

# ANNUAL RESEARCH REVIEW WORKSHOP 2023-2024



Genetic Resources and Seed Division  
**BANGLADESH RICE RESEARCH INSTITUTE**  
**GAZIPUR 1701**

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**List of involved personnel of Genetic Resources and Seed Division  
during July 2023-June 2024**

<b>Personnel</b>	<b>Working man days</b>
<b><i>Scientist</i></b>	
Partha Sarathi Biswas, PhD, Chief Scientific Officer and Head	365
Mir Sharf Uddin Ahmed, PhD, Principal Scientific Officer	365
Ebna Syod Md. Harunur Rashid, PhD, Senior Scientific Officer	365
Md Abubakar Siddique, PhD, Senior Scientific Officer	365
Armin Bhuiya, PhD, Senior Scientific Officer	365
Md. Humayun Kabir Baktiar, PhD, Scientific Officer	365
Tonmoy Chakrabarty, MS, Scientific Officer	365
Nadia Akter, MS, Scientific Officer <sup>1</sup>	-
Nashirum Monir, BScAg (Hons), Scientific Officer	365
Md Ashiqur Rahman, MS, Scientific Officer	365
<b><i>Manager/ Scientific Assistant / Staff</i></b>	
Md Abul Hossain, Farm Manager	117
Md Shafiqul Islam, Scientific Assistant	365
Md Mujibur Rahman, Scientific Assistant	365
Md Ashik Iqbal, Scientific Assistant	365
Nasrin Sultana, Scientific Assistant	365
Asmaul Hosna, Store Officer	365
Samsun Nahar, Genebank Technician	365
Md Robiul Islam, Laboratory Attendant	365

<sup>1</sup>Abroad for higher Studies

## SUMMARY

- Two collection missions were made during the reporting year and 756 rice germplasm of which 274 in Aus, 371 in T. Aman, 63 in B Aman, 47 in Boro seasons and one wild rice were collected from different districts of Bangladesh.
- One hundred and sixty-three germplasm accessions and new collections (NC) of which of which 36 in T. Aus 2023, 80 in T. Aman 2023 and 47 in Boro 2023-24 were morphologically characterized using 'Rice Germplasm Descriptors and Evaluation Form' of GRSD.
- Rejuvenation of 2,532 accessions including 526 accessions in T. Aus 2023, 1357 in T. Aman 2023 and 649 in Boro 2023-24 seasons was completed. In total 2,958 entries comprising 589 entries/samples of Aus 2023 season, 1,594 entries of T. Aman 2023 and 775 entries of Boro 2023-24 were processed and stored in short term storage. At the same time, 246 entries including 20 entries Aus 2023, 131 entries of T. Aman 2023 and 95 entries of Boro 2023-24 were processed and stored in medium term storage. Similarly, 180 entries comprising 43 entries of Aus 2023, 106 entries of T. Aman season and 31 entries of Boro season were processed and stored in long-term storage.
- In total, 138 new germplasm accessions were registered as new accessions (from accession number 8,869 to 9,006) in BIRRI Genebank after processing and duplicate sorting.
- In total, 3,872 samples of rice germplasm and BIRRI developed rice varieties were supplied to 30 different users in the reporting year.
- A total of 383 rice germplasm accessions have been purified based on GBS profiling (97% homology) and selected for downstream analysis.
- Trait genotyping profile of 376 rice germplasm using trait specific SNP markers have been developed. Analysis of genotyping profile showed that around 48% of germplasm had heat tolerant genes qHTT1, and 58% had qHTSF4.1. The frequencies of drought tolerant QTLs (qDYT2.1, qDYT2.2, qDYT3.1 and qDYT4.1) in the germplasm ranged from 8.36% to 28.57%, while BLB resistance genes (xa5, xa13 and Xa21) frequencies varied from 0.28% to 4.48%. The blast resistant genes Pi9 was found in only 0.27% germplasm, while Ptr (Pita2), Pita and Pi21 were present in 5.49, 12.39 and 1.92% germplasm.
- Two mis-labelled WR entries and two potential duplicates in the 86 wild rice entries were identified through morphological and molecular analysis. Also, traits profiling for different biotic and abiotics stress related traits and grain quality traits have been performed among the WR accessions present in the *ex-sito* collection nursery of GRS Division.
- Three accessions of Rosul Bhog (Acc. 338), Joysail (Acc. 5969) and Ganjia (Acc. 287) showed better performance out of 15 evaluated under late (transplanting 15 September) condition in T Aman 2023 season.
- Out of 51 evaluated Biruin rice, 20 were found containing very low amylose % (4-7.8).
- One hundred and twenty-five BIRRI developed and recommended rice varieties were maintained through nucleus seed production. Besides, nucleus seeds of 73 varieties were produced to be used as the source of breeder seed (BS).
- In total 294.07 tons of breeder seed with tags of which 193.65 tons of 20 Boro varieties, 16.72 tons of seven Aus varieties and 83.70 tons of 35 T. Aman varieties were produced during 2023-24. At the same time, 249.08 tons of breeder seed of which 158.50 tons of 20 Boro varieties, 11.86 tons of seven Aus varieties and 78.73 tons of 35 T. Aman varieties were distributed among 645 partners (GO, NGO and PS) of 'BIRRI Rice Seed Network'.
- Breeder and foundation seed (FS) producing plots and farms were visited regularly by the GRS scientists to observe the varietal purity and performance of the respective classes of seeds.

## INTRODUCTION

As a part of the Varietal Development Programme (VDP), Genetic Resources and Seed Division (GRSD) worked on the following areas during 2023-24:

- Collection, conservation, purification, characterization, evaluation and management of rice genetic resources.
- Rice diversity evaluation and documentation.
- Variety maintenance and nucleus seed production, production of breeder seed, monitoring of breeder and foundation seed production farms and performing seed technological research.
- Exchange/supply of rice germplasm to national and international organizations/users.
- Supply of breeder seed to different Government, Non-Government and Private Sector seed producing organizations.
- Relevant activities of Genebank management, seed production and seed technology.

## PART I: USEFUL SCIENTIFIC INFORMATION

### Project 01: Rice Germplasm Conservation and Management

**Project Leader: Dr. Md. Abubakar Siddique**

Genetic Resources are the raw materials for crop improvement and sometimes it is called the blood stream of breeding effort. Hence, its collection, conservation and management have immense value for future breeding initiatives.

#### General Objectives

1. To collect, conserve, purify, characterize, evaluate and utilize the rice germplasm.
2. To check and monitor the viability of stored germplasm in Genebank.
3. To supply and/or exchange of germplasm to different researchers/organizations at home and abroad.

#### Output Achieved

1. Collected germplasm conserved safely in Genebank and documented along with their characters in database.
2. Conserved germplasm with valuable traits were made available for utilization as parent material(s) for developing new variety(s)/genotype(s).

### Experiment No. 1.1 Collection of traditional/exotic and wild rice varieties/germplasm

**Principal Investigator (PI):** Dr. Partha Sarathi Biswas

**Co-Investigator (CI):** Dr. Md. Abubakar Siddique, Dr. Armin Bhuiya, Nashirum Monir and Md Ashiqur Rahman

#### Specific objective

To collect local, cultivated and wild rice germplasm from unexplored areas of Bangladesh and to conserve the collected rice germplasm for safekeeping.

#### Materials and methods

Mission oriented location specific collection programs were performed for exploration of rice germplasm. For this purpose, DAE and NGO personnel were informed well ahead to assist BRRI scientists for arrangement of logistic support in field collection. Some collection programs were made directly by BRRI personnel. For this purpose, two to four members team was formed before each collection mission. During collection, passport data along with longitude and latitude were recorded. On the other hand, the collected sample was discarded as duplicate, when had identical name/similar name and same/neighboring place of

collection along with identical grain features with any of the stored accession of the BRRi Genebank. All the newly collected germplasm were checked and compared with the ‘accession list’ and the ‘seed of catalogue box’ of the respected stored similar named varieties of BRRi Genebank for confirming duplication.

## Results and discussion

Two collection missions were made during the reporting year and 753 rice germplasm including 274 in Aus, 373 in T. Aman, 59 in B Aman, 46 in Boro and one wild rice seasons were collected from different districts of Bangladesh (Table 1). The duplicate germplasm (with BRRi Genebank accessions) were discarded from the list of ‘register book of new collection’ and the remaining new germplasm were then registered in ‘Genebank accession register book’ after drying, processing and packaging.

**Table 1. List of rice germplasm collected from different districts of Bangladesh during 2023-24.**

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
1	973	BR12001-6R-205	BRRi	Gazipur	T. Aman
2	974	BR10795-6R-133	BRRi	Gazipur	T. Aman
3	975	BR12006-6R-14	BRRi	Gazipur	T. Aman
4	976	BR10797-6R-140	BRRi	Gazipur	T. Aman
5	977	BR10799-6R-104	BRRi	Gazipur	T. Aman
6	978	BR12007-6R-61	BRRi	Gazipur	T. Aman
7	979	BR11333-6R-4	BRRi	Gazipur	T. Aman
8	980	BR11333-6R-84	BRRi	Gazipur	T. Aman
9	981	BR10799-6R-31	BRRi	Gazipur	T. Aman
10	982	BR12011-6R-178	BRRi	Gazipur	T. Aman
11	983	BR10797-6R-24	BRRi	Gazipur	T. Aman
12	984	BR10799-6R-70	BRRi	Gazipur	T. Aman
13	985	BR11343-6R-51	BRRi	Gazipur	T. Aman
14	986	BR11227-6R-98	BRRi	Gazipur	T. Aman
15	987	BR10802-6R-66	BRRi	Gazipur	T. Aman
16	988	BR11336-6R-10	BRRi	Gazipur	T. Aman
17	989	BR12023-6R-111	BRRi	Gazipur	T. Aman
18	990	BR12021-6R-117	Kurigram	Kurigram	T. Aman
19	991	IR156L720	Kurigram	Kurigram	T. Aman
20	992	IR127009-B-8-2-1-2	BRRi	Gazipur	T. Aman
21	993	IR17L1314	BRRi	Gazipur	T. Aman
22	994	IR100097-B-B-RGA-B-RGA-8	BRRi	Gazipur	T. Aman
23	995	IR17L1360	BRRi	Gazipur	T. Aman
24	996	BR10854-4-1-1-2-8	BRRi	Gazipur	T. Aman
25	997	BR10855-3-2-5-2-5	BRRi	Gazipur	T. Aman
26	998	BR10863-8-3-5-3-2	BRRi	Gazipur	T. Aman
27	999	BR11176-16-7-4-4-2	BRRi	Gazipur	T. Aman
28	1000	GORIA	BRRi	Gazipur	T. Aman
29	1001	HAZARI POTOL	BRRi	Gazipur	T. Aman
30	1002	FUL GANZIA	Kurigram	Kurigram	T. Aman
31	1003	PATOL	Kurigram	Kurigram	T. Aman
32	1004	GARIA MOTA	Kurigram	Kurigram	T. Aman
33	1005	GANJIA	Kurigram	Kurigram	T. Aman
34	1006	BRRi 10R-MASP1	BRRi	Rangpur	Boro
35	1007	BRRi 10R-MASP2	BRRi	Rangpur	Boro
36	1008	BRRi 20R-MASP2	BRRi	Rangpur	Boro
37	1009	BRRi 20R-MASP3	BRRi	Rangpur	Boro
38	1010	BRRi 31R-MASP3	BRRi	Rangpur	Boro
39	1011	BRRi 31R-MASP4	BRRi	Rangpur	Boro
40	1012	IR75608B-MASP3	BRRi	Rangpur	Boro
41	1013	IR75608B-MASP5	BRRi	Rangpur	Boro
42	1014	BR11712-4R-44	BRRi	Gazipur	Boro
43	1015	BR11712-4R-93	BRRi	Gazipur	Boro
44	1016	BR11717-4R-12	BRRi	Gazipur	Boro
45	1017	BR11727-4R-6	BRRi	Gazipur	Boro

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
46	1018	MTU 18 (660)	BRRRI	Gazipur	Aus
47	1019	DF3	BRRRI	Gazipur	Aus
48	1020	KHATIAORGOABEZ	BRRRI	Gazipur	Aus
49	1021	BORO 354	BRRRI	Gazipur	Aus
50	1022	AUS 210	BRRRI	Gazipur	Aus
51	1023	AUS 298	BRRRI	Gazipur	Aus
52	1024	AUS 204	BRRRI	Gazipur	Aus
53	1025	AUS 228	BRRRI	Gazipur	Aus
54	1026	AUS 209	BRRRI	Gazipur	Aus
55	1027	KALI BORO 704	BRRRI	Gazipur	Aus
56	1028	AUS 435	BRRRI	Gazipur	Aus
57	1029	AUS PADDY (BLACK)	BRRRI	Gazipur	Aus
58	1030	AUS 46	BRRRI	Gazipur	Aus
59	1031	AUS 169	BRRRI	Gazipur	Aus
60	1032	AUS 63	BRRRI	Gazipur	Aus
61	1033	AUS 93	BRRRI	Gazipur	Aus
62	1034	AUS 328	BRRRI	Gazipur	Aus
63	1035	AUS 335	BRRRI	Gazipur	Aus
64	1036	AUS 293	BRRRI	Gazipur	Aus
65	1037	AUS 415	BRRRI	Gazipur	Aus
66	1038	AUS 180	BRRRI	Gazipur	Aus
67	1039	AUS 283	BRRRI	Gazipur	Aus
68	1040	AUS 353	BRRRI	Gazipur	Aus
69	1041	SADA BORO	BRRRI	Gazipur	Aus
70	1042	AUS 277	BRRRI	Gazipur	Aus
71	1043	AUS 414	BRRRI	Gazipur	Aus
72	1044	AUS 411	BRRRI	Gazipur	Aus
73	1045	AUS 273	BRRRI	Gazipur	Aus
74	1046	AUS 293	BRRRI	Gazipur	Aus
75	1047	AUS 361	BRRRI	Gazipur	Aus
76	1048	AUS 366	BRRRI	Gazipur	Aus
77	1049	AUS 391	BRRRI	Gazipur	Aus
78	1050	AUS 350	BRRRI	Gazipur	Aus
79	1051	AUS 309	BRRRI	Gazipur	Aus
80	1052	AUS 317	BRRRI	Gazipur	Aus
81	1053	AUS 401	BRRRI	Gazipur	Aus
82	1054	DV 123	BRRRI	Gazipur	Aus
83	1055	AUS 77	BRRRI	Gazipur	Aus
84	1056	AUS 130	BRRRI	Gazipur	Aus
85	1057	AUS 74	BRRRI	Gazipur	Aus
86	1058	AUS 100	BRRRI	Gazipur	Aus
87	1059	AUS 27	BRRRI	Gazipur	Aus
88	1060	DZ 78	BRRRI	Gazipur	Aus
89	1061	DZ 193	BRRRI	Gazipur	Aus
90	1062	CTG 1516	BRRRI	Gazipur	Aus
91	1063	AUS 77	BRRRI	Gazipur	Aus
92	1064	GORLA	BRRRI	Gazipur	Aus
93	1065	KANCHA NONI	BRRRI	Gazipur	Aus
94	1066	AUS 68	BRRRI	Gazipur	Aus
95	1067	AUS 136	BRRRI	Gazipur	Aus
96	1068	DJ 123	BRRRI	Gazipur	Aus
97	1069	JAMAR	BRRRI	Gazipur	Aus
98	1070	SORISHA FUL	BRRRI	Gazipur	Aus
99	1071	BOGURA	BRRRI	Gazipur	Aus
100	1072	MOTZHUL	BRRRI	Gazipur	Aus
101	1073	HIJLI	BRRRI	Gazipur	Aus
102	1074	PARBAT JIRA	BRRRI	Gazipur	Aus
103	1075	AUS PADDY BLACK	BRRRI	Gazipur	Aus
104	1076	GOUERI SAIL	BRRRI	Gazipur	Aus
105	1077	BIOLAM	BRRRI	Gazipur	Aus
106	1078	KASALATH	BRRRI	Gazipur	Aus

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
107	1079	TUPA	BRRRI	Gazipur	Aus
108	1080	IR 6421	BRRRI	Gazipur	Aus
109	1081	DA 24	BRRRI	Gazipur	Aus
110	1082	LANMI KAJAL	BRRRI	Gazipur	Aus
111	1083	GOTU LEMMA	BRRRI	Gazipur	Aus
112	1084	BLACK GORA	BRRRI	Gazipur	Aus
113	1085	CODENOBI 93	BRRRI	Gazipur	Aus
114	1086	SAITE BORO	BRRRI	Gazipur	Aus
115	1087	DA 24	BRRRI	Gazipur	Aus
116	1088	DHINGHA	BRRRI	Gazipur	Aus
117	1089	KALI AUS	BRRRI	Gazipur	Aus
118	1090	DESHI BORO	BRRRI	Gazipur	Aus
119	1091	DESHI BORO	BRRRI	Gazipur	Aus
120	1092	BOWALIA	BRRRI	Gazipur	Aus
121	1093	KALASU	BRRRI	Gazipur	Aus
122	1094	KHASHIA PANJA	BRRRI	Gazipur	Aus
123	1095	OMMI BORO	BRRRI	Gazipur	Aus
124	1096	SORI BHOG	BRRRI	Gazipur	Aus
125	1097	ARC 10303	BRRRI	Gazipur	Aus
126	1098	ARC 7325	BRRRI	Gazipur	Aus
127	1099	ARC 5959	BRRRI	Gazipur	Aus
128	1100	JABAHUL	BRRRI	Gazipur	Aus
129	1101	ARC 14965	BRRRI	Gazipur	Aus
130	1102	DJ 24	BRRRI	Gazipur	Aus
131	1103	ARC 5977	BRRRI	Gazipur	Aus
132	1104	SHONI	BRRRI	Gazipur	Aus
133	1105	ARC 6240	BRRRI	Gazipur	Aus
134	1106	AUS 464	BRRRI	Gazipur	Aus
135	1107	DHALI BORO	BRRRI	Gazipur	Aus
136	1108	AUS MURALI	BRRRI	Gazipur	Aus
137	1109	AUS 169	BRRRI	Gazipur	Aus
138	1110	BAWAI	BRRRI	Gazipur	Aus
139	1111	AUS 152	BRRRI	Gazipur	Aus
140	1112	AUS 37	BRRRI	Gazipur	Aus
141	1113	AUS 151	BRRRI	Gazipur	Aus
142	1114	KALI BORO 80-3	BRRRI	Gazipur	Aus
143	1115	AUS 283	BRRRI	Gazipur	Aus
144	1116	GORIA	BRRRI	Gazipur	Aus
145	1117	AUS MERI	BRRRI	Gazipur	Aus
146	1118	JAGLE BORO	BRRRI	Gazipur	Aus
147	1119	KALO BIRA	BRRRI	Gazipur	Aus
148	1120	KAALBARI	BRRRI	Gazipur	Aus
149	1121	JAGIL	BRRRI	Gazipur	Aus
150	1122	GORIA	BRRRI	Gazipur	Aus
151	1123	SHADA BORO	BRRRI	Gazipur	Aus
152	1124	KALINDI	BRRRI	Gazipur	Aus
153	1125	JAGAL 1640	BRRRI	Gazipur	Aus
154	1126	SADA BORO	BRRRI	Gazipur	Aus
155	1127	GOHAMA BHARI	BRRRI	Gazipur	Aus
156	1128	KALASA	BRRRI	Gazipur	Aus
157	1129	BAWAI	BRRRI	Gazipur	Aus
158	1130	SHAMLA MEGHI	BRRRI	Gazipur	Aus
159	1131	AUS 125	BRRRI	Gazipur	Aus
160	1132	BINNA TOHA	BRRRI	Gazipur	Aus
161	1133	CHANDRA MUKLI	BRRRI	Gazipur	Aus
162	1134	AUS 268	BRRRI	Gazipur	Aus
163	1135	AUBIL RASH	BRRRI	Gazipur	Aus
164	1136	CUNAIL	BRRRI	Gazipur	Aus
165	1137	PHULDUMRA	BRRRI	Gazipur	Aus
166	1138	AUS 99	BRRRI	Gazipur	Aus
167	1139	KALI BORO 26	BRRRI	Gazipur	Aus

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
168	1140	AUS 22	BRRRI	Gazipur	Aus
169	1141	CHANDRA KANA	BRRRI	Gazipur	Aus
170	1142	BOIHM	BRRRI	Gazipur	Aus
171	1143	TULSHI BORO	BRRRI	Gazipur	Aus
172	1144	ARC 10378	BRRRI	Gazipur	Aus
173	1145	BACLI BORO	BRRRI	Gazipur	Aus
174	1146	DY85	BRRRI	Gazipur	Aus
175	1147	M 13620	BRRRI	Gazipur	Aus
176	1148	ARC 10378	BRRRI	Gazipur	Aus
177	1149	PADMA SAIL	BRRRI	Gazipur	Aus
178	1150	AUS 462	BRRRI	Gazipur	Aus
179	1151	SADA BORO	BRRRI	Gazipur	Aus
180	1152	DM 59	BRRRI	Gazipur	Aus
181	1153	GOUERI SAIL	BRRRI	Gazipur	Aus
182	1154	GHENGRI 1	BRRRI	Gazipur	Aus
183	1155	KUMBI	BRRRI	Gazipur	Aus
184	1156	THUBRI	BRRRI	Gazipur	Aus
185	1157	PURA NUKNA	BRRRI	Gazipur	Aus
186	1158	AUS 280	BRRRI	Gazipur	Aus
187	1159	DJ 29	BRRRI	Gazipur	Aus
188	1160	SHETE BHADO	BRRRI	Gazipur	Aus
189	1161	FAISHA MANS	BRRRI	Gazipur	Aus
190	1162	KALI BORO 1382	BRRRI	Gazipur	Aus
191	1163	CHAMKA	BRRRI	Gazipur	Aus
192	1164	KALI BORO 22	BRRRI	Gazipur	Aus
193	1165	AUS 125	BRRRI	Gazipur	Aus
194	1166	GORIA	BRRRI	Gazipur	Aus
195	1167	PASU SAIL	BRRRI	Gazipur	Aus
196	1168	BR 3	BRRRI	Gazipur	Aus
197	1169	DM 43	BRRRI	Gazipur	Aus
198	1170	DHALAI KACHARI 208	BRRRI	Gazipur	Aus
199	1171	AUS 231	BRRRI	Gazipur	Aus
200	1172	DESHI BORO 190	BRRRI	Gazipur	Aus
201	1173	BORO BLACK 178	BRRRI	Gazipur	Aus
202	1174	SOASI 176	BRRRI	Gazipur	Aus
203	1175	BOWALIA	BRRRI	Gazipur	Aus
204	1176	AUS 362 116	BRRRI	Gazipur	Aus
205	1177	CHINAGER	BRRRI	Gazipur	Aus
206	1178	AUS 29	BRRRI	Gazipur	Aus
207	1179	THUBRI	BRRRI	Gazipur	Aus
208	1180	ARC 14915	BRRRI	Gazipur	Aus
209	1181	AUS 31	BRRRI	Gazipur	Aus
210	1182	DM 56	BRRRI	Gazipur	Aus
211	1183	ARC 5960	BRRRI	Gazipur	Aus
212	1184	DHALA SAIITTA	BRRRI	Gazipur	Aus
213	1185	AUS 420	BRRRI	Gazipur	Aus
214	1186	AUS 96	BRRRI	Gazipur	Aus
215	1187	LALJ BORO	BRRRI	Gazipur	Aus
216	1188	BCULARN	BRRRI	Gazipur	Aus
217	1189	AUS 154	BRRRI	Gazipur	Aus
218	1190	ARC 14108	BRRRI	Gazipur	Aus
219	1191	BROWN GARA SB 92	BRRRI	Gazipur	Aus
220	1192	CN 2 175 531	BRRRI	Gazipur	Aus
221	1193	DUKHI	BRRRI	Gazipur	Aus
222	1194	SORI BHOG	BRRRI	Gazipur	Aus
223	1195	ARC 10392	BRRRI	Gazipur	Aus
224	1196	AUS 267	BRRRI	Gazipur	Aus
225	1197	THUBRI	BRRRI	Gazipur	Aus
226	1198	DUBHI GORA	BRRRI	Gazipur	Aus
227	1199	BASHFUL BALAM	BRRRI	Gazipur	Aus
228	1200	KUDA	BRRRI	Gazipur	Aus
229	1201	T 65	BRRRI	Gazipur	Aus
230	1202	NAI DUMUR	BRRRI	Gazipur	Aus
231	1203	FUL BADAM	BRRRI	Gazipur	Aus

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
232	1204	AUS 453	BRRRI	Gazipur	Aus
233	1205	ARC 10376	BRRRI	Gazipur	Aus
234	1206	ARC 11205	BRRRI	Gazipur	Aus
235	1207	CHHOLA BORO (2)	BRRRI	Gazipur	Aus
236	1208	ARC 4950	BRRRI	Gazipur	Aus
237	1209	SNC 290	BRRRI	Gazipur	Aus
238	1210	AUS 323	BRRRI	Gazipur	Aus
239	1211	ARC 6000	BRRRI	Gazipur	Aus
240	1212	ARC 11600	BRRRI	Gazipur	Aus
241	1213	SADA BORO	BRRRI	Gazipur	Aus
242	1214	AUS 105	BRRRI	Gazipur	Aus
243	1215	ASSAM 4 (BORO)	BRRRI	Gazipur	Aus
244	1216	SADUCHO	BRRRI	Gazipur	Aus
245	1217	BINNSTOHA	BRRRI	Gazipur	Aus
246	1218	EARLY SUTURSAR 39	BRRRI	Gazipur	Aus
247	1219	OMMI BORO	BRRRI	Gazipur	Aus
248	1220	AUS KUSHI	BRRRI	Gazipur	Aus
249	1221	BR 6	BRRRI	Gazipur	Aus
250	1222	PURPLEPTTU	BRRRI	Gazipur	Aus
251	1223	AUS 314	BRRRI	Gazipur	Aus
252	1224	NP 97	BRRRI	Gazipur	Aus
253	1225	SADA BORO	BRRRI	Gazipur	Aus
254	1226	GABURA IRGC	BRRRI	Gazipur	Aus
255	1227	SATHA IRGC	BRRRI	Gazipur	Aus
256	1228	M 202 IRGC	BRRRI	Gazipur	Aus
257	1229	LI JIANGNIN TUAN HEI IRGC	BRRRI	Gazipur	Aus
258	1230	117769 JHONA 349	BRRRI	Gazipur	Aus
259	1231	MUNSHI SHAIL	BRRRI	Gazipur	Aus
260	1232	NIPPON BERI IRGC	BRRRI	Gazipur	Aus
261	1233	WHITE DUBHI IRGC	BRRRI	Gazipur	Aus
262	1234	ASAHI IRGC	BRRRI	Gazipur	Aus
263	1235	BUCHI 2 IRGC	BRRRI	Gazipur	Aus
264	1236	GABURA IRGC	BRRRI	Gazipur	Aus
265	1237	CTG 250	BRRRI	Gazipur	Aus
266	1238	AUS 354	BRRRI	Gazipur	Aus
267	1239	BAZAM AUS	BRRRI	Gazipur	Aus
268	1240	ZHEN SHAN 97 B	BRRRI	Gazipur	Aus
269	1241	AZUCENA	BRRRI	Gazipur	Aus
270	1242	9524	BRRRI	Gazipur	Aus
271	1243	BRRRI DHAN 47	BRRRI	Gazipur	Aus
272	1244	KARKUTI 87	BRRRI	Gazipur	Aus
273	1245	HOR KUCH	BRRRI	Gazipur	Aus
274	1246	BR 16	BRRRI	Gazipur	Aus
275	1247	CHER JVIRUPPU	BRRRI	Gazipur	Aus
276	1248	AUS 89 IRGC	BRRRI	Gazipur	Aus
277	1249	N 17 IRGC	BRRRI	Gazipur	Aus
278	1250	LAHAYA	BRRRI	Gazipur	Aus
279	1251	T 1	BRRRI	Gazipur	Aus
280	1252	ASAHJ	BRRRI	Gazipur	Aus
281	1253	LAFAI	BRRRI	Gazipur	Aus
282	1254	GABURA	BRRRI	Gazipur	Aus
283	1255	BINA DHAN 5	BRRRI	Gazipur	Aus
284	1256	ARC 7229	BRRRI	Gazipur	Aus
285	1257	T 26	BRRRI	Gazipur	Aus
286	1258	BAWOI	BRRRI	Gazipur	Aus
287	1259	GARIA	BRRRI	Gazipur	Aus
288	1260	KALAM KATI	BRRRI	Gazipur	Aus
289	1261	RAJASAIL	BRRRI	Gazipur	Aus
290	1262	KACHRA	BRRRI	Gazipur	Aus
291	1263	BIOLAM	BRRRI	Gazipur	Aus
292	1264	RIARJ 7449	BRRRI	Gazipur	Aus
293	1265	AUS 440	BRRRI	Gazipur	Aus
294	1266	AUS 175	BRRRI	Gazipur	Aus
295	1267	LAHAYA	BRRRI	Gazipur	Aus
296	1268	GACHI	BRRRI	Gazipur	Aus
297	1269	GOBIR SAIL	BRRRI	Gazipur	Aus

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298	1270	BRRIDHAN 28	BRRIDHAN	Gazipur	Aus
299	1271	SADABORO	BRRIDHAN	Gazipur	Aus
300	1272	DNY 140	BRRIDHAN	Gazipur	Aus
301	1273	CHOUDHURY SAIL	BRRIDHAN	Gazipur	Aus
302	1274	BOWALIA	BRRIDHAN	Gazipur	Aus
303	1275	TAINUNG 67	BRRIDHAN	Gazipur	Aus
304	1276	BRRIDHAN 45	BRRIDHAN	Gazipur	Aus
305	1277	MINGHUI 63	BRRIDHAN	Gazipur	Aus
306	1278	ARC 10958	BRRIDHAN	Gazipur	Aus
307	1279	P 79	BRRIDHAN	Gazipur	Aus
308	1280	BJ 1	BRRIDHAN	Gazipur	Aus
309	1281	FR 13A	BRRIDHAN	Gazipur	Aus
310	1282	KUCHRA	BRRIDHAN	Gazipur	Aus
311	1283	ASAHI	BRRIDHAN	Gazipur	Aus
312	1284	ASAHI	BRRIDHAN	Gazipur	Aus
313	1285	LAKHAI	BRRIDHAN	Gazipur	Aus
314	1286	CHHOLA BORO	BRRIDHAN	Gazipur	Aus
315	1287	KAJAL SAIL	BRRIDHAN	Gazipur	Aus
316	1288	KALARATA 224	BRRIDHAN	Gazipur	Aus
317	1289	BR11359-4R-24 (PQR)	BRRIDHAN	Gazipur	Boro
318	1290	BR11359-4R-341	BRRIDHAN	Gazipur	Boro
319	1291	BR11361-4R-149	BRRIDHAN	Gazipur	Boro
320	1292	BR11366-4R-133	BRRIDHAN	Gazipur	Boro
321	1293	BR11366-4R-179	BRRIDHAN	Gazipur	Boro
322	1294	BR11371-4R-522	BRRIDHAN	Gazipur	Boro
323	1295	BR11359-4R-11	BRRIDHAN	Gazipur	Boro
324	1296	BR11359-4R-169	BRRIDHAN	Gazipur	Boro
325	1297	BR11359-4R-250	BRRIDHAN	Gazipur	Boro
326	1298	BR11361-4R-154	BRRIDHAN	Gazipur	Boro
327	1299	BR11363-4R-20	BRRIDHAN	Gazipur	Boro
328	1300	BR11359-4R-181	BRRIDHAN	Gazipur	Boro
329	1301	BR11359-4R-211	BRRIDHAN	Gazipur	Boro
330	1302	BR11359-4R-260	BRRIDHAN	Gazipur	Boro
331	1303	BR11359-4R-263	BRRIDHAN	Gazipur	Boro
332	1304	BR11359-4R-275	BRRIDHAN	Gazipur	Boro
333	1305	BR11359-4R-279	BRRIDHAN	Gazipur	Boro
334	1306	BR11359-4R-288	BRRIDHAN	Gazipur	Boro
335	1307	BR11359-4R-304	BRRIDHAN	Gazipur	Boro
336	1308	BR11359-4R-351	BRRIDHAN	Gazipur	Boro
337	1309	BR11359-4R-373	BRRIDHAN	Gazipur	Boro
338	1310	BR10552-1-1-3-4	BRRIDHAN	Gazipur	Boro
339	1311	BR10552-1-1-4-6	BRRIDHAN	Gazipur	Boro
340	1312	BR10570-29-7-3-2	BRRIDHAN	Gazipur	Boro
341	1313	BR10571-15-6-8-5	BRRIDHAN	Gazipur	Boro
342	1314	BR10572-2-7-1-4	BRRIDHAN	Gazipur	Boro
343	1315	BR9674-1-4-1-3-P1	BRRIDHAN	Gazipur	Boro
344	1316	DEBMONI	Kashiani	Gopalganj	B. Aman
345	1317	SHISHUMOTI	Kashiani	Gopalganj	B. Aman
346	1318	KHARA DIGHA	Kashiani	Gopalganj	B. Aman
347	1319	MODHU DIGHA	Kashiani	Gopalganj	T. Aman
348	1320	BAGRAJ	Kashiani	Gopalganj	T. Aman
349	1321	KARTIK SHAIL	Kashiani	Gopalganj	B. Aman
350	1322	KOCHOI DHAN	Kashiani	Gopalganj	T. Aman
351	1323	KALA PAHAR	Kashiani	Gopalganj	T. Aman
352	1324	LAZMIDIGHA	Gopalgonj Sadar	Gopalganj	T. Aman
353	1325	KALIJIRA (INDIAN)	Gopalgonj Sadar	Gopalganj	T. Aman
354	1326	SWARNA DHAN	Gopalgonj Sadar	Gopalganj	T. Aman
355	1327	DADA ZABRA	Gopalgonj Sadar	Gopalganj	T. Aman
356	1328	BASHIRAJ	Gopalgonj Sadar	Gopalganj	T. Aman
357	1329	SHISHUMOTI	Tungipara	Gopalganj	T. Aman
358	1330	RANGADIGAA	Kashiani	Gopalganj	B. Aman
359	1331	HIJOL DIGHA	Tungipara	Gopalganj	T. Aman
360	1332	LALJIRA	Naria	Shariatpur	T. Aman
361	1333	JOYNA	Gopalgonj Sadar	Gopalganj	T. Aman
362	1333	JOYNA	Gopalgonj Sadar	Gopalganj	T. Aman
363	1334	KOTA BALAM	Gopalgonj Sadar	Gopalganj	T. Aman

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
364	1335	BISH NOMBOR	Gopalganj Sadar	Gopalganj	T. Aman
365	1336	KHIRAI	Gopalganj Sadar	Gopalganj	T. Aman
366	1337	CAINISAGOR	Shyamnagar	Satkhira	T. Aman
367	1339	DADA MOTA	Shyamnagar	Satkhira	T. Aman
368	1340	TEJ MINIKET	Shyamnagar	Satkhira	T. Aman
369	1341	HORGOJA	Shyamnagar	Satkhira	T. Aman
370	1342	TILEK KUCHI	Shyamnagar	Satkhira	T. Aman
371	1343	MOHIMEY	Shyamnagar	Satkhira	T. Aman
372	1344	BOU SOHAGI	Shyamnagar	Satkhira	T. Aman
373	1345	MALAKIT	Shyamnagar	Satkhira	T. Aman
374	1346	HOLDE GOTAI	Shyamnagar	Satkhira	T. Aman
375	1347	LAL MOTA	Shyamnagar	Satkhira	T. Aman
376	1348	GOCHI	Shyamnagar	Satkhira	T. Aman
377	1349	SADA GOTAL (NOTUN)	Shyamnagar	Satkhira	T. Aman
378	1350	CHINI KANAI	Shyamnagar	Satkhira	T. Aman
379	1351	RUPESHWAR	Shyamnagar	Satkhira	T. Aman
380	1352	KATARIBHOG	Shyamnagar	Satkhira	T. Aman
381	1353	HATIR JOR	Shyamnagar	Satkhira	T. Aman
382	1354	KUTEPATNAI	Shyamnagar	Satkhira	T. Aman
383	1355	KHAKSHAIL	Shyamnagar	Satkhira	T. Aman
384	1356	GEUSH	Shyamnagar	Satkhira	T. Aman
385	1357	KHASKINI	Shyamnagar	Satkhira	T. Aman
386	1358	LALAKUMRI	Shyamnagar	Satkhira	T. Aman
387	1359	ALI KANCHON	Shyamnagar	Satkhira	T. Aman
388	1360	SUDHA	Shyamnagar	Satkhira	T. Aman
389	1361	KABULDUZAN	Shyamnagar	Satkhira	T. Aman
390	1362	BODDIRAJ	Shyamnagar	Satkhira	T. Aman
391	1363	CHARO BALAM	Shyamnagar	Satkhira	T. Aman
392	1364	BOROJHEPI	Shyamnagar	Satkhira	T. Aman
393	1365	EURCHAUL	Shyamnagar	Satkhira	T. Aman
394	1366	MOYNAMOTI	Shyamnagar	Satkhira	T. Aman
395	1367	PANGAS	Shyamnagar	Satkhira	T. Aman
396	1368	JOTAIBALAM	Shyamnagar	Satkhira	T. Aman
397	1369	UNKNOWN	Shyamnagar	Satkhira	T. Aman
398	1370	MODHUSHAIL	Shyamnagar	Satkhira	T. Aman
399	1371	SADASWARNA	Shyamnagar	Satkhira	T. Aman
400	1372	ARA	Shyamnagar	Satkhira	T. Aman
401	1373	KOSTURI	Shyamnagar	Satkhira	T. Aman
402	1374	GABRAIL	Shyamnagar	Satkhira	T. Aman
403	1375	MALAGATI	Shyamnagar	Satkhira	T. Aman
404	1376	MOTA MOTA	Shyamnagar	Satkhira	T. Aman
405	1377	RONJIT	Shyamnagar	Satkhira	T. Aman
406	1378	KARTIK BINNI	Shyamnagar	Satkhira	T. Aman
407	1379	GOTA	Shyamnagar	Satkhira	T. Aman
408	1380	MOIRAM	Shyamnagar	Satkhira	T. Aman
409	1381	MIULATA	Shyamnagar	Satkhira	T. Aman
410	1382	TULSHIMALA	Shyamnagar	Satkhira	T. Aman
411	1383	KHEJUR CHHORI	Shyamnagar	Satkhira	T. Aman
412	1384	MOGHAI BALAM	Shyamnagar	Satkhira	T. Aman
413	1385	MONTESHWAR	Shyamnagar	Satkhira	T. Aman
414	1386	NORSINAHO JOTA	Shyamnagar	Satkhira	T. Aman
415	1387	KUMRAGOR	Shyamnagar	Satkhira	T. Aman
416	1388	ARMAN SARDAR	Shyamnagar	Satkhira	T. Aman
417	1389	SWARNOMASHURI	Shyamnagar	Satkhira	T. Aman
418	1390	LILY	Shyamnagar	Satkhira	T. Aman
419	1391	BASHPHUL BALAM	Shyamnagar	Satkhira	T. Aman
420	1392	KARANGAL	Shyamnagar	Satkhira	T. Aman
421	1393	BHOLANATH	Shyamnagar	Satkhira	T. Aman
422	1394	SWARNA DHAN	Shyamnagar	Satkhira	T. Aman
423	1395	LAL PAIJAM	Shyamnagar	Satkhira	T. Aman
424	1396	RUPSHAIL	Shyamnagar	Satkhira	T. Aman
425	1397	GALGOTAL	Shyamnagar	Satkhira	T. Aman
426	1398	GHEEJOJ	Shyamnagar	Satkhira	T. Aman
427	1399	JOLKOSTURI	Shyamnagar	Satkhira	T. Aman
428	1400	KALO MOTA	Shyamnagar	Satkhira	T. Aman
429	1401	MORICH SHAIL	Shyamnagar	Satkhira	T. Aman

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
430	1402	HEGLA	Shyamnagar	Satkhira	T. Aman
431	1403	MOHINI SALOT	Shyamnagar	Satkhira	T. Aman
432	1404	BLACK RICE	Shyamnagar	Satkhira	T. Aman
433	1405	DHANSHI	Shyamnagar	Satkhira	T. Aman
434	1406	DUD KALAM	Betagi	Barguna	Aman
435	1407	KALIJIRA	Betagi	Barguna	Aman
436	1408	MOULATA	Betagi	Barguna	Aman
437	1409	SADA MOTA	Betagi	Barguna	Aman
438	1410	CHINIGURA DHAN	Betagi	Barguna	Aman
439	1411	LALMOTA DHAN	Betagi	Barguna	Aman
440	1412	KOMLA MOTA	Barguna Sadar	Barguna	Aman
441	1413	KOTHA MOTA	Barguna Sadar	Barguna	Aman
442	1414	CHINIGURA	Amtoli	Barguna	Aman
443	1415	VHOJON	Amtoli	Barguna	Aman
444	1416	SWARNAO GOTA	Amtoli	Barguna	Aman
445	1417	DUD KALAM DHAN	Barguna Sadar	Barguna	Aman
446	1418	23 NO IRRI DHAN	Barguna Sadar	Barguna	Aman
447	1419	11 NO IRRI DHAN	Barguna Sadar	Barguna	Aman
448	1420	NATUN GODA DHAN	Barguna Sadar	Barguna	Aman
449	1421	PURAN GODA DHAN	Barguna Sadar	Barguna	Aman
450	1422	SWARNO MOLLA	Barguna Sadar	Barguna	Aman
451	1423	49 IRRI DHAN	Barguna Sadar	Barguna	Aman
452	1424	GODA IRRI	Barguna Sadar	Barguna	Aus
453	1425	MOTHA MOTA	Barguna Sadar	Barguna	Aman
454	1426	SHISUMAOTI	Kashiani	Gopalganj	B. Aman
455	1427	DEVINONI	Kashiani	Gopalganj	B. Aman
456	1428	MODUSAIL	Kashiani	Gopalganj	T. Aman
457	1429	LALJIRA	Tungipara	Gopalganj	T. Aman
458	1430	JABRA	Tungipara	Gopalganj	T. Aman
459	1431	RANGA DIGHA/LALDIGHA	Kashiani	Gopalganj	T. Aman
460	1432	NAJIRSAIL	Kashiani	Gopalganj	T. Aman
461	1433	LAKSMIDIGAH	Kashiani	Gopalganj	T. Aman
462	1434	NONAKOCHI	Sarankhola	Bagerhat	T. Aman
463	1435	BALAM	Sarankhola	Bagerhat	T. Aman
464	1436	SADAMOTA	Sarankhola	Bagerhat	T. Aman
465	1437	LALMOTA	Sarankhola	Bagerhat	T. Aman
466	1438	CHINIKANAI	Sarankhola	Bagerhat	T. Aman
467	1439	JOYNA	Mollahat	Bagerhat	T. Aman
468	1440	NAJIRSAIL	Mollahat	Bagerhat	T. Aman
469	1441	BASHIRAJ	Mollahat	Bagerhat	T. Aman
470	1442	JABRA	Mollahat	Bagerhat	T. Aman
471	1443	SADA JABRA	Gopalganj Sadar	Gopalganj	T. Aman
472	1444	JABRA	Gopalganj Sadar	Gopalganj	T. Aman
473	1445	LAL DIGHA	Gopalganj Sadar	Gopalganj	T. Aman
474	1446	LAL BALAM	Tungipara	Gopalganj	T. Aman
475	1447	NAZIRSAIL	Tungipara	Gopalganj	T. Aman
476	1448	BASHIRAJ	Tungipara	Gopalganj	B. Aman
477	1449	NINA DHAN 7	Tungipara	Gopalganj	T. Aman
478	1450	BOTASHOIL	Tungipara	Gopalganj	T. Aman
479	1451	JABRA	Tungipara	Gopalganj	T. Aman
480	1452	LAL JAURA	Tungipara	Gopalganj	T. Aman
481	1453	MAZBHOG/KUMARGOIR	Tungipara	Gopalganj	T. Aman
482	1454	JIA DHAN	Tungipara	Gopalganj	T. Aman
483	1455	KALIBHIRA	Tungipara	Gopalganj	T. Aman
484	1456	SHAILKBALI	Madhukhali	Faridpur	T. Aman
485	1457	DHIGA BHORO	Madhukhali	Faridpur	B. Aman
486	1458	JABRA SHOTO	Madhukhali	Faridpur	T. Aman
487	1459	RANJIT SHORANA	Badalgachi	Naogaon	T. Aman
488	1460	NAZIRSAIL -1 (LACAL)	Gopalganj Sadar	Gopalganj	T. Aman
489	1461	NAZIRSAIL -2 (LOCAL)	Gopalganj Sadar	Gopalganj	T. Aman
490	1462	BADSHABHOG	Gopalganj Sadar	Gopalganj	T. Aman
491	1463	LAL BALAM	Pirojpur Sadar	Pirojpur	T. Aman
492	1464	SHAORN DHAN 5	Badalgachi	Naogaon	T. Aman
493	1465	DEPA DHAN	Tungipara	Gopalganj	T. Aman
494	1466	MOYNAMOTI	Tungipara	Gopalganj	T. Aman
495	1467	BASHIRAJ	Tungipara	Gopalganj	T. Aman

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496	1468	20 NOMBAR DHAN	Tungipara	Gopalganj	T. Aman
497	1469	DEPA DHAN	Mollahat	Bagerhat	T. Aman
498	1470	SHISUMAOTI	Mollahat	Bagerhat	T. Aman
499	1471	NAJIRSAIL	Mollahat	Bagerhat	T. Aman
500	1472	NOJIRSAIL	Mollahat	Bagerhat	T. Aman
501	1473	JIRA DHAN	Mollahat	Bagerhat	T. Aman
502	1474	JOYNA	Mollahat	Bagerhat	T. Aman
503	1475	JABRA	Mollahat	Bagerhat	T. Aman
504	1476	DASHIRAJ	Mollahat	Bagerhat	T. Aman
505	1477	SADA MOTA	Bagertha Sadar	Bagerhat	T. Aman
506	1478	LAL MOTA	Bagertha Sadar	Bagerhat	T. Aman
507	1479	BADAHAGHOG	Bagertha Sadar	Bagerhat	T. Aman
508	1480	BATI BALAM	Sarankhola	Bagerhat	T. Aman
509	1481	KALIJJIRA	Sarankhola	Bagerhat	T. Aman
510	1482	DADKHANI	Sarankhola	Bagerhat	T. Aman
511	1483	CHINIGURA	Sarankhola	Bagerhat	T. Aman
512	1484	BASHIRAJ	Gopalganj Sadar	Gopalganj	B. Aman
513	1485	BINNAPULI ATOB	Badalgachi	Naogaon	T. Aman
514	1486	JABRA	Mollahat	Bagerhat	T. Aman
515	1487	RATUL	Mollahat	Bagerhat	Aus
516	1488	DEPA	Mollahat	Bagerhat	T. Aman
517	1489	RAJOILATA	Mollahat	Bagerhat	T. Aman
518	1490	JOYNA	Mollahat	Bagerhat	T. Aman
519	1491	BASHIRAJ	Mollahat	Bagerhat	B. Aman
520	1492	PATJAG	Kalihati	Tangail	B. Aman
521	1493	CHAMARA	Kalihati	Tangail	B. Aman
522	1494	LAKSMIDIGAH	Gopalganj Sadar	Gopalganj	B. Aman
523	1495	RANGA DIGHA	Gopalganj Sadar	Gopalganj	B. Aman
524	1496	NAZIRSAIL	Gopalganj Sadar	Gopalganj	B. Aman
525	1497	KALO SAITA	Gopalganj Sadar	Gopalganj	T. Aman
526	1498	SADA JABRA	Gopalganj Sadar	Gopalganj	T. Aus
527	1499	FULLKORI	Habigonj Sadar	Habigonj	B. Aman
528	1500	KAJOLLATA	Wazirpur	Habigonj	T. Aman
529	1501	DAMINI	Wazirpur	Habigonj	T. Aman
530	1502	HABU BALAM	Wazirpur	Habigonj	T. Aman
531	1503	SHORNA DHAN	Wazirpur	Habigonj	T. Aman
532	1504	SUBARNALATA	Wazirpur	Habigonj	T. Aman
533	1505	UNKNOWN	Tungipara	Gopalganj	T. Aman
534	1506	SADAJIRA	Gopalganj Sadar	Gopalganj	T. Aman
535	1507	NAZIRSAIL	Gopalganj Sadar	Gopalganj	T. Aman
536	1508	NAZIRSAIL LOCAL	Gopalganj Sadar	Gopalganj	T. Aman
537	1509	SADAJIRA	Gopalganj Sadar	Gopalganj	T. Aman
538	1510	SADA JABRA	Gopalganj Sadar	Gopalganj	T. Aman
539	1511	LAL JIRA	Gopalganj Sadar	Gopalganj	T. Aman
540	1512	KALIJJIRA	Pirojpur Sadar	Pirojpur	T. Aman
541	1513	MONTESHOR	Pirojpur Sadar	Pirojpur	T. Aman
542	1514	KIRON DHAN	Pirojpur Sadar	Pirojpur	T. Aman
543	1515	HUGLI DHAN	Pirojpur Sadar	Pirojpur	T. Aman
544	1516	KALIJJIRA	Gopalganj Sadar	Gopalganj	T. Aman
545	1517	BISH NOMBOR	Gopalganj Sadar	Gopalganj	T. Aman
546	1518	BANDARJHOTA	Rajoir	Madaripur	T. Aman
547	1519	SHORNA DHAN -1	Faridpru Sadar	Faridpur	T. Aman
548	1520	RANGA DIGHA	Kashiani	Faridpur	T. Aman
549	1521	KALA DIGHA-1	Alfadanga	Faridpur	T. Aman
550	1522	KALAJIRA-1	Alfadanga	Faridpur	T. Aman
551	1523	SHISUMATI-1	Kashiani	Gopalganj	T. Aman
552	1524	KHOJA MOTAR	Naria	Shariatpur	B. Aman
553	1525	SADA BORO	Alfadanga	Faridpur	T. Aman
554	1526	MODHUSAIL	Alfadanga	Faridpur	T. Aman
555	1527	JABRA	Alfadanga	Faridpur	T. Aman
556	1528	UNKNOWN	Alfadanga	Faridpur	T. Aman
557	1529	SHORNA DHAN-2	Alfadanga	Faridpur	T. Aman
558	1530	DEPA DHAN	Alfadanga	Faridpur	T. Aman
559	1531	SHISUMOTI-2	Alfadanga	Faridpur	T. Aman
560	1532	BORA DIGHA-1	Alfadanga	Faridpur	T. Aman
561	1533	BOGA DIGHA	Alfadanga	Faridpur	T. Aman

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
562	1534	SHISUMOTI-3	Alfadanga	Faridpur	T. Aman
563	1535	KACH KOLOM	Alfadanga	Faridpur	T. Aman
564	1536	BORO DIGHA-2	Alfadanga	Faridpur	T. Aman
565	1537	SHORNA DHAN-3	Alfadanga	Faridpur	T. Aman
566	1538	LAL DHAN	Alfadanga	Faridpur	T. Aman
567	1539	BORO DIGHA-3	Nagarkanda	Faridpur	T. Aman
568	1540	MALA BHOG-1	Alfadanga	Faridpur	T. Aman
569	1541	LAXMI DIGHA-1	Alfadanga	Faridpur	B. Aman
570	1542	KALA DIGHA-2	Alfadanga	Faridpur	B. Aman
571	1543	BADAI	Shibchar	Faridpur	T. Aman
572	1544	LAXMI DIGHA-2	Alfadanga	Faridpur	B. Aman
573	1545	LAL DIGHA-1	Alfadanga	Faridpur	T. Aman
574	1546	PATHARJA DHAN	Alfadanga	Faridpur	T. Aman
575	1547	MALABHOG-2	Alfadanga	Faridpur	T. Aman
576	1548	LAXMI DIGHA-3	Alfadanga	Faridpur	B. Aman
577	1549	SHORNA DHAN-4	Alfadanga	Faridpur	T. Aman
578	1550	HIJOL DIGHA-1	Alfadanga	Faridpur	B. Aman
579	1551	BEGUN BICHI	Alfadanga	Faridpur	T. Aman
580	1552	HIJOL DIGHA-2	Naria	Shariatpur	B. Aman
581	1553	LAXMI DIGHA-4	Naria	Shariatpur	B. Aman
582	1554	SONA DIGHA	Naria	Shariatpur	B. Aman
583	1555	MANIK DIGHA	Naria	Shariatpur	B. Aman
584	1556	SHISUMOTI-4	Madhukhali	Faridpur	B. Aman
585	1557	PAIJAM-1	Madhukhali	Faridpur	T. Aman
586	1558	BORO DIGHA-4	Madhukhali	Faridpur	B. Aman
587	1559	DUDKALAM	Madhukhali	Faridpur	B. Aman
588	1560	HIJOL DIGHA-3	Madhukhali	Faridpur	B. Aman
589	1561	ARPARINA-1	Boalmari	Faridpur	T. Aman
590	1562	LAL PAIJAM1	Boalmari	Faridpur	T. Aman
591	1563	DEBMONI-1	Boalmari	Faridpur	T. Aman
592	1564	DEBMONI-2	Boalmari	Faridpur	T. Aman
593	1565	BORO DIGHA-4	Boalmari	Faridpur	B. Aman
594	1566	SHORNA MOTA	Boalmari	Faridpur	T. Aman
595	1567	LATISAIL	Madhukhali	Faridpur	T. Aman
596	1568	SHISUMOTI-5	Madhukhali	Faridpur	B. Aman
597	1569	RANGA DHIGA	Alfadanga	Faridpur	B. Aman
598	1570	SHISUMOTI-5	Alfadanga	Faridpur	B. Aman
599	1571	BOGA DIGHA	Alfadanga	Faridpur	B. Aman
600	1572	LAL DIGHA-2	Alfadanga	Faridpur	B. Aman
601	1573	BORO DIGHA	Alfadanga	Faridpur	B. Aman
602	1574	NAYANMONI	Saltha	Faridpur	T. Aman
603	1575	ARPARINA-1	Saltha	Faridpur	T. Aman
604	1576	HIJOL DIGHA-4	Saltha	Faridpur	B. Aman
605	1577	LAL SHORNA	Saltha	Faridpur	T. Aman
606	1578	SADA PAIJAM-1	Bhanga	Faridpur	B. Aman
607	1579	LAL PAIJAM-2	Bhanga	Faridpur	T. Aman
608	1580	NADISAIL	Faridpru Sadar	Faridpur	T. Aman
609	1581	CHINI ATOP	Faridpru Sadar	Faridpur	T. Aman
610	1582	KALIJIRA-2	Faridpru Sadar	Faridpur	T. Aman
611	1583	SADA PAIJAM-2	Faridpru Sadar	Faridpur	T. Aman
612	1584	BORO DIGHA-5	Sadarpur	Faridpur	B. Aman
613	1585	BASHIRAJ-1	Sadarpur	Faridpur	B. Aman
614	1586	JHUL DHAN-1	Sadarpur	Faridpur	T. Aman
615	1587	HIJOL DIGHA-5	Sadarpur	Faridpur	B. Aman
616	1588	HIJOL DIGHA-6	Sadarpur	Faridpur	B. Aman
617	1589	SHISUMOTI-6	Sadarpur	Faridpur	B. Aman
618	1590	NAYANMONI	Sadarpur	Faridpur	T. Aman
619	1591	BASHIRAJ-2	Sadarpur	Faridpur	B. Aman
620	1592	GAMBI DHAN	Jajira	Shariatpur	T. Aman
621	1593	MALA AMAN	Bhanga	Faridpur	T. Aman
622	1594	PARI DHAN	Bhanga	Faridpur	T. Aman
623	1595	CHAINIGURA	Bhanga	Faridpur	T. Aman
624	1596	LAL PAIJAM-3	Bhanga	Faridpur	T. Aman
625	1597	PAIJAM-2	Sadarpur	Faridpur	T. Aman
626	1598	SADA PAIJAM-3	Bhanga	Faridpur	T. Aman
627	1599	CHINI ATOP	Bhanga	Faridpur	T. Aman

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
628	1600	SHORNA DHAN-5	Bhanga	Faridpur	T. Aman
629	1601	GUTI SHORNA	Bhanga	Faridpur	T. Aman
630	1602	JOGDAL	Manda	Naogaon	T. Aman
631	1603	MAITAGOROL	Manda	Naogaon	T. Aman
632	1604	SHIALJOTA	Sadarpur	Faridpur	T. Aman
633	1605	SISSUMOTI-7	Sadarpur	Faridpur	B. Aman
634	1606	BASHIRAJ-3	Sadarpur	Faridpur	B. Aman
635	1607	HIJOL DIGHA-7	Sadarpur	Faridpur	B. Aman
636	1608	DUDKALAM-1	Boalmari	Faridpur	T. Aman
637	1609	DEVMONI-1	Boalmari	Faridpur	T. Aman
638	1610	DUDKALOM-2	Muksudpur	Faridpur	T. Aman
639	1611	LAKSMI DIGHA-4	Sadarpur	Faridpur	T. Aman
640	1612	KARTIKSAIL	Sadarpur	Faridpur	T. Aman
641	1613	LAKSMKI DIDHA-5	Sadarpur	Faridpur	T. Aman
642	1614	DUDKALOM	Sadarpur	Faridpur	T. Aman
643	1615	KETO DHAN-2	Sadarpur	Faridpur	T. Aman
644	1616	JAJOL SHORNA	Manda	Naogaon	T. Aman
645	1617	BASAI SHORNA	Manda	Naogaon	T. Aman
646	1618	BINNAPHUL	Manda	Naogaon	T. Aman
647	1619	DEVMONI-2	Boalmari	Faridpur	T. Aman
648	1620	AGARBATI	Boalmari	Faridpur	T. Aman
649	1621	LATISAIL	Boalmari	Faridpur	T. Aman
650	1622	KALIJIRA-3	Boalmari	Faridpur	T. Aman
651	1623	MASRANGA	Charbadrasan	Faridpur	T. Aman
652	1624	HIJOL DIGHA-8	Charbadrasan	Faridpur	T. Aman
653	1625	BALAM SONNO	Tungipara	Gopalganj	T. Aman
654	1626	BEERPALA	Gopalganj Sadar	Gopalganj	T. Aman
655	1627	MONYNAMOTI	Tungipara	Gopalganj	T. Aman
656	1628	SISSUMOTI-8	Madhukhali	Faridpur	T. Aman
657	1629	BETENGA	Madhukhali	Faridpur	T. Aman
658	1630	BAILA DIGHA	Madhukhali	Faridpur	T. Aman
659	1631	DUD LUCKY	Madhukhali	Faridpur	T. Aman
660	1632	BALAM DHAN	Muksudpur	Faridpur	T. Aman
661	1633	DOLKACHU	Muksudpur	Faridpur	T. Aman
662	1634	AIJAN	Muksudpur	Faridpur	T. Aman
663	1635	RANGA JABRA	Muksudpur	Faridpur	T. Aman
664	1636	JOL KOWCHA	Muksudpur	Faridpur	T. Aman
665	1637	KURIAGUNI	Muksudpur	Faridpur	T. Aman
666	1638	KARTIKSAIL	Kashiani	Faridpur	T. Aman
667	1639	DEBMONI-3	Muksudpur	Faridpur	T. Aman
668	1640	SISSUMOTI-9	Muksudpur	Faridpur	T. Aman
669	1641	JHUL DHAN-2	Muksudpur	Faridpur	T. Aman
670	1642	ARPARINA-2	Sadarpur	Faridpur	T. Aman
671	1643	JHOTA MEGHI	Sadarpur	Faridpur	T. Aman
672	1644	LAL PAIJAM-4	Sadarpur	Faridpur	T. Aman
673	1645	BLACK RICE (AROMATIC)	Kashiani	Faridpur	T. Aman
674	1646	GOLDEN ATOB	Khulna Sadar	Khulna	T. Aman
675	1647	KATARIBHOG	Badalgachi	Naogaon	T. Aman
676	1648	JIRA DHAN	Badalgachi	Naogaon	T. Aman
677	1649	SORNA DHAN	Badalgachi	Naogaon	T. Aman
678	1650	NAZIRSAIL	Badalgachi	Naogaon	T. Aman
679	1651	SORSORIA	Sirajgonj Sadar	Sirajgonj	B. Aman
680	1652	HUGLI DHAN	Morrelganj	Bagerhat	B. Aman
681	1653	LALMOTA	Morrelganj	Bagerhat	B. Aman
682	1654	LOKMA DHAN	Morrelganj	Bagerhat	B. Aman
683	1655	BASHFUL BALAM-1 KACHAMOTA/SADAMONTISSO	Morrelganj	Bagerhat	B. Aman
684	1656	R	Morrelganj	Bagerhat	B. Aman
685	1657	NONTESOR	Morrelganj	Bagerhat	B. Aman
686	1658	SADAMOTA	Morrelganj	Bagerhat	B. Aman
687	1659	MORICHSAIL	Batiaghata	Khulna	B. Aman
688	1660	RAWISAIL	Batiaghata	Khulna	B. Aman
689	1661	KOIJURI	Batiaghata	Khulna	B. Aman
690	1662	JOTABALAM	Batiaghata	Khulna	B. Aman
691	1663	BASHFUL BALAM-2	Batiaghata	Khulna	B. Aman
692	1664	RAPISALUT	Batiaghata	Khulna	B. Aman

Sl. No.	C Sl. No.*	Germplasm name	Upazila/Organiz ation	District	Season
693	1665	SORNA PAIJAM	Nilphamari Sadar	Nilphamari	T. Aman
694	1666	JIRA MINIKET	Nilphamari Sadar	Nilphamari	T. Aman
695	1667	JIRA SAIL	Nilphamari Sadar	Nilphamari	T. Aman
696	1668	GUTI SHORNA	Nilphamari Sadar	Nilphamari	T. Aman
697	1669	MASURI GUTI	Nilphamari Sadar	Nilphamari	T. Aman
698	1670	GOMOTI PAIJAM		Comilla	T. Aman
699	1671	MEMBER DHAN		Comilla	T. Aman
700	1672	JIRA DHAN	Badalgachi	Naogaon	Boro
701	1673	GOLDEN ATOB	Badalgachi	Naogaon	Boro/Aman
702	1674	JIRA DHAN	Badalgachi	Naogaon	Boro
703	1675	KATARIBHOG	Badalgachi	Naogaon	Boro
704	1676	BR12631-5R-28 (RLR)	BRRRI	Gazipur	T. Aman
705	1677	BR12631-5R-146 (RLR)	BRRRI	Gazipur	T. Aman
706	1678	BR12631-5R-51 (RLR)	BRRRI	Gazipur	T. Aman
707	1679	BR12294-5R-187 (RLR)	BRRRI	Gazipur	T. Aman
708	1680	BR12303-5R-49 (RLR)	BRRRI	Gazipur	T. Aman
709	1681	BR12293-5R-47 (RLR)	BRRRI	Gazipur	T. Aman
710	1682	BR12631-5R-35 (RLR)	BRRRI	Gazipur	T. Aman
711	1683	BR12303-5R-341 (RLR)	BRRRI	Gazipur	T. Aman
712	1684	BR11752-5R-22 (RLR)	BRRRI	Gazipur	T. Aman
713	1685	BR11754-5R-97 (RLR)	BRRRI	Gazipur	T. Aman
714	1686	BR11752-5R-105 (RLR)	BRRRI	Gazipur	T. Aman
715	1687	BR11747-5R-6 (RLR)	BRRRI	Gazipur	T. Aman
716	1688	BR11732-5R-107 (RLR)	BRRRI	Gazipur	T. Aman
717	1689	BR11747-5R-68 (RLR)	BRRRI	Gazipur	T. Aman
718	1690	BR11748-5R-16-(RLR)	BRRRI	Gazipur	T. Aman
719	1691	BR11731-5R-183 (RLR)	BRRRI	Gazipur	T. Aman
720	1692	BR11730-5R-32 (RLR)	BRRRI	Gazipur	T. Aman
721	1693	BR11135-10-1-3-3 (RLR)	BRRRI	Gazipur	T. Aman
722	1694	BR11139-3-5-2-4 (RLR)	BRRRI	Gazipur	T. Aman
723	1695	BR13017-4R-11 (RLR)	BRRRI	Gazipur	T. Aman
724	1696	BR130178-4R-31 (RLR)	BRRRI	Gazipur	T. Aman
725	1697	RB13018-4R-117 (RLR)	BRRRI	Gazipur	T. Aman
726	1698	BR13023-4R-33 (RLR)	BRRRI	Gazipur	T. Aman
727	1699	BR11788-5R-28 (RLR)	BRRRI	Gazipur	T. Aman
728	1700	BR12306-5R-14 (RLR)	BRRRI	Gazipur	T. Aman
729	1701	BR13024-4R-24 (RLR)	BRRRI	Gazipur	T. Aman
730	1702	BR12307-5R-226 (RLR)	BRRRI	Gazipur	T. Aman
731	1703	BR12311-5R-69 (RLR)	BRRRI	Gazipur	T. Aman
732	1704	BR12314-5R-180 (RLR)	BRRRI	Gazipur	T. Aman
733	1705	BR12316-5R-133	BRRRI	Gazipur	T. Aman
734	1706	BR11795-5R-51	BRRRI	Gazipur	T. Aman
735	1707	BR11664-3R-2-3 (ZER)	BRRRI	Gazipur	T. Aman
736	1708	BR11665-3R-5-2 (II)	BRRRI	Gazipur	T. Aman
737	1709	BR11666-3R-6-2	BRRRI	Gazipur	T. Aman
738	1710	BR11672-3R-13-1 (ZER)	BRRRI	Gazipur	T. Aman
739	1711	BR11672-3R-3-2	BRRRI	Gazipur	T. Aman
740	1712	BR11672-3R-6-9	BRRRI	Gazipur	T. Aman
741	1713	BR11675-3R-9-1	BRRRI	Gazipur	T. Aman
742	1714	BR11151-1-6-2-4	BRRRI	Gazipur	T. Aman
743	1715	BR11153-1-2-2-5	BRRRI	Gazipur	T. Aman
744	1716	SWARNA	Pirgonj	Rangpur	T. Aman
745	1717	RANJIT SWARNA	Pirgonj	Rangpur	T. Aman
746	1718	MINIKET KHATO	Pirgonj	Rangpur	Boro/Aman
747	1719	KATARI VHOG (INDIAN)	Pirgonj	Rangpur	T. Aman
748	1720	BRRRI 31R-MAPS3-8-1	BRRRI	Rangpur	T. Aman
749	1721	BRRRI 31R-MASP4-3-1	BRRRI	Rangpur	T. Aman
750	1722	BRRRI 10R-MASP1-2-1	BRRRI	Rangpur	T. Aman
751	1723	BRRRI 10R-MASP2-2-1	BRRRI	Rangpur	T. Aman
752	1724	BRRRI 20R-MASP1-2-1	BRRRI	Rangpur	T. Aman
753	1725	BRRRI 20R-MASP2-2-1	BRRRI	Rangpur	T. Aman
754	1726	IR75608B-MASP3-1-1	BRRRI	Rangpur	Boro/Aman
755	1727	IR75608N-MASP4-2-1	BRRRI	Rangpur	Boro/Aman
756	1728	LEILAN	Panchogar Sadar	Panchagar	Boro

\* C Sr. No.= Collection serial number of 'register book of new collection of germplasm'

## Experiment No. 1.2 Rejuvenation and conservation of rice germplasm accessions

**Investigator:** Partha Sarathi Biswas (PI), Armin Bhuiya (Co-PI), Mir Sharf Uddin Ahmed, Ebna Syod Md Harunur Rashid, Md Abubakar Siddique, Armin Bhuiya, Md Humyun Kabir Baktia, Tonmoy Chakrabarty, Nashirum Monir and Md Ashiqur Rahman

### Specific objective

- i. To increase the seed in field for replacement of Genebank accession with fresh seed.
- ii. To store the rice germplasm with respective accession number in the long, medium and short-term storages of Genebank after rejuvenation and duplicate sorting.

### Materials and method

**A. Rejuvenation of rice germplasm accession:** Rejuvenation is a continuous process for a Genebank. Usually, it is conducted when viability (<80% germination) or seed quality of an accession becomes low. For this reason, conserved rice germplasm (<80% germination) were rejuvenated by growing in the field to increase the fresh seed for safe storage in the Genebank. The accessions possessed less than 80% germination (normally stored after 2017) were listed and used in the experiment. The experiment was carried out in systematic arrangement under transplanted conditions using single row of 5.4 m long per accession with a spacing of 20 × 20 cm between rows and plants, respectively. Fertilizers were applied @ 60:20:40 kg NPK/ha in T. Aus and T. Aman and @ 80:20:40 kg NPK/ha in Boro seasons. Proper control measures were taken for insect pests, diseases and weeds when necessary.

During 2023-24, a total of 2,532 germplasm of which 526 accessions (between Acc. 2601 to 6000) in T. Aus; 1,357 accessions (between Acc. 01 to 2000) in T. Aman and 649 accessions (between Acc. 01 to 5000) in Boro were rejuvenated in field for obtaining fresh seed and on average 500 g of seeds per accession were produced.

Thereafter each accession was sun dried separately for 3-4 days depending on the seed moisture content. The shattering type panicles, especially of *Aus* varieties were dried in plastic net bag for avoiding excessive seed losses. After drying properly (<9% seed moisture), the seeds were processed, cross checked, registered (new collection) and stored in Genebank.

**B. Processing and storage of rice germplasm accession:** The germplasm including new collections that were grown for seed increase were processed, registered and stored in Genebank during 2023-24. The new collections with more than 80% germination were registered as accession after crosschecking with the seed and card catalogues to avoid duplication and seed mixture. At least 150 g seeds of each variety (having <9 % seed moisture content) was kept in the glass jar containing fresh silica gel in short-term storage and another at least 150 g seeds of each variety kept in aluminium foil and stored in airtight glass jar for medium and long-term storages, respectively.

**C. Processing, duplicate sorting and registration of new collection:** Duplicate sorting was performed in two steps. Firstly, the newly collected sample was declared duplicate and discarded, if there was identical name/ similar name and same/ neighboring place of collection along with hundred per cent identical grain features with any of the stored accession of the 'accession list' and any of the respective 'sample seed' of the 'catalogue box' of BIRRI Genebank. Secondly, the rest newly collected rice seed sample that had hundred per cent identical grain features along with days to maturity and other agro-morphological features with any of the stored accessions described in the 'field record book' of BIRRI Genebank, was considered duplicate and discarded. Finally, the remaining unique distincted rice seed samples were entered in the 'Genebank accession register book' by assigning a new 'accession number' of BIRRI Genebank for each of the collected genotype.

### Results and discussion

**A. Rejuvenation of rice germplasm accession:** Two thousand and five hundred thirty-two (2,532) germplasm were harvested and fresh and clean seeds from each germplasm were collected from the field during 2023-24. Among them, 526 accessions (between Acc. 2601 to 6000) in T. Aus; 1,357 accessions (between Acc. 01 to 2000) in T. Aman and 649 accessions (between Acc. 01 to 5000) in Boro seasons were rejuvenated in field for obtaining fresh seed and on average 500 g of seeds per accession were produced.

**B. Processing and storage of rice germplasm accession:** The germplasm were cleaned and dried with a seed moisture content of less than 9%. Then seeds of the existing accessions were stored in their respective places. In total 2,958 entries of germplasm were processed and conserved with respective accession number in different storages of BIRRI Genebank during the reporting year.

A total of 589 entries/samples of Aus 2023 season, 1,594 entries of T. Aman 2023 and 775 entries of Boro 2023-24 were processed and stored in short term storage. At the same time, 246 entries including 20 entries Aus 2023, 131 entries of T. Aman 2023 and 95 entries of Boro 2023-24 were processed and stored in medium term storage. Similarly, 180 entries comprising 43 entries of Aus 2023, 106 entries of T. Aman season and 31 entries of Boro season were processed and stored in long-term storage.

**C. Duplicate sorting and registration of new collection:** In total, 138 germplasm were registered in the accession book as ‘new accession’ in BIRRI Genebank (from acc. 8,869 to 9,006) after processing and duplicate sorting during 2023-24 (Table 2).

**Table 2. List of newly registered rice germplasm during 2023-24.**

Sl. no.	Acc. no.	Name	Upazila/Organization	District/ Country	Season
1	8869	SAHI BALAM	Sadar	Barishal	Aman
2	8870	LOCAL BALAM	Sadar	Barishal	Aman
3	8871	SHAKKOR KHANA	Dumki	Patuakhali	Aman
4	8872	DISHARI	Dumki	Patuakhali	Aman
5	8873	SHAKKOR KHANA (Lal)	Sadar	Barishal	Aman
6	8874	SHAKKOR KHANA (Kalo)	Bakergonj	Barishal	Aman
7	8875	LALMOTA	Dumki	Patuakhali	T. Aman
8	8876	NAKHOCI MOTA	Sadar	Barishal	T. Aman
9	8877	CHAWLAMAGI	Sadar	Barishal	T. Aman
10	8878	SWARNA BALAM	Sadar	Barishal	T. Aman
11	8879	GUSUSHI MOTA	Sadar	Barishal	T. Aman
12	8880	BICCA GURA	Daulatkhan	Bhola	T. Aman
13	8881	KAJALAIL	Lal mohon	Bhola	T. Aman
14	8882	BIYOJ	Charfashion	Bhola	T. Aman
15	8883	HAIL GREEN	Charfashion	Bhola	T. Aman
16	8884	IR11N313	PBD	BIRRI	T. Aman
17	8885	IR05N341	PBD	BIRRI	T. Aman
18	8886	IR13A514	PBD	BIRRI	T. Aman
19	8887	IR98430-B-B-B-B-11	PBD	BIRRI	T. Aman
20	8888	IR12A136	PBD	BIRRI	T. Aman
21	8889	IR11N202	PBD	BIRRI	T. Aman
22	8890	IR10M210	PBD	BIRRI	Boro
23	8891	IR13N152	PBD	BIRRI	Boro
24	8892	IR99107-B-B-B-B-27	PBD	BIRRI	Boro
25	8893	IR16A3524	PBD	BIRRI	Boro
26	8894	IR110615-C 1-B-B-B-1-1	PBD	BIRRI	Boro
27	8895	IRRI154	PBD	BIRRI	Boro
28	8896	IR107995-B-B RGA-B RGA-64-1	PBD	BIRRI	Boro
29	8897	IR10N237	PBD	BIRRI	Boro
30	8898	PIR-26>C O-2017-1-4-2-1	PBD	BIRRI	Boro
31	8899	IR16A2841	PBD	BIRRI	Boro
32	8900	IR100097-B-B RGA-B RGA-8	PBD	BIRRI	Boro
33	8901	IR1000121-B-B-B-B-72	PBD	BIRRI	Boro
34	8902	IR16A3082	PBD	BIRRI	Boro
35	8903	IR09M120	PBD	BIRRI	Boro
36	8904	IR11A282	PBD	BIRRI	Boro
37	8905	IR1000121-B-B-B-B-73	PBD	BIRRI	Boro
38	8906	IR98380-B-B-B-B-B55	PBD	BIRRI	Boro
39	8907	IR12N252	PBD	BIRRI	Boro
40	8908	IR100097-B-B RGA-B RGA-64	PBD	BIRRI	Boro
41	8909	IR13N157	PBD	BIRRI	Boro
42	8910	IR14N711	PBD	BIRRI	Boro
43	8911	IR13A153	PBD	BIRRI	Boro
44	8912	IR54447-3B-10-2	PBD	BIRRI	Boro
45	8913	IR13A107	PBD	BIRRI	Boro
46	8914	IR107051:15-1-1	PBD	BIRRI	Boro
47	8915	IR12A282	PBD	BIRRI	Boro

Sl. no.	Acc. no.	Name	Upazila/Organization	District/ Country	Season
48	8916	IR13N134	PBD	BRRRI	Boro
49	8917	IR12A229	PBD	BRRRI	Boro
50	8918	IR10F559	PBD	BRRRI	Boro
51	8919	IR14A150	PBD	BRRRI	Boro
52	8920	IR10N230	PBD	BRRRI	Boro
53	8921	IR15A3855	PBD	BRRRI	Boro
54	8922	IR09A130	PBD	BRRRI	Boro
55	8923	IR99982-B-B-B-B-1	PBD	BRRRI	Boro
56	8924	IR14A216	PBD	BRRRI	Boro
57	8925	IR08N134	PBD	BRRRI	Boro
58		IR100842-B-B RGA-B RGA-B			Boro
	8926	RGA-9	PBD	BRRRI	
59	8927	IR12A329	PBD	BRRRI	Boro
60	8928	IR100120-B-B-B-B-11	PBD	BRRRI	Boro
61	8929	IR100097-B-B RGA-B RGA-70	PBD	BRRRI	Boro
62	8930	IR16A3095	PBD	BRRRI	Boro
63	8931	IR10N271	PBD	BRRRI	Boro
64	8932	IR99047-B-B-B-B-47	PBD	BRRRI	Boro
65	8933	IR93339:29-B-7-7-B-B-B-16	PBD	BRRRI	Boro
66	8934	IR12N231	PBD	BRRRI	Boro
67	8935	IR11A341	PBD	BRRRI	Boro
68	8936	IR13N131	PBD	BRRRI	Boro
69	8937	IR04A429	PBD	BRRRI	Boro
70	8938	IR15M1289	PBD	BRRRI	Boro
71	8939	IR12N249	PBD	BRRRI	Boro
72		IR99993-B-B RGA-B RGA-B			Boro
	8940	RGA-84	PBD	BRRRI	
73		IR99993-B-B RGA-B RGA-B			Boro
	8941	RGA-107	PBD	BRRRI	
74	8942	IR15A2878	PBD	BRRRI	Boro
75	8943	IR16A3652	PBD	BRRRI	Boro
76	8944	IR16A2844	PBD	BRRRI	Boro
77	8945	IR108005-B-B RGA-B RGA-1	PBD	BRRRI	Boro
78		IR 93346:1-B-13-7-6-1 RGA-2			Boro
	8946	RGA-1-B	PBD	BRRRI	
79	8947	IR15A3595	PBD	BRRRI	Boro
80	8948	IR11N121	PBD	BRRRI	Boro
81	8949	IR99054-B-B-1	PBD	BRRRI	Boro
82	8950	IR14A185	PBD	BRRRI	Boro
83	8951	IR122310:7-2-2	PBD	BRRRI	Boro
84	8952	IR09N516	PBD	BRRRI	Boro
85	8953	IR11A29	PBD	BRRRI	Boro
86	8954	IRRI 156	PBD	BRRRI	Boro
87	8955	IRRI 168	PBD	BRRRI	Boro
88	8956	BR10458-20-2-3-1-3	PBD	BRRRI	T. Aman
89	8957	BR10490-1-2-3-11-3	PBD	BRRRI	T. Aman
90	8958	BR10475-1-2-3-5-5	PBD	BRRRI	T. Aman
91	8959	BR10482-1-2-3-1-3	PBD	BRRRI	T. Aman
92	8960	BR10490-1-2-3-8-7	PBD	BRRRI	T. Aman
93	8961	BR10470-1-2-3-12-5	PBD	BRRRI	T. Aman
94	8962	BR10471-1-2-3-15-1	PBD	BRRRI	T. Aman
95	8963	BR9674-1-1-5-2-P4-HR1	PBD	BRRRI	T. Aman
96	8964	LATA SHAIL		Khulna	T. Aman
97	8965	MHADOB		Mymensingh	T. Aman
98	8966	NEPALI SWARNA		Rangpur	T. Aman
99	8967	NEPALI SWARNA (BOLD-1)		Rangpur	T. Aman
100		KALIZIRA (SLENDER			T. Aman
	8968	BOLD-1)		Rangpur	
101	8969	PYREE (MEDIUM)		Rangpur	T. Aman
102	8970	KALO PORANGI (BOLD)		Jashore	T. Aman
103	8971	BU DHAN-2	PBD	BRRRI	T. Aman
104	8972	BINA DHAN 14	PBD	BRRRI	T. Aman
105	8973	BR 9943-26-23-6	PBD	BRRRI	T. Aman
106	8974	BR 8912-12-6-1-1-1-1	PBD	BRRRI	T. Aman
107	8975	IR 99285-1-1-1-P2	PBD	BRRRI	T. Aman
108	8976	IR 64-P19	PBD	BRRRI	T. Aman

Sl. no.	Acc. no.	Name	Upazila/Organization	District/ Country	Season
109	8977	IR 96925-B-B-B-B-61	PBD	BRRRI	T. Aman
110	8978	BR 11868-5R-59	PBD	BRRRI	T. Aman
111	8979	BR 11712-4R-227	PBD	BRRRI	T. Aman
112	8980	BR 11315-4R-17	PBD	BRRRI	T. Aman
113	8981	BABU KATARI	PBD	BRRRI	T. Aman
114	8982	IR 20 X 1003: IRRRI 154-P:35	PBD	BRRRI	T. Aman
115	8983	IR 19 X 1001: IRRRI 154-COLD	PBD	BRRRI	T. Aman
116	8984	BR 11315-5R-17	PBD	BRRRI	T. Aman
117		IR 20 X 1002: IRRRI 154-			T. Aman
	8985	P:9+Dd9(N22)	PBD	BRRRI	
118	8986	IR 64EMF 3	PBD	BRRRI	T. Aman
119		BR 12266-44-11-32-5-1-1-			T. Aman
	8987	HR10-B	PBD	BRRRI	
120	8988	BR 10322-23-1-2-4(PQR)	PBD	BRRRI	Boro
121	8989	BR 10322-23-6-3-7B2(11)	PBD	BRRRI	Boro
122	8990	BR 9930-2-3-2-2(11)	PBD	BRRRI	Boro
123	8991	BR 9930-2-3-3-1(11)	PBD	BRRRI	Boro
124	8992	BR 9674-4-2-10-5-P9(ZER)	PBD	BRRRI	Boro
125	8993	BR 9674-1-1-5-1-P3(11)	PBD	BRRRI	Boro
126	8994	DUDU LATA (Small Bolt)		Jashore	Boro
127	8995	KHOTO ZIRA (Golden30)		Jashore	Boro
128	8996	KAJAL LATA (Slerder)		Jashore	Boro
129	8997	NARIJA 14 (BOLD)		Rangpur	Boro
130	8998	BABU KATARI	Joypurhat	Rangpur	Boro
131	8999	BRRRI dhan101	PBD	BRRRI	Boro
132	9000	BRRRI dhan102	PBD	BRRRI	Boro
133	9001	BRRRI dhan103	PBD	BRRRI	Aman
134	9002	BRRRI dhan104	PBD	BRRRI	Boro
135	9003	BRRRI dhan105	PBD	BRRRI	Boro
136	9004	BRRRI dhan106	PBD	BRRRI	Aus
137	9005	BRRRI dhan107	PBD	BRRRI	Boro
138	9006	BRRRI dhan108	PBD	BRRRI	Boro

### Experiment No. 1.3 Viability testing, periodic evaluation and routine monitoring of stored germplasm

**Investigator:** Dr. Armin Bhuiya (PI), Dr. Md Abubakar Siddique (T. Aman), Dr. Md Humayun Kabir Baktiar (T. Aman & Boro), Dr. Armin Bhuiya (Boro), Nashirum Monir (T. Aus) and Dr. Mir Sharf Uddin Ahmed (T. Aus)

#### Specific objective

To check and monitor the germination (percentage) of the stored germplasm in the short, medium and long-term storages.

#### Materials and methods

Seed viability was monitored by random germination testing of the stored germplasm in short-term storage and testers in the medium as well as long-term storage. One hundred accessions in Aus, 165 acc. in T. Aman and 125 acc. in Boro seasons were checked randomly for viability (germination %) tests in short-term storage during 2023-24. The seed viability of the germplasm just before storage in the Genebank was also monitored during 2023-24. Besides, five tester varieties namely Dhariyal (Acc. no. 649), Hashikalmi (Acc. 3575), Purbachi (Acc. 6207), Nizersail (Acc.1229) and Patnai-23 (Acc. 52) were used as testers in the medium and long-term storages and their viability were measured on six month interval usually on October and March of each financial year to predict the viability of the germplasm in the respective storages.

However, silica gel was used to maintain the optimum moisture/relative humidity in the stored seed container. When the color of silica gel had been changed from blue to pinkish, then the silica gel was taken out and replaced by the fresh blue silica gel. The containers used for seed storage in medium- and long-term storages are hermetically sealed.

#### Results and discussion

The seed viability of the stored germplasm in short-term storage of Genebank was monitored from randomly selected samples in three seasons. Table 3 shows the results of the seed viability of the stored germplasm. Most of the tested germplasm possessed more than 80% germination. The germination of the randomly selected 390 stored germplasm in short-term was carried out of which 100 were Aus, 165 were T. Aman and 125 were Boro varieties/ season. Among the 390 germplasm, 118 had viability less than 80%, 202 had between 80-90% and 70 had above 90% germination.

The germination of 425 germplasm just before storage in short-term was carried out of which 120 were Aus, 200 were T. Aman and 105 were Boro varieties/ season. Table 4 shows the results of the germination of the stored germplasm. Among them, 210 had germination between 80-90% and 122 had above 90%. The rest 93 had less than 80% germination and will be grown again in the next season for safekeeping.

**Table 3. Viability (germination %) monitoring in short-term storage during 2023-24.**

Variety/ season	Number of varieties with three different germination (%) categories			
	<80	80-90	91-100	Total
Aus	38	45	17	100
T. Aman	53	90	22	165
Boro	27	67	31	125
Total	118	202	70	390

**Table 4. Germination percentage of the germplasm in short-term just before storage during 2023-24.**

Season	Number of varieties with three different germination (%) categories			
	<80	80-90	91-100	Total
Aus	19	53	48	120

T. Aman	45	102	53	200
Boro	29	55	21	105
Total	93	210	122	425

On the other hand, the germination percentages of the five test samples/ testers in the medium-term storages were found ranging from 76% (Purbachi) to 98% (Hashikalmi) in October 2023 and 75% (Purbachi) to 95% (Nizersail) in March 2024. Similarly, the germination percentages of the test samples/ testers in the long-term storages were found ranging from 73% (Purbachi) to 99% (Patnai-23) in October 2023 and 72% (Purbachi) to 95% (Nizersail and Patnai-23) in March 2024 (Table 5 and 6). The germination percentages of the five test samples/testers indicating the probable viability condition of stored germplasm in respective storages.

**Table 5. Germination percentage of 5 (five) test samples stored at different times in medium-term storage of Genebank.**

Variety Name (Acc.)	Storage date(s)	Germination (%) at initial storage time	Germination (%) October 2023	Germination (%) March 2024
Dharial (Acc. 649)	12-12-05	98	89	90
Hashikalmi (Acc. 3575)	19-08-06	98	98	93
Purbachi (Acc. 6207)	24-10-11	84	76	75
Nizersail (Acc. 1229)	12-12-05	96	96	95
Patnai-23 (Acc. 52)	12-12-05	97	97	94

**Table 6. Germination percentage of 5 (five) test samples stored at different times in long-term storage of Genebank.**

Variety Name (Acc.)	Storage date(s)	Germination (%) at initial storage time	Germination (%) October 2023	Germination (%) March 2024
Dharial (Acc. 649)	12-12-05	98	96	94
Hashikalmi (Acc. 3575)	19-08-06	98	85	92
Purbachi (Acc. 6207)	24-10-11	84	73	72
Nizersail (Acc. 1229)	12-12-05	96	98	95
Patnai-23 (Acc. 52)	12-12-05	95	99	95

#### Experiment No. 1.4 Morphological characterization of rice germplasm accessions

**Principal Investigator (PI):** Dr. Armin Bhuiya (T. Aman), Dr. Md. Abubakar Siddique (Boro) and Nashirum Monir (T. Aus)

**Co-Investigator (CI):** Dr. ESM Harunur Rashid (T. Aman), Dr Md Humayun Kabir Baktiar, Md Ashiqur Rahman and Dr. Mir Sharf Uddin Ahmed (Boro), Tonmoy Chakrabarty (T. Aus),

#### Specific objective

To characterize and evaluate rice germplasm as per BRRI prescribed rice descriptor for safeguarding from biopiracy.

#### Materials and methods

One hundred and sixty-three germplasm accessions of which 36 germplasm in T. Aus 2023 (Table 7), 80 in T. Aman 2023 (Table 8) and 47 in Boro 2023-24 (Table 9) seasons were morphologically characterized at BRRI farm, Gazipur. The germplasms were characterized through 53 morpho-agronomic characters of which 20 quantitative and 33 qualitative traits by using the Rice Germplasm Descriptors and Evaluation Form (2018), GRSD, BRRI. The experiments were conducted using a single row of 5.4 m long for each entry/ accession with a spacing of 20 × 20 cm between rows and plants, respectively. Fertilizers were applied @ 60:20:40 kg NPK/ha in T. Aus and T. Aman and @ 80:20:40 kg NPK/ha in Boro seasons. Appropriate control measures were taken for insect, pests, diseases and weeds when necessary.

**Table 7. List of rice germplasm characterized in T. Aus 2023.**

Sl. no	Acc. No.	Name	Upazila	District	Season
01	8193	HULIGAMBIR	RUPDIA	Jashore	Aus
02		NATUL (AWNED LAL)	SADAR	Jashore	Aus
03	8194				
03	8195	NATUL (STRAW)	SADAR	Jashore	Aus
04	8196	SADA RATUL	SADAR	Narail	Aus
05	8197	NARA RATUL	SADAR	Narail	Aus
06	8198	KHAIR MONI	MUZIBNAGAR	Meherpur	Aus
07	8199	CHAKULA AUS	MERZAPUR	Ttangail	Aus
08	8200	DHORIA	TANARE	Rajshahi	Aus
09	8238	KARDIDET	Sadar	Barguna	Aus
10	8239	PAITA PAIJAM	Sadar	Barguna	Aus
11	8240	ABDULLAH	Sadar	Bhola	Aus
12	8241	IKRAHAITTA	Sadar	Bhola	Aus
13	8243	GORCHU	Sadar	Bhola	Aus
14	8355	LOLOCH	IRRI	Philippines	Aus
15	8359	ATLAI	IRRI	Philippines	Aus
16	8360	DHALASAITA	IRRI	Philippines	Aus
17	8361	BERI	IRRI	Philippines	Aus
18	8363	KUMRI BORO	IRRI	Philippines	Aus
19	8364	KALI HAITYA	IRRI	Philippines	Aus
20	8365	JAGLI	IRRI	Philippines	Aus
21	8366	KAL BURI	IRRI	Philippines	Aus
22	8367	MAITURA	IRRI	Philippines	Aus
23	8368	MUK BADAL	IRRI	Philippines	Aus
24	8369	PORANGI	IRRI	Philippines	Aus
25	8370	KALO BADOI	IRRI	Philippines	Aus
26	8371	BINNAFUL	IRRI	Philippines	Aus
27	8788	NBR 9005-53-1-1	PBD	BRRRI	Aus
28	8789	NBR 9006-40-2-3-1	PBD	BRRRI	Aus
29	8790	BR 84-4-1-2-P2	PBD	BRRRI	Aus
30	8791	BR 8781-16-1-3-P2	PBD	BRRRI	Aus
31	8792	BOSHAKHI AUS/20	PBD	BRRRI	Aus
32	8804	BRRRI DHAN 98	BRRRI	Gazipur	Aus
33	8807	Khumal-7	Nepal	Nepal	T. Aus
34	8810	PANDAY	PBD	BRRRI	Aus
35	8811	76 DLCAN	Sadar	Faridpur	Aus
36	8833	KANIHATI		Bandarban	Aus

**Table 8. List of rice germplasm characterized in T. Aman 2023.**

Sl. no	Acc. No.	Name	Upazila/Organization	District	Season
1	748	HASNA CHIKON	Ukhya	Chittagong	T. Aman
2	756	NAG PECG=HI	Banskhali	Chittagong	T. Aman
3	757	KHUSBU CHIKON	Banskhali	Chittagong	T. Aman
4	758	TILOCK KOCHURI	Banskhali	Chittagong	T. Aman
5	780	RAJ KUMARI	Hathazri	Chittagong	T. Aman
6	783	AGHANI SAIL	Sitakund	Chittagong	T. Aman
7	786	PAIJONG	Sitakund	Chittagong	T. Aman
8	787	PAJAM	Sitakund	Chittagong	T. Aman
9	788	CHAN MONI	Hathazri	Chittagong	T. Aman
10	789	CHAN MONI	Sitakund	Chittagong	T. Aman
11	855	BALAM BITI	Biswanath	Sylhet	T. Aman
12	928	ASHAM BARA	Chatak	Sylhet	B.Aman
13	960	KHONI DHAN	Bagerhat	Khulna	T. Aman
14	961	SADA MUTA GATI	Bagerhat	Khulna	T. Aman
15	977	HORI BHOG	Paikgacha	Khulna	T. Aman
16	979	HARGAZA	Paikgacha	Khulna	T. Aman
17	985	GERO MURI	Batiaghata	Khulna	T. Aman
18	986	BEGON BICHI	Shyamnagar	Khulna	T. Aman
19	991	GHUNSHI	Devhata	Khulna	T. Aman
20	1004	SUDHIR SAIL	Duniria	Khulna	T. Aman
21	1005	KHEJUR SARI	Dunuria	Khulna	T. Aman
22	1020	HOR KUCH(2)	Paikgacha	Khulna	T. Aman
23	1023	DUD SAIL	Shyamnagar	Khulna	T. Aman
24	1025	PATNAI(3)	Asasuri	Khulna	T. Aman

Sl. no	Acc. No.	Name	Upazila/Organization	District	Season
25	1027	PATNAI(BALAM)	Shyamnagar	Khulna	T. Aman
26	1030	KHI-PALA	Kaiaroa	Khulna	B. Aman
27	1086	BHORO NATA	Narail	Jashore	T. Aman
28	1087	BHUL DHURA	Narail	Jashore	T. Aman
29	1089	PAHARIA BALAM(2)	Md.pur	Jashore	T. Aman
30	1102	GUTE	Moniranpur	Jashore	T. Aman
31	1105	BANS KHOLI	Jhikorgacha	Jashore	T. Aman
32	1119	KOLA MOCHA	Jhikorgacha	Jashore	T. Aman
33	1126	PATHOR KUCHI	Jhikorgacha	Jashore	T. Aman
34	1155	DURLOB	Sailkupa	Jashore	B. Aman
35	1156	DUDH MONI	Sailkupa	Jashore	B. Aman
36	1161	BIRPALA	Moniranpur	Jashore	B. Aman
37	1165	RANGA JABRA	Mirzapur	Jashore	B. Aman
38	1167	MURON	Magura	Jashore	B. Aman
39	1168	BAIS MOTI	Moniranpur	Jashore	B. Aman
40	1171	KUMRI	Moniranpur	Jashore	B. Aman
41	1190	KALA MUCHA	Keshobpur	Jashore	B. Aman
42	1207	SUNAJURI		Faridpur	Aus
43	1209	KALA BOKRI		Faridpur	Aus
44	1232	GORIA		Faridpur	B. Aman
45	1233	FUL KAHON		Faridpur	B. Aman
46	1234	BILUALAHA	Gosherhat	Faridpur	B. Aman
47	1245	SUNA JURI		Faridpur	B. Aman
48	1251	KALO MUKTA		Faridpur	B. Aman
49	1257	BORON		Faridpur	B. Aman
50	1262	KHOYA MOTOR(2)	Kotalipara	Faridpur	B. Aman
51	1265	HIJLI DIGA		Faridpur	B. Aman
52	1273	BANSHI RAJ(2)	Paugsa	Faridpur	B. Aman
53	1274	JHOYNA	Kotalipara	Faridpur	B. Aman
54	1275	JHOYNA		Faridpur	B. Aman
55	1276	SUNA DIGA	Nagalkanda	Faridpur	B. Aman
56	1278	MODHU SAIL	Bhanga	Faridpur	B. Aman
57	1279	RAJA MOROL	Kotalipara	Faridpur	B. Aman
58	1284	LAL KANAI		Kushtia	Aus
59	1285	NARA BET	Bheramara	Kushtia	Aus
60	1287	LAL MUGI		Kushtia	T. Aman
61	1288	MALI KHORI	Jibonnagar	Kushtia	Aus
62	1299	GOBINDA BHOG	Kumarkhali	Kushtia	T. Aman
63	1305	BHUT RAJ	Kumarkhali	Kushtia	T. Aman
64	1308	KAJOL GOURI	Bharamara	Kushtia	B. Aman
65	1309	KAJOL GOURI		Kushtia	B. Aman
66	1312	CASHIEL	Jibqnnagar	Kushtia	B. Aman
67	1315	SHEEL KOMOL	Kumarkhali	Kushtia	B. Aman
68	1347	BATRJ		Pabna	T. Aman
69	1362	BET	Sathia	Pabna	T. Aman
70	1367	HASH KUL	Kamarkhond	Pabna	T. Aman
71	1372	BHAWALIA SADA	Shahjadpur	Pabna	B. Aman
72	1378	BORON AMON	Bhera	Pabna	B. Aman
73	1382	BON HAYAT	Shahjadpur	Pabna	B. Aman
74	1385	BOYRA	Sathia	Pabna	B. Aman
75	1390	ARAILA	Sirajgonj	Pabna	B. Aman
76	1394	JHINGA SHALI	Shahjadpur	Pabna	B. Aman
77	1396	BHORO BHAWALIA	Bhera	Pabna	B. Aman
78	1397	DUDH RAJ	Sadar	Pabna	B. Aman
79	1398	GUTA DHAN	Sadar	Pabna	B. Aman
80	1402	BOSHI RAJ	Sadar	Pabna	B. Aman

**Table 9. List of rice germplasm characterized in Boro 2023-24.**

Sl. No.	Acc. No.	Name	Upazila	District/Country	Season
1	4552	ANAMIA	Purbdhola	Netrokona	Boro/T.aman
2	4553	JAGULI	Purbdhola	Netrokona	Boro
3	4554	AGNISAIL	Purbdhola	Netrokona	Boro/Aus

Sl. No.	Acc. No.	Name	Upazila	District/Country	Season
4	4555	LAFUIA	Purbdhola	Netrokona	Boro
5	4556	BAGRA	Purbdhola	Netrokona	Boro
6	4560	ALAIMMA	Fulpur	Mymensingh	Boro/T.aman
7	4561	LATA	Fulpur	Mymensingh	Boro/T.aman
		ATMISAIL			
8	4562	/ARTIKSAIL	Fulpur	Mymensingh	Boro/T.aman
9	4563	BEGUN BITCHI	Fulpur	Mymensingh	Boro/Aus
10	4564	HAJISAIL	Fulpur	Mymensingh	Boro/Aus
11	4565	BORGADHAN	Fulpur	Mymensingh	Boro/Aus
12	4581	KALI BORO	Madhupur	Tangail	Boro/Aus
13	4582	GOYAL	Madhupur	Tangail	Boro/Aus
14	4585	BOIAKHAORI	Mohangonj	Netrokona	Boro
15	4590	SONALI IRR	Begumgonj	Noakhali	Boro
16	4591	SONALI IRR	Begumgonj	Noakhali	Boro
17	4593	MOISHA IRR	Begumgonj	Noakhali	Boro
18	4745	CHEODHAN	-	-	Boro
19	4746	KOSHIHIKARI	-	-	Boro
20	4956	MOTA PAJAM	-	Khulna	Boro
21	4957	SONALI BORO -1	-	Khulna	Boro
22	4958	SONALI BORO -2	-	Khulna	Boro
23	4959	TEPI BORO	-	Khulna	Boro
24	4961	KALI BORO	-	Khulna	Boro
25	4962	SETE PAJAM - 1	-	Khulna	Boro
26	4963	SETE PAJAM - 2	-	Khulna	Boro
27	4964	JAGLI BORO	Muktagachha	Mymensingh	Boro
28	4965	RATA	Muktagachha	Mymensingh	Boro
29	4966	KHIANI BORO	Muktagachha	Mymensingh	Boro
30	4967	KOBRA BORO	Muktagachha	Mymensingh	Boro
31	4968	KAMRA	Muktagachha	Mymensingh	Boro
32	4969	FIJAR	Muktagachha	Mymensingh	Boro
33	4970	BORO	Muktagachha	Mymensingh	Boro
34	4980	JAGULI	Pabna sadar	Pabna	Boro
35	4981	TOPA BORO	Pabna sadar	Pabna	Boro
36	4983	TOPA BORO	Pabna sadar	Pabna	Boro
37	4984	PAJAM	Pabna sadar	Pabna	Boro /T.aman
38	4985	SAITA	Chatmohor	Pabna	Boro
39	4986	RAJSHAHI	Santhia	Pabna	Boro
40	4995	BOLENGA	Atghoria	Pabna	Boro
41	5047	RAHAMAN DHAN	Tarash	Shirajgonj	Boro /T.aman
42	5169	MTL -145 -2	ARD,.BRR	-	Boro
43	5170	MTL -233	ARD,.BRR	-	Boro
44	5171	MTL -241	ARD,.BRR	-	Boro
45	5174	PCR -97003 -2B	ARD,.BRR	-	Boro
46	5175	PCR -97009 -2B	ARD,.BRR	-	Boro
47	5183	850	Poba	Rajshahi	Boro

## Results and discussion

In Aus 2023, among the 36 germplasm accessions, all the germplasm had short (<135days) (Table 10). Twenty-six germplasm were found with short (<110 cm), 9 medium (110-130 cm) and one with long (>130 cm) plant height. In case of panicle length (cm), eight had short ( $\leq 20$ ), sixteen had medium long (21-25), 11 had long (26-30) and one had extra-long (>30) panicles. For 1000-grain weight (TGW), two germplasm had low (16-19 g), eight had medium (20-23 g), twenty-two had high (24-27 g) and four had very high (>27 g) grain weights. For yield, twelve germplasm had medium (5-10 g) and 24 germplasm had higher (>10 g) yield per hill. The shortest growth duration (108 days) was observed in PANDAY. The shortest plant height (65.8 cm) was observed in HULIGAMBIR and the longest (132.1cm) in KUMRI BORO. Binni Dhan had the lowest (15.0 g) and KHAIR MONI had the highest (32 g) TGW. The highest yield per hill (27.59 g) was observed in ABDULLAH.

In T. Aman 2023, all accession had long (>130 days) growth duration (Table 11). Twenty-one germplasm were found with short (<110 cm), 45 with moderate (110-130 cm) and the rest (14) with long (>130 cm) plant height. Twenty-six germplasm were found with long (>25 cm), 48 with moderate (20-25 cm) and the rest (26) with short (<20 cm) panicle length. Maximum (75) varieties possessed low (<10) and five varieties possessed moderate (10-15) number of effective tillers. A total of 38 varieties were found having low (<25 g), 36 varieties with moderate (25-30 g) and rest (06) of the varieties/accessions with high (>30

g) TGW. Fifteen varieties possessed moderate (5-10 g) and rest (65) of the varieties/accessions had higher (>10 g) yield/hill.

The shortest growth duration (135 days) was observed in Tilok kochuri (Acc. 758) and the longest (151 days) in Paijong and Pajam (Acc. 786 & 787). The shortest plant height (83.4 cm) was observed in Jhinga sali (Acc. 1394) and the longest (154.6 cm) in Dudh moni (Acc. 1156). Hana chikon (Acc. 749) was found to have the highest number of effective tillers (14) and Pajam (Acc. 787) with the lowest (4). The highest grain length breadth ratio (3.6) was observed in Boshi raj (Acc. 1402) and the lowest (1.6) in Ghunshi (Acc. 991). Begon bichi (Acc. 986) had the lowest (10.29 g) and the Patnai (Balam, Acc. 1027) the highest (33.1 g) TGW. The highest yield per hill (32 g) was observed in Patnai (Balam, Acc. 1027) and the lowest (6 g) in Begon bichi (Acc. 986).

In Boro 2023-24, among the 47 germplasm accessions, 34 had short (107-134 days), one had medium (139 days) and 12 had long (>145) growth duration (**Table 12**). Similarly, in case of panicle length, one germplasm had short (<20 cm), 20 had medium (20-25 cm) and 26 germplasm had long (>25 cm) panicle. Again, 45 germplasm possessed intermediate (<10) and rest two had high (11) number of tillers per hill. For TGW, five had very low (<15 g), 15 had medium (15-19 g) and 27 had high (19.5-31g) grain weights. Twenty-eight germplasm possessed moderate (5-10 g/hill) and 16 had higher (>10 g/hill) grain yield. Twenty-three germplasm had <3.0 and rest 24 had LB ratio. The shortest growth duration (107 days) was observed in Boro (Acc. 4970). Jaguli (Acc. 4553) had the lowest (13.0 g) and MTL-241 had the highest (31.0 g) TGW. The highest yield (19.6g) per hill was observed in Anamia (Acc. 4552).

**Table 10. Some important features of characterized germplasm in T. Aus 2023.**

Growth duration (day)		Plant height (cm)		Panicle length (cm)		No. of effective tiller		TGW		Yield/hill (g)	
Range	No. of entries	Range	No. of entries	Range	No. of entries	Range	No. of entries	Range	No. of entries	Range	No. of entries
<100	0	<110	26	≤20	8	<6	3	≤15	0	<5	0
101-115	5	110-130	9	21-25	16	6-10	33	16-19	2	5-10	12
116-135	31	>130	1	26-30	11	>10	0	20-23	8	>10	24
136-150	0			>30	1			24-27	22		
>150	0							>27	4		
Shortest ((108)	PAN DAY (8810)	Shortest (65.8)	HULIGAMB IR- (8193)	Shortest (17)	GORCHU (8243), Khumal-7 (8807), ABDULLAH (8240), HULIGAMBIR (8193)	Lowest (4)	DHORIA (8200), GORCHU (8243), ATLAI (8359)	Lowest (18)	PAITA (8239), KUMRI BORO- (8363)	Lowest (5.4)	KRAHAIT TA (8241)
Longest (133)	NATURAL (STRAW) (8195)	Longest (132.1)	KUMRI ;ORO (8363)	Longest (30.8)	NATUL (AWNED LAL) -(8194)	Highest (9)	MUK BADAL -(8368)	Highest (32)	KHAIR MONI (8198)	Highest (27.59)	ABDULL AH (8240)
Mean	123	104		23		6		24		13	
S. Dev.	6.94	18.91		4.09		1.30		3.56		5.88	
CV	5.64	18.24		17.78		20.97		15.08		43.60	
LSD	2	6		1		0		1		2	

**Table 11. Some important features of characterized germplasm during T Aman 2023.**

Growth duration		Plant height		Panicle length		No. of tiller		No. of effective tiller		Grain LB ratio		1000-grain wt.		Yield/hill	
Range	No. of entries	Range (cm)	No. of entries	Range (cm)	No. of entries	Range	No. of entries	Range	No. of entries	Range	No. of entries	Range (g)	No. of entries	Range (g)	No. of entries
<120 days	-	<110	21	<20	6	<10	71	<10	75	<3	72	<25	38	<5	-
120-130 days	-	110-130	45	20-25	48	10-15	7	10-15	5	3-5	8	25-30	36	5-10	15
>130 days	80	>130	14	>25	26	>15	2	>15	-	>5	-	>30	6	>10	65
Shortest (135 days)	Tilok Kochuri (758)	Shortest (83.4)	Jhinga Sali (1394)	Shortest (17.4)	Kajol gouri (1308)	Lowest (4)	Pajam (787)	Lowest (4)	Pajam (787)	lowest (1.6)	Ghunshi (991)	Lowest (10.29)	Begon bichi (986)	Lowest (6)	Begon bichi (986)
Longest (151 days)	Paijong, Pajam t (786, 787)	Longest (154.6)	Dudh moni (1156)	Longest (30.6)	Kala bokri (1209)	highest (19)	Kola nocha (1119)	Highest (14)	Hasna chikon (749)	highest (3.6)	Boshi raj (1402)	Highest (33.1)	Patnai (Balam) (1027)	Highest (32)	Patnai (Balam) (1027)

**Table 12. Some important features of characterized germplasm during Boro 2023-24.**

Parameters	Growth duration (days)	Panicle length (cm)	Effective tiller (no./hill)	Filled G/P	1000 GW (g)	L/B ratio	Yield/hill (g)
Range	107~179	19.8~34.2	4~11	26~137	13~31	2.28~4.33	3.6~19.6

Highest	107 (Boro, Acc. 4970)	19.8 (Topa Boro, Acc. 4983)	4 (Begun Bitchi, Acc. 4563)	26 (Topa Boro, Acc. 4983)	13 (Jaguli, Acc. 4980)	2.28 (Rahman Dhan, Acc.5047)	3.6 (Begun Bitchi)
Lowest	179 (kali Boro, Acc 4961)	34.2 (Atmisail/ Artiksail, Acc. 4562)	11 (Kali Boro, Acc. 4961)	137 (Anamia, Acc. 4552)	31 (MTL-241, Acc. 5171)	4.33 (Rata, Acc.4965)	19.6 (Anamia, Acc. 4552)

In conclusion, the variety having higher yield would be utilized in a crossing programme, if other characters satisfy the breeder's objectives.

### Experiment No. 1.5 Rice germplasm supply and exchange

**Principal Investigator (PI):** Dr. Partha Sarathi Biswas

**Co-Investigator (CI):** Dr. Armin Bhuiya

#### Specific objective

To supply rice germplasm to different researchers at home and abroad as per their demand and to exchange germplasm (if possible) with national/international organization(s)

#### Materials and method

Prescribed 'Form' of GRSD, BRRRI at BRRRI web site is needed to fill along with the required demand of different BRRRI germplasm accessions and BRRRI varieties by the individual researcher/organization for receiving seed.

#### Results and discussion

In total, 3,872 samples of rice germplasm as well as BRRRI developed rice varieties of Aus, Aman and Boro seasons were supplied to 30 recipients as per their demand in the reporting year (Table 13). Among them, 3,751 germplasm accessions were supplied to 26 users for research purpose from BRRRI Rice Genebank and 121 samples of BRRRI developed rice varieties were supplied to the researchers, Department of Agricultural Extension (DAE) personnel and University students for research, demonstration as well as other purposes.

**Table 13. Supply of germplasm/samples supplied during 2022-23.**

Recipient	Number of recipients	No. of varieties/samples supplied	Type
Researcher	20	3,683	Germplasm
DAE person	04	121	BRRRI variety
Student	06	68	Germplasm
Total	30	3,872	

### Project 02: Seed Production and Variety Maintenance

**Project Leader:** Dr. Mir Sharf Uddin Ahmed

#### General Objectives

1. To maintain the nucleus seed stock of BRRRI developed and recommended rice varieties.
2. To produce and supply of breeder seed as per national demand.

#### Expected Output

1. Varietal purity (both genetic and physical) would be maintained.
2. Breeder seed would be supplied to GO and Private Sector (PS) seed producing organizations.
3. Limited quantity of quality seed would be supplied to other divisions/ Regional stations of BRRRI and farmers directly or through DAE personnel for experimental/exhibition purpose.

## Activity No. 2.1 Maintenance of BRR I released and recommended varieties

**Principal Investigator:** Dr. ESM Harunur Rashid

**Co Investigator:** Dr. Md. Humayun Kabir Baktiar, Dr. Partha Sarathi Biswas.

### Specific objective

To maintain genetic purity and homogeneity against morphological characteristics of BRR I developed MV's (Modern Varieties) and BRR I recommended LIV's (Locally Improved Varieties) of rice as nucleus seed for ensuring varietal purity.

### Materials and methods

One hundred and twenty-five rice varieties of which 66 in T. Aman 2023 and 59 in Boro 2023-24 seasons were grown to maintain the varieties (Table 14 and Fig 1). 'Panicle to row' method was used for producing nucleus seed and maintaining variety. For this, intact single panicles were directly sown in the individual rows in the seedbed.

Before sowing, panicles were wrapped with papers and were treated with carbendazim group fungicide @ 3g/L of water/kg of seed for 12 hours. During transplanting, seedlings from a single panicle were transplanted into a single line in the main field for maintaining varieties. All the varieties were transplanted following 20 × 20 cm spacing in T. Aman and Boro seasons with single seedling per hill. The unit plot size was 5.4 × 10 rows. Fertilizers were applied @ 80:15:60 kg NPK/ha in T. Aman and @ 140:20:80 kg NPK/ha in Boro seasons. All P, K and 80 kg Gypsum per ha were applied at the time of final land preparation. All protection measures were carefully taken against diseases, insect pests infestation and weed from sowing to harvesting. Urea was applied as top dress in two-three splits usually 7-10 days after transplanting, 20-30 days after transplanting and 40-50 days after transplanting or 5-7 days before PI (Panicle initiation) depending on the crop conditions and growth duration.

In this method, roguing was done as and when necessary. All insect and disease infested plants along with the flowers and seeds of all obnoxious weeds were removed from the plot before harvest. Individual row was carefully observed throughout the growing season for varietal characteristics. If off-type plants were identified in a row then the whole row was discarded or rogued out for varietal purity at every growth stages of the crop.

At maturity, required number of healthy panicles, representing a typical variety was further selected and checked individually for panicle and grain characteristics. Finally, individual panicle from out-side from border lines of the plot and true to type plant was harvested along with some part of its leaf sheath. Then intact panicles of all the varieties were kept separately along with proper labels for producing nucleus seed in the following year for variety maintenance.

**Table 14. List of BRR I developed and recommended rice varieties maintained during 2023-24.**

Season	Type	Number	Variety
T. Aman	MV	56	BR4, BR5, BR10, BR11, BR21, BR22, BR23, BR24, BR25, BRR I dhan27, BRR I dhan30, BRR I dhan31, BRR I dhan32, BRR I dhan33, BRR I dhan34, BRR I dhan37, BRR I dhan38, BRR I dhan39, BRR I dhan40, BRR I dhan41, BRR I dhan42, BRR I dhan43, BRR I dhan44, BRR I dhan46, BRR I dhan48, BRR I dhan49, BRR I dhan51, BRR I dhan52, BRR I dhan53, BRR I dhan54, BRR I dhan56, BRR I dhan57, BRR I dhan62, BRR I dhan66, BRR I dhan70, BRR I dhan71, BRR I dhan72, BRR I dhan73, BRR I dhan75, BRR I dhan76, BRR I dhan77, BRR I dhan78, BRR I dhan79, BRR I dhan80, BRR I dhan82, BRR I dhan83, BRR I dhan85, BRR I dhan87, BRR I dhan90, BRR I dhan91, BRR I dhan93, BRR I dhan94, BRR I dhan95, BRR I dhan98, BRR I dhan103
	LIV	10	Nizersail, Latisail, Rajasail, Kalijira, Kataribhog, Basmati-D, Patnai23, Tilockkachari, DA29, DA31
Boro	MV	51	BR1, BR2, BR3, BR6, BR7, BR8, BR9, BR12, BR14, BR15, BR16, BR17, BR18, BR19, BR26, BRR I dhan28, BRR I dhan29, BRR I dhan35, BRR I dhan36, BRR I dhan45, BRR I dhan47, BRR I dhan50, BRR I dhan55, BRR I dhan58, BRR I dhan59, BRR I dhan60, BRR I dhan61, BRR I dhan63, BRR I dhan64, BRR I dhan65, BRR I dhan67, BRR I dhan68, BRR I dhan69, BRR I dhan74, BRR I dhan81, BRR I dhan84, BRR I dhan86, BRR I dhan88, BRR I dhan89, BRR I dhan92, BRR I dhan96, BRR I dhan97, BRR I dhan98, BRR I dhan99, Bangabandhu dhan100, BRR I dhan101, BRR I dhan102, BRR I dhan104, BRR I dhan105, BRR I dhan107, BRR I dhan108.
	LIV	8	Hbj Boro II, Hbj Boro IV, Hbj Boro VI, Hbj Boro VIII, Purbachi, IR8, IR20, IR64
Total		125	



Fig. 1. Pictorial view of variety maintenance and nucleus seed production at West Baid, BARRI HQ in Boro 2023-24 season.

## Results and discussion

At maturity, required number (at least 100 panicles) of healthy, diseases and insect infestation free, typical and true to type intact panicles and nucleus seed of each variety were separately selected, harvested, dried, processed and stored in controlled temperature (20°C with 40% RH) for next cycle of variety maintenance and distribution to researchers, DAE personnel and students respectively.

## Activity No. 2.2 Nucleus seed production

**Principal Investigator:** Dr. Md Abubakar Siddique

**Co Investigator:** Dr. Mir Sharf Uddin Ahmed, Dr. Ebna Syod Md Harunur Rashid, Dr. Armin Bhuiya, Dr. Md Humyun Kabir Baktiar, Tonmoy Chakrabarty, Nashirum Monir and Md Ashiqur Rahman

## Specific objective

To produce source seeds for breeder seed production of different BARRI varieties.

## Materials and methods

Production of Nucleus seed stock. Seventy-three BARRI developed rice varieties comprising 46 in T. Aman and 27 in Boro were grown following panicle to row method to produce nucleus seed stocks as panicles for breeder seed production. The objective for nucleus seed production was to maintain genetic purity and homogeneity of morphological characteristics of each variety and subsequently to produce and maintain the seed standard of breeder seed. ‘Panicle to row’ method was used to maintain nucleus seed stock, where the intact panicles were sown instead of threshed seeds of each variety. If off-type plant was identified in a row, then the whole row was discarded or rogued out for maintaining the varietal purity.

## Results and discussion

At maturity, 500 to 50,000 panicles from ‘true to type’ plants of all the varieties were harvested and both intact panicles for BARRI HQ, Gazipur and nucleus seed stocks for BARRI regional stations were stored in controlled temperature (20°C with 40% RH).

### **Activity No. 2.3 Breeder seed production and distribution**

**Principal Investigator:** Dr. Md. Abubakar Siddique (HQ) and Dr. ESM Harunur Rashid (RS) and All Heads of respective R/S

**Co Investigator:** Dr. Mir Sharf Uddin Ahmed, Dr. ESM Harunur Rashid, Dr. Md. Abubakar Siddique, Dr. Armin Bhuiya, Dr. Md Humayun Kabir Baktiar, Tonmoy Chakrabarty, Nashirum Monir and Md. Ashiqur Rahman

#### **Specific objective**

- i. To produce and supply of breeder seed (BS) of BRRI developed rice varieties as per indent of GO and PS seed producing organizations/companies/entrepreneurs to fulfill the national demand.
- ii. To simplify the breeder seed delivery service by sending SMS.

#### **Materials and methods**

A total of 73 varieties of which 46 in T. Aman 2023 and 27 in Boro 2023-24 seasons were grown in 'panicle to row' method. All varieties were sown from stored nucleus seed stock as intact panicles (produced in GRSD, BRRI, Gazipur), but using 'panicle to row method' in GRSD, BRRI, Gazipur and using 'broadcast method' in Farm Management Division, BRRI, Gazipur as well as all 11 BRRI regional stations. Before sowing, seeds were treated with carbendazim fungicides @ 3g/L of water/kg of seed for 12 hours. Each variety was transplanted using single seedling per hill. Isolation distance was properly maintained through at least 21 days gap between the flowering times within three meters of two different adjacent rice varieties. Cultural practices and Fertilizers were applied as per recommendation mentioned in the Fact Sheet of that variety.

Rouging was done at different stages with proper record keeping. At seedling stage, if off-type plants *viz.* plants outside the row, plants with different height and plants with different colour and shape from varietal standard (true to the type) were identified in a row then the whole row was discarded or rogued out at GRSD, BRRI, Gazipur. At maximum tillering stage, if off-type plants *viz.* plants with different leaf colour, shape and angle, plants with different height and plants with different leaf sheath colour were identified in a row then the whole row was also discarded or rogued out. At the flowering stage, if off-type plants *viz.* grain with different size, shape and colour from the standard (true to the grain type of the produced variety) were identified in a row then the whole row was also discarded or rogued out. Finally, intact panicles from the plants excluding the border lines of the plot and from true to type standard plants of individual variety were selected and harvested along with some part of its leaf sheath for maintaining 'nucleus seed stock'. After harvest, the intact panicles of all the varieties were processed and dried separately. Then the 'intact panicles' of each variety were kept separately in control temperature (20°C with 50% RH) at GRSD, BRRI, Gazipur along with proper labels as 'nucleus seed' for the source of breeder seed to be used 'nucleus seed stock' in the following year. The rest of the plots were mass harvested as 'breeder seed' after getting 'field certificate' from Seed Certification Agency (SCA). After mass harvest and processing, all the produced breeder seed at all BRRI regional stations were transported to GRSD, BRRI, Gazipur. The breeder seeds of all varieties were dried, cleaned separately and after processing, stored as 'breeder seed' in 10 and 40 kg gunny bag in the seed store with controlled temperature (20°C with 50% RH) at BRRI, Gazipur. Under this condition, the seeds remain viable till the distribution of breeder seed in the next respective season. Therefore, before the distribution of breeder seed in the next T. Aman, Boro and Aus seasons, the respective harvested seeds were offered as 'seed lot' for getting the 'laboratory certificate' along with green 'breeder seed tag' from SCA, if qualified for the 'field and seed standard' as set by the NSB (National Seed Board).

The plan for breeder seed production was finalized and approved in the Breeder Seed Co-ordination meeting in presence of Director General (Chair), Director (Administration and Common Service) BRRI, Director (Research) BRRI, CASR BRRI, Head Plant Breeding, Farm Management, Farm Machinery and Post Harvest Management, Agronomy, Plant Physiology etc. divisions and all heads of BRRI R/S before T. Aman and Boro seasons. The plans were prepared as per the variety-wise National target including BADC set by National Seed Promotion Committee (SPC) of MoA and the variety-wise demands from the applications of breeder seed Network clients.

For distribution of breeder seeds, all the foundation seed producing seed dealers of BRRRI ‘Rice Seed Network’ were first requested to submit their application for receiving breeder seed from BRRRI. After approval of allocation of breeder seeds by the BRRRI Authority for each season, the allotted breeder seed to each of the SeedNet partners were posted in the BRRRI website before each crop season. Also, a text message (SMS) containing the allotted amount of breeder seeds of the requested varieties and the date of delivery was sent to each SeedNet partner using a bulk SMS mobile app.

### Results and discussion

At maturity, required number of healthy, diseases and insect infestation free, typical and true to type intact panicles from each variety ranging from 500 to 50,000 from breeder seed production plots of GRSD, BRRRI, Gazipur were separately selected, harvested, dried, processed and stored in controlled temperature (20°C with 40% RH) as ‘Nucleus Seed Stock’ for the next cycle of breeder seed production in BRRRI, Gazipur as well as all breeder seed producing BRRRI regional stations.

In total 294.07 tons of breeder seed of which 193.65 tons of 20 Boro varieties, 16.72 tons of seven Aus varieties and 83.70 tons of 35 T. Aman varieties were produced and BS tags were allotted from SCA during 2023-24 (Tables 16, 17, 18, 19, 20).

Text message (SMS) with variety name, allotted quantity of breeder seed, date of BS collection from GRS Division, amount of money need to be deposited and bank account number was sent through mobile apps to 433, 32 and 245 SeedNet partners before commencing of Boro 2023-24, Aus 2024 and T. Aman 2024 seasons for distributing allocated amount of breeder seed. A total of 249.08 tons of breeder seed of which 158.50 tons of 20 Boro varieties, 11.86 tons of seven Aus varieties and 78.73 tons of 35 T. Aman varieties were distributed among 645 partners (GO, NGO and PS) of ‘BRRRI Rice Seed Network’ upon approval by the BRRRI authority (Tables 18, 19, 20 and Anexture 1, 3, 4). Again, a total of 60,453 kg seeds of which 40,655 kg of 20 Boro varieties and 19,798 kg of 34 T. Aman varieties were distributed as free of cost to 1043 and 392 farmers and different users, respectively (Anexture 2, 5).

**Table 16. Station-wise production (in kg) of breeder seed (with tag) of Boro varieties in 2023-24.**

Variety	Production of breeder seed (with tag) for Boro 2023-24 (grown in Boro 2022-23)													Total
	GRS Division	Farm Division	BRRRI RS Rangpur	BRRRI RS Rajshahi	BRRRI RS Sirajganj	BRRRI RS Satkhira	BRRRI RS Gopalganj	BRRRI RS Barishal	BRRRI RS Comilla	BRRRI RS Sonagazi	BRRRI RS Habiganj	BRRRI RS Bhanga	BRRRI RS Kusthia	
BR16	1140													1140
BR26	500							1780						2280
BRRRI dhan28	560					10200		6400		4200	6080			27440
BRRRI dhan29	1400							5080	2530	5100	2460	5060		21630
BRRRI dhan36	200													200
BRRRI dhan47	300							1060						1360
BRRRI dhan50						3630								3630
BRRRI dhan58	570								4840					5410
BRRRI dhan63	480												3040	3520
BRRRI dhan67	220					4840	1180							6240
BRRRI dhan74	510		2200				1190	8900						12800
BRRRI dhan81	240	230		7500		2520								10490
BRRRI dhan84	2530			1670										4200
BRRRI dhan86	240													240
BRRRI dhan88	740	360							6210					7310
BRRRI dhan89	2360	720	2460	5580	2700			5080	5100		7560	5000		36560
BRRRI dhan92	2000	2960						2760		10480	5280	2500		25980
BRRRI dhan96									4790					4790
BRRRI dhan97	820									4340				5160
BRRRI dhan99	740													740

Variety	Production of breeder seed (with tag) for Boro 2023-24 (grown in Boro 2022-23)													
	GRS Division	Farm Division	BRRIS Rangpur	BRRIS Rajshahi	BRRIS Sirajganj	BRRIS Satkhira	BRRIS Gopalganj	BRRIS Barishal	BRRIS Comilla	BRRIS Sonagazi	BRRIS Habiganj	BRRIS Bhanga	BRRIS Kushtia	Total
Bangabandhu dhan100	150	2800			1970					4650	2230			11800
BRRIS dhan101	210													210
BRRIS dhan102	240													240
BRRIS dhan104	280													280
<b>Total</b>	<b>16430</b>	<b>7070</b>	<b>4660</b>	<b>14750</b>	<b>4670</b>	<b>21190</b>	<b>2370</b>	<b>31060</b>	<b>23470</b>	<b>28770</b>	<b>23610</b>	<b>12560</b>	<b>3040</b>	<b>193650</b>

**Table 17. Station-wise production (in kg) of breeder seed (with tag) of T. Aman varieties in 2023-24.**

Variety	Production of breeder seed (with tag) for T. Aman 2023-24 (grown in T. Aman 2022-23)											
	GRS Division	Farm Division	BRRIS Rangpur	BRRIS Rajshahi	BRRIS Sirajganj	BRRIS Kushtia	BRRIS Satkhira	BRRIS Gopalganj	BRRIS Barishal	BRRIS Comilla	BRRIS Sonagazi	Total
BR10	650						3640					4290
BR11	390			4080								4470
BR22	160										2100	2260
BR23	100								6640			6740
BRRIS dhan30	280	520										800
BRRIS dhan33	640											640
BRRIS dhan34	200								2960		1000	4160
BRRIS dhan39	620											620
BRRIS dhan41	80											80
BRRIS dhan44	110											110
BRRIS dhan46	120											120
BRRIS dhan48	210								3880		1460	5550
BRRIS dhan49	720									2300	8360	11380
BRRIS dhan51	200										4280	4480
BRRIS dhan52	320								5120			5440
BRRIS dhan56	70											70
BRRIS dhan57	230											230
BRRIS dhan62	150											150
BRRIS dhan65	220											220
BRRIS dhan66	80											80
BRRIS dhan71	460											460
BRRIS dhan72	350											350
BRRIS dhan73	120											120
BRRIS dhan75	130	1530				1460	3800					6920
BRRIS dhan76	120								810			930
BRRIS dhan77	10											10
BRRIS dhan78	140											140
BRRIS dhan79	50											50
BRRIS dhan80	160											160
BRRIS dhan82	100											100
BRRIS dhan83	120											120
BRRIS dhan85	60								1620			1680
BRRIS dhan87	240			7720		2040		2040	2080			14120
BRRIS dhan90	160		1440		2640							4240
BRRIS dhan91	120											120
BRRIS dhan93	-		2360									2360
BRRIS dhan94	210									530		740
BRRIS dhan95	200									4500		4700
BRRIS dhan98	100	2920		1620							4180	8820
BRRIS dhan103	40								2000			2040
BRRIS dhan106	10											10
Nizersail	40											40
<b>Total</b>	<b>8490</b>	<b>4970</b>	<b>3800</b>	<b>13420</b>	<b>2640</b>	<b>3500</b>	<b>7440</b>	<b>2040</b>	<b>25110</b>	<b>7330</b>	<b>21380</b>	<b>100420</b>

**Table 18. Production and distribution of rice breeder seed on Boro 2023-24.**

Variety	Production(with tag) (kg)		Distribution (kg)	
	Favourable variety	Stress tolerant variety	Favourable variety	Stress tolerant variety
BR16	1140		1140	
BR26	2280		20	
BRR1 dhan28	27440		18019	
BRR1 dhan29	21630		21643	
BRR1 dhan36		200		200
BRR1 dhan47		1360		30
BRR1 dhan50	3630		2887	
BRR1 dhan58	5410		5411	
BRR1 dhan63	3520		3124	
BRR1 dhan67		6240		3044
BRR1 dhan74	12800		13296	
BRR1 dhan81	10490		5053	
BRR1 dhan84	4200		3357	
BRR1 dhan86	240		40	
BRR1 dhan88	7310		7370	
BRR1 dhan89	36560		34159	
BRR1 dhan92	25980		25055	
BRR1 dhan96	4790		1291	
BRR1 dhan97		5160		430
BRR1 dhan99		740		650
Bangabandhu dhan100	11800		12001	
BRR1 dhan101	210		157	
BRR1 dhan102	240		239	
BRR1 dhan104	280		256	
<b>Total</b>	<b>179,950</b>	<b>13,700</b>	<b>154,518</b>	<b>4,354</b>
<b>Grand total</b>	<b>193,650</b>		<b>158,872</b>	

**Table 19. Production and distribution of rice breeder seed on Aus 2023.**

Variety	Production (with tag) (kg)	Distribution (kg)
BRR1 dhan 48	5770	2667
BRR1 dhan 65	220	212
BRR1 dhan 82	100	112
BRR1 dhan 83	120	05
BRR1 dhan85	1680	467
BRR1 dhan98	8820	8387
BRR1 dhan106	10	10
<b>Total</b>	<b>16,720</b>	<b>11,860</b>

**Table 20. Production and distribution of rice breeder seed on T. Aman 2023.**

Variety	Production (with tag) (kg)		Distribution (kg)	
	Favourable variety	Stress tolerant variety	Favourable variety	Stress tolerant variety
BR10	4290	-	3360	-
BR11	4470	-	4483	-
BR22	2260	-	2293	-
BR23	6740	-	6801	-
BRR1 dhan30	800	-	655	-
BRR1 dhan32	0	-	0	-
BRR1 dhan33	640	-	241	-
BRR1 dhan34	4160	-	4185	-
BRR1 dhan39	620	-	590	-
BRR1 dhan41	-	80	-	70
BRR1 dhan44	110	-	60	-
BRR1 dhan46	120	-	125	-
BRR1 dhan49	11380	-	10925	-
BRR1 dhan51	-	4560	-	4465
BRR1 dhan52	-	5440	-	4880
BRR1 dhan56	-	70	-	20
BRR1 dhan57	-	230	-	131
BRR1 dhan62	150	-	53	-
BRR1 dhan66	-	80	-	12
BRR1 dhan70	-	-	15	-
BRR1 dhan71	-	460	-	447
BRR1 dhan72	350	-	42	-
BRR1 dhan73	-	120	-	60
BRR1 dhan75	6920	-	6792	-
BRR1 dhan76	930	-	917	-
BRR1 dhan77	10	-	15	-
BRR1 dhan78	-	140	-	5

Variety	Production (with tag) (kg)		Distribution (kg)	
	Favourable variety	Stress tolerant variety	Favourable variety	Stress tolerant variety
BRRi dhan79	50	-	30	-
BRRi dhan80	160	-	50	-
BRRi dhan87	14120	-	13835	-
BRRi dhan90	4240	-	3414	-
BRRi dhan91	-	120	-	101
BRRi dhan93	2360	-	2368	-
BRRi dhan94	740	-	776	-
BRRi dhan95	4700	-	3979	-
BRRi dhan103	2040	-	2125	-
Nizersail	40	-	20	-
<b>Total</b>	<b>72,400</b>	<b>11,300</b>	<b>68,139</b>	<b>10,191</b>
<b>Grand total</b>	<b>83,700</b>		<b>78,330</b>	

#### Activity No. 2.4. Monitoring of breeder and foundation seed production farms

**Principal Investigator:** Dr. Partha Sarathi Biswas

**Co Investigator:** Dr. Mir Sharf Uddin Ahmed, Dr. ESM Harunur Rashid, Dr. Md. Abubakar Siddique, Dr. Armin Bhuiyan, Dr. Md Humayun Kabir Baktiar, Tonmoy Chakrabarty, Nashirum Monir and Md. Ashiqur Rahman

#### Specific objectives

To visit breeder seed (BS) and foundation seed (FS) production plots at flowering and maturity stages of seed producing stations and agencies to ensure the quality of the produced seed and to provide advises to the seed producing stations and agencies for improving the quality of the seed.

#### Materials and method

GO and private sector seed producing farms those who were BRRi SeedNet partners and received breeder seed from BRRi, supplied relevant information on foundation seed production (e.g. D/S, D/T, locations, variety etc.) in well ahead. Then the scientists of GRS Division made tour program(s) in appropriate time to observe the performances of breeder and foundation seed production. The quality of the breeder seed was maintained through 2-3 times visits of the breeder seeds plots of eleven BRRi regional stations (RSs) at Rangpur, Rajshahi, Cumilla, Barishal, Sonagazi, Bhanga, Kushtia, Gopalganj, Sirajganj, Satkhira and Habiganj throughout whole growth stage by the assigned scientists of GRS Division (Table 21).

**Table 21. List of scientists for monitoring breeder seed plot at different BRRi RS**

Sl	Name Responsible Scientist	Name of BRRi RS
1	Mir Sharf Uddin Ahmed	Cumilla, Kushtia
2	Ebna Syod Md. Harunur rashid	Rajshahi, Rangpur, Satkhira
3	Md Abubakar Siddique	Barishal, Sonagazi
4	Armin Bhuiyan	Gopalganj
5	Md Humayun Kabir Baktiar	Habiganj, Cumilla
6	Tonmoy Chakraborti	Bhanga, Sirajganj
7	Nasirum Monir	Kushtia
8	Md Ashiqur Rahman	Gopalganj, Rangpur

#### Results and discussion

Breeder seed production plots of BRRi regional stations (RSs) at Rangpur, Rajshahi, Cumilla, Barishal, Sonagazi and Habiganj were visited to observe the varietal purity and performances of breeder seed (Fig. 2). no major insect-pest damage, varietal impurity (<1%) and no obnoxious weeds were observed. Isolation distances (ID) and crop conditions were satisfactory. Overall crop conditions and management were satisfactory. However, BRRi regional stations were advised to discard three meters borderlines from both the varieties, where 3-meters ID was not maintained. The seed producers were advised for thorough roguing by themselves for one more time before harvesting.



Fig. 2. BS plots of BRRi regional stations at Rajshahi and Sonagazi during 2023-24.

Again, FS production farms of Bangladesh Agricultural Development Corporation (BADC) at Dattnagar, Jhenaidah were visited to observe the varietal purity and performances of FS of BRRi dhan98 (Fig. 3). During the visit, no major insect-pest damage, varietal impurity (<1%) and no obnoxious weeds were observed. But some taller plants (around 5 to 7 cm taller) were observed with similar grain type of BRRi dhan98. Overall crop conditions and management were satisfactory. Isolation distances and crop conditions were satisfactory. However, FS producers were advised to discard three meters borderlines from both the varieties, where not maintained. The seed producers were also advised for thorough roguing by themselves for one more time before harvesting.



Fig. 3. Pictorial views of monitoring the FS plot of BADC at Dattnagar, Jhenaidah during 2023-24.

### **Project 03: Exploratory and Genetic Studies**

**Program Leader: Dr. ESM Harunur Rashid**

#### **General Objectives**

To conduct genetic studies of rice germplasm

#### **Expected Output**

The genetic parameters/genetic studies of respective years would be helpful for varietal development and other plant breeding related issues.

#### **Experiment no. 3.1 Evaluation of photosensitive rice germplasm collected from Northern districts of Bangladesh**

**Principal Investigator (PI): Dr. ESM Harunur Rashid**

**Co-Investigator (CI): Nashirum Monir**

#### **Specific objectives**

To identify rice germplasm suitable for late transplanting after flood in northern region of Bangladesh (Bogura, Kurigram, Lalmonirhat, Gaibandha, Rangpur and Jamalpur).

## Materials and methods

In total, 12 photosensitive germplasm along with three checks were grown late (transplanting 15 September) in T. Aman 2023-24 season to identify germplasm suitable for late transplanting after flood in northern region of Bangladesh. These varieties have been growing in Bogura, Kurigram, Lalmonirhat, Gaibandha, Rangpur and Jamalpur districts of Bangladesh because of generating acceptable grain yield even after very late transplanting after flood water recession. All of the accessions were taken from the BRRI Genebank. BR22, BR23 and Nizersail were used as standard and local checks.

Phenotypic characterization was done on the basis of seedling vigor, number of effective tiller, flag leaf angle and orientation, growth duration, Culm length, Culm diameter and strength, panicle type (compactness of the panicle), spikelet sterility, length breadth ratio, leaf senescence (stay green trait), biomass and yield. The characterization of rice germplasm accessions were completed with a total of 53 morpho-agronomic traits (both quantitative and qualitative characters) at GRSD, BRRI, Gazipur using the Rice Germplasm Descriptors and Evaluation Form (2018) and UPOV convention. The experiment was laid out using a quadruple row of 5.4 m long for each entry/accession, single seedling per hill with a spacing of 20 × 20 cm<sup>2</sup> between rows and plants, respectively. Fertilizers were applied @ 60:20:40 kg NPK/ha. Appropriate intercultural operations and pest control measures were taken for insect pests, diseases and weeds as and when necessary. Data collection were completed for both qualitative and quantitative characters. Data were analyzed using R package. Finally, the superior germplasm against the grain yield and other traits would be identified and the evaluation will be repeated in Rangpur region for further progress.

## Results and discussion

One Rosul Bhog (Acc. 338), one Joysail (Acc.5969) and, one Ganjia (Acc. 284) accession showed better performance on the basis of their morpho-agronomic traits among the tested entries (**Table 22**). Grain weights per hill of Rosul Bhog (Acc. 338), Joysail (Acc. 5969) and Ganjia(Acc. 284) germplasm were 10.88 g, 10.08 g and 9.95 g, respectively. L/B ratio of Rosul Bhog was very high (3.70). Longer panicle length (20 to 32 cm), higher number of filled grain per panicle (126 to 151) and medium growth duration (131 to 134 days) were observed in selected three local germplasm.

**Table 22. Performance of twelve photosensitive T. Aman rice germplasm from BRRI Genebank.**

Sl No	Acc.	Name	Eff/ Tiller	Plant Height (cm)	PL (cm)	DTM	1000 GW (g)	Yield/ Hill (g)	DGL (mm)	DGW (mm)	L/B ratio
1	285	<b>Bindi Pakri</b>	4.4	76.2	19.2	135	15	8.2	5.79	2.01	2.9
2	284	<b>Ganjia</b>	6.4	82	20.6	134	17	9.95	5.8	2.08	2.8
3	299	<b>Malshira</b>	5.6	70.4	15	135	15	8.1	5.25	2.22	2.4
4	360	<b>Malshira</b>	4	57.6	14.8	132	15	7.35	5.72	2.31	2.5
5	520	<b>Ganjia</b>	7.4	77.8	21	134	17	9.56	5.55	2.2	2.5
6	531	<b>Ganjia</b>	6.4	84.2	21.4	131	17	8.1	5.74	2.58	2.2
7	545	<b>Malshira</b>	4	75.2	19	132	18	3.04	5.68	2.21	2.6
8	3661	<b>Indur Sail</b>	5.4	64	21.2	131	18	9.35	5.74	2.72	2.1
9	4810	<b>Bindi Pakri</b>	6	70.8	17.4	133	18	8.47	5.65	2.11	2.7
10	5969	<b>Joy Sail</b>	6.6	100.6	32	133	20	10.08	6.01	2.3	2.6
11	338	<b>Rosul Bhog</b>	5.2	72.8	11	131	22	10.88	5.81	2.11	2.8
12	5071	<b>Rosul Bhog</b>	5.4	96.8	23.2	133	14	9.45	6.6	1.8	3.7
13		<b>BR22</b>	7.6	82.2	25	135	19	10.6	6.09	2.18	2.8
14		<b>BR23</b>	6.8	89.6	18.6	133	26	11.6	6.79	2.21	3.1
15		<b>Nizersail</b>	6.4	94.2	22.4	135	18	9.85	5.28	2.09	2.5
		<b>CV</b>	<b>19.3</b>	<b>15.2</b>	<b>36.0</b>	<b>1.3</b>	<b>17.0</b>	<b>22.5</b>	<b>7.1</b>	<b>9.9</b>	<b>13.9</b>
		<b>LSD (5%)</b>		<b>6.13</b>	<b>3.82</b>		<b>1.54</b>	<b>1.02</b>	<b>0.21</b>	<b>0.11</b>	<b>0.18</b>

### Experiment no. 3.2 Identification and selection of low amylose content rice varieties

**Principal Investigator (PI):** Dr. Armin Bhuiya

**Co-Investigator (CI):** Tonmoy Chakrabarty, Dr. ESM Harunur Rashid and Dr. Habibul Bari Shajib (RAL)

#### Specific Objectives

To identify and to study the selection criteria for developing sticky rice varieties from Jhum rice germplasm

#### Materials and Method

Fifty-one Biruin rice germplasm (Table 23) were characterized to study the selection criteria during Aus 2023. The rice germplasm were transplanted using single seedling per hill with a spacing of  $20 \times 20$  cm<sup>2</sup> between rows and plants, respectively in three replication. Fertilizers were applied @ 30:20:40 kg NPK/ha. Appropriate intercultural operations and pest control measures were taken for insect pests, diseases and weeds as and when necessary. The seeds of the best performing Biruin rice germplasm were dehusked manually with a dehusker and sent to GQN division for evaluation of amylose content.

#### Results and discussion

A total of 20 Biruin rice germplasm viz. Biruin(2), Biruin(Tola), Biruin Kalarmur, Biroin(Makri), Biroin(Hawai), Biroin (Habai), Makri Biroin, Biroin, Aikkabiroin, Kalo Biroin, Pakh Biroin, Khara Biroin, Kala Biruin, Modhu Berun, Pak Biruin, Mikal Biruin, Deshi Biruin, Kaila Biruin (Sada), Kala Biruin, Kala Boron, Biruin were found containing very low amylose % (4 -7.8). (Table 23).

**Table 23. Apparent Amylose Content (AAC) % of 51 Biruin rice during 2023.**

SL. No	Acc. No.	Variety Name	Amylose (%)
1	241	BIROI(5)	25.8
2	394	BORON DHAN	24.4
3	497	BORON(TARA MUKUT)	24.9
4	670	BIRON	26.1
5	831	BIRUIN(2)	<b>5.9</b>
6	832	BIRUI SAIL	24.7
7	833	BIRUIN(TOLA)	<b>7.5</b>
8	834	BIRUIN KALARMUR	<b>4.4</b>
9	835	BIROIN(MAKRI)	<b>4</b>
10	836	BIROIN(HAWAI)	<b>7.7</b>
11	837	BIROIN (HABAI)	<b>6.2</b>
12	838	MAKRI BIROIN	11.1
13	861	BIROI DHAN	21
14	862	MAKRI BIROIN	<b>4.6</b>
15	1158	KALA BORON	14.4
16	1193	DULAI BORON(2)	23.1
17	1257	BORON	17
18	1339	KACHRA BORON	22.7
19	1972	BIRON	22.2
20	3265	HOLUD BORON	24
21	3313	BORON	21.7
22	3449	BIROIN	<b>4.2</b>
23	4104	BIRAN	21.8
24	4142	BORON	23.1
25	5108	BIROI DHAN	22.5
26	5697	AIKKABIROIN	<b>5</b>
27	5700	KALO BIROIN	<b>4</b>

28	5701	PUSH BIROIN	20.7
29	5702	PAKH BIROIN	<b>4.6</b>
30	5703	KHARA BIROIN	<b>6.3</b>
31	5704	LAL BIROIN	18.2
32	5705	HATI DAT BIROIN	21.2
33	5706	SADA BIROIN	11.6
34	7357	BIRUIN	22.2
35	7508	LAKHAI BIRUIN	22.9
36	7530	SADA BIRUIN	17.3
37	7532	KALO BIRUIN	12
38	7536	KALA BIRUIN	<b>4.1</b>
39	7539	MEKLI BIRUIN	16.9
40	7545	MODHU BERUN	<b>7.8</b>
41	7555	PAK BIRUIN	<b>3.7</b>
42	7556	MIKAL BIRUIN	<b>5.9</b>
43	7571	DESHI BIRUIN	<b>5.3</b>
44	7576	MUNSI BIRUIN	22.8
45	7589	KAILA BIRUIN (SADA)	<b>6.4</b>
46	7590	KALA BIRUIN	<b>3.7</b>
47	8260	DULAI BARON	18.7
48	8264	KALA BORON	<b>4.2</b>
49	8312	BIRUIN	<b>5.7</b>
50	8858	MEHE BIRUIAN	19.2
51	8859	PANI BIRUIAN	23.8

### **Experiment no. 3.3 Trait-based selection and agronomic performance analysis of Aus rice germplasm from all over Bangladesh**

**Principal Investigator (PI):** Tonmoy Chakrabarty

**Co-Investigator (CI):** Dr. Md Abubakar Siddique, Dr. Ebna Syod Md Harunur Rashid, Dr. Armin Bhuiya, Nashirum Monir, Md Ashiqur Rahman, Sheikh Arafat Islam Nihad (Path) and Tapon Kumer Roy (Ento).

#### **Specific Objectives**

- to study the available Aus rice germplasm for trait-based selection
- to find out the trait-based table toppers

#### **Materials and Method**

A total of 100 Aus rice germplasm (Table 24) available in BRRI genebank were evaluated in research plots. The germplasm were characterized through agronomic characters viz. plant height (cm), panicle length (cm), effective tiller (no/hill), growth duration (days), grain length (mm), grain breadth (mm), dehulled rice ratio, grain yield (g/hill). The experiments were conducted using a single row of 5.4 m long for each entry/ accession with a spacing of 25 × 20 cm between rows and plants, respectively. Fertilizers were applied @ 40:20:40 kg NPK/ha in Aus season. Appropriate control measures were taken for insect, pests, diseases and weeds when necessary. The screening was done under the supervision of Entomology and Pathology division of BRRI.

**Table 24. List of Aus rice germplasm from all over Bangladesh.**

Sl. No	Acc. No.	Germplasm Name	Upazila	District	Season
G1	6618	AUS DHAN (2)	Chatmohor	Pabna	Aus
G2	6619	KALA BOYEI (1)	Pangsa	Rajbari	Aus
G3	6620	KATKI DHAN	Pangsa	Rajbari	Aus
G4	6621	KALA BOYEI (2)	Pangsa	Rajbari	Aus
G5	6622	KHATO MALA		Bagerhat	Aus
G6	7260	KATAK TARA	Keshobpur	Jaohore	Aus
G7	7300	LAXMI DIGHA	Kotalipara	Gopalganj	Aus
G8	7301	MOSAIR AUS	Kotalipara	Gopalganj	Aus
G9	7302	AUS DHAN	Nalsity	Jhalakati	Aus
G10	7303	MINIKIT	Monirampur	Jaohore	Aus
G11	7304	LAL AUS	Atghoria	Pabna	Aus
G12	7305	KALO AUS	Atghoria	Pabna	Aus
G13	7306	SADA AUS	Atghoria	Pabna	Aus
G14	7417	GOTA MALA	Bamna	Barguna	Aus
G15	7418	BASHFUL IRRI	Rajapur	Jhalakati	Aus
G16	7419	KATIHATIA	Wajirpur	Barishal	Aus
G17	7420	MOISOR	Wajirpur	Barishal	Aus
G18	7470	GOTA IRRI	Sadar	Barguna	Aus
G19	7471	KACHA MOTA	Sadar	Barguna	Aus
G20	7472	KETISAITA	Nabinagar	B . baria	Aus
G21	7473	TEPU	Rahamgonj	Bakergonj	Aus
G22	7474	FAIJOR IRRI	Betagi	Barguna	Aus
G23	7475	AUS (AWNED)	Rahamgonj	Barguna	Aus
G24	7476	AUS (REDDISH)	Rajapur	Barguna	Aus
G25	7477	MURALI	Sadar	Sylhet	Aus
G26	7478	HIJULI	Alamdanga	Chuadanga	Aus
G27	7479	CHINA IRRI	Alamdanga	Chuadanga	Aus
G28	7684	DHAKAIA IRRI	Bamna	Barguna	Aus
G29	7685	RAJASAIL IRRI	Rajapur	Jhalakati	Aus
G30	7686	BENASURI	Wajirpur	Barishal	Aus
G31	7687	SIRAMPURI HATIA	Wajirpur	Barishal	Aus
G32	7812	LATABGOLI	Dorabazar	Sunamganj	Aus
G33	7813	GODA IRRI DHAN	Sadar	Barguna	Aus
G34	7814	ARJON	Sadar	Patuakhali	Aus
G35	7815	KALA BORO	Sadar	Patuakhali	Aus
G36	7816	HASIKALMI	Nabinagar	B. baria	Aus
G37	7817	LAITHA JHARA	Matlob	Chandpur	Aus
G38	7851	NEREAKOI	Sadar	Khulna	Aus
G39	7852	RATEIL	Wajirpur	Barishal	Aus
G40	7853	MUNSUR	Sadar	Patuakhali	Aus
G41	7854	SHIBJATA	Kalukhali	Rajbari	Aus
G42	7855	TEPA IRRI	Dashmina	Patuakhali	Aus
G43	7985	KALO SAITA	Sadar	Patuakhali	Aus
G44	7986	TEPU DHAN	Sadar	Patuakhali	Aus
G45	7987	HOLOI	Sadar	Patuakhali	Aus
G46	7988	23 DHAN	Sadar	Barguna	Aus
G47	7989	GOTA IRRI	Sadar	Barguna	Aus
G48	7990	VOGON/CHALI BORO	Sadar	Jhalakathi	Aus
G49	7991	ABDUL HAI	Sadar	Jhalakathi	Aus
G50	7992	KALO AUS	Mirjagonj	Patuakhali	Aus
G51	8059	DIGHI BAUAL	Kumarkhali	Kustia	Aus
G52	8064	SANDA MONI	Vabanipur	Rajbari	Aus
G53	8065	JAI MORI	Vabanipur	Rajbari	Aus
G54	8066	RAITUL	Patharghata	Barguna	Aus
G55	8067	KUCHMUCH	Patharghata	Barguna	Aus
G56	8068	PUITRA AIJONG	Patharghata	Barguna	Aus
G57	8069	BOULA	Patharghata	Barguna	Aus
G58	8070	SAITH SAIL	Patharghata	Barguna	Aus
G59	8071	SODEY AUS	Patharghata	Barguna	Aus
G60	8072	MALLIKA	Patharghata	Barguna	Aus
G61	8073	AUDUBALI	Patharghata	Barguna	Aus
G62	8074	BAR DHAN AUS	Patharghata	Barguna	Aus
G63	8078	KADIDET	Patharghata	Barguna	Aus

G64	8079	HANUMAN JATA	Daulatpur	Kustia	Aus
G65	8193	HULIGAMBIR	rupdia	Jashore	Aus
G66	8194	NATUL (AWNED LAL)	Sadar	Jashore	Aus
G67	8195	NATUL (STRAW)	Sadar	Jashore	Aus
G68	8196	SADA RATUL	Sadar	Narail	Aus
G69	8197	NARA RATUL	Sadar	Narail	Aus
G70	8198	KHAIR MONI	Muzibnagar	Meherpur	Aus
G71	8199	CHAKULA AUS	Mirzapur	Tangail	Aus
G72	8200	DHORIA	Tanore	Rajshahi	Aus
G73	8237	RAY-RAY	Sadar	Rangamati	Aus
G74	8238	KARDIDET	Sadar	Barguna	Aus
G75	8239	PAITA PAIJAM	Sadar	Barguna	Aus
G76	8240	ABDULLAH	Sadar	Bhola	Aus
G77	8241	IKRAHAITTA	Sadar	Bhola	Aus
G78	8242	TOM IIRI	Sadar	Bhola	Aus
G79	8243	GORCHU	Sadar	Bhola	Aus
G80	8552	KANIHATI-1		Moulvi bazar	T. Aus
G81	8553	KANIHATI-2		Moulvi bazar	T. Aus
G82	8554	KANIHATI-3		Moulvi bazar	T. Aus
G83	8555	KANIHATI-4		Moulvi bazar	T. Aus
G84	8556	KANIHATI-6		Moulvi bazar	T. Aus
G85	8557	KANIHATI-7		Moulvi bazar	T. Aus
G86	8558	KANIHATI-9		Moulvi bazar	T. Aus
G87	8559	KANIHATI-10		Moulvi bazar	T. Aus
G88	8560	KANIHATI-11		Moulvi bazar	T. Aus
G89	8561	KANIHATI-12		Moulvi bazar	T. Aus
G90	8562	UNKNOWN		Moulvi bazar	T. Aus
G91	8572	KALOSAITTA			Aus
G92	8573	KALOSAITTA			Aus
G93	8574	SENTU 4		Netrokona	Aus
G94	8575	SENTU 5		Netrokona	Aus
G95	8792	BOSHAKHI AUS/20	PBD	BRRRI	Aus
G96	8795	BRRRI JHUM DHAN LOWAS	Bhanga	Faridpur	Aus
G97	8810	PANDAY	PBD	BRRRI	Aus
G98	8811	76 DLCAN	Sadar	Faridpur	Aus
G99	8842	ABDULLAH DHAN	Daulatkhan	Bhola	Aus
G100	8843	KERON DAL	Sadar	Bhola	Aus

## Results

In Aus 2023-24, all 100 germplasm were characterized under the selected traits. Among them, KALA BOYEI (2) had the shortest (80.42 cm) whereas SENTU 4 had the highest (129.31 cm) plant height (**Table 25**) Panicle length was found longest (30.35 cm) for LAITHA JHARA and shortest (14.76 cm) for BRRRI JHUM DHAN LOWAS. Highest effective tiller number per hill was found for TEPU DHAN (11) and lowest (3) for SIRAMPURI HATIA.

**Table 25: Trait based agronomic performance of Aus germplasm**

Traits	Range	Mean	StDev	CV	LSD	Lowest	Highest
Plant Height (cm)	80.42-129.31	107.94	10.08	9.34	1.98	G4 KALA BOYEI (2)	G93 SENTU 4
Panicle Length (cm)	14.76-30.35	22.70	3.07	13.52	0.60	G96 BRRRI JHUM DHAN LOWAS	G37 LAITHA JHARA
Effective Tiller (no/hill)	3-11	6.86	9.66	11.79	1.89	G31 SIRAMPURI HATIA	G44 TEPU DHAN
Growth Duration (days)	100-132	117.97	7.08	6.00	1.39	G2 KALA BOYEI (1)	G95 BOSHAKHI AUS/20
Grain Length (mm)	5.08-10.47	8.56	0.81	9.43	0.16	G22 FAIJOR IIRI	G80 KANIHATI-1
Grain Breadth (mm)	2.16-5.53	2.76	0.40	14.35	0.08	G10 MINIKIT	G53 JAI MORI
Dehulled Rice Ratio	2.07-4.44	2.60	0.42	16.27	0.08	G47 GOTA IIRI	G84 KANIHATI-6
Grain Yield (g/hill)	2.59-21.29	9.72	4.59	47.16	0.90	G96 BRRRI JHUM DHAN LOWAS	G5 KHATO MALA

The lowest (100 days) growth duration was found for KALA BOYEI (1) whereas longest (132 days) for BOSHAKHI AUS/20. The shortest (5.08 mm) grain length was found for FAIJOR IIRI whereas longest (10.47 mm) for KANIHATI-1. The shortest (2.16 mm) grain breadth was found for MINIKIT whereas longest (5.53 mm) for JAI MORI. Dehulled rice ratio was found lowest (2.07) for GOTA IIRI and highest

(4.44) for KANIHATI-6. In case of grain yield, BRRI JHUM DHAN LOWAS yielded the lowest (2.59 g/hill) number of seeds whereas the highest (21.29 g/hill) amount was yielded by KHATO MALA. The distribution of agronomic performance of different traits of Aus germplasm are depicted in **Figure 4**.



**Fig. 4: Box plot of agronomic traits of Aus germplasm**

**Table 26: Screening result of Aus germplasm against BPH**

Acc. No.	Germplasm Name	Score
7813	GODA IIRI DHAN	5
7853	MUNSUR	5
8059	DIGHI BAUAL	5
8573	KALOSAITTA	5
Resistant Check	T27A	3
Susceptible Check	BR3	9
Rest of the germplasm showed susceptible (score 7) and highly susceptible (score 9) reaction		

Germplasms were screened against Brown Plant Hoper (BPH) under the supervision of Entomology division of BRRI. The response of the rice germplasm is presented in **Table 26**. In this trial most of the entries showed susceptible reaction (score 7 & 9) against BPH, only 4 germplasm viz. GODA IIRI DHAN, MUNSUR, DIGHI BAUAL and KALOSAITTA showed moderately susceptible (score 5) reaction against BPH.

**Table 27: Screening result of Aus germplasm against BLB**

Acc. No.	Germplasm Name	Score
7303	MINIKIT	3
7301	MOSAIR AUS	5
7476	AUS (REDDISH)	5
7686	BENASURI	5
8238	KARDIDET	5
Rest of the germplasm showed susceptible (score 7) and highly susceptible (score 9) reaction		

Germplasms were screened against Bacterial Leaf Blight (BLB) under the supervision of Pathology division of BRRI. The response of the rice germplasm is presented in **Table 27**. In this trial most of the entries showed susceptible (score 7) to highly susceptible (score 9) reaction against BLB, only 1 germplasm viz. MINIKIT responded moderately resistant (score 3) whereas MOSAIR AUS, AUS (REDDISH), BENASURI and KARDIDET showed moderately susceptible (score 5) reaction against BLB.

### Experiment 3.4: Morphological characterization of Aus rice germplasm collected from greater Kushtia region of Bangladesh

**Principal Investigator:** Nashirum Monir

**Co-Investigator:** Dr. Md. Abubakar Siddique, Tonmoy Chakrabarty, Md. Ashiqur Rahman

#### Objectives:

- To characterize the 58 Aus rice germplasm collected from greater Kushtia region (Kushtia, Chuadanga and Meherpur) in morphological level using ‘Rice Germplasm Descriptors and Evaluation Form’
- To observe the genetic diversity and yield performance of 58 Aus rice germplasm

**Materials and methods:** 58 Aus rice germplasm (Table 28) available in BRRI genebank were morphologically characterized at BRRI farm, Gazipur. The germplasms were characterized through 53 morpho-agronomic characters of which 20 quantitative and 33 qualitative traits using the ‘Rice Germplasm Descriptors and Evaluation Form’ of GRSD, BRRI (BRRI 2018). The experiments were conducted using a double row of 5.4 m long for each entry/accession with a spacing of 20 cm × 20 cm between rows and plants, respectively. Fertilizers were applied @ 60:20:40 kg NPK/ha in Aus season. Appropriate control measures were taken for insect, pests, diseases and weeds when necessary.

**Table 28. List of 58 Aus rice germplasm collected from greater Kushtia region of Bangladesh**

Sl. No.	Acc. No.	Accession Name	Upazila	District	Season
1	1283	SURJA MONI	SADAR	KUSHTIA	AUS
2	1286	KADA MONI	SADAR	KUSHTIA	AUS
3	1289	HIDI(2)	BHERAMARA	KUSHTIA	AUS
4	1291	FORI PAKRI	SADAR	KUSHTIA	AUS
5	1293	LAKSMI JOTA	SADAR	KUSHTIA	AUS
6	1294	LAKSMI JOTA	SADAR	KUSHTIA	AUS
7	1316	KADA MONI(2)	SADAR	MEHERPUR	AUS
8	1317	JAMRI SHAITY	SADAR	MEHERPUR	AUS
9	1318	AUS BA	SADAR	MEHERPUR	AUS
10	1319	STHANIA SHON	SADAR	MEHERPUR	AUS
11	1320	BATUL SHI	SADAR	MEHERPUR	AUS
12	1321	BAK TULSHI	SADAR	MEHERPUR	AUS
13	1322	MANIK MODU(2)	SADAR	MEHERPUR	AUS
14	1323	MANIK MODU	SADAR	MEHERPUR	AUS
15	3465	AUS BAKI	SADAR	MEHERPUR	AUS
16	4020	BORA DHAN	MIRPUR	KUSHTIA	AUS
17	4021	HULI	SADAR	CHUADANGA	AUS
18	4022	MODHU MALA	SADAR	KUSHTIA	AUS
19	4023	KALA	SADAR	KUSHTIA	AUS
20	4024	SADA AUS	MIRPUR	KUSHTIA	AUS
21	4025	KALO HIZLI	MIRPUR	KUSHTIA	AUS
22	4029	KHERI JAMRI	MIRPUR	KUSHTIA	AUS
23	4030	JOBA	MIRPUR	KUSHTIA	AUS
24	4039	PADHA MOIDU	SADAR	MEHERPUR	AUS
25	4040	KHAMAR MUNDU	SADAR	MEHERPUR	AUS

Sl. No.	Acc. No.	Accession Name	Upazila	District	Season
26	4041	KAIKA	SADAR	MEHERPUR	AUS
27	4042	KADAR CHAP	SADAR	MEHERPUR	AUS
28	4044	ZAMIR SAITA	SADAR	MEHERPUR	AUS
29	4045	BALAM	SADAR	KUSHTIA	AUS
30	4613	HARIN BUNDI	DAULATPUR	KUSHTIA	B. AUS
31	4614	JABAHUL	DAULATPUR	KUSHTIA	B. AUS
32	4615	KHUDE BORON	DAULATPUR	KUSHTIA	AUS
33	4616	LAL CHHOTNA	DAULATPUR	KUSHTIA	B. AUS
34	4617	KALO NOROI	DAULATPUR	KUSHTIA	B. AUS
35	4618	JANLA KANA	DAULATPUR	KUSHTIA	B. AUS
36	4619	SHIB JOTA	DAULATPUR	KUSHTIA	B. AUS
37	4620	HANUNAN JOTA	DAULATPUR	KUSHTIA	AUS
38	4621	KALO CHHTNA	DAULATPUR	KUSHTIA	AUS
39	4623	TUSHA	MIRPUR	KUSHTIA	AUS
40	4624	PIRA KALI	MIRPUR	KUSHTIA	AUS
41	4625	RAYMUNDO	MIRPUR	KUSHTIA	B. AUS
42	4626	SADA HIJILI	BHERAMARA	KUSHTIA	AUS
43	4627	KALO JAMRI	GANGNI	MEHERPUR	B. AUS
44	4628	SHONI	GANGNI	MEHERPUR	B. AUS
45	4629	LAL JAMRI	GANGNI	MEHERPUR	B. AUS
46	4630	MANIK MUNDU	GANGNI	MEHERPUR	B. AUS
47	4631	KADAMONI	GANGNI	MEHERPUR	B. AUS
48	4633	JOTA AUS	SADAR	MEHERPUR	B. AUS
49	4634	AUS BAKU TULSI	SADAR	MEHERPUR	B. AUS
50	7478	HIJULI	ALAMDANGA	CHUADANGA	AUS
51	7479	CHINA IRRI	ALAMDANGA	CHUADANGA	AUS
52	8059	DIGHI BAUAL	KUMARKHALI	KUSHTIA	AUS
53	8060	ITC RICE (INDIAN)	MUJIBNAGAR	MEHERPUR	AUS
54	8061	V-2 (UNKNOWN)	MUJIBNAGAR	MEHERPUR	AUS
55	8062	V-3 (UNKNOWN)	MUJIBNAGAR	MEHERPUR	AUS
56	8063	V-4 (UNKNOWN)	MUJIBNAGAR	MEHERPUR	AUS
57	8079	HANUMAN JATA	DAULATPUR	KUSHTIA	AUS
58	8198	KHAIR MONI	MUJIBNAGAR	MEHERPUR	AUS

## Results

In Aus 2023, 58 germplasm were characterized through 12 traits namely plant height (cm), panicle length (cm), culm diameter (mm), days to 50% flowering, growth duration (days), total tiller/hill, effective tiller/hill, filled grain/panicle, 1000 grain weight (g), grain length-breadth ratio, brown rice length-breadth ratio, yield/hill (g) (**Table 29**). Accession V-2 (UNKNOWN) had the shortest (79.8 cm) whereas BATUL SHI had the highest (136.2 cm) plant height. Panicle length was found longest (28.7 cm) for BATUL SHI and shortest (17.2 cm) for MANIK MODU(2). Highest effective tiller number per hill was found for MANIK MUNDU (9) and lowest (4) for AUS BA. The lowest (99 days) growth duration was found for AUS BAKI whereas longest (115 days) for KADA MONI. SADA AUS had the lowest (30) and KAIKA had the highest (92) number of filled grain/panicle. KALA NOROI had the lowest (17 g) and KADAMONI had the highest (30 g) TGW. Brown rice LB ratio was found lowest (1.67) for KADA MONI(2) and highest (3.33) for HANUNAN JOTA. In case of grain yield, ZAMIR SAITA yielded the lowest (7.16 g/hill) number of seeds whereas the highest (20.65 g/hill) amount was yielded by HANUNAN JOTA.

**Table 29. Some important features of characterized 58 Aus rice germplasm**

Traits	Range	Mean	StDev	CV	LSD (5%)	Lowest	Highest
Plant height (cm)	79.8~136.2	112	12.28	10.99	3.16	79.8 V-2 (UNKNOWN)	136.2 BATUL SHI
Panicle length (cm)	17.2~28.7	22.76	2.57	11.29	0.66	17.2 MANIK MODU(2)	28.7 BATUL SHI
Culm diameter (mm)	3.1~5.12	4.14	0.43	10.50	0.11	3.1 HIDI(2)	5.12 JABAHUL
Total tiller (no/hill)	4~10	6.72	1.15	17.13	0.30	4 AUS BA	10 MANIK MUNDU
Effective tiller (no/hill)	4~9	6.40	0.95	14.91	0.25	4 AUS BA	9 MANIK MUNDU

Traits	Range	Mean	StDev	CV	LSD (5%)	Lowest	Highest
Days to 50% flowering	70~87	76.36	3.66	4.79	0.94	70 AUS BAKI	87 KADA MONI
Growth duration (days)	99~115	105	3.60	3.43	0.93	99 AUS BAKI	115 KADA MONI
Filled grain/panicle	30~92	58.90	15.66	26.60	4.03	30 SADA AUS	92 KAIKA
1000 grain weight (g)	17~30	23.76	3.78	15.89	0.97	17 KALO NOROI	30 KADAMONI
Grain length-breadth ratio	2.13~3.93	2.96	0.39	13.12	0.10	2.13 SADA HIJILI	3.93 AUS BA
Brown rice length-breadth ratio	1.67~3.33	2.46	0.37	14.96	0.09	1.67 KADA MONI(2)	3.33 HANUNAN JOTA
Yield/hill (g)	7.16~20.65	12.05	2.45	20.34	0.10	7.16 ZAMIR SAITA	20.65 HANUNAN JOTA

### Experiment 3.5: Morphological characterization of red rice germplasm of Bangladesh

**Principal Investigator:** Dr. Md. Humayun Kabir Baktiar

**Co-Investigator:** Dr. Mir Sharfuddin Ahmed, Dr. ESM Harunur Rashid, Dr. Md. Abubakar Siddique

**Objectives:** To assess the agro-morphological characteristics of the red rice germplasm

**Materials and methods:** A total of 50 Aus rice germplasm (Table 30) available in BRRI genebank were evaluated in research plots. The germplasm were characterized through agronomic characters viz. plant height (cm), panicle length (cm), effective tiller (no/hill), growth duration (days), grain length (mm), grain breadth (mm), dehulled rice ratio, grain yield (g/hill). The experiment was conducted using a single row of 5.4 m long for each entry/ accession with a spacing of 25 × 20 cm between rows and plants, respectively. Fertilizers were applied @ 40:20:40 kg NPK/ha in Aus season. Appropriate control measures were taken for insect, pests, diseases and weeds when necessary. The screening was done under the supervision of Entomology and Pathology division of BRRI.

**Table 30. List of Aus red rice germplasm for characterization.**

Sl. NO	Accession No.	Name	Upazila	District/ Country	Season
1	1320	BATUL SHI	Meherpur	Kushtia	Aus
2	1322	MANIK MODU(2)	Meherpur	Kushtia	Aus
3	1478	MUKTAHAR	Mirzapur	Dhaka	Aus
4	1522	BOWALDAR	Pirganj	Dinajpur	Aus
5	1523	PATHER	Pirganj	Dinajpur	Aus
6	1524	BAGUN BICHI	Birol	Dinajpur	Aus
7	1525	JAMURUS		Dinajpur	Aus
8	1529	BENAFUL		Dinajpur	Aus
9	1531	CHNDARHAT		Dinajpur	Aus
10	1532	TEPAKAIN		Dinajpur	Aus
11	1534	HASHA		Dinajpur	Aus
12	1546	AJAB BETI	Rangunia	Chittagong	Aus
13	1548	KAMINI KANCHAN	Patia	Chittagong	Aus
14	1549	CHAMKA	Patia	Chittagong	Aus
15	1550	BATHURI	Sitakunda	Chittagong	Aus
16	1551	HOLAI	Mirsarai	Chittagong	Aus
17	1552	CHIKNAL(BORO AWNED)	Rangunia	Chittagong	Aus
18	1553	CHIKNAL(CHOTO)	Patia	Chittagong	Aus
19	1554	MIMA SARANG		Tangail	Aus
20	1559	MIKOTCHO		Tangail	Aus
21	1560	MI DOKKA		Tangail	Aus
22	1564	RAITAL		Rajshahi	Aus
23	1621	ASHINA(1)	Chagalnaya	Noakhali	Aus

SI. NO	Accession No.	Name	Upazila	District/ Country	Season
24	1622	BINNA TOHA		Noakhali	Aus
25	1623	BHATUR(4)	Sylhet	Sylhet	Aus
26	1625	GOREA	Savar	Dhaka	Aus
27	1626	MARY SAITA	Burichang	Cumilla	Aus
28	1633	KALI BORI(1)	Narail	Jashore	Aus
29	1634	KATAK TARA		CHT HT	Aus
30	1636	BOISLAM	Savar	Dhaka	Aus
31	1637	KALI MUGHI		Noakhali	Aus
32	1638	MADHU MALATI	Egalchari	CHT HT	Aus
33	1643	INGRA	Kachua	Cumilla	Aus
34	1644	BOTESHAWAR	Chandina	Cumilla	Aus
35	1646	BURMA SINAL		CHT HT	Jhum/Aus
36	1647	CHANGI	Rangamati	CHT HT	Aus
37	1654	RANGAMONI	Naikanchhari	CHT HT	Aus
38	1655	LAL GALONG		CHT HT	Aus
39	1656	HOLAI	Kotowali	Cumilla	Aus
40	1671	MELE		CHT HT	Aus
41	1673	BENAFUL		Faridpur	Aus
42	1674	BALAM		Faridpur	Aus
43	1675	GORISAITA		Faridpur	Aus
44	1676	SEMIDWARF		Faridpur	Aus
45	1677	KHUPNI		Faridpur	Aus
46	1691	HAITA/ SAITA		Faridpur	Aus
47	1692	MANIK MONDAL		Faridpur	Aus
48	1694	SAITA		Faridpur	Aus
49	1696	BAISMUGUR		Faridpur	Aus
50	1697	SAITA		Faridpur	Aus

## Results

The average effective tiller was about 7, ranged from 3 (Manik Mandal) to 11 (Kali Mughhi) where average panicle length was 25.10 cm ranged from 18.33 cm (Kali Boro) to 33.00 cm. (Katak Tara) Average filled grain per panicle was 87 ranged from 37 (Ashina) to 188 (Balam) where average 1000 grain weight was 21.40 g ranged from 11.00 g (Modhu Malati) to 32 g. (Manik Modhu) (Table 31).

**Table 31: Trait based agronomic performance of red rice germplasm**

Parameters	Range	No of entries	Highest
Effective tiller	<6	19	11
	6-10	30	Acc. No.1637
	≥10	1	(Kali Mughhi)
Panicle length	<20	1	33.00 cm.
	20-30	45	Acc. No. 1634
	≥30	4	(Katak Tara)
Filled G/P	<50	3	188
	50-150	45	Acc. No. 1674
	≥150	2	(Balam)
1000 GW	<15	3	32 g.
	15-25	42	Acc. No. 1322
	≥25	5	(Manik Modhu)
L/B ratio	<2	7	3.32
	2-3	38	Acc. No. 1320
	≥3	5	(Batulshi)
Yield	<10	13	28.91g
	10-20	29	Acc. No. 1550
	≥20	8	(Bathuri)

In addition, average grain length was 8.28 mm, ranged from 6.18 mm (Mary Saita) to 10.24 mm (Batulshi) where average grain breadth was 2.92 mm ranged from 2.02 mm (Benaful) to 3.79 mm (Manik Mondal).

The average dehulled grain length was 5.90 mm, ranging from 4.25 mm (Pather) to 8.35 mm (Batulshi) where average dehulled grain breadth was 2.54 mm, ranging from 1.82 mm (Benaful) to 4.66 mm (Bathuri).

### Experiment No. 3.6. Purification and duplicate sorting of genebank accessions through GBS profiling

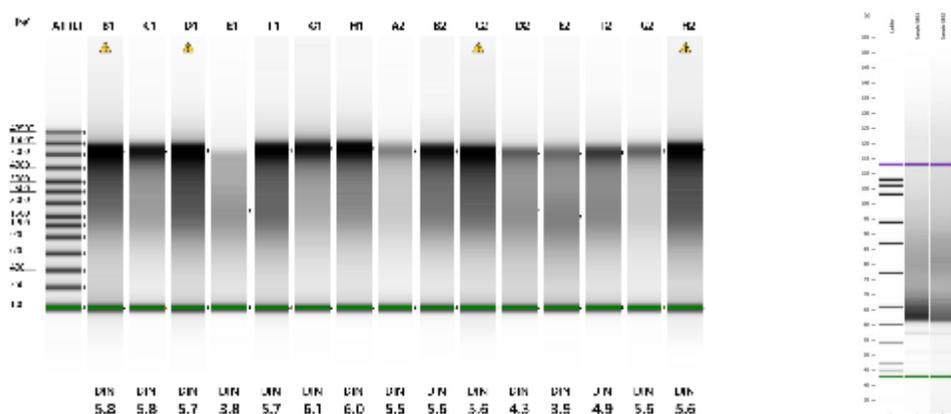
**Principal Investigator:** Dr. Md. Abubakar Siddique

**Co-Investigator:** Dr. Armin Bhuiya and Dr. Partha Sarathi Biswas

**Objectives:** To purify as well as to make a core set of rice accessions at BIRRI genebank

**Materials and methods:** Rice germplasm accessions were initially selected in different seasons. A total of 236 germplasm accessions were grown in Boro 2023-24 as a 6<sup>th</sup> batch for purification and DNA extraction. Four leaf samples from each of those germplasm accessions were collected and stored in -80°C freezer with proper labeling for DNA extraction. After DNA extraction, these dry DNA pellets will be sent to Global Institute for Food Security (GIFS)/University of Saskatchewan, Canada for genotyping-by-sequencing (GBS) activity. The harvested seed from each of those germplasm accessions were stored in a cold room with proper labeling. Based on obtained GBS results from the previous batches, after removal of duplicate accessions and highly heterozygous plants, selected 177 accessions from 1st batch were multiplied in Boro 2023-24; and 206 purified accessions from 3rd batch were multiplied in Aus 2024 to obtain self-seed for each accession. Meanwhile, DNA was extracted from 155 accessions (620 plant samples) that were grown in Aus 2023 (as a 4<sup>th</sup> batch) and 271 germplasm accessions (1084 plant samples) that were grown in T. Aman 2023 season (as a 5<sup>th</sup> batch) for purification; and DNA of those two batches (620 plant samples of 155 accessions and 1084 plant samples of 271 accessions) has been sent to GIFS, Canada for the construction and sequencing of a DNA sequencing libraries required for GBS activity.

**Results:** The approaches being utilized are GBS and skim-seq methodologies, as described by Poland et al. in 2012 and Adhikari et al. in 2022, respectively. At GIFS, Canada, the DNA samples those sent from BIRRI were resuspended in buffer and underwent sample quality control via the sample being run on an Agilent TapeStation (Fig. 5; left panel). The samples were transferred to 96 well plates, quantified and normalized for concentration. 192 samples (2 x 96 plates) were selected for trial GBS library work with individual samples being indexed and combined in 2 multiplexed library pools of 96 samples each in June 2023 (Fig. 5; right panel).



**Fig. 5.** Quality control assessment of selected BIRRI rice samples (left panel). This established that the amounts and quality of the DNA was adequate for GBS library construction – 2 x 96 indexed libraries prepared (right panel). Output from an Agilent TapeStation.

The GBS library pools explored for DNA sequencing on the NovaSeq 6000 sequencing platform at GIFS. Subsequent analysis revealed that each library showed even representation of sequence data from each barcoded sample (Fig. 6).



Fig. 6. Rice GBS samples – Trial MiSeq data: Overall representation of Illumina read counts for each barcoded sample plexed at 96 samples per GBS library, read counts for eight libraries are shown. Read counts are represented where high counts are in green, medium in orange and low in red. Overall, read counts per samples are balanced and suitable for higher depth sequencing.

Another requirement for effective genotyping using the GBS methodology is that the distribution of the GBS sequence reads is evenly distributed across the low copy genic regions of the rice genome. The method uses methylation sensitive restriction enzyme to reduce the representation of highly methylated repeat regions, but to ensure we had even coverage we aligned the GBS reads against a reference rice genome (Fig. 7). This confirmed that the libraries predominantly contained fragments from the low copy regions and confirmed we could move forward with higher depth sequencing on the high throughput Illumina NovaSeq6000 platform at GIFS.

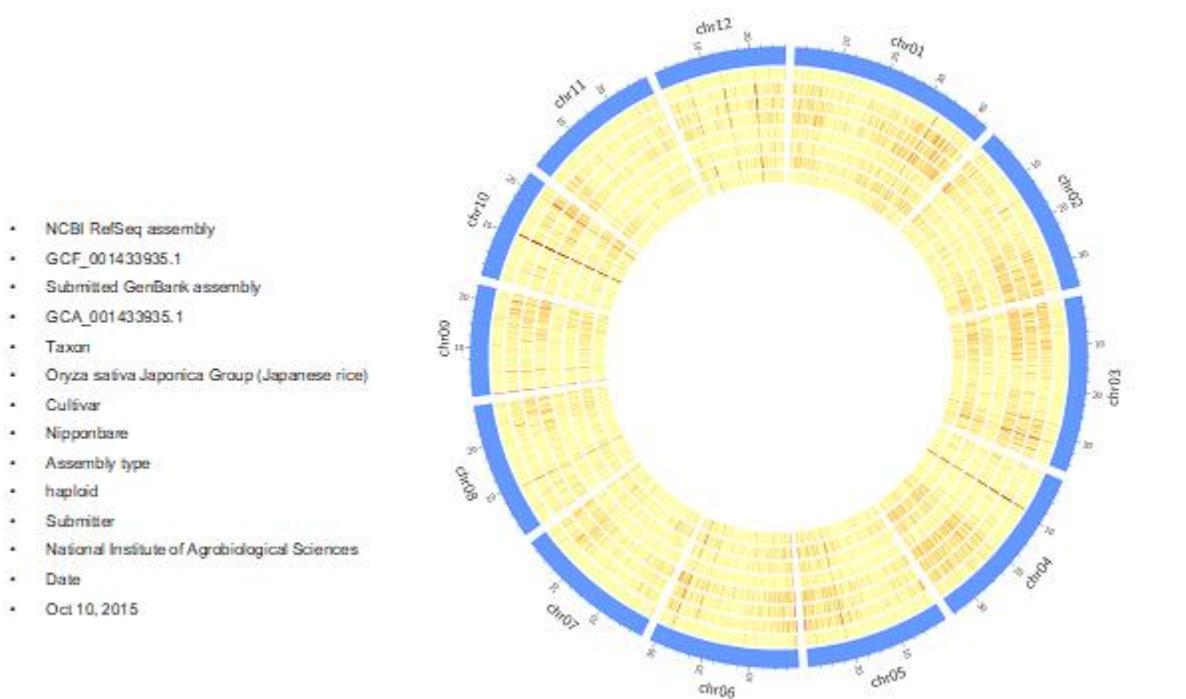


Fig. 7. Rice GBS samples – Distribution across the rice genome: Exemplar of GBS read distribution across the NCBI RefSeq assembly (*Oryza sativa*, Nipponbare; 2015). The Circos plot represents the 12 rice chromosomes (blue) with MiSeq trial GBS data for eight samples (inner yellow rings) aligned against the reference with read alignments represented (red lines). Overall, there is a higher representation and more even distribution of reads aligned against the non-repetitive genic regions rather than repetitive regions (centromeric).

Sequence data from the NovaSeq6000 for all libraries underwent sequence processing and quality filtering before being de-multiplexed based on the unique barcodes for each sample. The reads for each sample were then aligned against the rice RefSeq genome and then underwent SNP identification using a developed pipeline by the Data Management and Analytics (DMA) team at GIFS (Fig. 8). Large numbers of SNPs and indels variation were identified for each sample but to get an initial idea about the relatedness of samples, especially those representing the 5/4 different plants grown from each accession we carried out a phylogeny analysis to develop a dendrogram tree (Fig. 9 for 1<sup>st</sup> batch). This revealed that the 5 relatedness.

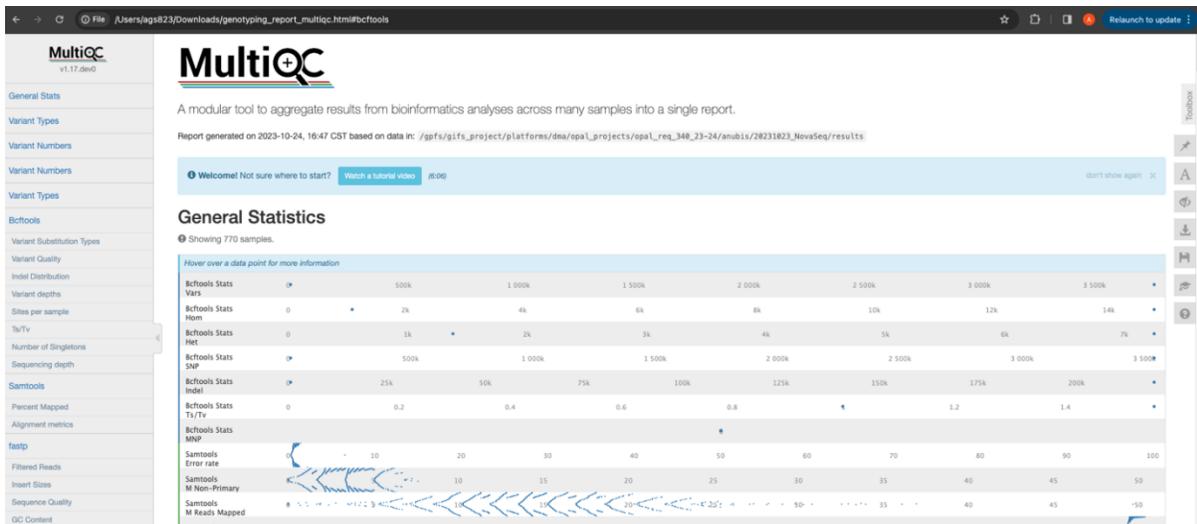


Fig. 8. MultiQC report for the 1<sup>st</sup> batch of 885 rice samples: The report provides a context of sequence read depth and quality for each sample and also a description of the SNPs and indels detected in each sample using a standard SNP detection tool (samtools mpileup).

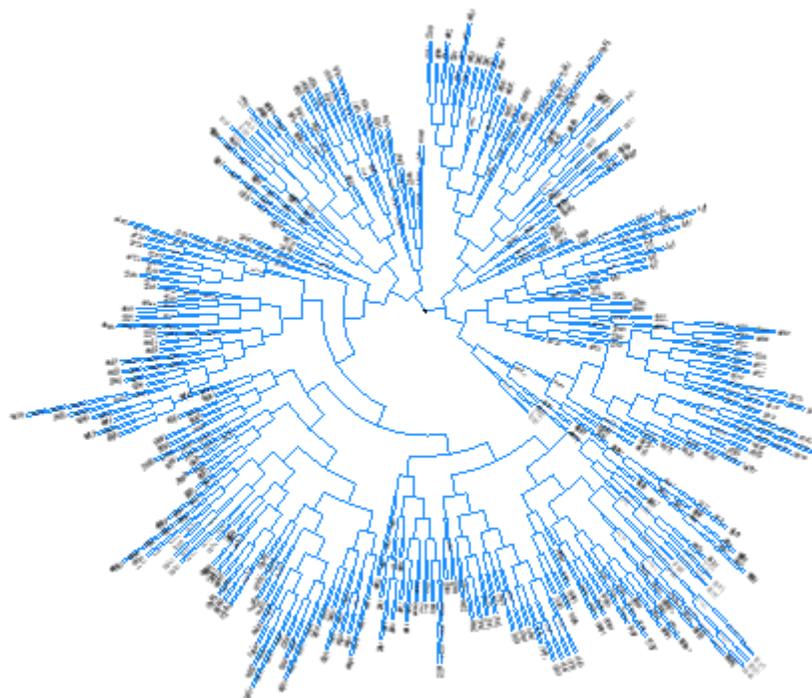


Fig. 9. Phylogenetic analysis for the 1<sup>st</sup> batch of 885 rice samples: The detected SNPs and indels detected in each sample were compared against each other using software (VCF2PopTree) which provides a ‘phylogram’ graphical representation of the clustering. From this output it was possible to identify that the 5 plants for each of the 177 accessions usually clustered closely together.

To better assess the degree of relatedness across the 5/4 plants from each accession, and enable the rapid selection of plants for growing in the next field season, we carried out a correlation analysis to provide a numerical output that could be represented in a spreadsheet (Fig. 10 for 1<sup>st</sup> batch). From the 2<sup>nd</sup> batch of GBS profiling, about 80% pairs possessed more than 97% identical score (Fig. 11). Hence, BRRI has purified a total of 383 rice germplasm accessions and seed has increased of those accessions for further phenotyping and evaluation.

SampleName	R1	R2	R3	R4	R5	Sample Name	Homo-Ref SNPs	Homo-NonRef SNPs	Het SNPs	Transitions	Transversions	InDels	Average Depth	Fraction (Identical SNPs/ total comparison)	Plants to Use								
Aus2_1	1.00	0.98	0.99	0.99	0.94	Aus2_1	77,515	16,169	6,436	15,099	7,506	1,343	0.2	Aus2_1	1	5228/5349	6116/6148	6304/6342	4984/5306	1,2,3 and 4			
Aus2_2	NaN	1.00	0.98	0.98	0.93	Aus2_2	127,374	23,786	10,622	23,090	11,298	2,396	0.5	Aus2_2	NaN	1	6167/6316	6562/6696	5525/5964				
Aus2_3	NaN	NaN	1.00	0.99	0.94	Aus2_3	140,487	30,233	17,131	30,316	17,048	2,821	0.4	Aus2_3	NaN	NaN	1	7618/7659	6031/6392				
Aus2_4	NaN	NaN	NaN	1.00	0.94	Aus2_4	124,693	25,941	12,340	25,921	13,260	2,192	0.4	Aus2_4	NaN	NaN	NaN	1	6455/6797				
Aus2_5	NaN	NaN	NaN	NaN	1.00	Aus2_5	120,326	23,339	10,704	22,421	11,622	1,975	0.4	Aus2_5	NaN	NaN	NaN	NaN	1				
Aus4_1	1.00	0.98	0.98	0.90	0.93	Aus4_1	196,797	44,309	29,952	47,276	26,985	4,347	0.6	Aus4_1	1	5187/5297	6978/7119	5703/6306	6260/6707	1,2, and 3			
Aus4_2	NaN	1.00	0.95	0.89	0.91	Aus4_2	118,437	24,877	16,002	26,416	14,463	2,744	0.5	Aus4_2	NaN	NaN	1	3966/4184	3515/3943	3512/3873			
Aus4_3	NaN	NaN	1.00	0.91	0.95	Aus4_3	136,263	27,837	12,990	26,910	13,917	2,424	0.5	Aus4_3	NaN	NaN	1	5363/5867	6027/6354				
Aus4_4	NaN	NaN	NaN	1.00	0.90	Aus4_4	129,538	24,242	10,420	21,784	12,878	2,146	0.6	Aus4_4	NaN	NaN	NaN	1	5066/5610				
Aus4_5	NaN	NaN	NaN	NaN	1.00	Aus4_5	111,820	22,051	9,596	21,248	10,399	1,816	0.3	Aus4_5	NaN	NaN	NaN	NaN	1				
Aus41_1	1.00	0.99	0.95	0.99	0.90	Aus41_1	125,871	25,380	12,773	24,648	13,556	2,187	0.4	Aus41_1	1	6972/7059	3775/3985	7457/7567	4930/5492	1,2 and 4			
Aus41_2	NaN	1.00	0.91	0.99	0.91	Aus41_2	109,864	22,054	10,257	21,354	10,857	1,960	0.3	Aus41_2	NaN	NaN	1	3330/3647	6974/7060	4855/5373			
Aus41_3	NaN	NaN	1.00	0.93	0.86	Aus41_3	68,313	13,783	5,483	12,118	7,148	1,048	0.2	Aus41_3	NaN	NaN	1	3673/3949	2691/3139				
Aus41_4	NaN	NaN	NaN	NaN	1.00	Aus41_4	174,803	36,651	22,693	37,615	21,729	3,635	0.5	Aus41_4	NaN	NaN	NaN	NaN	1	5301/5823			
Aus41_5	NaN	NaN	NaN	NaN	1.00	Aus41_5	91,860	18,753	7,480	17,173	9,060	1,649	0.2	Aus41_5	NaN	NaN	NaN	NaN	1				
Aus49_1	1.00	0.98	0.97	0.95	0.80	Aus49_1	115,660	23,779	10,178	22,321	11,636	1,895	0.4	Aus49_1	1	6323/6460	5946/6158	3238/3397	4126/5162	1,2, and 3			
Aus49_2	NaN	1.00	0.97	0.95	0.82	Aus49_2	109,632	21,494	9,942	20,359	11,077	1,925	0.3	Aus49_2	NaN	NaN	1	5472/5653	3013/3170	3966/4854			
Aus49_3	NaN	NaN	1.00	0.97	0.81	Aus49_3	94,280	18,752	7,330	17,467	8,615	1,610	0.2	Aus49_3	NaN	NaN	1	3177/3208	4233/5191				
Aus49_4	NaN	NaN	NaN	1.00	0.76	Aus49_4	45,585	9,991	3,241	8,190	4,942	885	0.1	Aus49_4	NaN	NaN	NaN	NaN	1	2132/2743			
Aus49_5	NaN	NaN	NaN	NaN	1.00	Aus49_5	114,171	22,777	9,400	21,302	10,875	1,898	0.3	Aus49_5	NaN	NaN	NaN	NaN	NaN	1			
Aus53_1	1.00	0.99	0.98	0.95	0.00	Aus53_1	114,185	21,914	10,284	21,287	10,911	2,112	0.3	Aus53_1	1	6793/6885	6493/6609	4864/5103	na	1,2, and 3			
Aus53_2	NaN	1.00	0.99	0.95	0.00	Aus53_2	141,764	29,705	15,381	28,820	16,166	2,724	0.4	Aus53_2	NaN	NaN	1	7784/7853	5201/5466	na			
Aus53_3	NaN	NaN	1.00	0.96	0.00	Aus53_3	135,493	28,931	14,784	27,968	15,757	2,531	0.4	Aus53_3	NaN	NaN	1	5406/5635	na				
Aus53_4	NaN	NaN	NaN	1.00	0.00	Aus53_4	103,844	21,561	10,569	20,736	11,394	1,774	0.3	Aus53_4	NaN	NaN	NaN	NaN	1	na			
Aus53_5	NaN	NaN	NaN	NaN	1.00	Aus53_5	0	0	0	0	0	0	0	Aus53_5	NaN	NaN	NaN	NaN	NaN	1			
Aus6_1	1.00	1.00	0.99	0.97	0.94	Aus6_1	97,291	19,276	7,542	17,458	9,360	1,565	0.3	Aus6_1	1	6654/6681	6360/6429	5922/6087	5321/5849	1,2,3 and 4			
Aus6_2	NaN	1.00	0.98	0.97	0.94	Aus6_2	180,404	36,336	20,864	36,306	21,094	3,484	0.7	Aus6_2	NaN	NaN	1	7528/7632	6797/7018	6337/6740			
Aus6_3	NaN	NaN	1.00	0.98	0.95	Aus6_3	194,958	42,974	26,428	44,427	24,975	4,071	0.6	Aus6_3	NaN	NaN	1	7063/7193	6822/7153				
Aus6_4	NaN	NaN	NaN	1.00	0.95	Aus6_4	219,635	46,204	34,566	51,041	29,729	5,158	0.4	Aus6_4	NaN	NaN	NaN	NaN	NaN	1	6343/6690		
Aus6_5	NaN	NaN	NaN	NaN	1.00	Aus6_5	161,141	33,740	21,244	34,375	20,609	3,282	0.5	Aus6_5	NaN	NaN	NaN	NaN	NaN	1			
Aus9_1	1.00	0.99	0.95	0.99	0.92	Aus9_1	115,809	25,149	13,916	24,729	14,336	2,068	0.4	Aus9_1	1	6195/6256	4073/4298	4880/4919	3780/4121	1,2 and 4			
Aus9_2	NaN	1.00	0.91	0.98	0.89	Aus9_2	140,290	27,880	13,499	27,515	13,864	2,334	0.6	Aus9_2	NaN	NaN	1	3778/4129	4459/4558	3518/3948			
Aus9_3	NaN	NaN	1.00	0.96	0.93	Aus9_3	93,363	19,860	10,182	18,935	11,107	1,567	0.3	Aus9_3	NaN	NaN	1	3815/3976	3594/3869				
Aus9_4	NaN	NaN	NaN	1.00	0.92	Aus9_4	75,025	14,419	6,225	13,320	7,324	1,085	0.2	Aus9_4	NaN	NaN	NaN	NaN	1	3471/3793			

Fig. 10. Correlation analysis report for the 1<sup>st</sup> batch of 885 rice samples: The spreadsheet provides a numerical rating of relatedness for the five plants from each accession (1.0 always represents self-comparisons on the diagonal for each set of five plants). Correlations between 0.9 and 1.0 are presented in green, below 0.9 in yellow and 0.0 (missing data) in red. Plants in each set of five with a correlation over 0.97 were selected (Column V) as potentially representative for the accession and used for growing out in the respective season to continue to purify the accession.

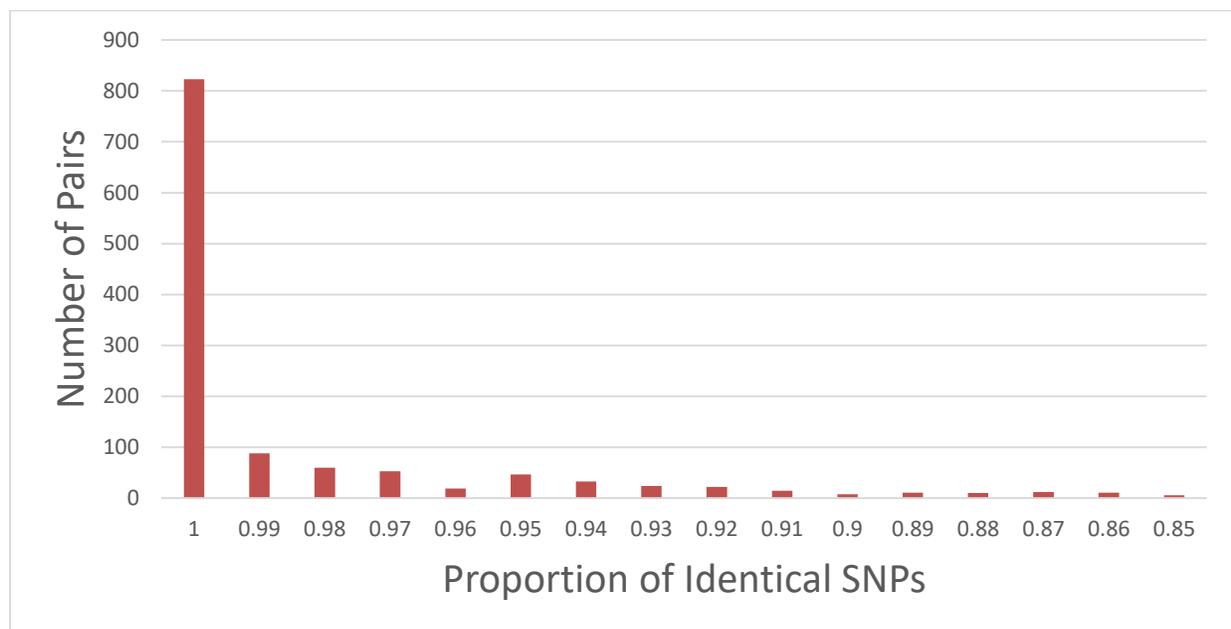


Fig. 11. Proportion of identical SNPs vs generated pair reads number in 824 samples of 206 germplasm accessions (2<sup>nd</sup> batch of GBS profiling).

### Experiment No. 3.7. Trait profiling of rice genebank accessions using trait-based SNP markers

**Principal Investigator:** Dr Md Abubakar Siddique

**Co-Investigator:** Dr. Partha Sarathi Biswas

**Objectives:** To develop a genotyping profile of rice germplasm for different biotic, abiotic and grain quality traits

**Materials and methods:** A total of 376 rice germplasm accessions were selected out of 383 GBS profiled gene accessions for trait genotyping different biotic, abiotic and grain quality traits. Three BLB disease resistant genes *xa5*, *xa13* and *Xa21*, four blast resistant genes (*Pita*, *Ptr*, *Pi21* and *Pi9*), four drought tolerant genes (*qDTY2.1*, *qDTY2.2*, *qDTY3.1* and *qDTY4.1*), two heat tolerance gene (*qTTI*, *qHTSF4.1*) and grain quality amylose specific genes (*Wx(a)*, *Wx(int)*) were considered for trait genotyping. Genotyping was performed in an outsourced genotyping platform Intertek Australia with the help of IRRI.

**Results:** The trait profile of 376 rice germplasm showed that 48% germplasm had heat tolerant *qHTT1*, and 58% had *qHTSF4.1*. On the other hand, the frequencies of drought tolerant QTLs in the germplasm ranged from 8.36% to 28.57%, while BLB resistance genes (*xa5*, *xa13* and *Xa21*) frequencies varied from 0.28% to 4.48%. The blast resistant genes *Pi9* was found in only 0.27% germplasm, while *Ptr* (*Pita2*), *Pita*

and Pi21 were present in 5.49, 12.39 and 1.92% germplasm. In the case amylose specific genes, 27.39% germplasm had high amylose specific Wx(a), 50.8% had intermediate amylose specific Wx(int) and 12.23% germplasm had Basmati like intermediate amylose (Fig. 12)

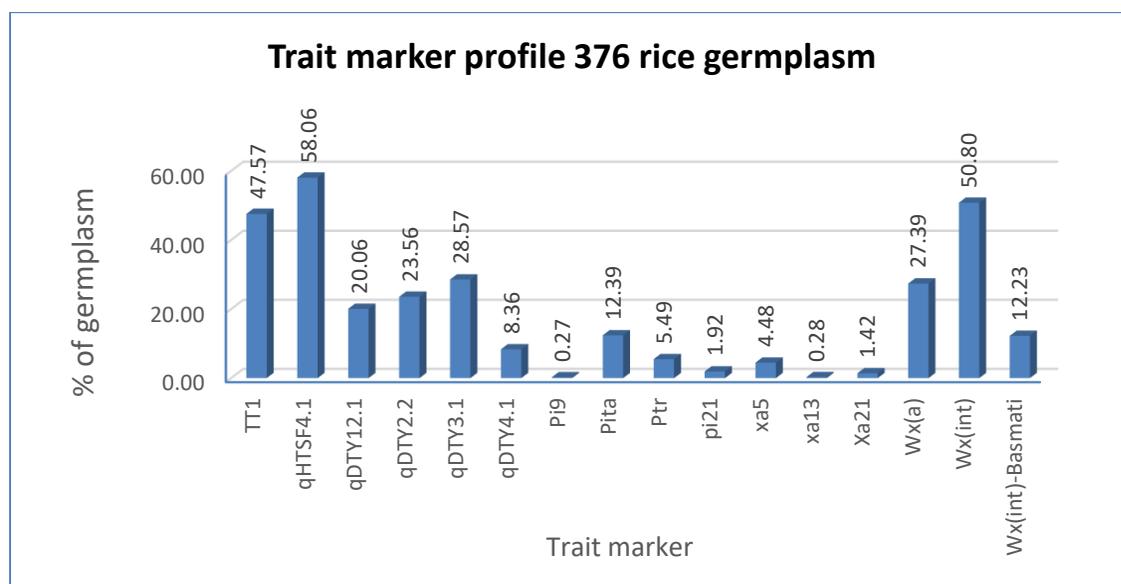


Fig. 12. Genotyping profile of rice germplasm for different biotic, abiotic and grain quality traits

### Experiment No. 3.8. Morphological and molecular characterization of wild rice accessions

**Investigator:** Dr Md Humayun Kabir Baktiar (PI) and Dr. Partha Sarathi Biswas

**Objectives:** To remove duplicates and develop a trait profile.

#### Materials and Methods:

A total of 86 accessions of wild rice (WR) from BIRRI Genebank were used in this study. The WR accessions were characterized for different morphological traits. Also, genotyping was performed using QC SNP panel and different trait specific markers. Genotyping was performed at an outsourced service provider in Australia with the help of IRRI. A panel of 20 QC SNP markers distributed over the rice genome were used for QC genotyping. Trait genotyping was performed using 10 different trait specific SNP markers, in which three markers were for grain quality (amylose, viscosity and aroma), two for nutritional quality (NAS3 and NAS3\_1), two for BB resistance (xa5 and Xa21) and one for insect resistance (Gm4\_1).

**Table 32. List of wild rice entries used for morphological and molecular characterization**

SN	Genotypes	Code	Source	SN	Genotypes	Code	Source
1	<i>Oryza alta</i>	WR1	IRRI	44	<i>Oryza rufipogon</i>	WR44	Bangladesh
2	<i>Oryza alta</i>	WR2	IRRI	45	<i>Oryza rufipogon</i>	WR45	Bangladesh
3	<i>Oryza alta</i>	WR3	IRRI	46	<i>Oryza rufipogon</i>	WR46	Bangladesh
4	<i>Oryza latifolia</i>	WR4	IRRI	47	<i>Oryza rufipogon</i>	WR47	Bangladesh
5	<i>Oryza latifolia</i>	WR5	IRRI	48	<i>Oryza rufipogon</i>	WR48	Bangladesh
6	<i>Oryza latifolia</i>	WR6	IRRI	49	<i>Oryza rufipogon</i>	WR49	Bangladesh
7	<i>Oryza granulata</i>	WR7	IRRI	50	<i>Oryza rufipogon</i>	WR50	Bangladesh
8	<i>Oryza longistaminata</i>	WR8	IRRI	51	<i>Oryza rufipogon</i>	WR51	Bangladesh
9	<i>Oryza longistaminata</i>	WR9	IRRI	52	<i>Oryza rufipogon</i>	WR52	Bangladesh
10	<i>Oryza longistaminata</i>	WR10	IRRI	53	<i>Oryza rufipogon</i>	WR53	Bangladesh
11	<i>Oryza minuta</i>	WR11	IRRI	54	<i>Oryza rufipogon</i>	WR54	Bangladesh
12	<i>Oryza minuta</i>	WR12	IRRI	55	<i>Oryza rufipogon</i>	WR55	Bangladesh
13	<i>Oryza minuta</i>	WR13	IRRI	56	<i>Oryza rufipogon</i>	WR56	Bangladesh
14	<i>Oryza minuta</i>	WR14	IRRI	57	<i>Oryza rufipogon</i>	WR57	Bangladesh
15	<i>Oryza nivara</i>	WR15	IRRI	58	<i>Oryza rufipogon</i>	WR58	Bangladesh
16	<i>Oryza nivara</i>	WR16	IRRI	59	<i>Oryza rufipogon</i>	WR59	Bangladesh
17	<i>Oryza nivara</i>	WR17	IRRI	60	<i>Oryza rufipogon</i>	WR60	Bangladesh
18	<i>Oryza punctata</i>	WR18	IRRI	61	<i>Oryza rufipogon</i>	WR61	Bangladesh
19	<i>Porteresia coartata</i>	WR19	IRRI	62	<i>Oryza rufipogon</i>	WR62	Bangladesh
20	Dhanshi	WR20	IRRI	63	<i>Oryza rufipogon</i>	WR63	Bangladesh
21	<i>Oryza officinalis</i>	WR21	IRRI	64	<i>Oryza rufipogon</i>	WR64	Bangladesh

SN	Genotypes	Code	Source	SN	Genotypes	Code	Source
22	<i>Oryza officinalis</i>	WR22	IRRI	65	<i>Oryza rufipogon</i>	WR65	Bangladesh
23	<i>Oryza officinalis</i>	WR23	IRRI	66	<i>Oryza rufipogon</i>	WR66	Bangladesh
24	<i>Oryza officinalis</i>	WR24	IRRI	67	<i>Oryza rufipogon</i>	WR67	Bangladesh
25	<i>Oryza officinalis</i>	WR25	IRRI	68	<i>Oryza rufipogon</i>	WR68	Bangladesh
26	<i>Oryza officinalis</i>	WR26	IRRI	69	<i>Oryza rufipogon</i>	WR69	Bangladesh
27	<i>Oryza officinalis</i>	WR27	IRRI	70	<i>Oryza rufipogon</i>	WR70	Bangladesh
28	<i>Oryza officinalis</i>	WR28	IRRI	71	<i>Oryza rufipogon</i>	WR71	Bangladesh
29	<i>Oryza rufipogon</i>	WR29	IRRI	72	<i>Oryza rufipogon</i>	WR72	Bangladesh
30	<i>Oryza rufipogon</i>	WR30	IRRI	73	<i>Oryza rufipogon</i>	WR73	Bangladesh
31	<i>Oryza rufipogon</i>	WR31	IRRI	74	<i>Oryza rufipogon</i>	WR74	Bangladesh
32	<i>Oryza rufipogon</i>	WR32	IRRI	75	<i>Oryza rufipogon</i>	WR75	Bangladesh
33	<i>Oryza rufipogon</i>	WR33	IRRI	76	<i>Oryza rufipogon</i>	WR76	Bangladesh
34	<i>Oryza rufipogon</i>	WR34	IRRI	77	<i>Oryza rufipogon</i>	WR77	Bangladesh
35	<i>Oryza rufipogon</i>	WR35	IRRI	78	<i>Oryza rufipogon</i>	WR78	Bangladesh
36	<i>Oryza rufipogon</i>	WR36	IRRI	79	<i>Oryza rufipogon</i>	WR79	Bangladesh
37	<i>Oryza rufipogon</i>	WR37	IRRI	80	<i>Oryza rufipogon</i>	WR80	Bangladesh
38	<i>Oryza rufipogon</i>	WR38	IRRI	81	<i>Oryza rufipogon</i>	WR81	Bangladesh
39	<i>Oryza rufipogon</i>	WR39	IRRI	82	<i>Oryza rufipogon</i>	WR82	Bangladesh
40	<i>Oryza rufipogon</i>	WR40	Bangladesh	83	<i>Oryza rufipogon</i>	WR83	Bangladesh
41	<i>Oryza rufipogon</i>	WR41	Bangladesh	84	<i>Oryza rufipogon</i>	WR84	Bangladesh
42	<i>Oryza rufipogon</i>	WR42	Bangladesh	85	<i>Oryza rufipogon</i>	WR85	Bangladesh
43	<i>Oryza rufipogon</i>	WR43	Bangladesh	86	<i>Oryza rufipogon</i>	WR86	Bangladesh

**Results and discussion:** Out of 86 WR sample plants two entries (SI-17 *Oryza nivara* and SI-29 *Oryza rufipogon*) showed homology in genotyping profile of 20 QC SNP panel and also showed resemblance in morphological traits (**Table 33**) indicating might be miss labelled (**Fig 13**). Another two entries (SI-83 *Oryza rufipogon*) and (SI-85 *Oryza rufipogon*) showed identical genotyping profile and similar morphological appearance indicating potential duplicates (**Fig 14. Table 34**).

#### WR\_SI Haplotype SNP Loci

17 Hap1 G:GG:AC:CT:C C:CC:C G:GG:GUncallable C:T T:T G:GG:A? A:AA:GG:CG:GA:AT:T C:CT:T G:AG:G  
29 Hap2 G:GG:AC:CT:C C:CC:C G:GG:GUncallable C:T T:T G:GG:A G:GA:AA:GG:CG:GA:AT:T C:CT:T G:AG:G



Fig 13. Genotyping profile of two wild rice entries with 20 genome-wide distributed SNPs and morphological similarities in shape of leaf blade and auricle.

Table 33 Morphological description of two WR entries

Traits	17 <i>Oryza nivara</i>	29 <i>Oryza rufipogon</i>
Leaf blade pubescence	Pubescent (3)	Pubescent (3)
Leaf blade colour	Green (2)	Green (2)
Leaf Sheath anthocyanin colour	Present (9)	Present (9)
Legule shape	2-cleft (2)	2-cleft (2)
Internode colour	Purple (4)	Purple (4)

WR\_S1 Haplotype SNP Loci

83 Hap1 A:A:A:C:CT:TT:TA:A? G:GA:AC:CT:TA:AA:AG:GA:AA:A G:GA:A G:GC:CC:CT:TG:GT:T  
 85 Hap2 A:A:A:C:CT:TT:TA:AA:AG:GA:AC:CT:TA:AA:AG:GA:AUncallableG:GUncallableG:GC:CC:CT:TG:GT:T



Fig 14. Genotyping profile of two wild rice entries with 20 genome-wide distributed SNPs and morphological similarities in shape of leaf blade and auricle.

Table 34 Morphological description of two WR entries

Traits	83 <i>Oryza rufipogon</i>	85 <i>Oryza rufipogon</i>
Leaf blade pubescence	Glabrous (1)	Glabrous (1)
Leaf blade colour	Pale green (1)	Pale green (1)
Leaf Sheath anthocyanin colour	Absent (1)	Absent (1)
Legule shape	Turncate (3)	Turncate (3)
Internode colour	Light gold (2)	Light gold (2)

The trait genotyping results of 83 WR entries showed that 20 entries had high amylose specific Wx-A alleles, 11 had cooked rice palatability specific Wx-10 alleles, two had aroma gene (fgr-1), 18 entries had high zinc specific NAS3, while none had BB resistant alleles (Fig 15).

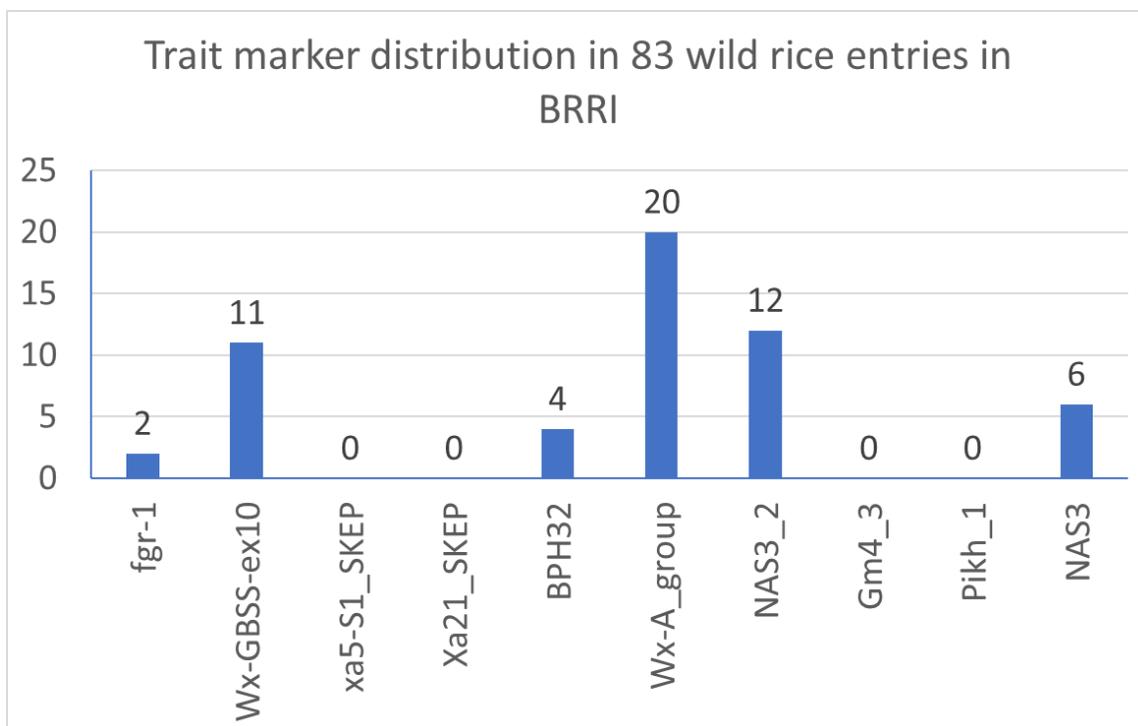


Fig 15. Genotyping profile of 83 Wild rice entries for different biotic, abiotic and grain quality traits. Fgr-1 for aroma, Wx-ex10 for viscosity or palatability, Wx-A for high amylose, xa5 and Xa21 for BB resistance, BPH32 for BPH resistance, Gm4\_3 for gall midge resistance, NAS3 for high grain zinc content

## PART II. MISCELLANEOUS ACTIVITIES

List of miscellaneous activities completed by the scientific personnel of Genetic Resources and Seed Division during July 2023 to June 2024 is given below:

<b>Miscellaneous activities</b>	<b>Total no.</b>
Publication in journal	05
Technical papers and reports	30
Visitors attended in Genebank	200
Meetings attended	100
Participation in training (In country/Foreign)	20
Monitoring and other tours	40
Lectures in training classes	50
Preparation of occasional reports	30

