

Annual Research Programme

(2015-16)

Agronomy Division

PROGRAM AREA : CROP MANAGEMENT AND ON FARM RESEARCH

Project 1 : Development of agronomic management packages for advanced mutants of crops at different AEZs

- Objective (s) : To develop proper agronomic production packages for optimizing yield
Personnel assigned : Dr. Md. Monjurul Islam, PSO (PI)
Dr. Md. Shahidul Islam, SSO (Co PI)
Md. Habibur Rahman, SO
Md. Nurul Amin, ASO
Md. Mosharraf Hossain, ASO (cc)
Md. Eunos Ali, SA-2
- Status : Experiments on spacing and sowing/planting at different dates of some newly developed advanced mutants of rice, sesame, soybean and mustard crops were performed during 2014-15 at different locations. They need to be repeated for recommendation.

Source of fund : GOB

Experiment 1 : Determination of optimum seed rate and row spacing for growth and yield of lentil lines

- Objective(s) : To find out proper time and optimum spacing for maximizing yield of lentil mutants
- Season(s) : Rabi, 2015-2016
- Treatments : Factor A. Row spacing: 3 (1) 20 cm, (2) 25 cm & (3) 30 cm.
Factor B. Advanced lines/ varieties: 04, I. LM-75-4, II. LM-132-7, III. LM-208 iv. Binamasur-5 (Check variety)
Bio-fertilizer will be used at the time of experiment setting.
- Design & Repln. : Split-plot, 3
- Location(s) : 3 locations (1) BINA sub-station at Ishurdi (2) BINA sub-station at Magura and (3) BINA sub-station at Chapai Nawabgonj
- Unit plot and total area : 4 m x 3 m; 850 sq. m per location
- Data to be collected : Plant population, yield and yield components, plot yield on seed and straw and crop duration will be recorded.

Experiment 2 : Determination of optimum spacing on growth and yield of sesame mutants

- Objective(s) : To find out optimum spacing for maximizing yield of sesame mutants
- Season(s) : Kharif, 2016
- Treatments : Factor A. Row spacing : 4 (15 cm, 20 cm, 25 cm & 30 cm)
Factor B. Advanced lines/ varieties: 05, I. SM-08, II. SM-09, III. SM-058, IV. SM-067 and V. Binatil-3 (Check variety)
- Design & Repln. : Split-plot, 3
- Location(s) : 2 Locations; (1) BINA sub-station at Magura and (2) BINA sub-station at Ishurdi
- Unit plot and total area : 3 m x 2 m; 675 sq. m per location
- Data to be collected : Plant population, yield and yield components, plot yield on seed and straw and crop duration

Experiment 3 : Comparative effect of direct seeding and transplanting of Binadhan-14 on the yield and yield contributing characters in late boro season

- Objective(s) : To find out the yield potentiality of Binadhan-14
Season(s) : Late Boro, 2015-16
Treatments : Factor A. Sowing method : 4 (Broadcasting, Line sowing, Sprouting and transplanting)
Factor B. Varieties: 02 (Binadhan-14 & BRRI dhan28)
Design & Repln. : Split-plot, 3
Location(s) : 3 Locations; (1) BINA HQ, Mymensingh , (2) BINA sub-station at Rangpur, (3) BINA sub-station at Magura
Unit plot and total area : 3 m x 2 m; 675 sq. m per location
Data to be collected : Yield and yield components, plot yield on seed and straw, crop duration and economic analysis

Experiment 4 : Assessing optimum transplanting date for maximizing yield of Binadhan-14 (2nd Year)

- Objective(s) : To find out optimum transplanting time for maximizing yield
Season(s) : Boro, 2015-16
Treatments : Factor A. Transplanting time:03 (Feb. 15, March 01, March 15)
Factor B. Varieties: 02 (Binadhan-14 and BRRI dhan28)
Design & Repln. : Split-plot, 3
Location(s) : 2 Locations (1) BINA HQ, Mymensingh (2) BINA sub-station at Magura
Unit plot and total area : 3 m x 2 m; 675 sq. m per location
Data to be collected : Yield and yield components, plot yield on seed and straw and crop duration

Experiment 5 : Determination of optimum spacing for growth and yield of soyabean lines

- Objective(s) : To find out the proper spacing for optimizing yield of the soya bean mutant lines
Season(s) : Rabi, 2015-2016
Treatments : A. Spacing: 3, (20 cm; 30 cm and 40 cm)
B. Mutants/varieties: 6 (4 mutants and 2 check)
Design & Repln. : Split plot design with 3 replication
Location(s) : 02;BINA HQ at Mymensingh and BINA sub-station , Noakhali
Unit plot and total area : 3 m X 2 m, 500 m²/ location
Data to be collected : Yield and yield contributing characters

Experiment 6 : Assessing optimum date of transplanting on the yield and yield contributing characters of BINA aman rice varieties

- Objective(s) : To observe the effect of date of transplanting of Aman rice at saline prone areas
Season(s) : T. Aman, 2015-16

Treatments	: Factor A. Transplanting time:05 (July. 15, Aug. 1, Aug. 15, Aug. 30 & Sept. 15) Factor B. Varieties: 04 (Binadhan-7, Binadhan-11, Binadhan-16 & BRRI dhan57)
Design & Repln.	: RCBD with 3 replications
Location(s)	: HQ, Mymensingh & BINA sub-station at Rangpur
Unit plot and total area	: 3 m X 2 m, 500 m ² / location
Data to be collected	: Yield and yield contributing characters

Project 2 : Adaptability and management studies for advanced lines/mutant varieties in problem areas in different cropping patterns at various AEZs

Objective (s)	: (i) To study the degree of adaptability of the mutant lines at different levels of stress conditions (ii) To develop BINA commodities based cropping patterns for different AEZs
Personnel assigned	: Dr. Md. Monjurul Islam, PSO (PI) Dr. Md. Shahidul Islam, SSO (Co PI) Md. Habibur Rahman, SO Md. Nurul Amin, ASO Md. Mosharraf Hossain, ASO (cc) Md. Eunos Ali, SA-2
Status	: Different cropping pattern experiments using BINA developed mutant varieties were done during last year. In this year, a study on relay cropping of wheat with T.aman will be conducted in saline areas.
Source of fund	: GOB

Experiment 7 : Improving the yield of salt tolerant rice genotype/ variety through sloping bed transplanting and gypsum application

Objective(s)	: To find out the suitable management of transplanting arrangement for productivity improvement of rice under natural salinity condition
Season(s)	: Boro, 2015-16
Treatments	: A. Transplanting method-02 (T ₀ : Control (No Slope/flat land) T ₁ : Transplanting in a single row slopping bed) B. Level of gypsum-04: G ₀ : Control (No gypsum), G ₁ : Gypsum @ 75 kg/ha ⁻¹ , G ₂ : Gypsum @ 150 kg/ha ⁻¹ & G ₃ : Gypsum @ 225 kg/ha ⁻¹ C. Varieties-03 (V ₁ : Binadhan-8, V ₂ : Binadhan-10 @V ₃ : BRRI dhan28)
Design & Repln.	: Split-split-plot with three replications
Location(s)	: Shamnagor, Satkhira
Unit plot & total area	: 4 X 3 m ²
Data to be collected	: Yield and yield components of rice

Experiment 8 : Amelioration of salinity stress of selected most salt tolerant rice genotype/variety through silicon application

- Objective(s) : To find out the suitable management for productivity improvement of rice under natural salinity condition
- Season(s) : Boro, 2015-16
- Treatments : A. Level of gypsum-04 -G₀ : Control (No silicon), G₁ :Silicon @ 5 kgha⁻¹, G₂ : Silicon @ 10 kgha⁻¹ & G₃ : Silicon @ 15 kgha⁻¹
B. Varieties-03(V₁ : Binadhan-8, V₂ : Binadhan-10 & V₃ : BRRI dhan28)
- Design & Repln. : Split-plot with three replications
- Location(s) : Shamnagor, Satkhira
- Unit plot & total area : 4 X 3 m²
- Data to be collected : Maturity (variety wise), crop duration, yield and yield components at harvest and records on cost of production and return.

Experiment 9 : Effect of date of sowing on the yield and yield contributing characters of rice mutants/varieties in Aus season at drought prone areas

- Objective(s) : To observe the yield potentiality of rice mutants/varieties in drought prone areas
- Season(s) : Aus, 2015-16
- Treatments : Factor A. Transplanting time:04 (March 15, March30, April 15 & April30)
Factor B. Varieties: 06 (N₄/350/P-4 (5), N₁₀/350/P-5-4, N₄/250/P-4 (2) , N₄/250/P-2 (6)-26, GSR-3 & BRRI dhan48)
- Design & Repln. : RCBD, 3
- Location(s) : 01 (BINA sub station, Chapai Nawabgonj)
- Unit plot & total area : 5 m x 4 m; 1200 sq.m
- Data to be collected : Crop duration, yield and yield components at harvest and records on weather parameters.

Experiment 10 : Effect of date of transplanting on the yield and yield contributing characters of rice mutants/varieties in T. Aman season at drought prone areas

- Objective(s) : To observe the yield potentiality of rice mutants/varieties in drought prone areas
- Season(s) : T.aman, 2015-16
- Treatments : Factor A. Transplanting time:03(July 25, Aug. 05 & Aug. 20)
Factor B. Varieties: 05 (N₄/350/P-4 (5), N₁₀/350/P-5-4, N₄/250/P-4 (2) , N₄/250/P-2 (6)-26, GSR-3 & BRRI dhan57)
- Design & Repln. : RCBD, 3
- Location(s) : 01 (BINA sub station, Chapai Nawabgonj)
- Unit plot & total area : 5 m x 4 m; 1200 sq.m
- Data to be collected : Crop duration, yield and yield components at harvest and records on weather parameters.

Project 3 : Herbicide management for rice crop

- Objective (s) : (i) To study the effectiveness of different herbicides for rice production
(ii) To find out proper doses, application timing and method for rice
- Personnel assigned : Dr. Md. Shahidul Islam, SSO (PI)
Dr. Md. Monjurul Islam, PSO (Co PI)
Md. Habibur Rahman, SO
Md. Nurul Amin, ASO
Md. Mosharraf Hossain, ASO (cc)
Md. Eunos Ali, SA-2
- Status : New
- Source of fund : GOB

Experiment 11 : Effect of different herbicide available in the market for Boro and Aus rice

- Objective(s) : To performance available herbicides in the market for Boro and Aus rice and also identify residues in soils and plants
- Season(s) : Year round, 2015-16
- Treatments : Factor A. Forms herbicides- 2 levels- (1) Granular (2) Liquid
Factor B. Brand of herbicides - 6 herbicides
Test crop : Boro and Aus rice variety (2 variety in each season)
- Design & Repln. : RCBD, 3
- Location(s) : BINA HQ Farm
- Unit plot & total area : 5 m x 4 m; 600 sq. m
- Data to be collected : Dates of sowing/transplanting, count of weed population at different dates after seeding/transplanting, weed biomass, yield and yield components at harvest and records on cost of production and return. Analysis of soils and plants for residues of applied herbicides with GS and High Performance Liquid Chromatography

Project 4 : Impact on climate changes on productivity of BINA develop crop varieties

- Objective (s) : To study the responses of the mutant varieties developed at BINA under changed climatic conditions
- Personnel assigned : Dr. Md. Monjurul Islam, PSO (PI)
Dr. Md. Shahidul Islam, SSO (Co PI)
Md. Habibur Rahman, SO
Md. Nurul Amin, ASO
Md. Mosharraf Hossain, ASO (cc)
Md. Eunos Ali, SA-2
- Status : New
- Source of fund : Climate change

Experiment 12 : Effect of high temperature on the productivity of modern mutant Boro rice variety under pot culture

- Objective(s) : To observe the productivity status of BINA rice varieties at elevated temperature conditions
- Season(s) : Boro 2015-16
- Treatments : Factor A. Atmospheric conditions- 2 levels: (a) Ambient atmospheric condition (b) Ambient atmospheric condition + 5 °C
Factor B. Rice varieties: 6

Design & Repln. : CRD, 3
 Location(s) : BINA HQ Farm
 Unit plot & total area : 60 pots
 Data to be collected : Dates of transplanting, yield and yield components at harvest and records on weather parameters and photosynthesis, LAI and SPAD reading from heading to maturity

Project 5 : Truthfully labeled seed production programme and storage techniques

Objective (s) : To furnish Foundation, Certified and Truthfully labeled Seed (TLS) requirements of different BINA released crop mutants/varieties for promoting and expanding them towards farmers, GOs and NGOs.
 To develop proper seed maintenance technique to preserve quality of seed in storage and development of agronomic packages for quality seed production

Personnel assigned : Dr. Md. Monjurul Islam, PSO (PI)
 Dr. Md. Shahidul Islam, SSO (Co PI)
 Md. Habibur Rahman, SO
 Md. Nurul Amin, ASO
 Md. Mosharraf Hossain, ASO (cc)
 Md. Eunus Ali, SA-2

Status : On going

Source of fund : GOB

Experiment 13 : Comparative studies on seed preservation methods by using nuclear technique

Objective(s) : To develop proper seed maintenance technique to preserve seed in storage

Season(s) : Year round, 2015-16

Treatments : A. Irradiation of seeds: 5 levels: (4, 8,16,20 and 24 Gy)
 B. Storage containers: 3 levels: (Indigenous gunny bag, polyethylene lined gunny bag, Air tied plastic drum)
 C. Crops: Pulses and oil seeds (Ground nut)

Design & Repln. : CRD factorial,

Location(s) : BINA HQ, Mymensingh

Unit plot & total area : Petridis, pot and field experiment

Data to be collected : Germination percent, vigour, records on insect/disease infestation

Experiment 14 : Truthfully labeled seed (TLS) production of released crop varieties of BINA through standard techniques

Objective(s) : To supply seeds for demonstration trials by TCP Division, BINA village program, GOs and NGOs, farmers and other research purposes and to meet special requirement for environmental calamities

Season(s) : Year round

Treatments : BINA crop varieties

Crop	Variety	Area in acre	BINA fields	*Farmer's fields	Quality seed procurement target
<u>Boro</u>					
	Binadhan-5	10	Jamalpur (2), Satkhira (3) Comilla (0.5), Magura (0.5)	Jamalpur (2) Mymensingh (2)	5 tons (2 tons from Farmers)
	Binadhan-8	8	Jamalpur (3), Satkhira (1) Magura (1.25), Rangpur (1.25) Comilla (1), Ishurdi (0.5)	Ishurdi & Kushtia (3), Jamalpur (2) Mymensingh (2)	10 tons (5 tons from farmers)
	Binadhan-10	10	Jamalpur (3), Satkhira (1) Magura (1.25), Rangpur (1.25) Comilla (1), Ishurdi (0.5)	Ishurdi & Kushtia (3), Jamalpur (2) Mymensingh (2)	10 tons (5 tons from farmers)
	Binadhan-14	10	Jamalpur (3), Satkhira (1) Magura (1.25), Rangpur (1.25) Comilla (1), Ishurdi (0.5)	Ishurdi & Kushtia (3), Jamalpur (2) Mymensingh (2)	10 tons (5 tons from farmers)
<hr/>					
<u>Aman</u>					
	Binadhan-7	15	Jamalpur (3), Satkhira (1) Magura (1.25), Rangpur (1.25) Comilla (1), Ishurdi (0.5)	Ishurdi & Kushtia (1), Jamalpur (1) Mymensingh (1), Rangpur (5)	10 tons (7 tons from farmers)
	Binadhan-9	10	Jamalpur (3), Satkhira (1) Magura (1.25), Rangpur (1.25) Comilla (1), Ishurdi (0.5)	Ishurdi & Kushtia (3), Jamalpur (2) Mymensingh (2)	10 tons (5 tons from farmers)
	Binadhan-11	10	Jamalpur (3), Satkhira (1) Magura (1.25), Rangpur (1.25) Comilla (1), Ishurdi (0.5)	Ishurdi & Kushtia (3), Jamalpur (2), Mymensingh (2)	10 tons (5 tons from farmers)
	Binadhan-12	2.0	Jamalpur (0.5), Magura (0.5) Rangpur (0.25), Comilla (0.25) Ishurdi (0.5)	Ishurdi & Kushtia (3), Jamalpur (2), Mymensingh (2)	5 tons (2 tons from farmers)
	Binadhan-13	2.0	Jamalpur (0.5), Magura (0.5) Rangpur (0.25), Comilla (0.25) Ishurdi (0.5)	Mymensingh (.25), Rangpur (.25)	2 tons (0.5 tons from farmers)
	Binadhan-16	2.0	Jamalpur (0.5), Magura (0.5) Rangpur (0.25), Comilla (0.25) Ishurdi (0.5)	Jamalpur (1) Mymensingh (1), Rangpur (1)	10 tons (3 tons from farmers)

Crop	Variety	Area in acre	BINA fields	*Farmer's fields	Quality seed procurement target
Summer mung	Binamoog-5	12	Magura (0.5), Ishurdi (0.5)	Ishurdi (5), Natore (3) Magura (3)	2 t (1 t from farmers)
	Binamoog-6	6	Magura (0.25) Ishurdi (0.25)	Magura (2) Ishurdi (3.5)	1.5 t (1.3 t from farmers)
	Binamoog-7	6	Magura (0.25) Ishurdi (0.25)	Magura (2) Ishurdi (3.5)	1.5 t (1.3 t from farmers)
	Binamoog-8	6	Magura (0.25) Ishurdi (0.25)	Magura (2) Ishurdi (3.5)	1.5 t (1.3 t from farmers)
Mustard	Binasarisha-4	7	Jalalpur (1)	Jalalpur (2) Magura (2), Rangpur (1) Ishurdi (1)	1.5 t (1.3 t from farmers)
	Binasarisa-9	3	-	Rangpur (1) Ishurdi (2)	0.5 t from farmers
	Binasarisa-10	3	-	Rangpur (2) Ishurdi (1)	0.5 t from farmers
Groundnut	Binachinaba dam-4	4	Ishurdi (0.25), Magura (0.25)	Lalmonirhat (1.5), Netrokona (0.5), Kishoregonj (0.5), Natore/Rajshahi (1.5)	2.0 t from farmers
	Binachinaba dam-5				
	Binachinaba dam-6				
	Binachinaba dam-7				
	Binachinaba dam-8				
Sesame	Binatil-1	8	Ishurdi (0.25), Magura (0.25)	Ishurdi (2.5) Magura (3), Satkhira(2)	1.0 t from farmers)
	Binatil-2	8	Ishurdi (0.25), Magura (0.25)	Ishurdi (2.5) Magura (3), Satkhira (2)	1.5 t (1.35 t from farmers)
	Binatil-3	8	Ishurdi (0.25), Magura (0.25)	Ishurdi (2.5) Magura (3), Satkhira(2)	1.5 t (1.35 t from farmers)
Lentil	Binamoshur-4	4	-	Kushtia (2) Magura/Faridpur (2)	0.5 t from farmers
	Binamoshur-5	4	-	Kushtia (2) Magura/Faridpur (2)	0.5 t from farmers
	Binamoshur-6	4	-	Kushtia (2) Magura/Faridpur (2)	0.5 t from farmers
	Binamoshur-7	4	-	Kushtia (2) Magura/Faridpur (2)	0.5 t from farmers
	Chickpea	Binasola-4	6	-	Godagari (4) Magura (2)
Binasola-5		6	-	Godagari (4) Magura (2)	0.75 t from farmers
Binasola-6		6	-	Godagari (4) Magura (2)	0.75 t from farmers
Soybean	Binasoybean-1	5	-	Noakhali (3) Magura (2)	1.0 t from farmers
	Binasoybean-2	5	-	Noakhali (3) Magura (2)	1.0 t from farmers

Head of Agronomy Division

CSO (RC)

Director (Research

**Annual Research and Seed Production Budget
(2015-16)**

Project	*Labour	Chemicals/ Glasswares	Travel	Inputs	Seed Purchase	Project wise sub-total (‘000’ Taka)
Project-1	40	35	175	80		330
Project-2	20	5	50	25		100
Project-3	15	10	-	25		50
Project-4	10	10	-	30		50
Project-5	115	20	125	110	1600	1970
Program sub-total	200	80	350	270	1600	2500
Divisional Grand Total						2500

** Labour wages for experiments conducted at HQ or at Sub-stations will be paid by the Institute centrally. Figures shown meant for off-station labour cost for experiments and seed production*

Head of Agronomy Division

CSO (RC)

Director (Research)