি এবং ব্যবস্থাপনা)

Name of Poultry (পোল্ট্রির নাম)	Purchased feed, (Kg/day) [ক্রয়কৃত খাবার (কেজি/দিন)]		Feed On Farm (Kg/day) [নিজ- খামারের খাবার (কেজি/দিন)]	
	Ready-Feed (বাজারে প্রাপ্ত তৈরী পোল্ট্রিখাদ্য)	Mixed feed of procured ingredients (সংগৃহিত উপাদান থেকে বাড়িতে মিশ্রিত পোল্ট্রিখাদ্য)	Home mixed feed (বাড়িতে মিশ্রিত পোল্ট্রিখাদ্য)	Others Ingredients (অন্যান্য উপাদান)
8.1 Commercial Layer (বাণিজ্যিক লেয়ার)				
8.2 Commercial Broiler (বাণিজ্যিক ব্রয়লার)				

8.3 Sonali (সোনালী মুরগি)				
8.4 Scavenging chicken (দেশি মুরগি)				
8.5 Scavenging duck (দেশি হাঁস)				

Section 9: Production cost (অংশ ৯: উৎপাদন খরচ)

9a. Operating/recurring cost (৯ ক. পরিচালনা /নির্বাহী খরচ)

Item name (বিষয়)	Response (উত্তর)				
9a.1 How much feed cost incurred for poultry rearing during last year? (গত বছর হাঁস-মুরগির খাদ্য বাবদ কত খরচ হয়েছিলো?	Tk. (টাকা)				
9a.2 How many chicks/duckling did you bought last year? (গত বছর আপনি কয়টি -মুরগি/হাঁসের বাচ্চা কিনেছিলেন?) Tk/Layer (টাকা/ (লেয়ার) Tk/ Duckling (টাকা/ হাঁস)	i) Layer (লেয়ার): ii) Duckling (হাঁস): iii) Broiler (ব্রয়লার) iv) Not applicable (প্রযোজ্য নয়)				
9a.3 How much cost incurred for chick? (মুরগি/ পাখি /হাঁসের বাচ্চা ক্রয়বাবদ কত খরচ হয়েছে?)	i) Tk/Layer (টাকা/লেয়ার) ii) Tk/Duckling (টাকা/হাঁস) iii)Tk/ Broiler (টাকা/ব্রয়লার) iv) Not applicable (প্রযোজ্য নয়)				
9a.4 How much family labour hour per day did you use for poultry farming? [আপনার হাঁস-মুরগি পালনে প্রতিদিন নিজ-পরিবার হতে কত শ্রমঘণ্টা ব্যবহার করেন?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years) (যুবক) (১৫- ২৪ বছর)]:	Young girls (aged 15-24 years) [যুবতী (১৫- ২৪ বছর)]:	Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.5 How much hired labour hour per day did you use for poultry farming? [হাঁস-মুরগি পালনে প্রতিদিন প্রতিদিন মুজুরীর বিনিময়ে কত শ্রমঘণ্টা ব্যবহার করেন?]?	Male (পুরুষ)	Female (মহিলা)	Young boys (aged 15-24 years) (যুবক) (১৫- ২৪ বছর)]:	Young girls (aged 15-24 years) [যুবতী (১৫- ২৪ বছর)]:	Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.6 What is the average wage rate of labor? (শ্রমিকদের দৈনিক গড় মজুরি কত ছিলো?)	Male labour (পুরুষ শ্রমিক) Tk/day (টাকা/দিন)			Female labour (মহিলা শ্রমিক) Tk/day (টাকা/দিন)	Not at all (একেবারেই ব্যবহার করা হয়নি)
9a.7How much cost incurred input and output transport during last year? (গতবছর উৎপাদন এবং উপকরণ পরিবহন বাবদ ব্যয় কত ছিল?)	Tk (টাকা)				
9a.8 How much veterinary cost (treatment, vaccination) incurred during last year? (গত বছর প্রাণিচিকিৎসা (চিকিৎসা, ভ্যাকসিনেশন) বাবদ ব্যয় কত ছিল)?	Tk (টাকা)				
9a.9 How much was the utility (electricity, water pot, etc.) and other costs during last one-year (গত বছরের উপযোগ (বিদ্যুৎ, পানির পাত্র, ইত্যাদি) এবং অন্যান্যো খরচ)	Tk (টাকা)				
9.10 How much cost incurred for biosafety and biosecurity (বায়োসেফটি এবং বায়োসিকিউরিটি এর জন্য গত বছর কত টাকা খরচ হয়েছে)?	Tk (টাকা)				
9.11 How much cost incurred for rental house per month (ভাড়াকৃত ঘরের জন্য প্রতি মাসে কত খরচ হয়েছিলো)	Tk. (টাকা)				

9b. Investment cost (৯ খ বিনিয়োগ খরচ)

Item (বিষয়)	Investment cost (Tk) [বিনিয়োগ খরচ (টাকা)]	Lifespan (Years) [টেকসইকাল (বছর)]	Salvage value (Tk) [অবশিষ্ট মূল্য (টাকা)]
9b.1 Poultry house (হাঁস-মুরগির ঘর)			
9b.2 Generator/IPS (জেনারেটর/আইপিএস)			
9b.3 Water pump (পানির পাম্প)			
9b.4 Electric fan (বৈদ্যুতিক পাখা)			
9b.5 Other machineries (অন্যান্য যন্ত্রপাতি)			

Section 10: Food safety and certification (অংশ ১০: খাদ্য নিরাপদতা এবং সনদপত্র)

Criteria (মানদন্ড)	Response (উত্তর)		
10.1 Do you wash your hand before entering the farm? (আপনি কি খামারে প্রবেশের আগে হাত ধোয়ে থাকেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.2 Do you use foot bath containing disinfectant at the entrance of the farm? (আপনি কি খামারের প্রবেশদ্বারে জীবাণুমুক্তকারক দিয়ে পা ভিজিয়ে খামারের প্রবেশ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.3 Do you control visitor/other animals-birds and pest access in the farm? (আপনি কি খামারে দর্শনার্থীদের এবং খামার বহির্ভুত পশু-পাখি ও কীটপতঙ্গ প্রবেশ নিয়ন্ত্রণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.4 Do you monitor and maintain records for the above mentioned activities? (আপনি কি উপরোল্লিখিত কার্যাবলী নিয়মিত তদারকি এবং এর তথ্য সংরক্ষণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.5 Do you keep record of disease, treatment and vaccination information for each poultry batch? (আপনি কি খামারের প্রতিটি পোল্ট্রি ব্যাচের চিকিৎসা এবং টিকা এর তথ্য নিয়মিত লিপিবদ্ধ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.6 Do you test the quality (Nutrient compositions) and safety (Antibiotic, Heavy metals, Pesticide residue, Microbial hazard) parameters of your poultry feed? {আপনি কি নিয়মিত পোল্ট্রি খাদ্যের গুণগত (পুষ্টির উপদান) এবং নিরাপদতার (অ্যান্টিবায়োটিক, ভারী ধাতু, কীটনাশকের অবশিষ্টাংশ, অণুজীব দূষক) মান পরীক্ষা করান?}	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.7 If yes, where did you test? (যদি করে থাকেন, তাহলে কোথায় পরীক্ষা করেন?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other Public labs (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private Feed testing lab (বেসরকারী প্রাণিখাদ্য পরীক্ষাগার) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.8 Have you ever seen any disease incidence for unsafe poultry feed? (অনিরাপদ পোল্ট্রি খাদ্যের কারণে আপনার খামারে কি কখনো কোনও রোগের প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.9 From which source you collect farm animal's drinking water? (কোন উৎস থেকে আপনি পোল্ট্রির খাবার পানি সংগ্রহ করেন?)	1. Tube Well water (টিউবয়েলের পানি) 2. Pond/Cannel water (পুকুরের/ খালের পানি) 3. Supply/ Tap water (সাপ্লাই / টেপের পানি) 4. Filtered water (পরিশোধিত পানি) 5. Shallow tube-well/electric motor (অগভীর নলকূপ/বৈদ্যুতিক মটর) 5. Scavenger source (হাঁস মুরগি নিজেরাই ঘুরে ঘুরে খায়) 6. Others (Specify) (অন্যান্য (উল্লেখ করুন)		
10.10 Are all the utensils cleaned and sanitized properly with safe water and disinfectants before and after use? (ব্যবহারের আগে এবং পরে	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)

খামারের সরঞ্জামাদি কি নিরাপদ পানি দিয়ে সঠিকভাবে পরিষ্কার এবং জীবাণুনাশক দ্বারা জীবাণুমুক্ত করা হয়?)			
10.11 Do you transport poultry with comfort? (আপনি কি পোল্ট্রি আরামদায়কভাবে পরিবহন করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.12 Have you ever seen any disease incident from farm animal to farm worker or vise versa? (আপনি কি কখনও খামারের পোল্ট্রি থেকে খামার কর্মী বা খামার কর্মী থেকে খামারের পোল্ট্রিতে কোনও রোগের প্রকোপ দেখেছেন??)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.13 Do you perform regular health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc.)? (আপনার খামারে কি পোল্ট্রি এবং কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষা করেন (যেমন সালমোনেলোসিস, এভিয়ান ইনফ্লুয়েঞ্জা, ইত্যাদি?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.14 Do you keep records of health check-up of poultry and farm workers (Salmonellosis, Avian Influenza, etc.)? (আপনি কি পোল্ট্রির এবং খামারের কর্মীদের নিয়মিত স্বাস্থ্য পরীক্ষার তথ্য সংরক্ষণ করেন (যেমন যেমন সালমোনেলোসিস, এভিয়ান ইনফ্লুয়েঞ্জা, ইত্যাদি)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.15 Do you use antibiotics or add growth hormones in poultry feed? (আপনি কি পোল্ট্রি খাদ্যে অ্যান্টিবায়োটিক বা হরমোন ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.16 Have you ever seen any disease/illness incidence of customer for your farm animal's meat? (আপনি কি আপনার খামারের পোল্ট্রি মাংসের/ডিমের জন্য ভোক্তাদের মধ্যে কোন রোগের/ অসুস্থতার প্রকোপ দেখেছেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.17 Do you sell diseased (Newcastle disease, Avian Influenza, Fowl Cholera, Infectious Bronchitis, etc.) poultry? (আপনি কি রানীক্ষেত,এভিয়ান ইনফ্লুয়েঞ্জা, ফাউল কলেরা, সংক্রামক ব্রঙ্কাইটিস ইত্যাদি রোগ দ্বারা আক্রান্ত অসুস্থ পোল্ট্রি জবাইয়ের উদ্দ্যেশ্যে বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.18 Do you sell under treatment poultry with antibiotics, hormone and steroid? (আপনি কি এন্টিবায়োটিক, হরমোন, স্টেরয়েড দ্বারা চিকিৎসাধীন পোল্ট্রি জবাইয়ের উদ্দ্যেশ্যে বিক্রি করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.19 Do you maintain withdrawal period of antibiotic/hormone? (আপনি কি এন্টিবায়োটিক/হরমোন দিয়ে চিকিৎসার পর ড্রাগ প্রত্যাহারের সময়কাল মেনে চলেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.20 Have your poultry ever rejected from the buyer? (আপনার পোল্ট্রি কি কখনও ক্রেতার কাছ থেকে প্রত্যাখ্যাত হয়েছে?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.21 If yes, for what reason? (যদি হয়ে থাকে, তবে কোন কারণে প্রত্যাখ্যাত হয়েছে?)	i.Disease conditions/(রোগাক্রান্ত/ অসুস্থ) ii.Emaciation (হাড্ডিসার অ্যান্টিবায়োটিক) iii.Others(specify)(অন্যান্য(নির্দিষ্ট করুন)		
10.22 Do you get any goat/sheep health certificate before sale? (আপনি কি বিক্রির আগে পোল্ট্রির কোন স্বাস্থ্য-সনদপত্র গ্রহণ করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.23 If yes, from where did you get this? (যদি করেন, তবে কোথা থেকে সনদপত্র গ্রহণ করেন?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other govt authority (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private authority (বেসরকারী কর্তৃপক্ষ) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.24 Do you use any label/brand for your poultry's, poultry's eggs or their meat? (আপনি কি হাঁস-মুরগির/ হাঁস-মুরগির মাংসের/ ডিমের জন্য কোনও লেবেল/ব্র্যান্ড ব্যবহার করেন?)	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.25 If yes, from where you get this label/brand certification? (যদি করেন, তাহলে আপনি কোথা থেকে এই লেবেল / ব্র্যান্ডের সনদপত্র পান?)	i) DLS/BLRI (ডিএলএস / বিএলআরআই) ii) Other govt authority (অন্যান্য সরকারী কর্তৃপক্ষ) iii) Private authority (বেসরকারী কর্তৃপক্ষ) iv) Others_(specify) [অন্যান্য (উল্লেখ করুন)]		
10.26 Did you receive any information related to food safety (আপনি কি খাদ্য নিরাপদটা সম্পর্কিত কোনো তথ্য পেয়েছেন)?	Yes, regularly (হ্যাঁ, নিয়মিত)	Yes, irregularly (হ্যাঁ, অনিয়মিতভাবে)	No (না)
10.27 If yes, by which means (যদি পেয়ে থাকেন তবে কিভাবে)?	i)Training (প্রশিক্ষণ) ii)Mobile app (মোবাইল আপ্লস)		

	iii)SMS (এস এম এস) iv) Community Radio (কমিউনিটি রেডিও) iv) TV (টেলিভিশন) v) Online media (অনলাইন মাধ্যম) vi) Exhivision (প্রদর্শনী) vii) Community Radio (কমিউনিটি রেডিও) viii) Others (specify) [অন্যান্য (উল্লেখ করুন)]

Section 11: Technology and practices (অংশ ১১: প্রযুক্তি ও অনুশীলন)

Q. no. (প্রশ্ন নং)	Items (বিষয়)	Do you follow the following technology or practices in your farm? (আপনি কি আপনার খামারে নিম্নের প্রযুক্তি ও পদ্ধতি ব্যবহার করেন)? Yes, regularly (হ্যাঁ, নিয়মিত) Yes, irregularly (হ্যাঁ, অনিয়মিত) iii. Not at all (কখনো দেয়া হয়নি)			If yes, from where did you know about this technology/practice? (যদি করে থাকেন, তবে আপনি কোথা থেকে এই প্রযুক্তি /পদ্ধতি সম্পর্কে জানতে পেরেছেন)? 1.DLS (ডিএলএস)/LDDP 2.BLRI (বিএলআরআই) 3.University (বিশ্ববিদ্যালয়) 4.Abroad (বিদেশ) 5.Own (নিজস্ব) 6.Friends (বন্ধুবান্ধব) 7.Online media/mass media (অনলাইন / গণমাধ্যম) 8.Private sector/NGO (বেসরকারী খাত / এনজিও) 9 Others_(specify) [অন্যান্য (উল্লেখ করুন)]	Is this technology/parcice women friendly (এই প্রযুক্তি/ পদ্ধতিটি কি মহিলাবান্ধব)?
11.1	Improved breed rearing (উন্নত জাত পালন)					
11.2	Cage rearing (খাঁচায় পালন)					
11.3	Ration balancing (রেশন ভারসাম্যকরণ)					
11.4	Organic egg and meat production (অর্গানিক মাংস এবং ডিম উৎপাদন)					
11.5	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)					
11.6	Poultry dropping/ Manure management (হাঁস-মুরগির বিষ্ঠা/ম্যানিউর ব্যবস্থাপনা)					
11.7	Fortified egg production (ফর্টিফাইড ডিম উৎপাদন)					

11.8	Routine vaccination (নিয়মিত টিকাদান)					
11.9	Routine Deworming (নিয়মিত কৃমিনাশক প্রয়োগ)					
11.10	Others (specify) [অন্যান্য (উল্লেখ করুন)]					

Section 12: Capacity enhancement (অংশ ১২: সক্ষমতা বৃদ্ধি)

Q. no. (প্রশ্ন নং)	Items (বিষয়)	Did you receive any training? (আপনি কোন প্রশিক্ষণ পেয়েছেন?)		If yes, from where did you get this training? (যদি হ্যাঁ হয়, তবে আপনি কোথা থেকে এই প্রশিক্ষণ পেয়েছেন?) LDDP (এলডিডিপি).....1 (১) Private sector (বেসরকারী খাত)2 (২) NGO (এনজিও).....3 (৩) Others (specify)..4 [অন্যান্য (উল্লেখ করুন)]
12.1	Improved breed rearing (উন্নত জাত পালন)	Yes (হ্যাঁ)	No (না)	
12.2	Biosecurity and biosafety in poultry farm (পোল্ট্রি খামারের বায়োসেফটি এবং বায়োসেক্যুরিটি)	Yes (হ্যাঁ)	No (না)	
12.3	Cage rearing (খাঁচায় পালন)	Yes (হ্যাঁ)	No (না)	
12.4	Organic egg and meat production (অর্গানিক মাংস এবং ডিম উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.5	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন, পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)	Yes (হ্যাঁ)	No (না)	
12.6	Poultry dropping/ Manure management (পোল্ট্রির বিষ্ঠা/ম্যানিউর ব্যবস্থাপনা)	Yes (হ্যাঁ)	No (না)	
12.7	Fortified egg production (ফর্টিফাইড ডিম উৎপাদন)	Yes (হ্যাঁ)	No (না)	
12.8	Routine vaccination (নিয়মিত টিকাদান)	Yes (হ্যাঁ)	No (না)	
12.9	Routine Deworming (নিয়মিত কৃমিনাশক প্রয়োগ)	Yes (হ্যাঁ)	No (না)	
12.10	Poultry farming (Layer/Broiler/Scavenging/Ducks) [হাঁস-মুরগির খামার (লেয়ার/ব্রয়লার/ চড়ে খাওয়া /হাঁস/ Specialized fowl (বিশেষায়িত পোল্ট্রি))]	Yes (হ্যাঁ)	No (না)	
12.11	Poultry meat and egg production and value additions (পোল্ট্রির মাংস এবং ডিম উৎপাদন এবং মান সংযোজন)	Yes (হ্যাঁ)	No (না)	
12.11a	Poultry Hatchery rules and regulations (পোল্ট্রির হ্যাচারি আইন কানুন)	Yes (হ্যাঁ)	No (না)	
12.12	Poultry Health management (পোল্ট্রির স্বাস্থ্য ব্যবস্থাপনা)	Yes (হ্যাঁ)	No (না)	
12.13	Poultry agribusiness and value chain (কৃষি-ব্যবসা এবং ভ্যালু চেইন)	Yes (হ্যাঁ)	No (না)	
12.14	Feed formulation (পোল্ট্রির খাদ্য প্রস্তুতকরণ)	Yes (হ্যাঁ)	No (না)	
12.15	Good agricultural practice (উত্তম কৃষি পদ্ধতি)	Yes (হ্যাঁ)	No (না)	
12.16	Food safety training (খাদ্য নিরাপদতা প্রশিক্ষণ)			
12.17	Climate shock mitigation/adaptation (জলবায়ুর অভিঘাত প্রশমন/উপযোগীকরণ)	Yes (হ্যাঁ)	No (না)	
12.18	Business development skill training including input marketing, supports and financial services (উপকরণ	Yes (হ্যাঁ)	No (না)	

	বিপণন, সহায়তা এবং আর্থিক পরিষেবাসহ ব্যবসায়িক উন্নয়ন দক্ষতা বিষয়ক প্রশিক্ষণ)			
12.19	Training on gender equality issues (জেন্ডার সমতা সম্পর্কিত বিষয়)	Yes (হ্যাঁ)	No (না)	
12.20	Training on using mobile apps (মোবাইল অ্যাপ ব্যবহারের প্রশিক্ষণ)	Yes (হ্যাঁ)	No (না)	
12.21	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)	

12.22a Did you receive any asset from LDDP/DLS to start/continue your livestock business (আপনি কি আপনার গবাদিপশু ব্যবসা শুরু করতে /চালিয়ে যেতে LDDP/DLS থেকে কোনো সম্পদ পেয়েছেন?)
i. Yes (হ্যাঁ) ii. No (না)
12.22b If yes, what kind of asset did you receive (যদি পেয়ে থাকেন তবে কি ধরণের সম্পদ পেয়েছেন)?
i) Livestock house (পোল্ট্রি আবাসন)
ii) Utensiles like bucket, spade, etc. (বালতি, কোদাল, বেলচা ইত্যাদি)
iii) Hyginic cleaning tools (স্বাস্থ্যকরভাবে পরিষ্কার করার যন্ত্র)
iv) Live Bird (জীবন্ত পাখি)
v) Cash incentive (আর্থিক অনুদান)
v) Feed (পোল্ট্রিখাদ্য)
vi) Others (specify) [অন্যান্য (উল্লেখ করুন)]

Section 13: Housing and management (অংশ ১৩: আবাসন ও ব্যবস্থাপনা)

Question number (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
13.1	What type of house mainly do you use for your poultry? (আপনি হাঁস-মুরগির জন্য প্রধানত কোন ধরণের ঘর ব্যবহার করেন?)	Night shelter with enclosed/fenced open space adjacent to homestead (বেড়া দেয়া বাড়ির সংলগ্ন খোলা জায়গা)....1 (১) Conventional shed (প্রচলিত কাঁচাঘর)..2 (২) Raised floor bricks or brick-wall shed (ইটের উঁচু মেঝে অথবা ইটের প্রাচীর, চালা)...3 (৩) Multistoried building (বহুতল ভবন)..... 4 (৪) Macha System (মাচা পদ্ধতি)..... 5(৫) Others (specify) [অন্যান্য (উল্লেখ করুন)].....6(৬)	
13.2	What type of management system mainly you follow? (আপনি প্রধানত কোন ধরনের ব্যবস্থাপনা পদ্ধতি ব্যবহার করেন?)	Free ranging-extensive (মুক্ত বা খোলা পদ্ধতি) .....1 (১) Intensive (আবদ্ধ পদ্ধতি).....2 (২) Semi-intensive (অর্ধ-আবদ্ধ পদ্ধতি)..... 3 (৩) Intensive Cage rearing-automated (স্বয়ংক্রিয় খাঁচায় পালন)..... 4 (৪) Intensive Cage rearing-physical (খাঁচায় পালন)..... 5 (৫) Intensive Deep litter-automated (স্বয়ংক্রিয় ডিপ লিটার)..... 6 (৬) Intensive Deep litter-physical (ডিপ লিটার)..... 7 (৭) Others (specify) [অন্যান্য (উল্লেখ করুন)].....8 (৮)	
13.3	What type of litter mainly do you use in the housing? (আপনি আবাসন গুলোতে প্রধানত কোন ধরণের লিটার ব্যবহার করেন?)	Ash (ছাই) .....1 (১) Rice ash (ধানের তুষ) .....2 (২) Sawdust (কাঠের গুঁড়ো) .....3 (৩) Sand (বালু)..... 4 (৪) Others (specify) [অন্যান্য (উল্লেখ করুন)] 5 (৫)	
13.4a	Does this house cover biosecurity plan? (আবাসনে বায়ো-সিকিউরিটি ব্যবস্থা কি রয়েছে?)	Yes (হ্যাঁ)	No (না)

13.4b	If yes, then what are those? (যদি হ্যাঁ হয়, তাহলে সেগুলো কি কি?)	i) Foot bath (পা জীবাণুমুক্ত করার ব্যবস্থা) ii) Hand wash facility (হাত ধোয়ার ব্যবস্থা) iii) Others (specify) অন্যান্য (উল্লেখ করুন)	
13.5	Does this house have proper ventilation system? (ঘরে বায়ু চলাচলের যথাযথ ব্যবস্থা কি আছে?)	Yes (হ্যাঁ)	No (না)
13.6	Does this huse has electric fan or exaustor fan for cooling (ঘরটি ঠান্ডা রাখার জন্য কি কোনো ইলেকট্রিক ফ্যান অথবা এক্সস্টর ফ্যান ব্যবহার করা হয়)?	Yes (হ্যাঁ)	No (না)
13.7	Is this house have enough space for poultry? (এই ঘরে পোল্ট্রির জন্য পর্যাপ্ত জায়গা আসে কি না?)	Yes (হ্যাঁ)	No (না)
13.8	What kind of energy source do you use in this house? (ঘরে কোন ধরণের বিদ্যুৎ ব্যবস্থা রয়েছে?)	i) Electricity (বিদ্যুৎ) ii) Solar energy (সৌরশক্তি) iii) Others (specify) [অন্যান্য (উল্লেখ করুন)] iv). No electricity use (কোনো বিদ্যুৎ ব্যবহার করা হয় না)	
13.9	Do you maintain quarantine & isolation in your farm? (খামারের পোল্ট্রি কোয়ারান্টিন বা পৃথকীকরণ করার ব্যবস্থা আছে কি)?	Yes (হ্যাঁ)	No (না)
13.10	Does utensils and mechineries used int the farm are women friendly (খামারে ব্যবহৃত সরঞ্জামাদি এবং যন্ত্রপাতি কি মহিলাবান্ধব)?	Yes (হ্যাঁ)	No (না)

Section 14: Manure management (অংশ ১৪: বিষ্ঠা ব্যবস্থাপনা)

Q. No. (প্রশ্ন নং)	Question (প্রশ্ন)	Response option (উত্তর)	
14.1	How much manure/litter did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান বিষ্ঠা /ম্যানিউর উৎপাদন হয়েছিল)	Kg (কেজি)____	
14.2	How did you mainly process manure? (আপনি প্রধানত কিভাবে বিষ্ঠা /ম্যানিউর ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1 (১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.3	How much manure/litter you used for crop fertilization? (ফসলে দেওয়ার জন্য আপনি কি পরিমান বিষ্ঠা /ম্যানিউর, সার হিসেবে ব্যবহার করেছিলেন?)	Kg_____/Year_____(কেজি_____/বছর_____)	
14.4	How much waste did your farm produce last year? (আপনার খামার থেকে গত বছর কি পরিমান আবর্জনা উৎপাদন হয়েছিল)	Kg (কেজি)____	
14.5	How did you mainly dispose waste? (আপনি প্রধানত কিভাবে আবর্জনা ব্যবস্থাপনা করেছিলেন?)	Solid storage (Open space) (খোলা জায়গায় জমা করা).....1 (১) Solid storage (in covered place) (আবৃত জায়গায় জমা করা).....2 (২) Dispose to open space (খোলা জায়গায় ফেলে)----------3 (৩) Burned Fuel (জ্বালানী).....4 (৪) Anaerobic digestion (বায়ু-শুন্য পচন) 5 (৫)	
14.6	Do you face social conflicts due to conventional manure management? (প্রচলিত ম্যানিউর ব্যবস্থাপনায় আপনি কি সামাজিক সমস্যার সম্মুখীন হন?)	Yes (হ্যাঁ)	No (না)

14.7	How do you manage this social conflict? (আপনি এই সামাজিক দ্বন্দকে কিভাবে মোকাবিলা করবেন?)	Follow standard method for manure disposal/process (গোবর/ম্যানিউর ফেলে দেওয়া/প্রক্রিয়াজাতকরণের জন্য মানসম্মত পদ্ধতির অনুসরণ করেন).....1(১) Do nothing (কিছুই করেন না).....2(২) Others (specify) [অন্যান্য (উল্লেখ করুন)])-----3(৩)

Section 15: Climate related risks in poultry production (অংশ ১৫: পোল্ট্রি উৎপাদনে জলবায়ু জনিত ঝুঁকি সমূহ)

Climate related risks (জলবায়ু জনিত ঝুঁকি)	Did you affect by any of the following risk during last five years? (গত পাঁচ বছরে আপনি কি নিম্নোক্ত কোন ঝুঁকিতে ক্ষতিগ্রস্ত হয়েছিলেন?)		Effect of Climatic risk (জলবায়ু জনিত ঝুঁকির প্রভাব) 1. Output sale interruption (পণ্য বিক্রয়ে ব্যাঘাত ঘটা) 2. Poultry death and disease outbreak increase (পোল্ট্রি মৃত্যু এবং রোগের প্রাদুর্ভাব বেড়ে যায়) 3. Scarcity of poultry concentrate feeds (পোল্ট্রি দানাদার খাদ্যের ঘাটতি) 4. Damage/destruction to poultry house [পোল্ট্রি আবাসের ক্ষতি /ধ্বংস] 5. Inadequate input and service (veterinary Treatment, AI, vaccine) (অপর্যাপ্ত কাঁচামাল এবং পরিসেবা(প্রাণি চিকিৎসা সেবা , টিকা) 6. Rising of food prices (খাদ্যের দাম বেড়ে যাওয়া) 7. Others (specify) [অন্যান্য উল্লেখ করুন)]	What are the strategy you have taken to address these risks? (এই ঝুঁকিগুলো হ্রাস করার জন্য আপনি কি কি কৌশল অবলম্বন করেছেন?) 1. Use of emergency shelter (পোল্ট্রি গুলোকে আশ্রয় কেন্দ্রে নিয়ে যাওয়া) 2. Avail Emergency service for rescue and treatment (উদ্ধার ও চিকিৎসার জন্য জরুরী সেবা গ্রহণ) 3. Construct climate resilient farmhouse (জলবায়ু সহিষ্ণু খামারবাড়ির নির্মাণ) 4. Sell poultry /egg with very low price (খুব কম দামে পোল্ট্রি /ডিম বিক্রি করেন) 5. Receive institutional support from institutions (প্রতিষ্ঠান গুলো থেকে অনুদান সহায়তা পেয়ে থাকেন) 6. Feed alternative low quality and low nutritive values feed (বিকল্প এবং নিম্ন মানের খাদ্য খাওয়ান) 7. Get insurance benefit from the insurance company after disaster (দূর্যোগের পরে বীমা সংস্থা থেকে বীমা সুবিধা নিয়ে থাকেন) 8. others (specify) [অন্যান্য (উল্লেখ করুন)] 9. No strategy taken কোন কৌশল নেয়া হয়নি)	
15.1 Flood/flash flood/waterlogging (বন্যা / আকস্মিক বন্যা / জলাবদ্ধতা)	Yes (হ্যাঁ)	No (না)		
15.2 Drought (খরা)	Yes (হ্যাঁ)	No (না)		
15.3 Tornado/Cyclone (টর্নেডো/ ঘূর্ণিঝড়)	Yes (হ্যাঁ)	No (না)		
15.4 Extreme hot weather (প্রচন্ড গরম আবহাওয়া)	Yes (হ্যাঁ)	No (না)		
15.5 Extreme cold weather (প্রচন্ড ঠান্ডা আবহাওয়া)	Yes (হ্যাঁ)	No (না)		

15.6 Excessive rainfall (অতিরিক্ত বৃষ্টিপাত)	Yes (হ্যাঁ)	No (না)		
15. 7 Salinity (লবণাক্ততা)	Yes (হ্যাঁ)	No (না)		
15.8 Other (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	**No (না)**		

Section 16: Digital and physical extension services (অংশ ১৬: ডিজিটাল এবং শারীরিক সম্প্রসারণ সেবা)

	Item (বিষয়)	Is this service acceble (সেবাগুলো কি অভিগম্য / পাওয়া যায়)?		Who is the service provider? (কে তথ্যগুলো দেয়?) DLS/LDDP.....1 (ডিএলএস) Private Services...2 (বেসরকারি পরিষেবা) Dairy Producer Organizations---3 (ডেইরী পিও) NGOs .....4 (এনজিও) Others (specify) [অন্যান্য (উল্লেখ করুন)]	If available, how would you rate your satisfaction with the services (যদি পাওয়া যায় তবে আপনি সেবাগুলো সম্পর্কে আপনার মন্তব্য কি)? i.Excelent (খুব ভালো) ii. Good (ভালো) iii.Moderate (মোটামুটি) iv) Bad (খারাপ) v. Very bad (খুব খারাপ) vi) Not applicable (প্রযোজ্য নয়)	Is this service gender friendly (for example - Provide the service without making any discrimination- or bias; Provide the service with dignity and respect etc.)? (এই সেবাগুলো কি মহিলাবান্ধব (উদাহরণস্বরূপ - কোন বৈষম্য না করে সেবা প্রদান বা পক্ষপাতিত্ব না করা; মর্যাদা ও সম্মান এর সাথে সেবা প্রদান ইত্যাদি)?
16.1	Veterinarian and Consultancy ((পশু চিকিৎসক এবং পরামর্শসেবা))	Yes (হ্যাঁ)	No (না)			
16.2	Improved breed rearing (উন্নত জাত পালন)	Yes (হ্যাঁ)	No (না)			
16.3	Biosecurity and biosafety in poultry farm (পোলট্রি খামারের বায়োসেফটি এবং বায়োসেক্যুরিটি)	Yes (হ্যাঁ)	No (না)			
16.4	Cage rearing (খাঁচায় পালন)	Yes (হ্যাঁ)	No (না)			
16.5	Organic egg and meat production (অর্গানিক মাংস এবং ডিম উৎপাদন)	Yes (হ্যাঁ)	No (না)			
16.6	Climate resilient housing eg. concrete floor, proper drainage, free from flood or water logging (জলবায়ু সহিষ্ণু আবাসন, যেমন,	Yes (হ্যাঁ)	No (না)			

	পাকা ফ্লোর, উন্নত পয়োনিষ্কাশন ব্যবস্থা, বন্যার পানি অথবা জলাবদ্ধতা হতে মুক্ত ইত্যাদি)					
16.7	Poultry dropping/ Manure management (পোল্ট্রির বিষ্ঠা/ম্যানিউর ব্যবস্থাপনা)	Yes (হ্যাঁ)	No (না)			
16.8	Fortified egg production (ফর্টিফাইড ডিম উৎপাদন)	Yes (হ্যাঁ)	No (না)			
16.9	Routine vaccination (নিয়মিত টিকাদান)	Yes (হ্যাঁ)	No (না)			
16.10	Routine Deworming (নিয়মিত কৃমিনাশকরণ)	Yes (হ্যাঁ)	No (না)			
16.11	Poultry agribusiness and value chain (কৃষি-ব্যবসা এবং ভ্যালু চেইন)	Yes (হ্যাঁ)	No (না)			
16.12	Feed formulation (পোল্ট্রির খাদ্য প্রস্তুতকরণ)	Yes (হ্যাঁ)	No (না)			
16.13	Good agricultural practice (উত্তম কৃষি পদ্ধতি)	Yes (হ্যাঁ)	No (না)			
16.14	Food safety (খাদ্য নিরাপদটা)	Yes (হ্যাঁ)	No (না)			
16.15	Climate shock mitigation/adaptation (জলবায়ুর অভিঘাত প্রশমন/উপযোগীকরণ)	Yes (হ্যাঁ)	No (না)			
16.16	Vaccination and medication (টিকা প্রদান এবং ওষধপত্র)	Yes (হ্যাঁ)	No (না)			
16.17	Product branding and quality certification (পণ্য ব্র্যান্ডিং এবং গুনগত মানের সার্টিফিকেশন)	Yes (হ্যাঁ)	No (না)			
16.18	Online livestockl and product marketing (অনলাইন ভিত্তিক পোল্ট্রি এবং ডিম বিপণন)	Yes (হ্যাঁ)	No (না)			
16.19	Online knowledge sharing related to food safety, marketing, amimal health, livestock production etc. (খাদ্য নিরাপদটা, বিপণন, পশুস্বাস্থ্য, গবাদিপশু উৎপাদন ইত্যাদি সম্পর্কে জ্ঞানের বিস্তার)	Yes (হ্যাঁ)	No (না)			

16.20	Online treatment (অনলাইন চিকিৎসা সেবা)	Yes (হ্যাঁ)	No (না)			
16.21	Mobile veterinary clinic (মোবাইল পশুচিকিৎসা ক্লিনিক)	Yes (হ্যাঁ)	No (না)			
16.22	Waste management (বর্জ্য ব্যাবস্থাপনা)	Yes (হ্যাঁ)	No (না)			
16.23	Others (specify) [অন্যান্য (উল্লেখ করুন)]	Yes (হ্যাঁ)	No (না)			

16.a Did you attended any of LDDP provided training last year (আপনি কি গত বছর LDDP প্রদানকৃত কোনো ট্রেনিং এ অংশগ্রহণ করেছেন?
i) Yes (হ্যাঁ) ii) No (না)

16.b If yes, how would you rate your satisfaction on the training you received from LDDP (যদি করে থাকেন, তবে LDDP থেকে ট্রেনিং পেয়ে আপনি কটুকু সন্তুষ্ট)?

i.Excelent (খুব ভালো)
ii. Good (ভালো)
iii.Moderate (মোটামুটি)
iv) Bad (খারাপ)
v. Very bad (খুব খারাপ)
vi) Not applicable (প্রযোজ্য নয়)

16.b.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)_

16.c. How would you rate your overall satisfaction with LDDP service (LDDP থেকে সেবা পেয়ে আপনি কতটুকু সন্তুষ্ট?)

i.Excelent (খুব ভালো)
ii. Good (ভালো)
iii.Moderate (মোটামুটি)
iv) Bad (খারাপ)
v. Very bad (খুব খারাপ)
vi) Not applicable (প্রযোজ্য নয়)

16.c.1. If the satisfaction ranking is below moderate, explain the reason? (যদি সন্তুষ্টির মান মধ্যম অপেক্ষা কম হয় তবে তার কারণ কি?)__

Section 17: Livestock decision making by gender (অংশ ১৭: পোল্ট্রি প্রতিপালনে লিঙ্গভিত্তিক সিদ্ধান্ত গ্রহণ)

Sl. no (ক্রমিক নং)	Decision criteria (সিদ্ধান্তের মানদণ্ড)	Gender (লিঙ্গ)			Youth		
17.1	Who is the authorized owner of this farm? (এই খামারের আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.2	Who is the authorized owner of poultry? (এই খামারের পোল্ট্রির আইনত মালিক কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.3	Who takes the decision of buying poultry? (পোল্ট্রি কেনার সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.4	Who chooses the breed? (পোল্ট্রির জাতকে নির্বাচন কে করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)

17.5	Who takes the decision of feed rationing? (কে খাবারের পরিমাণ নির্দিষ্ট করার সিদ্ধান্ত নেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.6	Who fed animals in the farm? (খামারে কে পোল্ট্রিকে খাবার দেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.7	Who have mainly access to different digital and physical extension services (বিভিন্ন ডিজিটাল এবং স্বশরীরে সম্প্রসারণ সেবা প্রধানত কার জন্য অভিগম্য/প্রবেশযোগ্য)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.8	Who decide to manage manure? (কে পোল্ট্রির বিষ্ঠা/ম্যানিউর ব্যবস্থাপনার সিদ্ধান্ত নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.9	Who manages manure and waste in the farm? (খামারে কে পোল্ট্রির বিষ্ঠা/ম্যানিউর এবং বর্জ্য ব্যবস্থাপনা করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.10	Who perform cleaning and sanitization in the farm? (খামারে কে পরিষ্কার পরিচ্ছন্নতা ও জীবাণুমুক্তকরণ কার্য সম্পন্ন করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.11	Who choose the input supplier? (কে উপকরণ সরবরাহকারী নির্বাচন করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.12	Who maintain the contact with the input supplier? (কে উপকরণ সরবরাহকারীর সাথে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.13	Who decide where to sale? (কার কাছে এবং কোথায় বিক্রি করবে এই সিদ্ধান্ত কে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.14	Who maintain the contact with the buyer? (ক্রেতার সাথে যোগাযোগ করেন কে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.15	Who decide the use of money earned from livestock? (পোল্ট্রি পালন থেকে উপার্জিত অর্থ ব্যবহারে কে সিদ্ধান্ত গ্রহণ করে?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.16	Who maintain the contact with the vet service providers? (পশুচিকিৎসা সেবা সরবরাহকারীদের সাথে কে যোগাযোগ রাখেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.17	Who decide the participants of training? (পরিবার থেকে প্রশিক্ষণে কে অংশগ্রহণ করবে সেই সিদ্ধান্তকে নেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.18	Who participates in the training? (প্রশিক্ষণে কে অংশগ্রহণ করেন?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.19	Who spent more time in farm activities? (খামারের কাজে কে বেশি সময় দেয়?)	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.20	Who mainly have access to finance/ credit (আর্থিক/ঋণ এর ক্ষেত্রে কার প্রবেশযোগ্যতা বেশি)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.21	Who mainly goes out for feed and food product testing (কে প্রধানত উৎপাদন এবং উপকরণ পরীক্ষা করতে নিয়ে যায়)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.22	Who manage the household chores listed below along with farming কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি নীচে তালিকাভুক্ত গৃহস্থালির কাজগুলি পরিচালনা করে						

17.23	Who manage taking care of children along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি বাচ্চাদের দেখাশোনা পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.24	Who manage preparing children for their school along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি তাদের ছেলে মেয়েদের স্কুলের জন্য প্রস্তুত করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.25	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিবারের বৃদ্ধ সদস্যদের দেখাশোনা করেন)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.26	Who manage caring elderly family members along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পরিষ্কার, ধোয়া এবং ঝাড়ু পরিচালনা করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.27	Who manage cooking along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি রান্না পরিচালনা করেন)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.28	Who manage collecting water along with farming (কে প্রধানত ফার্ম ব্যবস্থাপনার পাশাপাশি পানি সংগ্রহ করে)?	Male (পুরুষ)	Female (মহিলা)	both (উভয়)	Young boys (যুবক)	Young girls (যুবতী)	Not applicable (প্রযোজ্য নয়)
17.29	Why men- women are practicing this, Please specify the reason (কেন পুরুষ-মহিলারা এটি অনুশীলন করছেন, দয়া করে কারণটি উল্লেখ করুন)	i. Learn from the family (পরিবার থেকে শিক্ষা) ii. Ask to do so by in laws (e.i Father in law, mother in law, mother, father) (শ্বশুর, শাশুড়ি, মা, বাবা করতে বলার জন্য) iii. Due to the abusive word of the neighbor's and community pressure (প্রতিবেশীর গালিগালাজের এবং কমিউনিটির চাপের কারণে) iv. Due to religious pressure (ধর্মীয় চাপের কারণে) v. Others (specify) [অন্যান্য (উল্লেখ করুন)]					

Food and Agriculture Organization of the United Nations

Food and Agriculture Organization of the United Nations
FAO Representation in Bangladesh
House # 74, Road # 18, Block-J, Banani
Dhaka – 1213, Bangladesh

Livestock and Dairy Development Project (LDDP)
Department of Livestock Services
Ministry of Fisheries and Livestock
Bhaban-2, Level- 6
Krishi Khamar Sarak, Farmgate,
Dhaka – 1215, Bangladesh

Department of Livestock Services
Ministry of Fisheries and Livestock
Krishi Khamar Sarak, Farmgate
Dhaka – 1215, Bangladesh

FAO-LDDP Project Baseline Study, 2022