ANNUAL RESEARCH REVIEW WORKSHOP 2024-25

Day 5: Session IX

BANGLADESH RICE RESEARCH INSTITUTE REGIONAL STATION, BARISHAL

CONTENTS

SUMMARY

Useful Scientific Information

BRRI RS, Barishal is operating a strong breeding programme to develop suitable high-yielding rice varieties for tidal submergence in T. Aman and favorable Boro seasons. To achieve the goal, twenty-five new crosses were made, and twenty-six of last year's crosses were confirmed. A total of 8486 progenies from F2 to F5 generations were harvested using FRGA technique during T. Aman 2024.

During Boro 2024-25, A total of 43 crosses were done using 10 parents, and 16 crosses were confirmed. In total of 18991 progenies were harvested using the FRGA technique from F2 and F3 generations. One observational yield trial (OYT) was conducted during T. Aman 2024; the experiment consisted of 30 advanced breeding lines along with three checks. Out of those, one line was selected for its better performance. In AYT trial, a total of twenty advanced breeding lines, along with five checks, BR23, BRRI dhan52, BRRI dhan76, BRRI dhan87, and BRRI dhan109 were grown at BRRI Charbadna farm, Barishal, during T. Aman 2024. A total of seven regional yield trials (RYTs) were conducted during T. Aman 2024. Out of those, four RYTs for RLR (Rainfed Lowland Rice), one for Zinc Enriched rice, one RYT for PQR, and one RYT_Bio for tall genotypes. All the tested RYT materials were obtained from BRRI HQ, Gazipur. OYT_Barishal, consisting of 222 genotypes along with three checks (BRRI dhan74, BRR hybrid dhan3, and BRRI hybrid dhan8), was conducted during Boro 2024-25. From OYT, based on phenotypic acceptability and grain yield performance, five genotypes were selected for further evaluation. Only one genotype gave a higher yield than the three check varieties. The two genotypes H1289-6-1-1-4-1 and H1297-4-2-1-3-1 gave similar yields of 7.0 t/ha and 6.9 t/ha, with a growth duration of 149 days and 148 days, respectively. Another OYT from RCGS was conducted with a total of 242 fixed lines along with four checks, viz BRRI dhan29, BRRI dhan, BRRI dhan88, and BRRI dhan102. One preliminary yield trial (PYT) was conducted during Boro 2024-25. Seventy-four advanced breeding lines along with three checks were evaluated and based on their better performance eleven lines were selected for further trials. Among the tested materials, BRBa76-8-4-1-3 (7.99t/ha) showed the highest grain yield with 135 days growth duration. Three AYTs for the favorable Boro rice variety from BRRI Barishal and one AYT for favorable Boro from BRRI Gazipur were conducted during Boro, 2024-25. Only one genotype from AYT2, three genotypes from AYT3, and one genotype from AYT4_FBR were selected for further advanced trial. Seven RYTs for favorable Boro (long duration, medium duration, short duration, Basmoti type, Zinc-enriched rice, and Pigmented Rice) were conducted. All the tested RYT materials were obtained from BRRI HQ, Gazipur. One RYT from Barishal was evaluated at Charbadna farm during Boro 2024-25.

Crop-Soil-Water Management Programme area focused on improving rice productivity under Barishal's challenging agro-ecological conditions. Algae management trials during Boro 2024-25 showed that chemical control with Dithan M45 provided the highest yield, while AWD and P-fertilizer management also improved performance compared to the control. Nitrogen management under tidal flood conditions during Aman 2024 highlighted that three-split prilled urea applications were most effective, with varietal differences in responsiveness. Planting date studies confirmed that timely seeding and transplanting are critical—short-duration T. Aman varieties performed best with late July planting, while long-duration Boro varieties achieved higher yields with mid-November sowing. Long-term missing element trials revealed nitrogen as the most yield-limiting nutrient, whereas tidal sediment studies demonstrated that natural nutrient-rich silt reduces fertilizer needs during the Aman season.

Socio-Economic and Policy Program area focused on varietal stability and adaptability trials which identified high-yielding BRRI varieties across seasons. In Aus 2024, BR24, BRRI dhan85, and BRRI dhan98 performed best, while in T.Aman 2024, BRRI hybrid dhan6, BRRI dhan87, and BR4 were top yielders depending on maturity groups. For long-duration T.Aman varieties, BRRI dhan46 showed the highest yield stability. During Boro 2024-25, BRRI hybrid dhan8 led among short-duration cultivars, while BR17, BRRI dhan58, and BRRI dhan99 dominated in long-duration groups. These findings provide guidance for selecting suitable varieties under Barishal's tidal and flood-prone ecosystems, ensuring resilience and productivity across different cropping seasons.

In the Technology Transfer program area, Advanced Line Adaptive Research Trials (ALART) tested bacterial blight- and salt-tolerant advanced lines. Most new lines did not outperform standard checks, except BR13113-4R-63, a short-duration salt-tolerant line, which was recommended for advancement to PVT. Technology dissemination efforts included large-scale varietal demonstrations, breeder and certified seed production, farmer training, and field days. Varieties such as BRRI dhan52 and BRRI dhan76 were preferred for their tidal surge tolerance, while BRRI dhan103 and BRRI hybrid dhan8 attracted attention for yield potential. Through

demonstrations, seed distribution, and farmer participation, BRRI strengthened adoption of modern rice technologies, improved input-use efficiency, and enhanced livelihood outcomes in the Barishal region.

The characterization of local rice germplasm from the Barisal region based on seedling height and tillering ability reveals valuable insights for selecting rice varieties suited to tidal non-saline sub-ecosystem. Varieties like Shobrimaloti (22.4) followed by Bhushiara (19.2), which exhibit high tillering ability, and Bhushiara (136.33 cm) followed by Dudmona (127.0 cm), which show robust seedling heights, are promising candidates for improved rice production in areas affected by tidal submergence. The study highlights the importance of selecting germplasm with both high tillering capacity and favorable growth characteristics to enhance productivity and resilience in challenging environmental conditions. Further research into the environmental stress tolerance of these varieties will further guide their practical application in rice farming in Barisal's tidal-prone regions.

A survey conducted in the Barishal region during the Aus, T. Aman, and Boro seasons assessed rice diseases and insect pests across six districts. The overall disease occurrence was low in the 2024-25 season. Neck blast was found in Sakkorkhora rice during the T. Aman season, but with minimal severity. Bacterial leaf blight (BLB) predominated in Aus and T. Aman, particularly in tidal water-submerged fields, while Boro rice was mostly disease-free, with sporadic cases of BLB in hybrid rice and neck blast in BRRI dhan47. A new occurrence of neck blast in BRRI dhan74 was noted, suggesting possible evolution of new blast races. Insect pests varied by season, with leaf folder, green leaf hopper, and stem borer causing minor damage in Aus and T. Aman. The Boro season saw higher pest pressure, particularly from yellow stem borer and brown planthopper, with local varieties being less affected than high-yielding varieties. Pest infestation was influenced by tidal water inundation and higher temperatures, while pest buildup in T. Aman residues contributed to higher infestations in the Boro season.

A study on insect pest abundance and its relationship with weather parameters in the Barishal region was conducted using light traps and the Random Forest Model. The analysis revealed significant seasonal fluctuations, with pest populations peaking in October and November, particularly for species like the Yellow Stemborer, Brown Plant Hopper, and White Backed Planthopper. Conversely, species such as the Green Leaf Hopper showed more stable population patterns. Weather parameters, including mean temperature (26.02%), solar radiation (17.75%), and maximum tidal height (16.24%), were found to be the most influential factors in shaping insect populations, with tidal height being especially important for coastal and wetland species. The study highlights the complexity of ecological interactions and suggests that temperature, sunlight, and tidal height play crucial roles in regulating insect behavior. It emphasizes the need for continuous monitoring to optimize pest control strategies and further research on environmental influences on pest dynamics.

The results of this study underscore the superiority of multi-allelic resistance in rice lines over single-allelic resistance for combating blast diseases. Multi-allelic resistant rice lines, such as pi21/Pish, exhibited not only a significant reduction in disease incidence for both neck and leaf blast but also demonstrated more durable and stable resistance across different disease types. In contrast, single-allelic lines, while highly resistant to neck blast, were more susceptible to leaf blast, suggesting that a broader allelic spectrum is necessary for comprehensive protection. These findings highlight the potential of multi-allelic resistance as a more effective and sustainable strategy for managing blast diseases in rice. By incorporating multiple resistance alleles, rice cultivars can achieve more robust and long-lasting protection, contributing to improved crop resilience and sustainable agricultural practices. Future research, including large-scale field trials, is essential to further validate these results and optimize the deployment of multi-allelic resistant rice lines in diverse environmental conditions.

The crop soil water management program area focuses on various aspects of crop soil water management in the Barishal region of Bangladesh, focusing on rice cultivation and the management of nutrients, water resources, and algae. The experiments carried out in the region aim to address challenges such as nutrient deficiencies, sediment deposition from tidal waters, and the impact of planting dates on rice yield. It also examines the effects of different nitrogen management practices, algae control methods, and the use of remote sensing for water resource assessment. The results suggest that proper management of nutrients and water, along with timely planting and algae control, can significantly improve rice yields in the area. The use of tidal water for sediment deposition is particularly beneficial, reducing the need for fertilizers in certain seasons. Additionally, remote sensing can help optimize water usage and expand the Boro crop area.

The socio-economic and policy program area provides a detailed analysis of the stability and yield performance of various BRRI-released rice varieties during the 2023-24 Aus and T. Aman seasons,

as well as the 2024-25 Boro season. The study tested 14 varieties during Aus 2024, where BR24 produced the highest yield of 5.09 t/ha, while BRRI dhan43 showed the lowest yield of 2.75 t/ha. In T. Aman 2024, 48 varieties were tested in three categories: short, medium, and long duration, with the highest yields found in BRRI hybrid dhan6 (5.04 t/ha) for short duration and BRRI dhan46 (3.92 t/ha) for long duration varieties. The Boro 2024-25 season included 54 varieties, and the highest yields were observed in BRRI hybrid dhan8 (6.76 t/ha) for short duration and BR17 (4.86 t/ha) for long duration varieties. Stability analysis and yield performance across the varieties suggest notable differences in productivity, emphasizing the importance of variety selection based on duration and environmental conditions for optimizing rice production.

The program area discusses various activities related to technology transfer in the Barishal Division, focusing on rice cultivation. It includes demonstrations of high-yielding varieties (HYVs) like BRRI dhan103, BRRI dhan52, and BRRI dhan76, and hybrid varieties like BRRI hybrid dhan8, which have been tested across different districts. Seed production for breeder and certified seeds has been conducted with substantial amounts being distributed to farmers. In addition, training programs for farmers were organized to promote modern rice production techniques, pest management, and eco-friendly practices. Field days were also held to allow farmers to observe the results firsthand, promoting engagement and discussions on improving rice yields. Recommendations to enhance agricultural productivity include expanding irrigation, improving cropping patterns, and introducing more saline-tolerant varieties.

Boro cultivation in Barishal has expanded sharply over the past decade, driven by improved BRRI varieties, better irrigation access, and adoption of salinity-tolerant rice, which collectively reduced fallow land from 38% to 26% and increased Boro area from 2% to 12%. These changes, confirmed through GIS analysis and field validation, reflect strong technological and water-management interventions that are transforming previously uncultivated land into productive rice fields.

Bangladesh Rice Research Institute
Regional Station, Barishal

RESEARCH PERSONNEL

A. Scientific personnel, field and office staff during July 2024-June 2025

Sl. #	Name, Degree and Designation	Working days
1.	Mohammad Ashik Iqbal Khan, PhD, PSO & Head	365
2.	Priya Lal Biswas, PhD, SSO *	136
3.	Hasina Khatun, PhD, SSO **	58
4.	Tusher Chakrobarty, MS, SSO****	365
5.	Aishik Debnath, MS, SO *****	365
6.	Mohammad Rezoan Bin Pranto, MS, SO **	280
7.	Tomalika Saha, MS, SO *	256
8.	Abu Sayem, MS, SO*****	365
9.	Sohel Mia, MS, SO *	298
10.	Mohammad Majibor Rohaman, FM	365
11.	Md. Shahidul Islam, Dip-in Eng., SAE	365
12.	Md. Mehadi Hassan, AO	365
13.	Md. Shabuddin, Dip-in Ag., SA	365
14.	Md. Mahamudur Rohaman, Dip-in Ag., SA	365
15.	Md. Sajol Mia, AFM*	136
16.	Md. Muttakin Miah, UDA	365
17.	Mukul Islam, Accountant	365
18.	Md. Sofiqul Islam, Electrician	365
19.	Ujjal Roy, Driver*	52
20.	Md. Eidrish Ali Bapary, Tractor Driver	365
21.	Md. Mizanur Rohaman, Tilar Driver*	126
22.	Md. Nasir Uddin, Pump Driver	365
23.	H m Giuas Uddin, Security Gurd*	123
24.	Md. Lutfor Rohaman, Security Gurd	365
25.	Sonjoy Roy, SAST (Hybrid Rice Project)	365
26.	Md. Shafiul Islam, Dip-in Ag., SA (RCGS Project) **	82

* Transferred to BRRI HQ/RS; ** Joined BRRI R/S, Barishal; *** Left BRRI; **** Deputation

INTRODUCTION

The Bangladesh Rice Research Institute (BRRI) Regional Station, Barishal, was established in 1970 and consists of two research farms Sagardi and Charbadna occupying 8.8 ha and 30.0 ha of land, respectively. The station is located at 22°40'50" N latitude and 90°21'25" E longitude, approximately 3.3 meters above sea level. Both the Charbadna and Sagardi farms are representative sites for tidal wetland rice research. The farms, in particular, lies along the bank of the Kirtonkhola River, making it ideal for studying the effects of tidal inundation on rice cultivation.

During the reporting year, the maximum and minimum air temperatures recorded were 39.2°C on May 11, 2025, and 11.4°C on January 11, 2025, respectively (Fig. 1). The total annual rainfall was 2,613.8 mm, with the highest daily rainfall of 165.5 mm recorded on September 14, 2024 (Fig. 2). The rainfall distribution throughout the year is illustrated in Figure 2. From May to October 2024, the farms were severely affected by tidal flooding, with the highest tidal depth of 150 cm recorded on May 27, 2024 (Fig. 3). Due to prolonged and heavy tidal submergence during this period, the establishment of both T. Aus and T. Aman rice crops was severely constrained. The tidal wetlands represent a major unfavorable agro-ecological situation in Bangladesh, covering a large area (about 2 M ha) of tidal flood plain land in the Southern especially the Southern-Western region of the country along the coastline. Most of the areas of Barishal regions are under AEZ 13 (Tidal Floodplain) except Bhola district (AEZ 18).

In Barishal, total cropland is 834 thousand ha, out of which, 88% is under tidal flood. Under tidal flood area, > 80% area is non saline, while the rest (20%) is saline. Soil texture is dominated by sandy loam, clay and clay loam. The tidal sediment of Sagardi farm contains 1.98% organic matter, 33 mg/kg available P and 0.52 meq/100 g exchangeable K. Thus, the soil becomes rich with plant nutrients by the tidal flood. Generally, the farmers in this area do not use fertilizers in the T. Aman season.

The existence of numerous interconnected tidally active rivers, streams and creeks etc. are the special feature of this region. The major environmental problems affecting crop production in the tidal wetland situation are: (i) daily twice tidal inundation of land over a period of 4-8 months (April-November), (ii) salinity arising from land inundation by saline tidal water in wet season and capillary rise of saline water from shallow saline ground in the dry season of the year (iii) lack of good irrigation facility even though there are good sources of sweet surface water in the canals and rivers in dry season. Other problems include malfunctioning or blocked sluice gates causing insufficient water in the canals, heavy clay soil, excess or late rainfall in the early or late crop season, cultivation of long duration local Aman rice cultivars (prone to damage by high tide), cyclone, high humidity, shorter winter period etc. Additionally, socio-economic problems like unfavorable land tenure systems, high cost of inputs, lack of credit facilities, draft power shortage etc. aggravate the situation in the tidal wetlands.

To overcome food crisis, national thrust is specified to utilize the fallow land for crop production in the southern region. In these areas, generally, farmers cultivate low yielding local rice varieties and do not follow the modern crop production techniques. Hence, the production level is very low. Bangladesh Rice Research Institute has initiated different research and development activities in Barishal region to maximize yield by adopting BRRI technologies.

The major objectives of this station are to develop modern rice varieties especially the submergence tolerant with tall seedling and suitable production technology for the tidal wetland

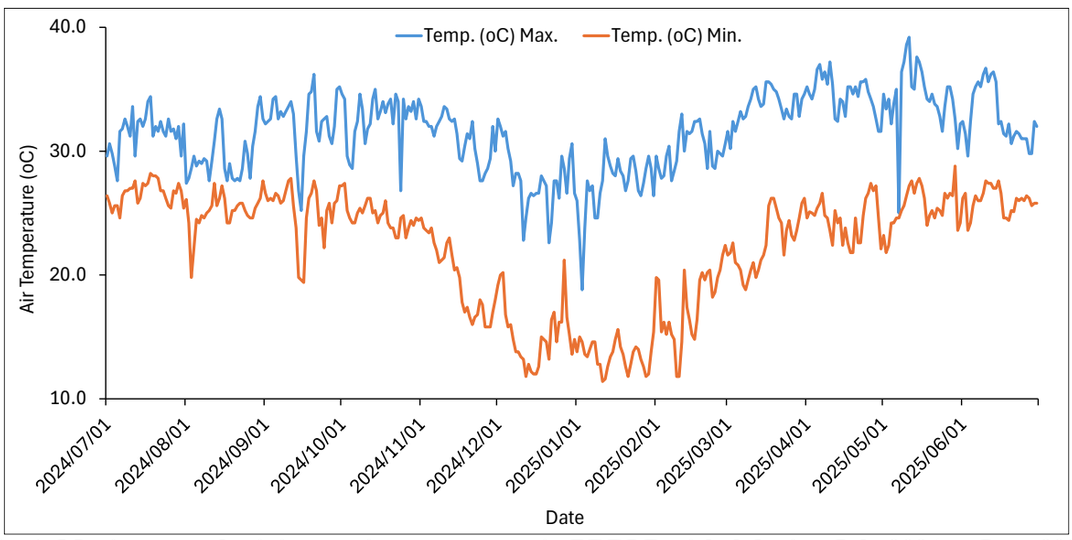

Fig. 1. Maximum and minimum air temperature in BRRI Barishal during July 2024 to June 2025

submergence situation. The research activities are executed under different program areas. Production of good quality seeds of newly released and popular rice varieties is also a part of the regular activities. A reasonable amount of breeder seed is also produced here.

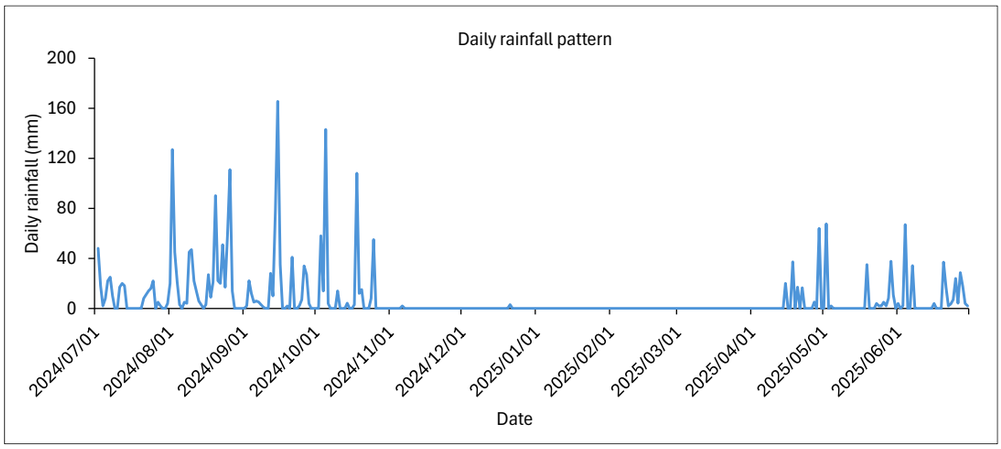

Fig. 2. Daily rainfall distribution pattern in BRRI Barishal during July 2024 to June 2025

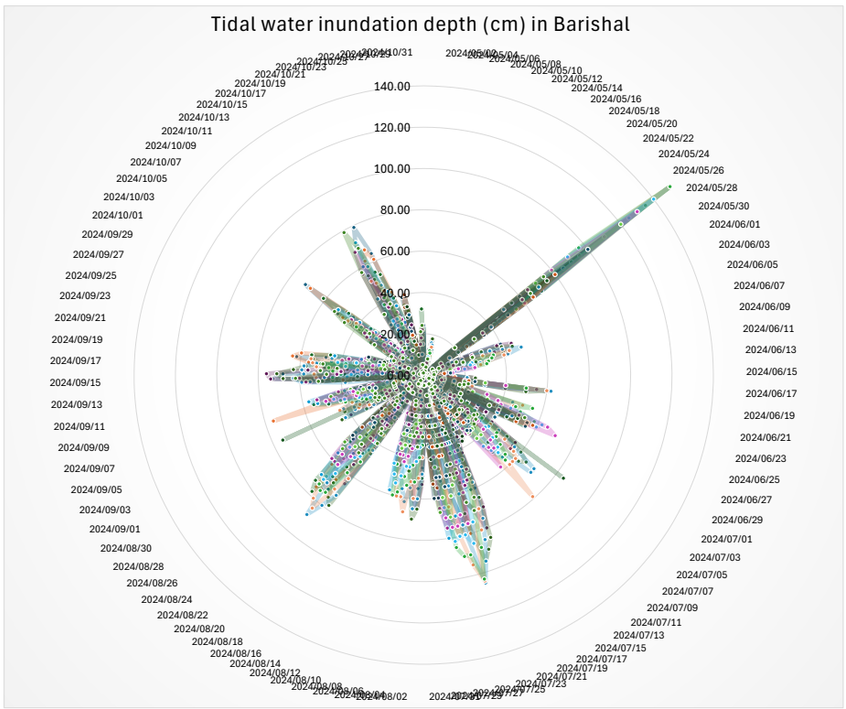

Fig. 3. Tidal water inundation pattern at Sagardi Farm, Barishal during May-October, 2024

I. VARIETAL DEVELOPMENT PROGRAM AREA

Project 1: Development of varieties for tidal submergence ecosystem

T Saha, P L Biswas, H Khatun and MAI Khan

Expt. 1.1. Hybridization, T. Aman 2024, BRRI, Barishal

Introduction: As the staple grain of Bangladesh, rice serves as the country's primary source of nutrition. One of the problems with rice development in the southern part of Bangladesh is tidal water. In the Barishal area, research was conducted to develop cultivars for the tidal environment.

Materials and methods: Parents were grown in four sets at seven days interval to synchronize flowering times for achieving desired cross combinations. Twenty-five to thirty-day-old seedlings were transplanted in a 5.4 m x 5 rows plot with a spacing of 20 x 20 cm. Single seedling was used for transplanting. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Crop management practices were done as and when necessary.

Results: A total of 25 crosses were made using seventeen parents and 1208 F_1 seeds were obtained during T. Aman 2024 (Table 1).

Table 1. List of F_1 seeds produced in T. Aman 2024

Sl	Cross combination	No. of seeds
01	Dudhmona / BRRI dhan52	21
02	Dudhmona / BRRI dhan76	9
03	Dudhmona / BRRI dhan109	5
04	Mothamota / BRRI dhan109	18
05	Holdemota / BRRI dhan76	12
06	Holdemota / BRRI dhan109	18
07	Holdemota / BRRI dhan77	28
08	Komlamota / BRRI dhan109	61
09	Bohorimota / BRRI dhan44	96
10	Bohorimota / BRRI dhan52	106
11	Nakuchimota / BRRI dhan76	22
12	BRRI dhan52 / BRRI dhan44	125
13	BRRI dhan44 / BRRI dhan52	101
14	Nakuchimota / BRRI dhan77	43
15	Garcha / BRRI dhan52	8
16	BRRI dhan52 / Garcha	112
17	Kalagora/ BRRI dhan52	5
18	BRRI dhan109/Lotor	175
19	Babarbaba / BRRI dhan109	28
20	Babarbaba / BR23	83
21	Kalavog / BRRI dhan44	16
22	BRRI dhan109 / Babarbaba	54
23	Nakuchimota / BR23	12
24	Lotor / BR23	10
25	Komlamota / BR23	40
	Total	**1208**

Expt. 1.2. F_1 confirmation of HYV/Local crosses (Tidal submergence), T. Aman 2024, BRRI, Barishal

Objective: To confirm F1's as true crosses.

Introduction: Rice is the staple food of Bangladesh and no wonder that it is the main cereal crop in Bangladesh. Tidal water is one of the problems of Rice cultivation in the Southern part of Bangladesh. This experiment was set up in the Barishal region to develop varieties for tidal ecosystems. The study was conducted with the objective of confirming F_{1s} as true crosses.

Materials and methods: A total of 29 F_1's was grown during T. Aman, 2024. A single seedling of 22 days old was transplanted in 5.4 m single row plots at a spacing of 20 cm x 20 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Crop management practices were done as and when necessary.

Results: Out of 29 crosses, 26 crosses were confirmed and registered in BRRI cross-list with station code BRBa307 to BRBa332 (Table 2).

Table 2. List of confirmed F_1's during T. Aman, 2024

Sl	Cross combination	BRBa No.
1	BRRI dhan103 / BRRI dhan87	BRBa307
2	BRRI dhan87 / BRRI dhan89	BRBa308
3	BRRI dhan79 / BRRI dhan52	BRBa309
4	BRRI dhan87 / BRRI dhan52	BRBa310
5	BRRI dhan79 / BRRI dhan77	BRBa311

Sl	Cross combination	BRBa No.
6	BRRI dhan52 / BRBa12-33-2-3-2	BRBa312
7	BRRI dhan103 / BRBa12-33-2-3-2	BRBa313
8	BRRI dhan52/ BRBa11-5-1-1-3	BRBa314
9	BRRI dhan103 / BRBa11-5-1-1-3	BRBa315
10	Sahi Balam / BRRI dhan52	BRBa316
11	Sahi Balam/ BRRI dhan87	BRBa317
12	Sahi Balam / BRRI dhan103	BRBa318
13	Shorno goda / BRRI dhan52	BRBa319
14	Shorno goda / BRRI dhan87	BRBa320
15	Shorno goda / BRRI dhan103	BRBa321
16	IR16F1097 / BRRI dhan52	BRBa322
17	IR16F1097 / BRRI dhan76	BRBa323
18	Shorno goda / BRBa13-47-2-4-1	BRBa324
19	Sahi Balam / BRRI dhan76	BRBa325
20	(Moulota / BRRI dhan52) / BRRI dhan52(Backcross)	BRBa326
21	BRRI dhan89 / BRRI dhan77	BRBa327
22	BRBa26-1-1-1-2 / BR23	BRBa328
23	BRBa26-1-1-1-2 / BRRI dhan76	BRBa329
24	BRBa26-1-1-1- 2/ BRRI dhan77	BRBa330
25	(Kajolshail / BRRI dhan76) / BRRI dhan76 (Backcross)	BRBa331
26	(Kajolshail / BRRI dhan76) / BRRI dhan52 (Backcross)	BRBa332
	D/S- 14.7.2024	D/T- 5.8.2024

Expt. 1.3. Progeny advancement through FRGA during T. aman 2024

Specific Objective: To rapidly advance segregating populations for shortening the breeding cycle.

Materials and methods: A total of 9875 segregating progenies from 88 crosses comprising of F_2, F_3, F_4, F_5, generations were grown in the field RGA (Rapid Generation Advance) nursery following field RGA technique during T. aman2024. Seeds of the segregating progenies were sown at 5 × 5 cm spacing in the field. Fertilizer management was done using the half doses of all fertilizers used in Experiment 1. At maturity, single panicle was harvested from each plant of each cross. Freshly harvested seeds were dried and broken seed dormancy using the dry heat treatments 45C for 5 d to initiate next cycle of RGA.

Results: During T. Aman 2024, A total of 4,404 F2 progenies from 24 crosses were grown following field RGA technique and 3519 F3 progenies were harvested (Table 3). A total of 4852 progenies from F3 generation were grown and 4385 progenies of F4 generation were harvested (Table 4). A total of 212 progenies from F4 generation were grown and 188 progenies of F5 generation were harvested. (Table 5). A total of 407 progenies from F5 generation were grown and 394 progenies of F6 generation were harvested under breeding program of high yielding rice varieties for non-saline tidal ecosystem. (Table 6). In total 8486 progenies were harvested using FRGA technique.

Table 3. List of F_3 generation advanced through FRGA, during T. Aman 2024

Sl	BRBa No.	Cross combination	Progenies grown	Progenies harvested
1	BRBa251	BRBa23-4-2-1-1-P2 /BRRI dhan52	50	29
2	BRBa252	BRBa23-4-2-1-1-P2 / BRBa23-4-3-1-1-P1	250	190
3	BRBa253	BRBa13-49-1-5-2 /BRRI dhan49	200	185
4	BRBa254	BRBa13-49-1-5-2 / BRRI dhan52	180	148
5	BRBa255	BRBa13-49-1-5-2 /BRRI dhan76	220	191
6	BRBa256	BRBa13-49-1-5-2 / BRRI dhan77	250	232
7	BRBa257	BRRI dhan52 / BRBa11-44-2-2-1	230	190
8	BRBa258	BRRI dhan52 / Azij IRRI	280	202
9	BRBa259	BRRI dhan87 / BRBa11-44-2-2-1	220	142
10	BRBa260	SV1168 / BRRI dhan52	184	168
11	BRBa261	BRRI dhan52 / BRRI dhan76	152	127
12	BRBa262	BRRI dhan52 / BRRI dhan77	168	92
13	BRBa263	BRRI dhan52 / Sorno-masuri	168	137
14	BRBa264	BRRI dhan76 / Sahi Balam	52	36
15	BRBa265	BRBa23-4-3-1-1-P1 / BRRI dhan52	280	203
16	BRBa266	BRBa23-4-3-1-1-P1 / BRRI dhan77	100	57
17	BRBa267	BRBa23-4-2-1-1-P2 / Shornogoda	128	65
18	BRBa268	Moulata / BRRI dhan52	264	192
19	BRBa269	Kajolshail / BRRI dhan76	216	200
20	BRBa270	Balam / BRBa13-49-1-5-2	48	45

21	BRBa271	BR23 / Mothamata	236	200
22	BRBa272	Mothamata / BR23	192	170
23	BRBa273	BR9392-12-6-2-4B / BRRI dhan52	156	140
24	BRBa274	BR9392-12-6-2-4B / Balam (516)	180	178
		Total	**4,404**	**3519**

Table 4. List of F_4 generation advanced through FRGA, during T. Aman 2024

Sl	BRBa No.	Cross combination	Progenies grown	Progenies harvested
1	BRBa195	BRBa11-44-2-2-1/BRRI dhan41	320	304
2	BRBa196	BRBa11-47-1-3-2/BRRI dhan80	124	104
3	BRBa197	BRBa11-47-1-3-2/BR23	360	340
4	BRBa198	BRBa11-68-1-4-1/BR23	172	159
5	BRBa199	BRBa11-68-1-4-1/BRRI dhan80	72	55
6	BRBa200	BRBa19-48-1-2-2/BRRI dhan41	500	460
7	BRBa201	BRBa19-48-1-2-2/BRRI dhan77	160	114
8	BRBa202	BRBa19-48-1-2-2/BRRI dhan80	44	41
9	BRBa203	BRRI dhan44/BRRI dhan52	360	331
10	BRBa204	BRRI dhan76/BRRI dhan44	444	412
11	BRBa205	BRRI dhan76/BRRI dhan49	392	385
12	BRBa206	BRRI dhan87/BRRI dhan76	164	137
13	BRBa207	Kotiagoni/BRRI dhan41	348	325
14	BRBa208	Kotiagoni/BRRI dhan77	100	95
15	BRBa209	Lambu IRRI/BRRI dhan41	220	164
16	BRBa210	Lambu IRRI/BRRI dhan52	92	67
17	BRBa211	Lambu IRRI/BRRI dhan76	52	50
18	BRBa212	Tapushail/BRRI dhan52	164	127
19	BRBa213	Tapushail/BRRI dhan77	100	84
20	BRBa214	Badshabhog/BRRI dhan52	60	54
21	BRBa215	Badshabhog/BRRI dhan76	60	56
22	BRBa216	Badshabhog/BRRI dhan41	228	221
23	BRBa217	Badshabhog/BRRI dhan80	316	300
		Total	**4852**	**4385**

Table 5. List of F_5 generation advanced through FRGA, during T. Aman 2024

Sl	BRBa No.	Cross combination	Progenies grown	Progenies harvested
1	BRBa149	Lalpaika/BRRI dhan52	28	23
2	BRBa150	Lalpaika/BRRI dhan76	12	10
3	BRBa151	Lalpaika/BRRI dhan77	8	8
4	BRBa152	Local Balam/BRRI dhan52	12	10
5	BRBa153	Moulata/BRRI dhan41	12	10
6	BRBa154	Moulata/BRRI dhan52	8	7
7	BRBa156	Nakuchimota/BRRI dhan76	8	8
8	BRBa157	Nakuchimota/BRRI dhan77	3	3
9	BRBa158	Sada Pajam/BR23	8	8
10	BRBa159	Sada Pajam/BR8442-12-1-3-1-B5	12	12
11	BRBa160	Sada Pajam/BRRI dhan52	12	11
12	BRBa161	Sada Pajam/BRRI dhan76	7	7
13	BRBa162	Sada Pajam/BRRI dhan77	20	15
14	BRBa163	Sada Pajam/BRRI dhan87	12	11
15	BRBa164	Sadachikon/BRRI dhan52	1	1
16	BRBa165	Sadachikon/BRRI dhan76	2	2
17	BRBa166	Sadamota/ BRRI dhan78	3	3
18	BRBa167	Sadamota/BRRI dhan76	1	1
19	BRBa168	Sahi Balam/BR23	7	7
20	BRBa170	Sahi Balam/BRRI dhan52	16	13
21	BRBa171	Sahi Balam/BRRI dhan76	20	18
		Total	**212**	**188**

Table 6. List of F_5 generation advanced through FRGA, during T. Aman 2024

Sl	BRBa No.	Cross combination	Progenies grown	Progenies harvested
1	BRBa126	BRRI dhan52/Lalchikon	3	3
2	BRBa127	BRRI dhan76/Chaulamagi	18	18
3	BRBa128	BRRI dhan76/Kotiagoni	13	11
4	BRBa129	BRRI dhan76/Motha dhan	8	8
5	BRBa130	Lalchikon/BRRI dhan76	5	5
6	BRBa131	BRRI dhan77/Chaulamagi	3	3
7	BRBa132	BRRI dhan77/Dudmona	4	4
8	BRBa134	IR 103795-B-B-2-1/Bashful	35	35
9	BRBa135	IR 18028-B-B-B-1-B-B/Lalchikon	16	16
10	BRBa136	BR 23/BRRIdhan87	41	37
11	BRBa137	BRRI dhan52/BR 10	54	50
12	BRBa138	BRRI dhan52/BRRI dhan87	30	30
13	BRBa139	BRRI dhan52/IR13 A 515	27	27
14	BRBa140	BRRI dhan52/IR 87959-6-2-3-1-2-BAY B-CMU 1	15	15
15	BRBa141	BRRI dhan76/ BR 10	32	30
16	BRBa142	BRRI dhan77/BR 10	54	50
17	BRBa144	BRRI dhan77/IR 13 A 515	8	8
18	BRBa146	BRRI dhan77/IR 64-Pish	15	15
19	BRBa147	IR 64-Pizt/BRRI dhan34	19	19
20	BRBa148	PB-1 (US)/Hori dhan	7	10
		Total	**407**	**394**

PROJECT 2: YIELD TRIAL (YT), 2024-25

Expt. 2.1. Observational yield trial (OYT_Bio), T. Aman 2024, BRRI, Barishal

PL Biswas, T Saha and M A I Khan

Objectives: The study was conducted with the objectives to select suitable fixed lines for Boro season with dense and erect panicle, strong culm, high yield potential and disease as well as insect resistant at field condition for further evaluation in the advanced yield trial.

Materials and methods: The trial consisted of 30 entries along with three checks, BR23, BRRI dhan76, and Sadamota were grown following RCB design with two replications during T. Aman 2024 (Table6). Single seedlings of 36 days old were transplanted in 5.4 m x 5rows plots at a spacing of 20cm x 20cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary.

Results: The growth duration of the tested entries was found 130-131 days whereas 147-152 days were found in the check varieties (Table 7). The yield range was observed 2.55-3.75 t/ha among the tested entries, and 3.05-5.06 t/ha was found in the checks. The entry BR(Bio)-8033-AC23-2 gave the highest yield (3.75 t/ha) with 130 days growth than local check variety Sadamota (3.05 t/ha).

Table 7. Yield and ancillary characters of OYT_Bio T. Aman 2024, BRRI, Barishal

Sl	Designation	Growth Duration(Days)	Plant Height(cm)	Yield(t/ha)	Effective tiller number/Plant
1	BR(Bio)8033-AC15-1	130	139	3.04	5
2	BR(Bio)8033-AC18-3	130	134	3.40	5
3	BR(Bio)8033-AC20-6	130	138	2.97	6
4	BR(Bio)8033-AC21-4	130	134	3.11	6
5	**BR(Bio)8033-AC23-2**	**130**	**133**	**3.75**	**5**
6	BR(Bio)8033-AC25-3	131	130	2.88	5
7	BR(Bio)8033-AC27-1	130	133	2.98	-
8	BR(Bio)8033-AC30-8	130	131	2.93	6
9	BR(Bio)8033-AC32-7	130	129	3.18	5
10	BR(Bio)8033-AC33-6	131	123	3.21	6
11	BR(Bio)8033-AC34-1	131	124	2.99	5
12	BR(Bio)8033-AC37-4	131	124	2.99	5
13	BR(Bio)8033-AC40-3	131	126	3.03	6
14	BR(Bio)8033-AC41-9	131	121	3.06	-
15	BR(Bio)8033-AC44-7	131	123	3.00	6
16	BR(Bio)8033-AC45-6	131	124	2.64	-
17	BR(Bio)8033-AC47-4	131	127	3.02	6
18	BR(Bio)8033-AC50-2	131	120	2.90	6
19	BR(Bio)8033-AC51-2	131	127	3.28	6

Sl	Designation	Growth Duration(Days)	Plant Height(cm)	Yield(t/ha)	Effective tiller number/Plant
20	BR(Bio)8033-AC52-1	131	122	2.63	5
21	BR(Bio)8033-AC53-1	130	126	2.59	5
22	BR(Bio)8033-AC56-3	130	119	3.00	7
23	BR(Bio)8033-AC60-6	130	120	2.92	6
24	BR(Bio)8033-AC62-7	130	126	3.20	5
25	BR(Bio)8033-AC63-7	130	124	2.55	5
26	BR(Bio)8033-AC65-3	130	126	3.70	6
27	BR(Bio)8033-AC68-4	130	128	2.92	6
28	BR(Bio)8033-AC70-7	130	129	2.96	6
29	BR(Bio)8033-AC71-8	130	127	3.31	5
30	BR(Bio)8033-AC74-2	131	124	3.72	5
31	BR23(CK)	147	119	4.05	5
32	BRRI dhan76(CK)	157	135	5.06	6
33	Sadamota(CK)	152	136	3.05	8
Lsd (0.05)		2.5	3.4	0.8	1.0
Heritability		0.98	0.96	0.62	0.84

D/S:17.7.2024 D/T:28.8.2024

Expt. 2.2. Advanced Yield Trial (AYT) during T Aman 2024, BRRI, Barishal

Objectives: The advanced yield trial was conducted to evaluate the specific and general adaptability of the advanced lines as compared with standard checks in on-station conditions at Charbadna farm, Barishal.

Materials and methods: A total of twenty advanced breeding lines along with five checks, BRRI dhan23, BRRI dhan52, BRRI dhan76, BRRI dhan87 and BRRI dhan109 were grown at BRRI Charbadna farm, Barishal during T. Aman 2024. The unit plot size was 5.4 m x 2 m following the RCB design with three replications. Forty-day old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 20 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), 1000-grain weight (gm) and grain yield (t/ha).

Results: Twenty entries along with five checks BR23, BRRI dhan52, BRRI dhan76, BRRI dhan87, and BRRI dhan109 were grown at Charbadna farm, BRRI, Barishal. Growth duration of the tested entries ranged from 131 days to 137 days. The yield range of the tested entries was 2.64-4.08 t/ha, and the yield range of 4.10-4.87 t/ha was found in the check varieties. A lower yield of the genotypes was found due to 90-100% lodging (Table 8).

Table 8. Yield and ancillary characters of AYT materials, T. Aman 2024, BRRI, Barishal

Sl	Designation	Growth Duration (Days)	Plant Height(cm)	Effective Tiller/plant	Grain Yield(t/ha)	Lodging (%)
1	BRBa30-1-3-2-3	131	139	9	4.02	0
2	BRBa30-3-4-1-1-P2	131	129	10	3.22	30-40%
3	BRBa30-3-4-2-2	131	129	9	3.09	90-95%
4	BRBa30-6-7-2-2	133	134	10	3.41	60-70%
5	BRBa30-6-B-4-3	131	127	8	3.16	70-75%
6	BRBa31-1-2-1-1	131	128	9	2.98	80-90%
7	BRBa26-1-1-1-1	135	114	8	3.31	0
8	BRBa26-1-1-1-2	135	116	9	4.02	0
9	BRBa26-1-1-2-3	131	117	8	4.08	0
10	BRBa26-1-1-2-4	131	114	8	3.67	0
11	BRBa26-1-1-2-6	131	118	9	3.29	30-40%
12	BRBa11-26-3-2-2	135	119	8	3.14	0
13	BRBa-11-30-1-1-1	135	144	7	2.64	100%
14	BRBa11-33-1-5-1	135	149	8	2.75	100%
15	BRBa11-48-1-2-1	137	138	7	2.87	85-90%
16	BRBa12-19-2-2-4	131	124	9	3.21	60-65%
17	BRBa12-33-2-3-2	131	121	9	3.05	80-90%
18	BRBa12-41-1-2-1	131	116	8	3.08	0
19	BRBa17-26-1-4-1	135	142	7	3.06	90-95%
20	BRBa19-48-1-2-2	135	140	7	3.29	70-75%
21	BR23	150	118	6	4.10	0
22	BRRI dhan52	145	116	9	4.62	0
23	BRRI dhan76	156	143	8	4.20	10-20%
24	BRRI dhan87	129	124	8	4.22	0
25	BRRI dhan109	140	133	9	4.87	0
	Lsd (0.05)	0.37	4.34	1.33	0.44	
	Heritability	1.00	0.98	0.71	0.93	

D/S:12.7.2024 D/T:15.08.2024

Expt. 2.3.1. Regional Yield Trial (RYT_RLR#1) for development of Rainfed Lowland Rice T. Aman 2024

M A Kader, T Saha, P L Biswas, H. Khatun and M A I Khan

Objective: To evaluate specific and general adaptability of the advanced breeding lines as compared with standard checks in on station condition.

Materials and methods: A total of seven genotypes along with three checks viz. BRRI dhan71 BRRI dhan75 and BRRI dhan87 were grown at BRRI Charbadna farm, Barishal during T. Aman 2024. The unit plot size was 5.4 m x 2.4 m following the RCB design with three replications. Twenty -nine days old seedlings of each genotype were transplanted@2-3 seedlings with a spacing of 20 cm x 15 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on the date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: The yield range among the tested entries varied from 3.79 to 4.41 t/ha. The growth duration range was found 119-122days. None of the tested entries were found to yield more than check BRRI dhan87 (5.01 t/ha) (Table 9).

Table 9. Yield and ancillary character of RYT-RLR#1 materials, T. Aman 2024, BRRI, Barishal

Sl	Designation	Growth Duration (Days)	Plant Height(cm)	Effective Tiller/Plant	Grain Yield(t/ha)
1	BR12631-5R-28	121	119	8	4.12
2	BR12631-5R-146	120	130	8	4.35
3	BR12631-5R-51	121	120	8	4.41
4	BR12294-5R-187	122	129	9	3.33
5	BR12303-5R-49	119	117	9	4.02
6	BR12293-5R-47	119	108	10	3.79
7	BR12631-5R-35	120	120	8	4.27
8	BRRI dhan71 (Ck)	128	123	10	4.46
9	BRRI dhan75 (Ck)	114	108	10	2.81
10	BRRI dhan87 (Ck)	126	121	10	5.01
LSD (0.05)		1.40	1.43	1.34	0.24
Heritability		0.98	0.99	0.68	0.98

D/S:13.7.2024 D/T:11.8.2024

Expt. 2.3.2: Regional Yield Trial (RYT_RLR #2) for development of Rainfed Lowland Rice T. Aman 2024, BRRI Barishal

M A Kader, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: To evaluate the specific and general adaptability of the advanced breeding lines as compared with standard checks in on station condition.

Materials and methods: A total of twelve genotypes along with three checks viz. BRRI dhan71, BRRI dhan75 and BRRI dhan87 was evaluated at Charbadna farm of BRRI RS, Barishal during T. Aman 2024. The unit plot size was 5.4 m x 2.4 m following the RCB design with three replications. Twenty-eight days old seedlings of each genotype were transplanted@2-3 seedlings with a spacing of 20 cm x 15 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on the date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: The yield range among the tested entries varied from 3.43 to 4.97t/ha. The growth duration range was found 126-137 days. None of the tested entries were found to yield more than check BRRI dhan87 (5.28 t/ha) (Table 10).

Table 10. Yield and ancillary character of RYT-RLR#2 materials, T.Aman 2024, Barishal

Sl	Designation	Growth Duration (Days)	Plant Height(cm)	Effective Tiller/plant	Grain Yield(t/ha)
1	BR12303-5R-341	136	135	6	4.97
2	BR11752-5R-22	127	131	7	4.79
3	BR11754-5R-97	134	117	8	4.95
4	BR11752-5R-105	132	141	8	4.63
5	BR11747-5R-6	132	115	8	3.64
6	BR11732-5R-107	137	118	10	4.69
7	BR11747-5R-67	137	131	7	4.32
8	BR11748-5R-16	134	128	10	4.10

9	BR11731-5R-183	134	131	9	4.05
10	BR11730-5R-32	130	126	8	3.43
11	BR11135-20-1-3-3	126	120	9	3.87
12	BR11139-3-5-2-4	131	137	10	3.91
13	BRRI dhan71 (Ck)	128	123	8	4.54
14	BRRI dhan75 (Ck)	113	108	8	2.50
15	BRRI dhan87 (Ck)	127	126	10	5.28
LSD (0.05)		0.97	1.45	0.68	0.36
Heritability		1.0	1.0	0.95	0.98

D/S: 14.7.2024 D/T:12.8.2024

Expt. 2.3.3: Regional Yield Trial (RYT_RLR #3) for development of Rainfed Lowland Rice T. Aman 2024

M A Kader, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: To evaluate the specific and general adaptability of the advanced breeding lines as compared with standard checks in on station condition.

Materials and methods: A total of four genotypes along with three checks viz. BRRI dhan71, BRRI dhan75 and BRRI dhan87 were evaluated at Charbadna farm of BRRI RS, Barishal during T. Aman 2024. The unit plot size was 5.4 m x 2.4 m following the RCB design with three replications. Twenty-eight days old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 15 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on the date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results The yield range among the tested entries varied from 4.24 to 4.33t/ha. The growth duration range was found 116-123 days (Table 11). None of the tested entries was found to yield more than the check BRRI dhan87 (5.17 t/ha).

Table 11. Yield and ancillary character of RYT-RLR#3 materials, T. Aman2024, Barishal

Sl	Designation	Growth Duration (Days)	Plant Height(cm)	Effective Tiller/plant	Grain Yield(t/ha)
1	IR 132084-B-1191-1-2-B-9	123	110	8	4.33
2	IR 132084-B-26-1-5-B-2		Totally damaged by Rat		
3	IR 97184-84-1-2-3	121	108	9	4.28
4	IR17A2932	116	110	9	4.24
5	BRRI dhan71 (Ck)	126	121	8	4.54
6	BRRI dhan75 (Ck)	116	108	6	4.05
7	BRRI dhan87 (Ck)	126	118	9	5.17
LSD (0.05)		0.70	2.13	1.31	0.57
Heritability		1.0	0.98	0.84	0.73

D/S:15.7.2024 D/S:23.8.2024

Expt. 2.3.4: Regional Yield Trial (RYT_RLR #4) for development of Rainfed Lowland Rice T. Aman 2024

M A Kader, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: To evaluate the specific and general adaptability of the advanced breeding lines as compared with standard checks in on station condition.

Materials and methods: A total of twelve genotypes along with three checks viz. BRRI dhan71, BRRI dhan75 and BRRI dhan87 was evaluated at Charbadna farm of BRRI RS, Barishal during T. Aman 2024. The unit plot size was 5.4 m x 2.4 m following the RCB design with three replications. Twenty-eight days old seedlings of each genotype were transplanted@2-3 seedlings with a spacing of 20 cm x 15 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on the date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results The yield range among the tested entries varied from 4.06 to 4.82 t/ha. The growth duration range was found 118-121days (Table12). None of the tested entries was found to yield more than check BRRI dhan87 (5.17 t/ha).

Table 12. Yield and ancillary character of RYT-RLR#4 materials, T. Aman 2024, Barishal

Sl	Designation	Growth Duration (Days)	Plant Height(cm)	Effective Tiller/plant	Grain Yield(t/ha)
1	IR19A7513	118	136	10	4.72
2	IR19A7523	120	135	9	4.67
3	IR19A7534	121	127	9	4.65
4	IR19A7535	120	135	9	4.82
5	IR19A7536	119	104	8	4.15
6	IR19A7560	120	118	8	4.24
7	IR19A7569	120	119	9	4.40
8	IR19A7635	118	113	9	4.32
9	IR19A8062	118	132	8	4.39
10	IR19A8066	119	140	8	4.06
11	IR19A8397	118	121	9	4.06
12	IR19A9027	121	118	10	4.16
13	BRRI dhan49 (Ck)	130	101	11	4.68
14	BRRI dhan75 (Ck)	113	108	9	2.02
15	BRRI dhan87 (Ck)	127	121	10	5.17
LSD (0.05)		1.24	3.24	1.55	0.24
Heritability		0.99	0.99	0.49	0.99

D/S: 15.7.2024 D/T:14.8.2024

Expt. 2.3.5. Regional yield trial for zinc enriched rice during T. Aman 2024

M A Kader, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to evaluate the specific and general adaptability of the advanced lines in on-station conditions.

Materials and methods: A total of nine entries along with four checks BRRI dhan49, BRRI dhan72, BRRI dhan75 and BRRI dhan87 was grown at Charbadna farm of BRRI RS, Barishal during T. Aman 2024. The unit plot size was 5.4 m x 2.4m following the RCB design with three replications. Twenty-eight days old seedlings of each genotype were transplanted@2-3 seedlings with a spacing of 20 cm x 15 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on the date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: None of the tested entries found to be out yielded over the checks. The yield range of the tested entries was 4.36-4.99/ha whereas the yield range of the checks was 4.37-5.12/ha. The growth duration range of the tested genotypes varied from 115-130 days, whereas it was found for check varieties from 113 to 130days (Table13). The lower yield was caused due to severe damaged by rats and lodging.

Table 13. Yield and ancillary character of RYT-ZER materials, T. Aman 2024, Barishal

Sl	Designation	Growth Duration (Days)	Plant Height(cm)	Effective Tiller/plant	Grain Yield(t/ha)
1	BR11664-3R-2-3	130	127	8	4.45
2	BR11665-3R-5-2	124	128	7	4.40
3	BR11666-3R-6-2	128	105	10	4.99
4	BR11672-3R-13-1	124	127	6	4.41
5	BR11672-3R-3-2	123	135	7	4.28
6	BR11672-3R-6-3	124	133	7	4.42
7	BR11675-3R-9-1	124	130	7	4.50
8	BR11151-1-6-2-4	115	108	10	4.36
9	BR11153-1-2-2-5	129	127	6	4.24
10	BRRI dhan49 (Ck)	130	104	8	4.48
11	BRRI dhan62 (Ck)		Damaged by rat		
12	BRRI dhan72 (Ck)	125	114	9	4.90
13	BRRI dhan75 (Ck)	113	108	7	4.37
14	BRRI dhan87 (Ck)	128	123	11	5.12
Lsd (0.05)		1.17	1.20	0.81	0.21
Heritabiliy		0.99	1	0.96	0.93

D/S: 13.7.2024 D/T:11.08.2024

Expt. 2.3.6. Regional yield trial for Premium Quality Rice during T. Aman 2024, BRRI Barishal

Md.R Islam T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to evaluate the specific and general adaptability of the advanced lines in on-station conditions.

Materials and methods: A total of four entries along with two checks viz. BRRI dhan70 and BRRI dhan75 was conducted at Charbadna farm during T. Aman 2024.The unit plot size was 5.4 m x 2.4m following the RCB design with three replications. Thirty days old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 15 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on the date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: The yield range of the tested entries varied from 3.37 t/ha to 4.29 t/ha. Only one genotype i.e., BRrang35-5-5-1-1-1 gave highest yield (4.29t/ha) than check varieties BRRI dhan70 (4.06t/ha) and BRRI dhan75 (4.23t/ha). The growth duration range was 117-120 days (Table 14).

Table 14. Yield and ancillary character of RYT-PQR materials, T. Aman 2024, Barishal

SL	Designation	Growth Duration(Days)	Plant Height(cm)	Effective Tiller/plant	Grain Yield(t/ha)
1	BRrang55-RGA-40-1-1-1	120	104	8	3.42
2	BRrang55-RGA-14-2-1-2	119	103	8	4.15
3	BRrang35-5-5-1-1-1	117	104	8	4.29
4	BRrang35-7-2-2-2-1	117	105	7	3.37
5	BRRI dhan70 (Ck)	116	106	9	4.06
6	BRRI dhan75 (Ck)	114	103	11	4.23
Lsd (0.05)		0.65	3.50	1.52	0.26
Heritability		0.99	0	0.77	0.95

D/S: 28.7.2024 D/T:28.8.2024

Expt. 2.3.7. Regional yield trial for short duration Rice _Biotechnology during T. Aman 2024

R K Roy T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to evaluate the specific and general adaptability of the advanced lines in on-station conditions.

Materials and methods: A total of three entries along with two checks BRRI dhan71 and BRRI dhan75 was grown at Charbadna farm of BRRI RS, Barishal during T. Aman 2024.The unit plot size was 5.4 m x 2.4m following the RCB design with three replications. Twenty-eight days old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 15 cm. Fertilizer doses were 80-60-40-20 kg/ha N-P-K-S with split application of N (40+20+20) kg/ha. Total amount of P, K and S were applied at the time of final land preparation. Other cultural practices were done as and when necessary. Data were recorded on the date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: None of the tested entries found better compared with check varieties. BRRI dhan71 (4.24 t/ha) and BRRI dhan75(4.61t/ha). The growth duration of the tested genotype varied from 122-123 days which is similar with the growth duration of the check variety BRRI dhan71(Table15). The lower yield was caused due to severe infestation of BLB.

Table 15. Yield and ancillary character of RYT-Bio materials, T. Aman 2024, Barishal

Sl	Designation	Growth Duration (Days)	Plant Height(cm)	Effective Tiller/Plant	Grain Yield(t/ha)
1	BR(Bio)15086-AC114-8-1	123	113	7	3.72
2	BR(Bio)15086-AC119-16	122	117	8	3.84
3	BR(Bio)15086-AC120-18	122	118	7	3.55
4	BRRI dhan71 (CK)	123	118	8	4.24
5	BBRI dhan75 (CK)	117	105	10	4.61
LSD (0.05)		0.99	4.05	1.55	0.20
Heritability		0.98	0.94	0.69	0.97

D/S: 15.7.2024 D/T:13.8.2024

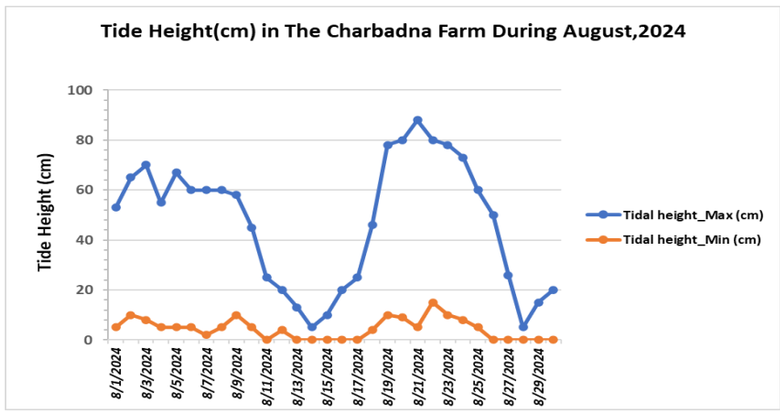

Fig. 4. First spell of high tide from 19-26 August, 2024 just 8 days after transplanting of RYT and, 4 days after transplanting of AYT

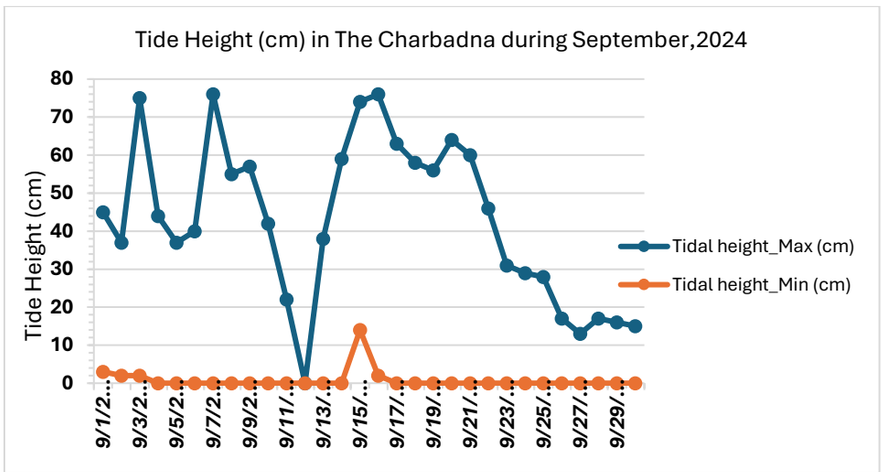

Fig. 5. Second spell of high tide from 15-22 September 2024 just 35 days after transplanting of RYT and, 30 days after transplanting of AYT and OYT

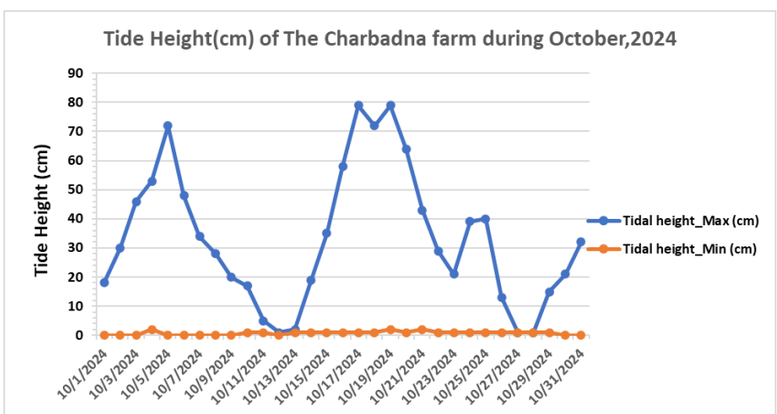

Fig. 6. Third spell of high tide from 17-21 October, 2024 during PI stage (66 days after transplanting) of RYT and, 60 days after transplanting of AYT and OYT

PROJECT 3: RICE BREEDING FOR FAVORABLE CONDITION

T Saha, P L Biswas, H Khatun and M A I Khan

Expt. 3.1. Hybridization, Boro 2024-25, BRRI Barishal

Objective: To develop high yield potential Boro varieties that will be adaptable to favourable ecosystem in Barishal region

Materials and methods: Parents were grown in three sets at seven days interval to synchronize flowering times for achieving desired cross combinations. Forty-five-day-old seedlings were transplanted in a 5.4 m x 5 rows plot with a spacing of 20 x 20 cm. Single seedlings was used for transplanting. Fertilizers were applied @ 280:100:120: 110:10 kg/ha urea, triple super phosphate, muriate of potash, gypsum and zinc sulphate, respectively. Urea was applied in three equal splits at 15-day intervals starting from 15 DAT. Full doses of TSP, MoP, gypsum and zinc sulfate were applied during final land preparation. Crop management practices were done as and when necessary.

Results: A total of 43 crosses were done using ten parents and 4051. F1 seeds were obtained to develop high-yielding Boro rice varieties during Boro 2024-25 (Table 16).

Table 16. List of F_1 seeds produced in Boro 2024-25, BRRI Barishal

Sl. No.	Cross combination	No. of seeds	Sl. No.	Cross combination	No. of seeds
01	BRRI dhan74 /IRRI 154-Pi9 +Hd9(N22)	67	22	BRRI dhan81/IRRI 154-Pi9 +Hd9	66
02	BRRI dhan97 /IRRI 154-Pi9 +Hd9(N22)	92	23	Japan58/Japan63	160
03	BRRI dhan106 /IRRI 154-Pi9 +Hd9(N22)	22	24	Japan58/IRRI 154-Pikh	148
04	BRRI dhan102 /IRRI 154-Pi9 +Hd9(N22)	45	25	Japan58/BRRI dhan81	128
05	BRRI dhan104 /IRRI 154-Pi9 +Hd9(N22)	108	26	Japan58/BRRI dhan104	63
06	BRRI dhan74 /IR64-Pi9(L)	71	27	Japan50/Japan59	150
07	BRRI dhan97 /IR64-Pi9(L))	105	28	Japan50/IRRI 154-Pikh	65
08	BRRI dhan106 /IR64-Pi9(L)	7	29	Japan50/BRRI dhan81	147
09	BRRI dhan102 /IR64-Pi9(L)	65	30	Japan50/BRRI dhan104	225
10	BRRI dhan104 /IR64-Pi9(L)	52	31	Japan51/Japan62	42
11	BRRI dhan74 / IRRI 154-Pikh	214	32	Japan51/IRRI 154-Pikh	123
12	BRRI dhan97 /IRRI 154-Pikh	178	33	Japan51/BRRI dhan81	24
13	BRRI dhan106 /IRRI 154-Pikh	8	34	Japan51/BRRI dhan104	62
14	BRRI dhan102 /IIRRI 154-Pikh	32	35	Japan63/IRRI 154-Pikh	79
15	BRRI dhan104 /IRRI 154-Pikh	107	36	Japan63/BRRI dhan81	97
16	BRRI dhan74 /BRRI dhan101	97	37	Japan63/BRRI dhan104	108
17	BRRI dhan97 /BRRI dhan101	79	38	Japan59/IRRI 154-Pikh	88
18	BRRI dhan106 /BRRI dhan101	31	39	Japan59/BRRI dhan81	165
19	BRRI dhan102 /BRRI dhan101	26	40	Japan59/BRRI dhan104	200
20	BRRI dhan104 /BRRI dhan101	67	41	Japan62/IRRI 154-Pikh	170
21	BRRI dhan81/IRRI 154-Pikh	58	42	Japan62/BRRI dhan81	85
			43	Japan62/BRRI dhan104	125
	Total				**4051**

Expt. 3.2: F_1 Confirmation during Boro 2024-25, BRRI Barishal

Objective: To confirm F_{1s} as true crosses.

Materials and methods: A total of 16 F_1's was grown during Boro, 2024-25. Single seedlings at the age of 41 days were transplanted in 5.4 m single-row plots at a spacing of 20 cm x 20 cm. Fertilizer doses were 280:100:120:110:10 kg/ha N-P-K-S, respectively, with the split application of N (40+20+20 kg/ha). Full doses of P, K and S were applied during final land preparation. Crop management practices were done as and when necessary.

Results: A total of 16 crosses were confirmed and registered in BRRI cross-list with station code from BRBa333 to BRBa348 (Table 17).

Table 17. List of confirmed F_1's during Boro, 2024-25, BRRI Barishal

Sl.	BRBa code	Cross combination
1	BRBa333	NGR 350-2/ BRRI dhan74
2	BRBa334	NGR 1256-1/BRRI dhan89
3	BRBa335	NGR 1256-1/NGR 350-2
4	BRBa336	NGR 1256-1/ BRRI dhan74
5	BRBa337	NGR 1256-1/ BRBa21-13-2-2-1
6	BRBa338	BRBa21-13-2-2-1/NGR 1256-1
7	BRBa339	NGR 1256-1/NGR 324-1
8	BRBa340	NGR 325-1 /NGR 350-2
9	BRBa341	NGR 325-1 /NGR 1256-1
10	BRBa342	BRBa21-13-2-2-1/NGR 350-2
11	BRBa343	BRBa21-13-2-2-1/NGR 325-1
12	BRBa344	NGR 325-1 / BRBa21-13-2-2-1
13	BRBa345	NGR 325-1 /BRRI dhan102
14	BRBa346	NGR 325-1 /BRRI dhan89
15	BRBa347	NGR 1256-1/NGR325-1
16	BRBa348	NGR 324-1/NGR325-1

Expt. 3.3. Progeny advancement through FRGA during Boro 2024-25, BRRI Barishal

Specific Objective: To rapidly advance segregating populations for shortening the breeding cycle.

Materials and methods: A total of 30160 segregating progenies from 63 crosses comprising of F_2 and F_3 generations were grown in the field RGA (Rapid Generation Advance) nursery following field RGA technique during Boro 2024-25. Seeds of the segregating progenies were sown at 5 × 5 cm spacing in the field. Fertilizer management was done using the half doses of all fertilizers used in Experiment 1. At maturity, a single panicle was harvested from each plant of each cross. Freshly harvested seeds were dried and broken seed dormancy using the dry heat treatments @ 45°C for 5 d to initiate next cycle of RGA.

Results: During Boro 2024-25, A total of 15376 F2 progenies from 30 crosses were grown following field RGA technique and 10,334 F2 progenies were harvested (Table 18). A total of 14784 progenies from F3 generation were grown and 8657 progenies of F3 generation were

harvested under a breeding program of high-yielding rice varieties for a favorable ecosystem. (Table 19). In total 18991 progenies were harvested using the FRGA technique

Table 18. List of F_2 generation advanced through FRGA, during Boro 2024-25, Barishal

Sl.	BRBa Code	Cross combination	Progenies planted	Progenies harvested
1	BRBa276	NGR 467-2X BRRI dhan92	536	522
2	BRBa277	NGR 522-2X BRRI dhan74	532	530
3	BRBa278	NGR 224-1X BRRI dhan89	532	483
4	BRBa279	NGR 325-1X BRRI dhan89	536	480
5	BRBa280	NGR 758-1X BRRI dhan84	536	268
6	BRBa281	BRBa1-4-9X BRRI dhan84	540	315
7	BRBa282	BRBa3-4-7X BRRI dhan84	536	471
8	BRBa283	BRBa2-5-3X BRRI dhan84	536	359
9	BRBa284	NGR 1394-2X BRRI dhan92	536	289
10	BRBa285	BRRI dhan84X NGR 325-1	532	327
11	BRBa286	NGR 736-1X BRRI dhan89	536	458
12	BRBa287	NGR 736-1X BRRI dhan92	536	298
13	BRBa288	NGR994-1 X BRRI dhan74	540	165
14	BRBa289	NGR 1255-1 X BRRI dhan74	532	229
15	BRBa290	NGR 1019-1X BRRI dhan89	532	152
16	BRBa291	NGR 1019-2XBRRI dhan74	532	232
17	BRBa292	BRRI dhan74X BRBa1-4-9	536	379
18	BRBa293	BRRI dhan74X BRBa3-4-7	536	430
19	BRBa294	BRRI dhan74X BRBa2-5-3	536	436
20	BRBa295	BRRI dhan89X NGR 730-1	536	474
21	BRBa296	BRRI dhan89X NGR 1025-1	532	291
22	BRBa297	BRRI dhan89X NGR 1019-1	456	363
23	BRBa298	NGR994-1X BRRI dhan92	464	396
24	BRBa299	NGR 325-1X BRRI dhan92	460	440
25	BRBa300	NGR 758-1XBRRI dhan89	460	427
26	BRBa301	NGR 1210-3X BRRI dhan89	460	233
27	BRBa302	NGR 1025-1X BRRI dhan89	464	239
28	BRBa303	NGR 730-1X BRRI dhan74	460	189
29	BRBa304	NGR 527-1X BRRI dhan89	460	208
30	BRBa305	NGR 1019-2XBRRI dhan89	456	251
		Total	**15,376**	**10,334**

Table 19. List of F_3 generation advanced through FRGA, during Boro 204-25 BRRI Barishal

Sl.	BRBa Code	Cross combination	Progenies planted	Progenies harvested
1	BRBa218	BRBa 2-5-3/BRRI dhan29	504	377
2	BRBa219	BRBa 2-5-3/BRRI dhan67	484	224
3	BRBa220	BRBa 2-5-3/BRRI dhan74	492	221
4	BRBa221	BRBa 2-5-3/BRRI dhan89	544	320
5	BRBa222	BRBa 2-5-3/BRRI dhan92	556	278
6	BRBa223	BRBa 3-1-7/BRRI dhan29	560	261
7	BRBa224	BRBa 3-1-7/BRRI dhan58	468	226
8	BRBa225	BRBa 3-1-7/BRRI dhan67	460	310
9	BRBa226	BRBa 3-1-7/BRRI dhan89	560	412
10	BRBa227	IR12A 2854/BRBa 5-4-1	552	420
11	BRBa228	IR12A 2854/BRRI dhan29	452	339
12	BRBa229	IR12A 2854/BRRI dhan89	436	225
13	BRBa230	IR12A 2854/Kataribhog	532	314
14	BRBa231	IR13A 515/BRRI dhan58	384	286
15	BRBa232	IR13A 515/BRRI dhan67	332	261
16	BRBa233	IR13A 515/BRRI dhan89	524	288
17	BRBa234	NGR 1255-2/BRRI dhan29	360	216
18	BRBa235	NGR 1255-2/BRRI dhan89	360	229
19	BRBa236	NGR 1255-2/Kataribhog	512	238
20	BRBa237	NGR 1258-2/BRBa 23-2-3-1-2-P1	428	124
21	BRBa238	NGR 1258-2/BRRI dhan29	140	98
22	BRBa239	NGR 1258-2/BRRI dhan89	444	291
23	BRBa240	NGR 1258-2/Kataribhog	400	301
24	BRBa241	NGR 1277-1/BRBa 23-2-3-1-2-P1	440	213
25	BRBa242	NGR 1277-1/BRRI dhan29	140	113
26	BRBa243	NGR 736-1/BRRI dhan29	540	390
27	BRBa244	NGR 736-1/BRRI dhan89	400	196
28	BRBa245	NGR 736-1/BRRI dhan92	384	117
29	BRBa246	NGR 736-1/Kataribhog	388	148
30	BRBa247	SVIN 269/BRRI dhan67	492	240
31	BRBa248	SVIN 269/BRRI dhan74	496	328
32	BRBa249	SVIN 269/BRRI dhan89	488	303
33	BRBa250	SVIN 269/BRRI dhan92	532	350
		Total	**14784**	**8657**

PROJECT 4: YIELD TRIAL (YT), 2024-25, Boro, BRRI Barishal

T Saha, P L Biswas, H Khatun and M A I Khan

Expt. 4.1.1 Observational Yield Trial (OYT_ Barishal), Boro 2024-25

Objective: The study was conducted with the objectives to select suitable fixed lines for Boro season with dense and erect panicle, strong culm, high yield potential and disease as well as insect resistant at field condition for further evaluation in the preliminary yield trial nursery (PYT).

Materials and methods: A total of 222 fixed lines of along with three checks (BRRI dhan74, BRR hybrid dhan3, and BRRI hybrid dhan8) were grown following the augmented design (Table 19). Single seedlings of 43 days old was transplanted in 5.4 m x 1 m plots at a spacing of 20cm x 20cm. Fertilizers were applied@ 260:100:120:110:10 kg urea, triple super phosphate, muriate of potash, gypsum and zinc sulphate/ha, respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Full doses of TSP, MoP, gypsum and zinc sulphate were applied during final land preparation. Other cultural practices were done as and when necessary.

Results: Based on phenotypic acceptability and grain yield performance five genotypes were selected for further evaluation. Only one genotype gave higher yield than three check varieties (Table 20). The two genotypes H1289-6-1-1-4-1 and H1297-4-2-1-3-1 gave the highest yield (7.0 t/ha) and 6.90t/ha) with a growth duration of 149 days and 148 days respectively. Rest of three genotypes showed the higher yield than check BRRI dhan74.

Table 20. Yield and ancillary characters of selected OYT materials, Boro 2024-25

Sl	Designation	Plant Hight (cm)	Growth duration (days)	Yield (t/ha)	Tiller No./Plant	Effective Tiller No./Plant
1	H1278-1-1-2-2-1	134	149	4.90	6	6
2	H1278-3-1-1-2-1	139	149	2.90	8	8
3	H1279-2-1-2-2-1	144	149	3.50	8	7
4	H1280-14-3-1-1-1	321	149	5.10	8	7
5	H1280-15-2-1-1-1	103	149	3.40	8	7
6	H1280-17-1-2-2-1	102	149	4.80	7	6
7	H1280-3-2-2-3-2	140	162	0.50	11	11
8	H1280-4-1-2-2-1	118	149	3.00	10	9
9	H1280-5-2-1-3-1	119	159	3.40	9	7
10	H1280-6-1-1-2-2	127	161	3.00	8	6
11	H1280-8-1-1-1-1	123	161	2.30	7	6
12	H1283-1-1-1-1-1	100	149	5.50	7	6
13	H1283-1-2-1-2-1	104	149	4.60	7	6
14	H1284-2-4-1-2-1	97	149	4.60	6	5
15	H1284-2-5-2-1-2	100	151	5.10	9	7
16	H1286-1-2-1-2-1	98	152	4.60	7	5
17	H1286-3-3-2-3-1	97	150	2.50	7	6
18	H1287-1-4-1-1-2	101	150	3.80	8	6
19	H1287-3-2-1-1-2	103	142	6.10	7	6
20	H1287-4-2-1-2-1	111	148	5.20	8	8
21	H1287-5-1-1-4-1	95	148	5.60	7	6
22	H1288-2-1-2-1-1	110	149	2.30	5	5
23	H1288-3-2-2-4-1	107	150	4.20	7	5
24	**H1289-6-1-1-4-1**	**109**	**149**	**7.00**	**9**	**8**
25	H1289-7-1-2-3-1	105	149	0.70	10	9
26	H1291-3-2-2-2-1	114	149	4.30	8	7
27	H1291-4-1-1-3-1	101	140	2.60	10	7
28	H1291-5-2-1-2-1	102	149	6.00	5	5
29	H1291-6-2-1-4-1	101	149	5.60	7	6
30	H1292-1-2-1-6-2	108	152	2.70	7	7
31	H1292-2-1-1-4-1	124	148	2.00	11	9
32	H1293-3-2-2-1-1	100	148	4.70	9	8
33	**H1293-4-2-1-3-1**	**103**	**148**	**6.30**	**7**	**7**
34	H1293-5-1-1-1-1	102	149	5.00	9	9
35	H1295-2-1-1-3-1	121	147	4.20	6	5
36	H1295-3-1-2-3-1	96	149	1.90	8	9
37	H1296-4-4-2-1-1	101	124	4.40	6	5
38	H1297-2-4-1-2-1	121	149	4.00	7	7
39	**H1297-4-2-1-3-1**	**110**	**148**	**6.90**	**9**	**9**
40	H1298-1-1-2-1-1	116	150	2.60	8	7
41	H1298-2-3-1-6-1	135	152	4.30	7	6
42	H1298-3-1-1-1-2	116	156	4.50	8	7
43	H1298-4-2-1-4-1	121	150	2.90	7	7
44	H1299-1-2-1-4-1	116	148	5.30	7	6
45	H1299-2-3-2-2-1	117	123	1.90	7	7
46	H1306-1-1-1-2-1	106	153	3.20	8	8
47	H1306-2-3-1-5-1	105	150	4.90	8	7
48	H1306-3-3-1-3-2	131	152	3.30	7	6
49	H1306-4-4-1-2-1	118	167	1.90	7	7
50	H1306-4-4-1-2-4	120	154	4.00	7	6
51	H1306-6-2-1-2-2	118	158	2.40	7	6
52	H1310-1-2-1-3-1	100	160	2.30	5	5
53	H1310-1-4-2-1-1	127	150	2.40	6	6
54	H1310-3-2-1-1-1	98	147	5.20	6	7

Sl	Designation	Plant Hight (cm)	Growth duration (days)	Yield (t/ha)	Tiller No./Plant	Effective Tiller No./Plant
55	H1310-3-6-1-1-3	123	148	4.40	8	7
56	H1310-4-1-1-1-1	107	155	3.90	7	6
57	H1310-4-5-1-2-4	114	148	5.00	7	6
58	H1312-1-2-1-4-1	103	147	4.10	6	4
59	H1312-1-2-1-4-2	118	148	6.00	6	5
60	H1312-2-2-1-3-1	115	147	2.30	6	4
61	H1312-2-4-1-4-2	104	140	4.50	6	5
62	H1312-2-4-1-4-3	110	150	3.90	8	7
63	H1312-3-4-1-1-2	110	148	3.90	9	7
64	H1312-4-1-1-2-1	106	150	3.10	9	7
65	H1312-5-1-2-2-1	101	150	5.10	9	7
66	H1312-5-1-3-3-1	104	152	4.60	10	8
67	H1315-1-4-1-1-3	102	152	4.30	10	9
68	H1315-1-4-2-1-2	116	150	5.10	7	6
69	H1315-3-1-1-2-2	108	150	4.10	7	6
70	H1315-3-1-1-2-3	107	151	4.60	6	5
71	H1315-3-2-1-4-3	103	148	4.40	8	7
72	H1315-4-1-1-5-1	100	148	4.95	8	7
73	H1315-4-1-1-5-3	105	147	4.50	7	5
74	H1315-4-3-1-4-1	123	153	4.70	9	7
75	H1315-7-1-1-3-1	103	142	5.60	9	6
76	H1317-2-1-1-1-2	117	149	5.00	8	7
77	H1317-2-2-1-1-2	99	141	4.70	8	7
78	H1318-2-2-1-2-1	118	153	3.00	9	8
79	H1321-3-2-1-1-1	121	153	5.60	9	7
80	H1321-3-2-2-1-1	102	154	3.60	9	7
81	H1321-4-2-1-6-1	101	150	4.60	8	6
82	H1321-4-2-1-6-2	105	152	2.40	8	7
83	H1321-5-6-1-2-1	107	149	3.40	9	8
84	H1321-5-6-2-4-1	107	145	4.60	9	7
85	H1322-1-2-2-1-1	115	147	4.80	9	8
86	H1322-1-3-1-1-2	103	148	5.20	9	8
87	H1322-2-3-1-3-1	126	155	3.20	10	8
88	H1322-2-3-1-3-3	139	163	2.60	10	8
89	H1322-2-5-1-1-1	128	150	5.60	10	8
90	H1322-3-2-1-1-1	97	153	5.70	9	8
91	H1322-4-2-1-2-2	106	150	4.10	9	7
92	H1322-4-2-2-1-1	101	160	4.80	9	8
93	H1322-4-4-1-2-1	146	164	3.00	9	7
94	H1322-4-6-1-3-1	131	153	3.10	7	5
95	H1322-4-6-2-1-1	97	153	5.00	8	7
96	H1322-5-3-1-1-1	101	152	2.70	9	7
97	H1322-5-3-3-2-1	111	162	2.30	11	9
98	H1322-5-4-1-1-1	106	147	4.50	10	8
99	H1322-5-4-2-1-2	102	149	4.70	8	7
100	H1322-8-2-1-2-1	110	150	5.70	10	8
101	H1322-8-2-1-2-2	129	153	3.90	10	8
102	H1323-1-1-2-1-1	119	154	6.00	12	10
103	H1323-1-2-2-4-1	119	154	3.50	8	7
104	H1323-4-1-1-3-1	127	160	3.40	7	6
105	H1323-4-1-1-3-2	132	127	3.60	8	7
106	H1323-4-1-2-2-1	127	153	4.60	8	8
107	H1323-6-1-2-2-1	119	152	4.60	8	7
108	H1323-7-2-1-3-1	114	150	3.60	9	8
109	H1323-7-2-2-2-2	118	130	5.70	9	8
110	H1324-1-1-1-2-1	97	150	3.90	7	7
111	H1324-1-1-1-2-2	113	150	4.50	7	6
112	H1325-1-1-1-4-1	111	149	3.10	6	5
113	H1325-1-1-1-4-2	109	148	3.60	6	6
114	H1325-1-1-2-2-1	115	147	4.00	7	6
115	H1326-12-1-1-1-1	109	153	4.90	8	7
116	H1326-12-1-1-1-2	108	152	5.80	8	7
117	H1326-14-2-2-3-1	114	149	4.50	7	6
118	H1326-16-3-1-1-2	106	150	3.50	6	5
119	H1326-16-6-1-1-4	99	148	6.00	8	7
120	H1326-17-1-1-3-1	101	148	4.80	7	6
121	H1326-2-3-1-4-1	108	153	4.90	8	7
122	H1326-2-4-2-3-1	111	149	4.10	7	6
123	H1326-5-4-1-1-1	109	150	5.30	7	6
124	H1327-1-2-1-2-1	102	147	4.70	6	6
125	H1327-1-3-1-2-1	105	148	4.10	6	6
126	H1327-11-3-1-3-1	115	153	4.50	6	5
127	H1327-11-3-1-3-2	105	152	4.30	7	6
128	H1327-2-1-2-3-1	102	147	6.00	8	6
129	H1327-2-2-1-2-1	109	148	4.90	6	6
130	H1327-2-3-1-3-2	102	148	4.80	6	6
131	H1327-3-1-1-1-1	98	148	5.50	7	6
132	H1327-4-4-1-2-1	102	148	3.80	6	6
133	H1327-4-4-2-2-1	97	149	4.60	6	5
134	H1327-4-4-2-2-2	100	150	4.70	7	6
135	H1327-5-1-1-3-3	100	150	5.00	6	5

Sl	Designation	Plant Hight (cm)	Growth duration (days)	Yield (t/ha)	Tiller No./Plant	Effective Tiller No./Plant
136	H1327-6-1-1-3-2	101	150	4.70	7	6
137	H1327-7-1-1-3-2	103	150	4.60	5	5
138	H1327-7-4-1-2-1	111	153	4.10	6	5
139	H1328-4-1-2-4-1	113	150	3.60	6	5
140	H1328-4-1-2-4-2	119	150	4.70	6	5
141	H1328-4-1-5-2-4	119	148	5.30	6	5
142	H1329-1-1-1-4-1	106	149	4.70	7	6
143	H1329-1-1-1-4-2	106	149	4.60	6	6
144	H1329-11-3-2-3-1	111	150	5.60	6	4
145	H1329-11-3-2-3-2	112	150	4.80	8	5
146	H1329-11-4-1-5-3	105	150	4.10	5	5
147	H1329-3-2-1-2-2	105	149	4.70	7	6
148	H1329-6-3-2-3-1	108	149	3.10	7	6
149	H1329-6-3-2-3-3	113	149	4.40	5	5
150	H1329-9-1-1-3-2	111	150	4.20	5	4
151	H1330-1-1-1-3-5	105	156	3.80	6	6
152	H1330-1-1-1-3-6	107	159	3.90	5	4
153	H1330-1-2-1-3-1	106	161	2.20	5	4
154	H1330-1-2-2-2-3	104	159	3.10	7	4
155	H1330-3-1-3-1-1	108	159	3.70	5	4
156	H1330-3-1-3-1-2	103	159	3.70	5	4
157	H1330-3-2-1-2-1	107	154	2.40	6	5
158	H1330-3-2-2-2-1	103	150	4.80	7	5
159	H1330-3-2-2-2-2	103	152	4.40	7	6
160	H1330-3-3-1-5-5	105	149	3.70	5	5
161	H1330-3-3-1-5-6	107	148	5.50	6	5
162	H1330-4-1-1-5-2	108	152	5.50	7	5
163	H1330-4-1-1-5-3	108	152	5.10	6	6
164	**H1330-4-2-3-3-1**	**100**	**148**	**6.20**	**7**	**7**
165	H1330-4-3-1-4-4	97	140	5.40	5	4
166	H1330-4-3-1-5-1	100	142	5.90	6	6
167	H1331-1-7-1-3-1	102	147	5.00	9	7
168	H1331-1-7-1-3-2	98	140	4.70	8	6
169	H1331-2-2-1-4-2	108	150	4.60	8	7
170	H1331-2-2-2-4-1	100	150	5.80	8	7
171	**H1331-4-2-3-3-1**	**103**	**141**	**6.30**	7	6
172	H1331-5-1-2-3-1	98	140	4.00	6	5
173	H1331-5-1-2-3-2	102	150	2.50	6	5
174	H1331-6-1-4-1-1	99	123	4.00	7	5
175	H1331-6-3-1-1-1	110	152	4.70	9	7
176	H1332-1-3-1-2-1	106	141	5.90	8	7
177	H1332-1-3-1-2-2	109	144	4.70	7	6
178	H1332-15-1-3-3-1	105	150	4.60	7	5
179	H1332-15-3-3-2-2	103	150	4.10	7	5
180	H1332-2-2-1-3-1	107	146	4.60	7	5
181	H1332-4-1-2-3-1	102	148	3.60	7	5
182	H1332-4-2-1-3-2	101	148	4.20	7	5
183	H1332-8-1-2-1-2	101	150	3.60	6	5
184	H1332-8-2-1-3-1	99	150	4.60	6	5
185	H1332-9-1-2-4-1	99	150	4.70	6	5
186	H1332-9-1-2-4-2	94	150	3.50	7	5
187	H1333-4-2-1-3-2	107	143	4.50	8	7
188	H1333-5-2-2-3-1	102	142	3.00	7	5
189	H1333-5-3-1-4-1	101	150	5.00	7	5
190	H1333-7-1-3-3-1	90	142	4.00	7	5
191	H1333-7-2-1-5-1	93	123	5.40	7	5
192	H1333-8-4-1-2-1	91	138	5.00	8	6
193	H1334-14-1-1-2-1	101	139	3.30	11	9
194	H1334-15-2-2-1-1	101	140	3.00	8	7
195	H1334-2-2-1-2-1	96	141	3.80	8	6
196	H1334-4-3-1-2-1	97	140	4.20	7	5
197	H1334-6-2-1-3-1	95	139	5.40	6	5
198	H1334-7-2-1-3-1	97	141	3.30	6	5
199	H1335-3-1-1-3-1	98	155	5.80	9	7
200	H1335-3-4-1-1-1	100	154	5.10	8	6
201	H1335-5-1-1-1-1	93	152	4.40	7	6
202	H1335-9-1-1-2-1	102	150	4.50	8	7
203	H1335-9-1-1-2-2	98	155	3.80	8	6
204	H1336-1-2-1-3-2	102	161	3.50	7	5
205	H1336-1-2-1-3-4	102	161	4.20	8	7
206	H1336-1-2-3-3-2	103	161	4.50	7	5
207	H1336-5-1-2-1-2	104	160	4.00	7	6
208	H1336-6-1-1-1-1	102	157	3.00	7	5
209	H1336-6-1-1-1-2	112	155	5.10	7	6
210	H1337-2-1-1-3-1	120	156	3.70	6	5
211	H1337-2-3-1-1-3	101	154	4.20	8	6
212	H1337-2-4-1-2-1	104	156	4.40	6	5
213	H1337-2-4-1-3-3	86	157	3.50	8	6
214	H1337-2-5-1-1-1	101	158	4.80	6	4
215	H1337-2-5-1-1-2	97	154	5.00	7	5
216	H1337-3-1-1-2-1	100	156	3.30	7	5

Sl	Designation	Plant Hight (cm)	Growth duration (days)	Yield (t/ha)	Tiller No./Plant	Effective Tiller No./Plant
217	H1337-3-1-1-2-2	100	155	3.80	6	4
218	H1337-4-1-2-2-1	109	152	3.10	9	7
219	H1337-4-1-2-2-2	104	153	4.80	7	5
220	H1337-4-1-3-3-3	103	154	3.70	6	5
221	H1337-4-1-3-4-2	92	160	3.80	7	5
222	H1337-4-1-3-5-1	98	162	2.80	6	4
223	BRRI dhan74	92	140	5.25	10	9
224	BRRI hybrid dhan3	103	141	6.23	9	8
225	BRRI hybrid dhan8	98	145	6.40	8	7
	LSD(0.05)	6.7	5.6	1.2	3.5	3.0
	Heritability	0.98	0.90	0.82		

D/S-29/11/2024 D/T11/01/2025

Expt. 4.1.2 Observational Yield Trial (OYT_ RCGS), Boro 2024-25, BRRI, Barishal

Materials and methods: A total of 242fixed lines of along with Four checks (BRRI dhan29, BRRI dhan92 BRRI dhan88 and BRRI dhan102) were grown following the row column design (Table 20). Single seedling of 36 days old was transplanted in 5.4 m x 5 m plots at a spacing of 20cm x 20cm. Fertilizers were applied @ 260:100:120:110:10 kg urea, triple super phosphate, muriate of potash, gypsum and zinc sulphate/ha, respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Full doses of TSP, MoP, gypsum and zinc sulphate were applied during final land preparation. Other cultural practices were done as and when necessary.

Results: The yield range was 4.05 to 7.10 t/ha. No genotype was selected (Table 21)**.**

Table 21. Yield and ancillary characters of selected OYT _RCGS materials, Boro 2024-25

Sl	Designation	Plant height(cm)	Growth duration(days)	Yield (t/ha)	Pacp
1	BR13983-R-R-R-2	103	122	3.88	2
2	BR13983-R-R-R-27	86	128	4.74	3
3	BR13985-R-R-R-46	106	122	4.62	0
4	BR13989-R-R-R-32-P2	101	121	4.33	3
5	BR13995-R-R-R-33	91	128	4.15	2
6	BR14215-5R-1	99	122	4.23	2
7	BR14215-5R-126	121	126	4.27	3
8	BR14215-5R-49	110	127	4.32	3
9	BR14215-5R-75	100	128	4.20	2
10	BR14215-5R-93	102	120	NA	3
11	BR14215-R-R-R-101	97	126	4.13	2
12	BR14215-R-R-R-33	93	121	4.22	3
13	BR14216-5R-1	101	127	4.34	3
14	BR14216-5R-109	108	122	4.23	3
15	BR14216-5R-26	119	132	4.00	3
16	BR14216-5R-53	101	123	4.18	3
17	BR14216-5R-80	108	131	3.87	3
18	BR14218-5R-106	94	129	4.18	3
19	BR14218-5R-149	105	131	4.05	3
20	BR14218-5R-58	112	132	3.99	2
21	BR14218-5R-6	103	131	4.30	2
22	BR14218-R-R-R-15	97	125	4.11	2
23	BR14218-R-R-R-175	105	131	4.06	3
24	BR14218-R-R-R-213	102	133	4.07	3
25	BR14218-R-R-R-222	100	132	4.02	3
26	BR14218-R-R-R-237	100	131	4.10	3
27	BR14218-R-R-R-244	102	132	4.38	3
28	BR14218-R-R-R-254	111	128	4.01	3
29	BR14218-R-R-R-3	111	134	4.44	2
30	BR14218-R-R-R-86	95	125	3.83	2
31	BR14218-R-R-R-90	103	127	4.30	2
32	BR14221-5R-1	110	128	4.59	3
33	BR14221-5R-74	128	131	4.33	3
34	BR14221-R-R-R-116	93	128	4.01	2
35	BR14221-R-R-R-52	103	124	4.31	3
36	BR14222-5R-18	114	132	4.50	3
37	BR14222-R-R-R-18	108	132	4.51	3
38	BR14223-5R-17	116	131	3.70	3
39	BR14223-5R-68	114	131	4.11	2
40	BR14223-R-R-R-18	103	121	3.78	2
41	BR14223-R-R-R-22	100	131	4.13	2
42	BR14225-5R-53	101	131	4.10	2
43	BR14225-R-R-R-103-P2	95	127	4.12	2
44	BR14225-R-R-R-14	104	131	3.99	3
45	BR14225-R-R-R-7	111	130	4.23	3
46	BR14226-5R-105	111	124	3.89	3

Sl	Designation	Plant height(cm)	Growth duration(days)	Yield (t/ha)	Pacp
47	BR14226-5R-148	113	128	4.01	3
48	BR14226-5R-16	99	130	4.23	3
49	BR14226-5R-192	99	129	4.04	2
50	BR14226-5R-226	117	133	4.47	3
51	BR14226-R-R-R-118	94	132	4.40	2
52	BR14226-R-R-R-148	93	121	4.19	3
53	BR14226-R-R-R-160	95	126	4.30	2
54	BR14226-R-R-R-168	96	131	4.32	3
55	BR14226-R-R-R-195	99	132	4.39	3
56	BR14226-R-R-R-210	119	134	3.96	1
57	BR14226-R-R-R-213	96	132	3.64	2
58	BR14226-R-R-R-226	101	132	4.27	2
59	BR14226-R-R-R-37	104	132	3.93	2
60	BR14227-5R-11	98	122	4.23	0
61	BR14227-5R-121	122	128	4.30	3
62	BR14227-5R-155	98	125	4.93	3
63	BR14227-5R-50	103	124	4.21	2
64	BR14227-5R-80	99	129	4.34	2
65	BR14227-R-R-R-194	103	122	4.37	3
66	BR14229-5R-115	108	128	4.04	3
67	BR14229-5R-142	112	130	4.19	3
68	BR14229-5R-172	106	129	4.37	2
69	BR14229-5R-193	94	126	4.34	1
70	BR14229-5R-20	98	126	4.08	2
71	BR14229-5R-3	109	124	4.14	3
72	BR14229-5R-45	100	128	3.38	0
73	BR14229-5R-76	87	129	4.34	2
74	BR14229-R-R-R-46	115	126	4.06	3
75	BR14231-5R-50	100	128	4.04	3
76	BR14231-5R-8	108	126	4.11	2
77	BR14231-5R-94	97	127	4.23	2
78	BR14231-R-R-R-106	100	125	4.48	3
79	BR14231-R-R-R-23	100	122	4.11	2
80	BR14231-R-R-R-77	111	126	4.28	2
81	BR14231-R-R-R-79	103	126	4.17	2
82	BR14231-R-R-R-8-P1	91	123	3.77	NA
83	BR14231-R-R-R-80	92	124	4.42	3
84	BR14233-5R-103	107	131	4.68	3
85	BR14233-R-R-R-52	98	127	4.02	3
86	BR14234-5R-144	107	131	4.62	2
87	BR14236-5R-217	104	125	3.99	2
88	BR14236-5R-49	101	126	4.60	3
89	BR14236-5R-82	105	125	4.13	2
90	BR14236-R-R-R-24	100	125	4.11	2
91	BR14236-R-R-R-29-P2	101	128	4.40	2
92	BR14237-5R-113	120	134	3.88	2
93	BR14237-5R-26	94	122	4.50	2
94	BR14237-5R-71	101	125	3.89	3
95	BR14237-R-R-R-157	109	123	4.46	NA
96	BR14238-5R-41	97	125	4.07	2
97	BR14238-5R-94	82	126	4.69	3
98	BR14238-R-R-R-8-P2	98	123	4.11	2
99	BR14239-5R-32	94	123	4.09	2
100	BR14239-R-R-R-1	101	121	4.15	3
101	BR14240-5R-14	101	128	4.12	2
102	BR14241-5R-72	114	124	4.03	NA
103	BR14242-R-R-R-28	121	130	4.08	3
104	BR14242-R-R-R-44-P1	104	131	4.20	1
105	BR14244-R-R-R-16	105	128	4.17	2
106	BR14245-5R-8	104	124	4.27	NA
107	BR14246-5R-23	108	126	4.18	3
108	BR14246-5R-61	112	126	4.24	2
109	BR14246-5R-98	98	121	4.48	2
110	BR14247-5R-136	109	130	4.51	2
111	BR14247-5R-25	113	126	4.27	2
112	BR14247-5R-67	103	121	3.76	3
113	BR14247-5R-99	119	132	4.11	2
114	BR14249-5R-53	98	126	4.33	3
115	BR14249-5R-86	104	127	4.25	3
116	BR14252-5R-1	116	126	4.28	2
117	BR14252-5R-49	98	123	4.18	3
118	BR14254-4R-111	100	122	4.35	3
119	BR14254-4R-186	112	128	4.04	3

Sl	Designation	Plant height(cm)	Growth duration(days)	Yield (t/ha)	Pacp
120	BR14254-4R-2	110	121	4.22	NA
121	BR14254-4R-270	108	127	4.12	2
122	BR14257-5R-258	101	131	3.80	2
123	BR14257-5R-37	119	131	4.17	3
124	BR14257-5R-97	106	127	4.58	3
125	BR14258-5R-47	104	128	4.09	2
126	BR14259-5R-105	104	122	3.99	3
127	BR14259-R-R-R-24	108	124	4.35	3
128	BR14261-5R-42	91	128	4.60	2
129	BR14261-5R-43	97	124	4.04	3
130	BR14261-R-R-R-8	112	124	4.00	2
131	BR14265-5R-34	99	137	4.52	3
132	BR14266-4R-117	105	126	4.30	0
133	BR14266-4R-164	109	125	4.12	3
134	BR14266-4R-198	118	127	4.41	3
135	BR14266-4R-232	112	125	4.07	3
136	BR14266-4R-273	101	127	4.23	3
137	BR14266-4R-314	111	125	3.66	NA
138	BR14266-4R-70	105	124	4.06	0
139	BR14266-4R-9	108	125	4.46	3
140	BR14599-4R-13	99	130	3.57	3
141	BR14609-4R-121	93	125	4.12	3
142	BR14609-4R-37	114	133	3.35	2
143	BR14609-4R-63	110	132	4.27	2
144	BR14609-4R-88	109	128	4.22	2
145	BR14609-4R-9	112	126	4.19	2
146	BR14610-4R-121	93	127	4.20	2
147	BR14610-4R-162	102	128	4.69	2
148	BR14610-4R-213	97	125	4.18	3
149	BR14610-4R-46	98	128	4.35	2
150	BR14611-4R-103	96	134	3.37	3
151	BR14611-4R-151	95	137	4.54	3
152	BR14611-4R-262	115	132	3.77	3
153	BR14611-4R-52	114	132	3.92	2
154	BR14612-4R-113	107	126	4.33	3
155	BR14612-4R-208	103	128	3.97	2
156	BR14612-4R-252	114	137	4.16	2
157	BR14612-4R-72	105	122	4.37	3
158	BR14615-4R-120	99	126	3.84	3
159	BR14615-4R-30	102	124	3.96	3
160	BR14615-4R-60	96	129	3.73	2
161	BR14615-4R-89	95	131	4.46	3
162	BR14616-4R-6	102	131	4.17	3
163	BR14617-4R-11	86	127	4.86	2
164	BR14617-4R-45	105	132	3.96	2
165	BR14620-4R-10	90	125	4.11	3
166	BR14621-4R-16	98	122	4.08	3
167	BR14621-4R-37	98	122	4.40	2
168	BR14621-4R-71	96	128	4.11	2
169	BR14622-4R-33	96	126	4.20	2
170	BR14630-4R-52	104	121	4.39	3
171	BR14631-4R-36	97	128	4.27	2
172	BR14632-4R-92	104	134	3.61	2
173	BR14634-4R-59	99	129	4.05	2
174	BR14635-4R-46	96	126	4.23	3
175	BR14636-4R-189	120	131	4.46	3
176	BR14636-4R-36	98	124	4.34	2
177	BR14642-4R-7	108	133	4.73	3
178	BR14643-4R-53	101	126	4.15	0
179	BR14651-4R-37	106	132	3.92	3
180	BR14652-4R-39	107	124	4.17	2
181	BR14653-4R-54	96	132	4.42	3
182	BR14654-4R-122	104	121	4.36	3
183	BR14657-4R-2	98	122	4.27	3
184	BR14659-BC1-R-14	104	131	3.48	3
185	BR14661-4R-55	109	131	4.10	3
186	BR14870-BC1-R-115	100	122	5.00	NA
187	BR14870-BC1-R-22	108	122	4.16	2
188	BR14870-BC1-R-44	106	126	4.60	2
189	BR14870-BC1-R-72	111	120	4.27	3
190	BR14870-BC1-R-75	114	124	4.12	0
191	BR14872-BC2-R-102	82	126	4.25	2
192	BR14872-BC2-R-11	99	129	4.09	2

Sl	Designation	Plant height(cm)	Growth duration(days)	Yield (t/ha)	Pacp
193	BR14872-BC2-R-13	86	123	4.03	2
194	BR14872-BC2-R-28	100	134	3.96	2
195	BRRI dhan102	98	133	4.16	2
196	BRRI dhan29	101	132	3.94	2
197	BRRI dhan88	86	122	4.02	2
198	BRRI dhan92	112	133	4.14	2
LSD(0.05)		10.59	7.17	0.76	1.21
Heritability		0.79	0.59	0.01	0.57

D/S:14/12/2024 D/T:20.1.2025

Expt. 4.2. Preliminary Yield Trial (PYT_Barishal), Boro2024-25

P L Biswas, T. Saha, H Khatun and M A I Khan

Objective: The preliminary yield trial was conducted to evaluate the specific and general adaptability of the advanced lines as compared with standard checks in on-station condition at Charbadna farm, Barishal.

Materials and methods: A total of seventy-four entries along with the three checks, BRRI dhan74, BRRI dhan101 and BRRI dhan102 were grown at BRRI Charbadna farm, Barishal in 2024-25. The unit plot size was 5.4 m x 1 m. The experiment was laid out in augmented RCB design. Thirty six days old seedlings of each genotype were transplanted with a spacing of 20 cm x 20 cm. Fertilizers were applied @ 260:100:120:110:10 kg/ha urea, triple super phosphate, muriate of potash, gypsum and zinc sulphate, respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Full dose of TSP, MoP, gypsum and zinc sulphate at final land preparation. Other cultural practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height, tiller/hill, panicle/hill, and grain yield.

Results: A total of eleven genotypes were selected based on the grain yield compared with the grain yield of three check varieties. Among the tested materials, BRBa76-8-4-1-3 (7.99t/ha) showed the highest grain yield with 135 days growth duration whereas the yield of check varieties viz. BRRI dhan74 (5.43t/ha), BRRI dhan101(5.43t/ha) and BRRI dhan102(4.83t/ha). The growth duration range of the tested entries was 136-146 days whereas the check varieties were found 133 days in BRRI dhan74,141days in BRRI dhan101 and 133 days in BRRI dhan133days (Table 22).

Table 22. Performnce of Preliminary Yield Trial (PYT_Barishal) Boro2024-25, BRRI Barishal

Sl	Designation	Plant Height (cm)	Growth duration(days)	Yield (t/ha)	Tiller No./Plant	Effective Tiller No./Plant
1	BRBa113-16-3	103	133	4.64	8	8
2	BRBa115-1-2	103	134	5.80	8	7
3	**BRBa73-2-2-1-5**	**105**	**133**	**7.12**	**7**	**7**
4	BRBa73-2-3-2-2	106	140	6.08	9	8
5	BRBa73-22-2-1-1	121	144	5.13	8	7
6	BRBa73-22-4-1-2	107	140	5.75	9	8
7	BRBa73-33-2-1-1	117	133	4.50	11	9
8	BRBa73-33-7-1-1	103	144	5.15	9	8
9	BRBa73-34-1-1-2	102	144	5.24	8	6
10	BRBa73-35-1-1-2	103	141	5.47	10	9
11	BRBa73-35-2-1-1	102	143	5.32	9	8
12	BRBa73-35-2-1-2	101	143	5.17	9	8
13	BRBa73-35-2-1-4	112	140	5.98	11	10
14	BRBa73-36-1-1-3	113	134	5.74	13	10
15	BRBa73-40-1-1-3	103	134	4.48	12	9
16	BRBa73-45-5-1-1	96	134	5.30	13	9
17	BRBa73-46-2-1-1	101	134	5.41	11	9
18	BRBa73-46-5-1-1	104	134	5.48	12	10
19	BRBa73-47-1-2-1	105	140	5.27	9	8
20	BRBa73-47-1-2-3	97	133	3.97	12	10
21	BRBa73-48-1-1-3	99	143	5.59	13	11
22	BRBa73-48-7-1-1	102	143	6.36	15	13
23	BRBa73-49-5-1-1	100	143	5.99	9	8
24	BRBa73-49-7-2-2	98	135	5.71	10	9
25	BRBa73-50-5-1-1	105	143	5.51	10	9
26	BRBa73-50-6-1-1	103	145	5.20	10	9
27	BRBa73-54-3-1-4	101	144	5.49	11	10
28	BRBa73-6-4-1-3	105	140	5.84	8	7
29	BRBa73-60-1-1-2	95	134	4.75	8	8
30	BRBa73-61-4-1-1	105	143	5.96	10	10
31	BRBa73-62-1-1-1	99	133	4.84	9	8
32	**BRBa73-62-3-1-2**	**104**	**140**	**6.62**	**9**	**9**
33	BRBa73-62-5-1-4	101	143	6.46	8	7
34	BRBa73-63-6-1-1	98	134	5.43	9	8
35	BRBa73-67-1-1-1	101	143	6.12	7	7

Sl	Designation	Plant Height (cm)	Growth duration(days)	Yield (t/ha)	Tiller No./Plant	Effective Tiller No./Plant
36	BRBa74-58-2-1-1	101	144	5.47	8	6
37	**BRBa74-9-5-1-2**	**107**	**142**	**6.84**	**7**	**6**
38	**BRBa75-2-1-1-1**	**98**	**134**	**7.11**	**8**	**7**
39	**BRBa76-10-2-1-1**	**107**	**140**	**6.55**	**6**	**5**
40	BRBa76-10-3-2-1	95	134	5.51	10	9
41	**BRBa76-10-3-2-3**	**99**	**133**	**6.76**	**8**	**8**
42	**BRBa76-10-3-3-1**	**98**	**133**	**6.48**	**8**	**8**
43	BRBa76-10-3-3-2	87	130	5.38	6	5
44	BRBa76-10-3-3-3	99	133	6.24	8	7
45	BRBa76-11-2-1-1	102	133	5.99	9	8
46	BRBa76-11-2-2-2	100	133	5.93	7	6
47	BRBa76-11-3-2-1	101	136	5.66	9	8
48	BRBa76-11-4-2-1	93	130	5.58	9	7
49	**BRBa76-15-1-2-3**	**101**	**134**	**6.49**	**8**	**7**
50	**BRBa76-16-2-1-1**	**106**	**134**	**7.18**	**8**	**7**
51	BRBa76-17-1-1-1	104	132	5.54	9	8
52	BRBa76-18-1-1-3	103	137	5.82	8	7
53	BRBa76-18-2-1-1	105	136	5.95	9	8
54	BRBa76-19-B-1-2	106	141	5.96	8	7
55	BRBa76-3-4-1-1	99	143	6.35	7	6
56	BRBa76-6-3-1-3	100	143	6.19	7	6
57	BRBa76-6-3-2-3	99	130	6.13	8	6
58	BRBa76-7-3-1-1	107	138	5.95	8	7
59	BRBa76-8-1-2-4	89	136	6.31	10	9
60	**BRBa76-8-3-1-2**	**110**	**136**	**7.74**	**12**	**10**
61	**BRBa76-8-4-1-3**	**103**	**135**	**7.99**	**7**	**7**
62	BRBa76-8-4-2-3	105	135	6.39	8	7
63	BRBa76-9-2-1-1	104	134	6.01	8	7
64	BRBa76-9-2-2-1	107	134	5.95	7	6
65	BRBa77-1-2-1-1	96	134	5.51	10	8
66	BRBa77-10-1-2-2	102	144	5.64	8	7
67	BRBa77-10-6-1-1	96	134	5.72	10	9
68	BRBa77-13-2-3-1	100	144	4.75	10	9
69	BRBa77-13-2-4-1	111	144	5.05	10	9
70	BRBa77-13-2-4-2	95	141	5.28	9	9
71	BRBa77-19-2-1-1	93	136	5.06	9	8
72	BRBa77-2-2-1-2	91	133	4.76	8	6
73	BRBa77-24-2-1-4	115	140	3.41	8	7
74	BRBa77-27-6-1-10	107	133	4.73	10	9
75	BRRI dhan74	90	133	5.43	9	
76	BRRI dhan101	101	133	5.45	8	7
77	BRRI dhan102	97	141	4.83	10	9
	LSD(0.05)	4.9	1.6	1.4	1.6	2.0
	Heritability	0.86	0.98	0.17	0.38	0.17

D/S: 29.11.2024 D/T:11.01.2025

Expt. 4.3.1 Advanced Yield Trial (AYT#1_Barishal) for Favorable Boro during Boro 2024-25

P L Biswas, T. Saha, H Khatun and M A I Khan

Objective: The advanced yield trial was conducted to evaluate the specific and general adaptability of the advanced lines as compared with standard checks in on-station condition at Charbadna farm, Barishal.

Materials and methods: A total of eight entries along with three checks BRRI dhan74, BRRI hybrid dhan3 and BRRI hybrid dhan8 were grown at Charbadna farm, BRRI, Barishal. The unit plot size was 5.4 m x 5 rows following RCBD design with three replications. Forty-day old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 20 cm. Fertilizer doses were given at 260: 110: 120: 110: 10 kg/ha Urea, TSP, MoP, Gypsum and Zinc Sulphate. Full amount of TSP, gypsum & $ZnSO_4$ and 2/3rd MoP were applied at the time of final land preparation. Urea was top dressed in three installments at 15, 30 and 45 days after transplanting (DAT). Rest MoP was top dressed along with 3rd top dress of Urea. Other cultural practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: The growth duration of the tested materials was ranged from 135 to 152 days whereas the growth duration of the check varieties ranged from 135 (BRRI dhan74) to 142 days (BRRI hybrid dhan8). The plant height of the tested entries was varied from 88 to 110 cm. The yield range was 4.10t/ha to 6.26t/ha. None of the tested entries found to be outyielded over the check varieties. Yield loss of all the tested entries occurred due to severe infestation of BLB causing pathogen (Table 23).

Table 23. Yield and ancillary characters of AYT#1_Barishal genotypes, Boro 2024-25

Sl	Designation	Growth duration(days)	Plant height(cm)	Yield (t/ha)	Tiller number/Plant	Effective tiller/Plant
1	H1278-1-1-4-2-B	148	110	4.82	8	7
2	H1280-3-2-2-3-B	152	108	4.10	7	6
3	H1286-3-5-1-3-B	151	109	5.07	9	8
4	H1291-1-3-1-3-B	143	88	5.58	7	7
5	H1310-3-5-1-3-B	147	100	6.26	8	7
6	H1318-1-2-1-5-B	148	99	5.14	9	7
7	H1326-14-2-2-3-B	145	105	5.33	7	6
8	H1326-2-4-2-3-B	144	111	5.88	8	7
9	BRRI dhan74	135	93	5.22	10	9
10	BRRI Hybrid dhan3	141	97	5.96	8	8
11	BRRI Hybrid dhan8	142	95	6.54	7	6
LSD(0.05)		1.00	5.59	0.76	1.45	1.03
Heritability		0.99	0.93	0.85	0.85	0.82

D/S:28.11.2024 D/T:01.01.2025

Expt. 4.3.2. Advanced Yield Trial (AYT#2_Barishal) for Favorable Boro during Boro 2024-25

Materials and methods: A total of seven entries along with three checks BRRI dhan74, BRRI dhan101 and BRRI dhan102 were grown at Charbadna farm, BRRI, Barishal. The unit plot size was 5.4 m x 5 rows following RCBD design with three replications. Forty- days old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 20 cm. Fertilizer doses were given at 260: 110: 120: 110: 10 kg/ha Urea, TSP, MoP, Gypsum and Zinc Sulphate. Full amount of TSP, gypsum & $ZnSO_4$ and 2/3rd MoP were applied at the time of final land preparation. Urea was top dressed in three installments at 15, 30 and 45 days after transplanting (DAT). Rest MoP was top dressed along with 3rd top dress of Urea. Other cultural practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: The growth duration of the tested materials was ranged from 134 to 145 days whereas the growth duration of the check varieties ranged from 134 (BRRI dhan74) to 147 days (BRRI dhan102). The plant height of the tested entries wasvaried from 101 to 110cm. The yield range was 4.05t/ha to 6.70t/ha. Only one genotypes BRBa23-11-5-2-1-P2 showed higher yield (7.10t/ha) than the check varieties (Table 23).

Table 24. Yield and ancillary characters of selected AYT#2-Barishal genotypes, Boro 2024-25

SL	Designation	Growth duration(days)	Plant height (cm)	Yield(t/ha)
1	BRBa21-13-2-2-1	144	108	6.60
2	BRBa21-4-1-2-1-P4	144	110	6.70
3	**BRBa23-11-5-2-1-P2**	**144**	**108**	**7.10**
4	BRBa23-5-3-3-5	145	105	4.79
5	BRBa24-2-4-1-1-1-B	134	101	5.39
6	BRBa26-1-1-1-2	145	105	6.17
7	BRBa71-1-2-1-2-4-1	136	112	6.02
8	BRRI dhan74	134	94	4.05
9	BRRI dhan101	143	108	6.50
10	BRRI dhan102	147	100	6.13
LSD (0.05)		1.27	5.96	2.10
Heritability		0.99	0.85	0.33

D/S:30.11.2024 D/T:2.01.2025

Expt. 4.3.3. Advanced Yield Trial (AYT#3 _NGR) for Favorable Boro during Boro 2024-25

Materials and methods: A total of eight entries along with three checks BRRI dhan74, BRRI dhan101 and BRRI dhan102 were grown at Charbadna farm, BRRI, Barishal. The unit plot size was 5.4 m x 5 rows following RCBD design with three replications. Forty -days old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 20 cm. Fertilizer doses were given at 260: 110: 120: 110: 10 kg/ha Urea, TSP, MoP, Gypsum and Zinc Sulphate. Full amount of TSP, gypsum & $ZnSO_4$ and 2/3rd MoP were applied at the time of final land preparation. Urea was top dressed in three installments at 15, 30 and 45 days after transplanting (DAT). Rest MoP was top dressed along with 3rd top dress of Urea. Other cultural practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: Among the tested entries, BRBa3-1-7(9.70t/ha), BRBa40-NGR1255-1(9.19t/ha), and NGR1254-1(9.12t/ha) gave the higher yield than the highest yielded check BRRI dhan101 (8.97t/ha). Growth duration of tested entries ranged from 127 to 132 days whereas in BRRI dhan101 it was 131days. Plant height range of the tested entries was 99 to 107cm whereas, in BRRI dhan101 it was 113cm. (Table 25).

Table 25. Yield and ancillary characters of AYT#3_NGR genotypes, Boro 2024-25

Sl	Designation	Growth duration (days)	Plant height (cm)	Yield (t/ha)	Tiller number (No./hill)	Effective Tiller (No./hill)
1	BRBa 3-1-7	132	99	9.7	13	12
2	BRBa40-NGR 1255-1	132	107	9.19	13	12
3	BRBaNGR 1148-1	128	100	8.56	12	11
4	BRBaNGR 1254-1	132	113	9.12	13	12
5	BRBaNGR 178-1	127	99	8.64	11	11
6	BRBaNGR 223-2	127	105	7.98	12	12
7	BRBaNGR 225-1	127	102	8.71	11	10
8	BRRI dhan74	127	102	8.33	11	10
9	BRRI dhan101	131	113	8.97	12	11
10	BRRI dhan102	133	112	8.79	13	12
LSD (0.05)		1.1	2.5	0.64	1.52	1.6
Heritability		0.97	0.97	0.76	0.78	0.85

D/S: 14.12.2024 D/T:15.01.25

Expt. 4.3.4. Advanced Yield Trial (AYT#4_FBR) for Favorable Boro during Boro 2024-25

P L Biswas, T. Saha, H Khatun and M A I Khan

Objective: The advanced yield trial was conducted to evaluate the specific and general adaptability of the advanced lines as compared with standard checks in on-station condition at Charbadna farm, Barishal.

Materials and methods: A total of ninety-four entries along with three checks BRRI dhan74, BRRI dhan101 and BRRI dhan102 were grown at Charbadna farm, BRRI, Barishal. The unit plot size was 5.4 m x 5 rows following Row Column design with three replications. Thirty-seven days old seedlings of each genotype were transplanted @2-3 seedlings with a spacing of 20 cm x 20 cm. Fertilizer doses were given at 260: 110: 120: 110: 10 kg/ha Urea, TSP, MoP, Gypsum and Zinc Sulphate. Full amount of TSP, gypsum & $ZnSO_4$ and 2/3rd dose of MoP were applied at the time of final land preparation. Urea was top dressed in three installments at 15, 30 and 45 days after transplanting (DAT). Rest MoP was top dressed along with 3rd top dress of Urea. Other cultural practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (g) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: A total of six entries were selected based on grain yield. Only one genotype viz. BR14007-3R-100 found out yielded over the four check varieties and other five genotypes gave higher yield than three checks excluding BRRI dhan89.The yield range of the tested entries varied from 3.55 to 8.13 t/ha with a growth duration range of 111 to 144 days. The tested entry BR14007-3R-100 gave the highest yield (8.14t/ha) with a growth duration of 138 days which is almost 14% higher yield with a short growth duration to the check BRRI dhan92(Table 26).

Table 26. Yield and ancillary characters of AYT#4 genotypes, Boro 2024-25

Sl	Designation	Growth duration(days)	Plant height(cm)	Yield(t/ha)
1	BR13142-5R-51	134	100	6.38
2	BR13153-5R-63	135	103	7.22
3	BR13712-3R-111	128	96	6.12
4	BR13712-3R-119	129	104	5.90
5	BR13712-3R-24	129	92	6.80
6	BR13712-3R-27	126	95	5.71
7	BR13712-3R-44	127	88	5.78
8	BR13712-3R-50	127	80	6.04
9	BR13712-3R-52	128	87	6.20
10	BR13712-3R-62	129	113	3.55
11	BR13712-3R-75	126	95	6.38
12	BR13713-3R-95	132	109	6.58
13	BR13983-2R-1	127	102	6.38
14	BR13983-2R-106	127	106	6.81
15	BR13983-2R-107	130	110	7.11
16	BR13983-2R-75	126	103	5.90

Sl	Designation	Growth duration(days)	Plant height(cm)	Yield(t/ha)
17	BR13983-3R-123	132	104	7.18
18	BR13983-3R-151	126	97	5.77
19	BR13983-3R-41	127	103	6.07
20	BR13983-3R-79	134	105	6.25
21	BR13984-2R-1	127	111	6.28
22	BR13984-2R-59	128	97	6.27
23	BR13984-3R-64	111	100	6.57
24	BR13984-3R-65	128	97	5.72
25	BR13985-2R-102	124	100	6.86
26	BR13985-2R-123	130	104	6.99
27	BR13985-3R-228	138	109	5.84
28	BR13985-3R-231	139	103	6.81
29	BR13986-2R-15	137	109	6.07
30	BR13986-2R-87	138	105	6.45
31	BR13987-2R-21	128	100	6.13
32	BR13987-2R-27	128	86	6.36
33	BR13987-2R-54	130	86	7.01
34	BR13987-2R-57	126	99	6.54
35	BR13987-2R-63	129	86	5.65
36	BR13987-3R-34	133	90	6.46
37	BR13987-3R-40	129	86	6.34
38	BR13987-3R-41	129	97	6.49
39	BR13987-3R-56	132	96	7.10
40	BR13987-3R-61	133	110	5.70
41	BR13987-3R-91	134	110	6.11
42	BR13988-3R-123	123	99	6.27
43	BR13988-3R-150	130	101	5.64
44	BR13988-3R-151	137	107	7.12
45	**BR13988-3R-206**	**140**	**107**	**7.49**
46	BR13989-2R-10	128	91	6.14
47	BR13989-2R-32	140	105	6.89
48	BR13989-2R-43	128	99	5.83
49	BR13989-3R-116	129	105	7.17
50	BR13989-3R-92	130	98	6.89
51	BR13990-2R-12	130	108	6.27
52	BR13990-2R-55	127	103	5.96
53	BR13990-2R-57	126	96	6.32
54	BR13990-2R-6	125	94	6.11
55	BR13990-3R-2	125	86	6.48
56	BR13990-3R-25	126	99	6.26
57	BR13990-3R-74	126	96	6.21
58	BR13991-2R-19	129	95	6.94
59	BR13991-3R-20	127	100	5.90
60	BR13995-2R-89	138	99	6.45
61	BR13995-3R-100	141	95	6.42
62	BR13995-3R-110	141	96	7.14
63	BR13995-3R-130	140	93	7.23
64	BR13995-3R-17	141	97	5.79
65	BR13996-2R-19	132	101	6.91
66	BR13996-2R-25	136	99	6.23
67	BR13996-2R-3	137	101	6.70
68	BR13996-3R-158	135	98	7.31
69	BR13996-3R-159	134	95	7.10
70	BR13997-2R-105	128	110	6.71
71	BR13997-2R-52	129	100	6.07
72	BR13997-2R-83	129	114	6.80
73	BR13997-2R-90	127	103	6.02
74	BR13997-3R-246	129	111	6.78
75	BR13997-3R-247	133	115	6.86
76	**BR13997-3R-254**	**129**	**114**	**7.50**
77	BR13997-3R-255	130	98	6.72
78	BR13997-3R-277	130	102	6.71
79	BR13997-3R-278	134	98	6.46
80	BR13998-3R-188	135	101	6.63
81	BR13998-3R-204	137	101	6.21
82	BR13998-3R-241	132	108	6.53
83	BR13999-3R-136	132	114	6.35

Sl	Designation	Growth duration(days)	Plant height(cm)	Yield(t/ha)
84	BR14000-3R-163	134	105	6.39
85	**BR14001-2R-27**	**133**	**97**	**7.88**
86	BR14001-2R-81	130	97	7.23
87	BR14003-3R-39	136	115	7.46
88	BR14003-3R-96	127	97	6.50
89	BR14005-2R-101	131	95	5.99
90	BR14006-2R-17	125	107	5.52
91	BR14006-2R-7	128	99	6.17
92	BR14006-2R-9	125	93	6.50
93	BR14006-3R-145	128	110	5.60
94	**BR14006-3R-34**	**134**	**112**	**7.51**
95	**BR14007-2R-47**	**137**	**90**	**7.78**
96	**BR14007-3R-100**	**138**	**95**	**8.13**
97	BRRI dhan102 (Ck)	140	101	6.23
98	BRRI dhan88 (Ck)	128	87	6.05
99	BRRI dhan89 (Ck)	138	101	7.98
100	BRRI dhan92 (Ck)	144	120	7.14
LSD(0.05)		7.23	7.41	1.44
Heritability		0.76	0.91	0.35

D/S:10.12.2024 D/T: 17.01.2025

Expt. 4.4.1: Regional Yield Trial for Favorable Rice, Barishal (RYT# FBR_Barishal) during Boro 2024-2025

T Saha, P L Biswas, H Khatun and M A I Khan

Objective: On-station evaluation of the advanced breeding lines for adaptability along with the check varieties in different regional stations and BRRI headquarters.

Materials and methods: One regional yield trial of favorable boro rice (RYT#FBR_Barishal) was conducted at BRRI, Gazipur and ten other regional stations of BRRI during Boro 2023-24. Tested genotypes including the standard checks are mentioned in Table 38. The unit plot size was 5.4 m x 2 m following RCB design with three replications. Thirty-six days old seedlings of each genotype were transplanted @ 2-3 seedlings with a spacing of 20cm x 20cm. Fertilizers were applied @ 260:100:120:110:10 kg Urea, Triple Super Phosphate, Muriate of Potash, Gypsum and Zinc Sulphate per hectare respectively. Urea was applied in three equal splits at 15 days intervals starting from 15 DAT. Total amounts of TSP, MoP, Gypsum and Zinc Sulphate were applied at final land preparation. Crop management practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha). Statistical analysis was performed for mean separation by ANOVA and least significant difference (LSD).

Results: The Table 26 presents the grain yield performance (t/ha) of seven rice genotypes (five advanced breeding lines and two checks) evaluated across twelve environments (L1–L12) in Bangladesh. Considerable variation in yield performance was observed among genotypes and across locations, indicating strong genotype × environment (G×E) interaction. Across environments, the mean yield ranged from 6.63 t/ha to 7.38t/ha**.** BRBaNGR 324-1 showed the highest yield among all genotypes across environments. On the other hand, BRBaNGR 1256-1 performed moderately to high yields in several environments (7.81 t/ha in L2; 8.17 t/ha in L5). BRBaNGR994-1 exhibited good performance across most locations, with the highest yields recorded in L5 (9.02 t/ha) and L9 (9.63 t/ha). Among the tested lines, BRBaNGR 324-1 and BRBaNGR994-1 demonstrated better performance compared to checks. There is no significant difference between the BRBaNGR 1256-1 with checks, and it showed almost similar performance to checks. Among the tested materials, the plant height ranged from 95.8 cm of BRBa NGR324-1to 100 cm of BRBaNGR994-1. The highest grain yield (9.63 t/ha) was found in BRBaNGR994-1 at Rangpur and the lowest grain yield (4.67t/ha) was found in BRBa736-1 at Sirajganj. The check yields of BRRI dhan74 was ranged from 5.17 t/ha at Sirajganj to 8.27 t/ha at Gopalganj whereas another check variety BRRI dhan102 gave 5.07/ha at Gazipur to 8.44t/ha at Gopalganj (Table 27).

Table 27. Yield and ancillary characters of RYT (FBR_Barishal) genotypes, Boro 2024-25, Barishal

Genotype	Plant Height (cm)	Growth duration (day)	Yield (t/ha)												Mean Yield (t/ha)
			L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	
BRBaNGR 324-1	**95.8**	**141**	**6.45**	**8.32**	**7.93**	**5.37**	**8.84**	**6.56**	**6.92**	**7.97**	**7.34**	**8.17**	**5.21**	**9.49**	**7.38**
BRBaNGR 1256-1	**98.3**	**141**	**5.66**	**7.81**	**7.14**	**5.16**	**8.17**	**5.55**	**6.28**	**7.34**	**7.09**	**7.45**	**5.08**	**6.82**	**6.63**
BRBaNGR350-2	99.1	141	5.95	8.01	7.20	4.72	6.90	6.18	5.11	8.18	7.02	7.02	6.38	6.17	6.57
BRBaNGR736-1	100.8	145	6.26	8.34	5.04	5.34	8.63	5.83	6.25	7.31	9.09	7.74	4.67	5.92	6.71
BRBaNGR994-1	**100.0**	**145**	**6.00**	**8.60**	**5.80**	**5.68**	**9.02**	**6.23**	**7.00**	**7.64**	**9.63**	**7.90**	**5.23**	**7.13**	**7.16**
BRRI dhan74(Ck)	104.5	148	5.97	8.05	6.95	5.79	8.27	5.87	6.17	7.06	6.93	7.87	5.17	7.07	6.77
BRRI dhan102(Ck)	97.5	141	5.07	8.14	7.11	5.21	8.44	5.213	7.26	8.04	7.76	8.33	6.14	6.54	6.94
LSD at 0.05	2.5	2.3	0.64	0.57	0.36	0.74	1.17	0.40	0.69	0.56	0.46	0.43	1.76	1.58	0.6

Heritability(H2)	0.91	0.93	0.73	0.38	0.98	0.44	0.63	0.9	0.88	0.78	0.98	0.81	0.72	0.77	0.72

D/S:8.12.2024 D/T:14.1.2025

L1=Barishal, L2=Bhanga, L3=Cumilla, L4=Gazipur, L5=Gopalganj, L6=Habiganj, L7=Kustia, L8=Rajshahi, L9=Rangpur, L10=Satkhira, L11=Sirajganj, L12=Sonagazi

Expt. 4.4.2. Regional Yield Trial for Favorable Boro of Short Duration Genotypes, Boro 2024-25

P S Biswas, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to understand general and regional adaptability and select the best-performing advanced breeding lines with the highest genetic merits.

Materials and methods: A total of ten genotypes along with two checks viz. BRRI dhan28, BRRI dhan88 and BRRI dhan102 were grown at Charbadna farm, Barishal during Boro 2024-25. The unit plot size was 5.4m x 2.0m following RCBD design with three replications. Forty-days old seedlings of each genotype were transplanted with a spacing of 20cm x 20cm. Fertilizers were applied @260:100:120:110:10 kg Urea, TSP, MoP, gypsum and zinc sulphate per hectare respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Full dose of other fertilizers were applied at final land preparation. Crop management practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height, tiller/hill, panicle/hill, panicle length, fertility (%), 1000-grain weight and grain yield.

Results: Two entries viz., BR13027-BC1-3R-139 (6.69t/ha) and BR13136-5R-165 (6.44t/ha) were found to yield over the highest yielded check BRRI dhan88(6.32t/ha) (Table 28). The growth duration range of the tested entries was found 129-136 days.

Table 28. Yield and ancillary character of RYT#FBR_SD, Boro 2024-25, BRRI, Barishal

Sl	Designation	Growth duration (days)	Plant Height (cm)	Yield (t/ha)
1	**BR13027-BC1-3R-139**	**130**	**90**	**6.69**
2	BR13027-BC1-3R-198	129	106	6.12
3	BR13136-5R-139	131	94	6.26
4	**BR13136-5R-165**	**131**	**98**	**6.44**
5	BR13141-5R-22	129	104	6.29
6	BR13153-5R-91	130	105	5.98
7	BR13418-5R-20	130	96	5.59
8	BR13418-5R-21	136	94	5.85
9	BR13418-5R-58	130	86	5.50
10	SVIN109	132	103	6.27
11	BRRI dhan28 (Ck)	130	98	5.80
12	BRRI dhan88 (Ck)	131	90	6.32
13	BRRI dhan102 (Ck)	139	98	5.14
	LSD(0.05)	2.36	6.14	0.59
	Heritability	0.91	0.87	0.75

D/S:9/12/2024 D/T:15/1/2025

Expt. 4.4.3. Regional Yield Trial for Favorable Boro of Medium Duration genotype, Boro 2023-24

P S Biswas, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to understand general and regional adaptability and select the best-performing advanced breeding lines with the highest genetic merits.

Materials and methods: A total of twelve genotypes along with three checks viz. BRRI dhan88, BRRI dhan89 and BRRI dhan102 were evaluated at Charbadna farm of BRRI R/S, Barishal during Boro2024-25. The unit plot size was 5.4m x 2.0m following RCBD design with three replications. Forty-days old seedlings of each genotype were transplanted with a spacing of 20cm x 20cm. Fertilizers were applied 260:100:120:110:10 kg Urea, TSP, MoP, gypsum and zinc sulphate per hectare respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Full dose of other fertilizers were applied at final land preparation. Crop management practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height, tiller/hill, panicle/hill, panicle length, fertility (%), 1000-grain weight and grain yield.

Results: The yield range of the tested entries was 5.33-6.30t/ha with a growth duration range of 132-143 days (Table 29). None of the tested entries were found to yield more than check BRRI dhan89(6.38t/ha).

Table 29. Yield and ancillary characters of RYT#FBR-MD genotypes, Boro 2024-25

Sl	Designation	Growth duration (days)	Plant Height(cm)	Yield(t/ha)
1	BR11903-5R-56	133	97	5.78
2	BR12570-5R-66-3	143	107	5.82
3	BR13027-BC1-3R-21	140	109	6.12
4	BR13027-BC1-3R-24	142	111	5.55
5	BR13027-BC1-3R-51	132	97	6.12

6	BR13027-BC1-3R-51	132	97	5.89
7	BR13027-BC1-3R-76	132	98	6.30
8	BR13148-5R-12	133	98	6.04
9	IR17A2922	141	104	6.07
10	IR18A1398	143	107	5.60
11	IR19A9128	132	98	5.33
12	BRRI dhan102 (Ck)	142	97	5.39
13	BRRI dhan88 (Ck)	132	85	5.85
14	BRRI dhan89 (Ck)	143	108	6.38
LSD(0.05)		1.05	4.15	0.59
Heritability		0.99	0.95	0.56

D/S:7.12.2024 D/T:14.1.2025

Expt. 4.4.4. Regional Yield Trial for Medium Long Duration under Development of Favorable Boro rice, Boro 2024-25

P S Biswas, T Saha, P L Biswas, H. Khatun and M A I Khan

Objective: The regional yield trial was conducted to understand general and regional adaptability and select the best-performing advanced breeding lines with the highest genetic merits.

Materials and methods: A total of thirteen genotypes along with two checks viz. BRRI dhan92 and BRRI dhan102 were grown at BRRI charbadna farm, Barishal during Boro 2024-25. The unit plot size was 5.4m x 2.0m following RCBD design with three replications. Thirty-seven days old seedlings of each genotype were transplanted @ 2-3 seedlings with a spacing of 20cm x 20cm. Fertilizers were applied @ 260:100:120:110:10 kg Urea, Triple Super Phosphate, Muriate of Potash, Gypsum and Zinc Sulphate per hectare respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Total amounts of TSP, MoP, Gypsum and Zinc Sulphate at final land preparation. Crop management practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha).

Results: The yield range among the genotypes varied from 5.03 t/ha to 7.27t/ha with a growth duration rage of 135-143days (Table 30). The five genotypes were found to yield more than the check varieties BRRI dhan92(5.07t/ha) and BRRI dhan102(5.22t/ha).

Table 30. Yield and ancillary characters of RYT# MLD_FBR, Boro 2024-25

Sl	Designation	Growth duration (days)	Plant Height(cm)	Yield(t/ha)
1	BR 12208-5R-403	139	91	5.89
2	**BR 12671-4R-138**	**135**	**105**	**6.48**
3	BR 12671-4R-312	141	102	6.06
4	**BR 12672-4R-261**	**139**	**102**	**6.23**
5	**BR 12679-4R-6**	**143**	**100**	**6.39**
6	**BR11894-R-R-R-R-169**	**140**	**100**	**7.27**
7	BR13137-5R-107	139	117	5.97
8	BR13418-5R-18	143	101	5.03
9	IR12A173	138	105	5.52
10	IR19A1473	140	102	4.83
11	**IR19A8188**	**143**	**110**	**6.33**
12	IR19A8263	143	125	5.45
13	IR19A8986	136	92	5.59
14	BRRI dhan102 (Ck)	143	100	5.22
15	BRRI dhan92 (Ck)	145	112	5.06
LSD(0.05)		6.08	4.19	0.66
Heritability		0.43	0.97	0.87

D/S:8.12.2024 D/T:14.11.2025

Expt. 4.4.5. Regional Yield Trial for Basmoti under Development of Favorable Boro rice, Boro 2024-25

Md R Islam, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to understand general and regional adaptability and select the best-performing advanced breeding lines with the highest genetic merits.

Materials and methods: A total of four genotypes along with check BRRI dhan104 were grown at BRRI charbadna farm, Barishal during Boro 2024-25. The unit plot size was 5.4m x 2.0m following RCBD design with three replications. Thirty four days old seedlings of each genotype were transplanted @ 2-3 seedlings with a spacing of 20cm x 20cm. Fertilizers were applied @ 260:100:120:110:10 kg Urea, Triple Super Phosphate, Muriate of Potash, Gypsum and Zinc Sulphate per hectare respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Total amounts of TSP, MoP, Gypsum and Zinc Sulphate at final land preparation. Crop management practices were done as and when necessary. Data were recorded on date of

flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha).

Results: The average yield range of the tested entries were 5.41-5.72(t/ha). None of the tested entries found higher yielded than check variety BRRI dhan104(6.06t/ha). The growth duration rage of the tested entries found 126-128 days (Table 31).

Table 31. Yield and ancillary characters of RYT# Basmoti_FBR, Boro 2024-25, Barishal

Sl	Designation	Growth duration (days)	Plant height(cm)	Yield (t/ha)	Tiller number	Effective Tiller
1	BRrang55-RGA-14-2-1-5	128	110	5.72	9	8
2	BRrang55-RGA-40-1-1-1	126	99	5.41	9	7
3	BRrang55-RGA-44-5-1-1	127	110	5.42	10	9
4	BRRI dhan104 (Ck.)	126	96	6.06	10	8
LSD(0.05)		2.62	0.41	0.88	2.23	1.75
Heritability		0.98	0.96	0.00	0	0

D/S: 17.12.2025 D/T:21.01.2025

Expt. 4.4.6. Regional Yield Trial for Zinc Enriched Rice under Development of Favorable Boro rice, Boro 2024-25

P S Biswas, T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to understand general and regional adaptability and select the best-performing advanced breeding lines with the highest genetic merits.

Materials and method: A total of three genotypes along with three checks BRRI dhan28, BRRI dhan74, BRRI dhan89 and BRRI dhan100 was grown at BRRI Charbadna farm, Barishal during Boro 2024-25. The unit plot size was 5.4m x 2.0m following RCBD design with three replications. Thirty four days old seedlings of each genotype were transplanted @ 2-3 seedlings with a spacing of 20cm x 20cm. Fertilizers were applied @ 260:100:120:110:10 kg Urea, Triple Super Phosphate, Muriate of Potash, Gypsum and Zinc Sulphate per hectare respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Total amounts of TSP, MoP, Gypsum and Zinc Sulphate at final land preparation. Crop management practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha).

Results: The yield range of the tested entries was 4.16-6.81t/ha. The growth duration range of the tested entries was 127-133 days (Table 32). Only one genotypes BR11401-1-2-4-1 showed similar yield (6.81t/ha) with check variety BRRI dhan89(6.74t/ha).

Table 32. Yield and ancillary characters of RYT# ZER, Boro 2024-25, BRRI Barishal

Sl	Designation	Growth duration (days)	Plant height (cm)	Yield (t/ha)	Tiller No./plant	Effective Tiller No./plant
1	BR11401-1-2-4-1	133	106	6.81	7	6
2	BR11401-8-3-1-1	128	97	5.32	8	6
3	BR12038-65-2-1	127	91	4.16	6	5
4	BRRI dhan100 (Ck)	127	101	5.39	9	8
5	BRRI dhan28 (Ck)	127	98	6.40	9	8
6	BRRI dhan74 (Ck)	127	91	6.04	10	8
7	BRRI dhan89 (Ck)	136	100	6.74	7	6
LSD(0.05)		0.35	3.99	0.67	2.10	1.71
Heritability		1.00	0.93	0.93	0.75	0.74

D/S:3.12.2024 D/T:11.01.2025

Expt. 4.4.7. Regional Yield Trial for Pigmented Rice under Development of Favorable Boro rice, Boro 2024-25

T Saha, P L Biswas, H Khatun and M A I Khan

Objective: The regional yield trial was conducted to understand general and regional adaptability and select the best-performing advanced breeding lines with the highest genetic merits.

Materials and method: A total of seven genotypes along with two checks BRRI dhan88 and BRRI dhan89 was grown at BRRI Charbadna farm, Barishal during Boro 2024-25. The unit plot size was 5.4m x 2.0m following RCBD design with three replications. Thirty-four days old seedlings of each genotype were transplanted @ 2-3 seedlings with a spacing of 20cm x 20cm. Fertilizers were applied @ 260:100:120:110:10 kg Urea, Triple Super Phosphate, Muriate of Potash, Gypsum and Zinc Sulphate per hectare respectively. Urea was applied in three equal splits at 15 days interval starting from 15 DAT. Total amounts of TSP, MoP, Gypsum and Zinc Sulphate at final land preparation. Crop management practices were done as and when necessary. Data were recorded on date of flowering and maturity, plant height (cm), tiller/hill, panicle/hill, panicle length (cm), fertility (%), 1000-grain weight (gm) and grain yield (t/ha).

Results: The average yield range of the tested entries was found 4.71-6.5t/ha. The growth duration range was found 119-134days (Table 33). None of the tested entries were found to yield more than checks BRRI dhan88 (7.10t/ha) and BRRI dhan89 (7.13t/ha).

Table 33. Yield and ancillary characters of RYT# Pigmented Rice, Boro 2024-25

Sl	Designation	Plant height(cm)	Growth duration (days)	Yield(t/ha)	Tiller number/plant	Effective Tiller
1	BR 12839-4 R-93	103	123	6.70	10	9
2	BR12837-5R-57	101	139	4.71	8	7
3	BR12838-4R-89-1	108	124	6.40	10	9
4	BR12839-4R-106	115	125	6.50	9	8
5	BR12839-4R-137	92	120	5.49	9	8
6	BR12839-4R-138-4	104	135	5.61	8	7
7	BR12839-4R-5-2	113	123	6.41	7	7
8	BRRI dhan88	90	120	7.13	10	9
9	BRRI dhan89	106	128	7.13	9	8
LSD (0.05)		7.4	8.6	1.0	1.7	1.5
Heritability		0.9	0.8	0.8	0.7	0.6

D/S:22.12.2024 D/T:20.1.2025

PROJECT 5: COLLECTION AND CHARACTERIZATION OF LOCAL GERMPLASM

Expt. 5.1: Characterization of Local Rice Germplasm from the Barisal Region: Focusing on Seedling Height and Anaerobic Tillering Ability for Tidal Non-saline Sub-ecosystem

T Saha, P Biswas, S Mia, H Khatun, MRBH Pranto and MAI Khan

Introduction: The Barisal region, being tidal-prone, faces significant challenges in rice production due to submergence during T. Aman season. Selecting rice germplasm with optimal seedling height and high anaerobic tillering ability can enhance resilience and yield in these conditions.

Objective: This study focuses on identifying local rice varieties that exhibit traits suitable for surviving and thriving in such environmental stressors.

Materials and methods: A total of 371 local rice germplasm including seven HYV checks from the Barisal region was characterized by measuring seedling height (cm) and anaerobic tillering ability. The data were collected and analyzed to identify the best-performing varieties in terms of these traits. Statistical analysis was conducted to compare seedling height and tillering ability across the different varieties, with a focus on selecting germplasm suited for tidal-prone areas.

Results: The data collected from the local rice germplasm reveal significant variation in both seedling height and tillering ability among the different rice varieties. The highest seedling height 136.33 cm was found from Bhushiara followed by Dudmona (127.0 cm). Varieties such as Shobrimaloti followed by Bhushiara showed relatively higher anaerobic tillering ability 22.4 and 19.2 tillers/hill compared to others tested germplasm (Fig. 7). The variations in seedling height and anaerobic tillering ability are important indicators of the suitability of rice varieties for tidal-prone areas, where submergence may influence growth and productivity. Varieties with higher seedling height such as Bhushiara and Dudmona could potentially perform better in tidal areas, where the plants may be submerged under water during high tides. High tillering ability is critical for improving rice yield in challenging environments. Varieties such as Shobrimaloti and also

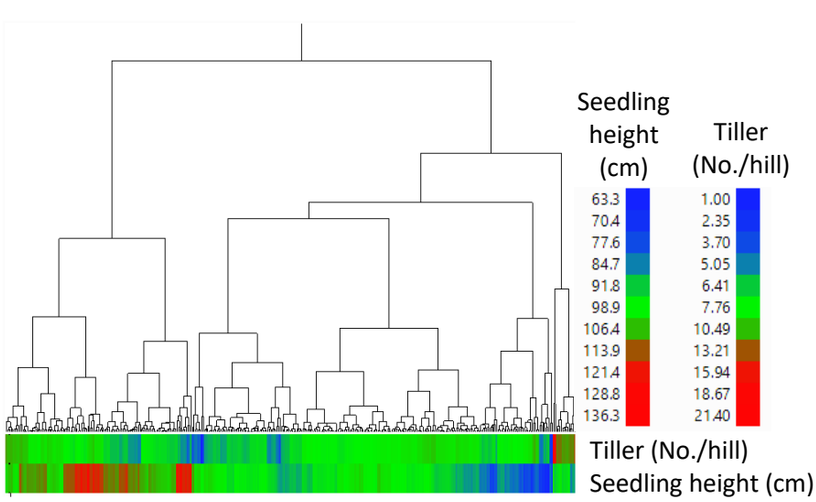

Fig. 7. Clustering local rice germplasm-based seedling height and anaerobic tillering ability

Bhushiara with more tillers per hill, demonstrate better adaptability and productivity potential in the Barisal region. Selecting germplasm with higher tillering ability would likely improve overall

yield in the tidal-prone regions, as more tillers contribute to a greater number of panicles and grains per plant. This study successfully characterized local rice germplasm from the Barisal region based on seedling height and anaerobic tillering ability. The findings indicate that Shobrimaloti has the highest tillering ability, while Bhushiara and Dudmona show superior seedling height, making them promising candidates for cultivation in tidal-prone areas of the Barisal region. Future studies should focus on evaluating other environmental factors such as soil salinity and flood tolerance to further optimize the selection of germplasm suited for tidal regions.

II. PEST MANAGEMENT PROGRAM AREA

Expt. 2.1. Survey and Monitoring of Rice Diseases and Insect Pests

MAI Khan, S Mia, MRBH Pranto, H Khatun, T Saha and P Biswas

Introduction:

The Barishal region, located in the southern part of Bangladesh, is one of the country's major rice-growing areas, characterized by diverse ecosystems including rainfed lowlands and irrigated fields. However, the productivity of rice in this region is frequently threatened by various diseases and insect pests, which cause substantial yield losses each year. Regular survey and monitoring of these biotic stresses are essential to identify the prevalence and distribution of major pathogens and pests, detect emerging threats, and support the development of effective management strategies. This study was therefore undertaken to assess the current status of rice diseases and insect pests in the Barishal region to guide future research and extension activities.

Materials and methods:

To monitor the incidence and severity of rice diseases and insect pests, a survey was conducted during the Aus, T. Aman, and Boro seasons in the Barishal region, covering six districts: Barishal, Jhalokathi, Patuakhali, Pirojpur, Barguna, and Bhola. The survey assessed the incidence and severity patterns of major rice diseases and insect pests across different locations and rice varieties. Data on disease and insect pest incidence (%) and severity were recorded following the SES IRRI (2013) guidelines. Random plots were selected in each district for the survey.

Results:

The occurrence of rice diseases in the Barishal region during the 2024-25 season exhibited variability across districts, rice-growing seasons, and rice varieties. However, the overall disease occurrence was very low in the reporting year. In the T. Aman season, the aromatic rice variety Sakkorkhora was affected by neck blast disease, but both the incidence and severity were minimal. Bacterial leaf blight (BLB) predominated in the Aus and T. Aman seasons, particularly in plots submerged by tidal water. Local T. Aman varieties experienced leaf blast in the seed beds but were not severely affected by neck blast in the field. During the Boro season, rice crops were generally free from major diseases, likely due to the absence of rainfall and relatively higher temperatures in the Barishal region. Sporadic cases of BLB were observed in hybrid rice, and neck blast was found in BRRI dhan47 in Bhola district, though with low incidence. A new finding from this survey was the occurrence of neck blast in BRRI dhan74, a variety previously considered field-tolerant. This suggests the possible evolution of new blast races, either through mutation or introduction. Blast-infected samples have been collected, and race differentiation studies are currently being conducted at the Rice Innovation Lab of BRRI RS, Barishal.

Insect pest occurrence in the Barishal region also varied across districts, seasons, and rice varieties. The Aus and T. Aman seasons generally experienced lower pest pressure, with leaf folder, green leaf hopper, and stem borer causing localized damage. Rice hispa was also observed, but its occurrence was very low during the reporting year. The Boro season typically experiences a lower infestation of major insect pests across Bangladesh. However, in the Barishal region, pest pressure was higher, particularly from yellow stem borer and brown planthopper. Local varieties were less affected than high-yielding varieties. Higher mortality of insect pests, including natural enemies, due to tidal water inundation and relatively higher temperatures may have contributed to the lower infestation during the Aus and T. Aman seasons. Since T. Aman is the predominant crop in the Barishal region, pest buildup in T. Aman crop residues can lead to higher pest infestations in the subsequent Boro season.

Expt. 2.2. Abundance of insect pests and their relationships with weather parameters at Barishal region

MAI Khan, S Mia, MRBH Pranto, H Khatun, T Saha and P Biswas

Introduction:

Studies on insect population dynamics are crucial for effective pest management. The use of light traps for monitoring provides valuable insights into seasonal fluctuations, helping farmers and researchers develop more targeted pest control strategies.

Materials and methods:
BRRI RS in Barishal regularly monitors light trap data. In the 2024-25 reporting year, the abundance of insect pests and their relationships were analyzed using the Random Forest Model.
Results:
Monthly analysis of insect population abundance revealed several key trends. Notably, there was a significant increase in the population of most species in October and November 2024. For example, species such as the Yellow Stemborer, Brown Plant Hopper, and White Backed Planthopper exhibited marked population surges during these months. In contrast, species like the Green Leaf Hopper and White Leaf Hopper showed more stable population levels, with gradual increases and decreases across the months. This suggests that these species may be more resilient to environmental changes. Early months, particularly July and August, exhibited lower overall populations for most species, which could be attributed to various ecological factors, including initial establishment or reduced pest emergence early in the season. Some species, like the Leaf Folder and Rice Bug, displayed erratic patterns, suggesting sensitivity to specific environmental cues or agricultural interventions.
The analysis of the relationship between weather parameters and insect population abundance, using the Random Forest model, revealed that mean temperature (26.02%), solar radiation (17.75%) and max. tidal height (16.24%) are the most influential factors, accounting for a significant portion of the variance in insect populations (Fig. 8). These findings align with existing literature, highlighting the crucial role of temperature, sunlight and inundation in regulating insect behavior, metabolism, and reproduction. Tidal height (max) emerged as an important factor, particularly for species inhabiting coastal and wetland areas, while cloudiness and relative humidity showed a moderate influence on insect activity. Interestingly, parameters such as rainfall and evaporation were of relatively low importance, suggesting their effects may be secondary in this context. These results emphasize the complexity of ecological interactions, where weather parameters interact with other environmental factors to shape insect population dynamics. Future research could benefit from incorporating additional ecological variables and long-term data to gain a more comprehensive understanding of these dynamics. This study underscores the need for continuous surveillance to inform timely control measures and enhance understanding of the ecological factors influencing pest abundance.

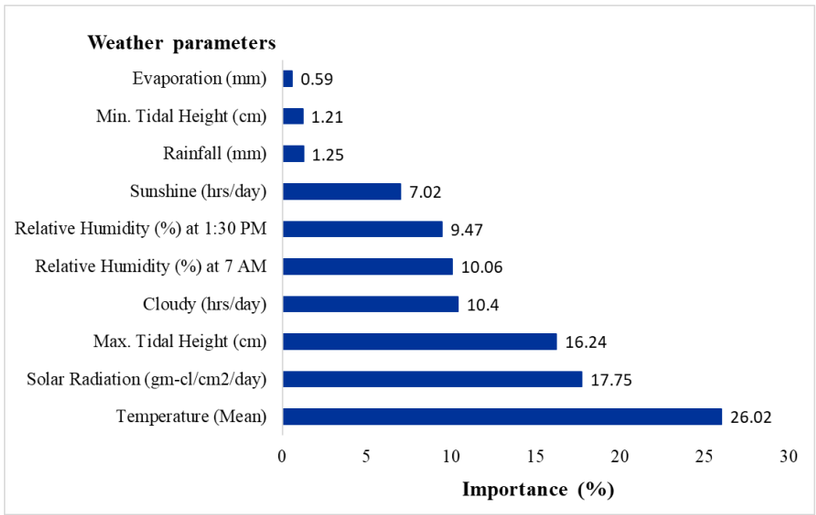

Fig. 8. Feature Importance for Weather Parameters on Insect Abundance in Barishal region

Expt. 2.3. Development of Deployment of Multi-Allelic Blast Resistant Rice Lines for Durable Disease Resistance
MAI Khan, S Mia, MRBH Pranto, H Khatun, T Saha and P Biswas
Introduction:
This study was designed to evaluate the effectiveness of multi-allelic versus single-allelic resistance in rice lines against blast diseases, a significant threat to rice production. Multi-allelic resistance is expected to offer broader and more durable disease protection, while single-allelic resistance may be limited to specific disease types. The findings aim to provide valuable insights into the potential of multi-allelic resistance for sustainable disease management in rice cultivation.
Materials and methods:
The methodology involved comparing disease incidences, including both neck and leaf blast, across several rice lines with different allelic compositions. Disease severity was quantified as a

percentage, and statistical comparisons were conducted to assess the relative performance of multi-allelic and single-allelic resistant lines.

Results:

The rice lines with multi-allelic resistance, such as pi21/Pish, exhibited significantly lower disease incidences for both neck blast (40%) and leaf blast (16.67%). In contrast, single-allelic resistant lines like Pb1/Pish demonstrated nearly complete resistance to neck blast (0%) but higher leaf blast incidences (4.33%). Multi-allelic rice lines such as pi21/Piz showed moderate resistance to both types of blast disease, with incidences of 0% for both neck and leaf blast (Fig. 9). While single-allelic lines like Pb1/Pish showed high resistance to neck blast, their vulnerability to leaf blast suggests that greater allelic diversity may offer more comprehensive protection under variable environmental conditions. The multi-allelic approach demonstrated more durable and stable disease resistance, positioning it as a more promising strategy for long-term disease management in rice production. This study concludes that multi-allelic resistant rice lines provide superior and more sustainable resistance to blast diseases compared to single-allelic lines, underscoring the importance of incorporating multiple resistance alleles to ensure lasting protection against diverse disease pressures. To further validate these results, larger-scale field trials under varying environmental conditions are recommended.

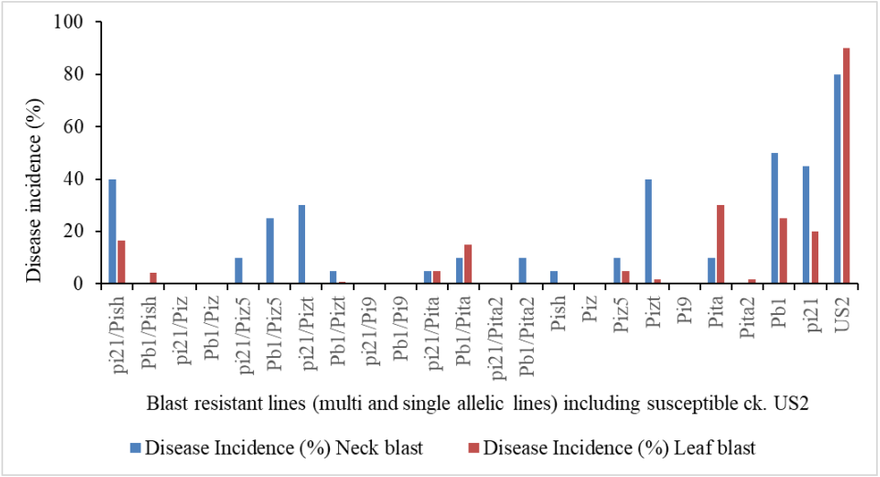

Fig. 9. Performance of single and multi-allelic resistant lines against blast disease

III. CROP SOIL WATER MANAGEMENT PROGRAM AREA

Expt. 3.1. Management of Algae at Boro season in Barishal region

S Mia, MRBH Pranto, H Khatun and MAI Khan

Objectives:

To find out the effective way of Algae management in HYV during Boro season in Barishal region.

Materials and methods:

The experiment was conducted to determine a suitable Algae management method for Boro rice cultivated under irrigated conditions. The experiment was conducted at Sagordi farm, BRRI Barishal, during Boro 2024-25. The treatments included the following Algae management

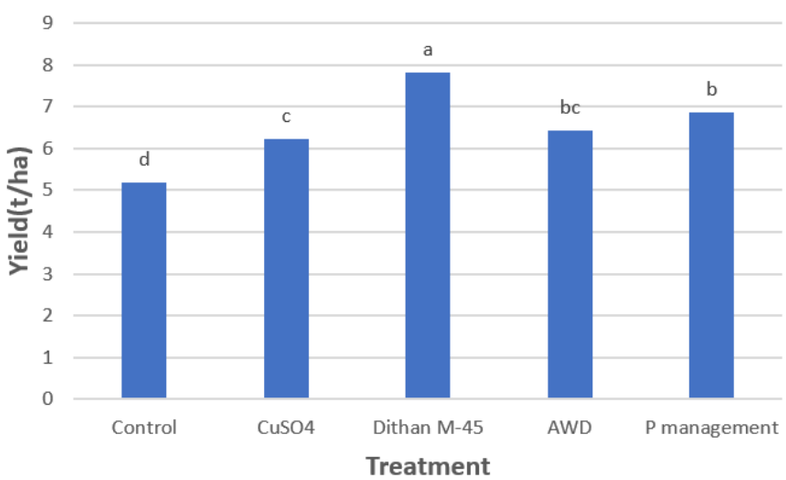

Fig. 10. Effect of different algae management treatments on grain yield at Boro 2024-25

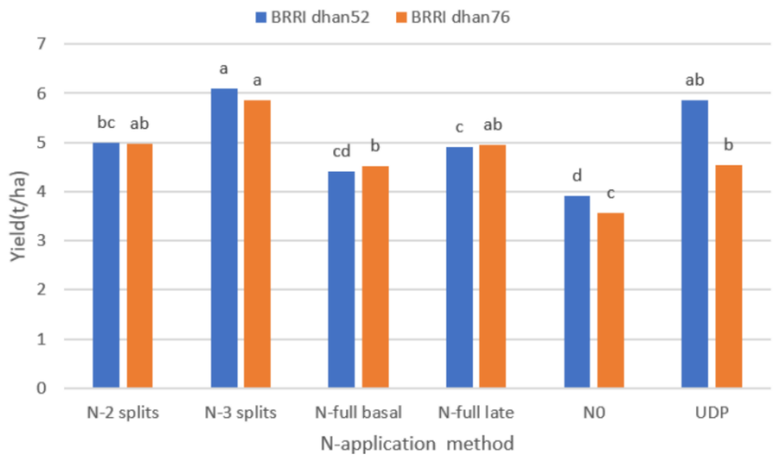

Fig. 11. Effect of different N-management treatments on grain yield at Boro 2024-25

methods: (1) Control (No chemical used), (2) $CuSO_4$(2.5 kg/ha), (3) Dithan M45(10g/L water), 4) Alternate wetting and drying (AWD), and (5) P-fertilizer management (1st 30DAT and 2nd 45DAT). The design of the experiment was RCBD with three replications. The variety BRRI dhan102 was used in this trail and 40days old seedlings were transplanted on 31 January 2025. Other management practices were followed according to the BRRI recommendation.

Results:

A significant effect on yield was found among the different Algae management methods. Results showed that the application of Dithan M45 yielded the highest grain (7.82 t/ha) followed by P-fertilizer management, AWD and $CuSO_4$(6.85, 6.44, 6.22 t/ha respectively) and the lowest yield was found at control (5.19 t/ha). Further experiment should be conducted to confirm the findings (Fig.10 and Fig. 11).

Expt.3.2. Management of nitrogen nutrition of HYV rice during Aman season under tidal flood situation

S Mia, MS Rahman, MRBH Pranto, H Khatun and MAI Khan

Objective:

The experiment was conducted to determine a suitable urea application method for Aman rice cultivated under tidal flood conditions.

Materials and methods:

The experiment was conducted in Char Badna farm, BRRI Barishal, during T. Aman 2024. The treatments included the following five urea application methods: (1) prilled urea (PU): 2 splits (½ at 10 DAT + ½ at 7d before PI), (2) PU: 3 splits (1/3rd at 10 DAT + 1/3rd at active tillering + 1/3rd seven days before panicle initiation), (3) PU: full dose as basal, 4) PU: full dose after final recession of flood water, 5) No urea(control) and 6) urea deep placement (UDP) (@10 DAT). In treatments 1 and 2, the application of urea was carried out in between the flood water recession and new water entry periods during the high tides in full moon and new moon. The design of the experiment was factorial RCB with three replications, with the factors being i) variety and ii) urea application methods. The varieties were BRRI dhan52 (145 d) and BRRI dhan76 (165 d). The N application rate was 95 kg/ha. Other nutrients e.g., P-K-S-Zn were applied on soil test basis as a flat dose (10-65-11-2 kg/ha).

Results:

Results showed that the application of PU @ 3 splits yielded the highest grain for both varieties (Fig. 1). The control (No urea) plot, recorded the lowest grain yield indicating the significant effect of N fertilizer. A varietal difference was recorded in response to urea applications, with BRRI dhan76 being more responsive to late urea applications than BRRI dhan52.

Fig. 1. Effect of urea application method on the grain yield of HYV rice in Char badna farm, BRRI Barishal, T. Aman 2024

Deep urea placement yielded higher grain in shorter duration variety BRRI dhan52, than in BRRI dhan76 with longer duration. Further investigation will confirm the findings.

Expt. 3.3. Effect of planting date on the growth and yield of newly developed BRRI varieties in Barishal region

S Mia, MRBH Pranto, H Khatun and MAI Khan

Introduction:

Planting time is an important factor for rice production. Due to late or early planting rice production may be drastically reduced. To find out the optimum planting time at the T. Aman2024 and Boro2024-25 seasons in the Barishal region, this experiment was conducted.

Objective:

To find out the suitable time for planting different popular varieties of BRRI in Barishal.

Materials and methods:

The experiment was conducted in Char Badna farm in T. Aman 2024 season and Sagordi farm in Boro 2024-25 season of BRRI R/S Barishal, aimed at identifying a suitable planting date for short and long-duration T. Aman and Boro rice cultivars to maximize grain yield. In case of T. Aman 2024 season, the selected cultivars were soaked from 10 June to 10 August and 25-30 days old seedlings were transplanted. On the other hand, in Boro 2024-25 season, the selected cultivars were soaked from 1 November to 16 January, and 40days old seedlings were transplanted. The design of experiment was RCBD with three replications. In both seasons, 3 short-duration varieties (T.Aman season: BRRI dhan75, BRRI dhan87, BRRI dhan90, and Boro season: BRRI dhan101, BRRI dhan88, BRRI dhan96) and 3 long duration varieties (T.Aman season: BRRI dhan49, BRRI dhan52, BRRI dhan93, and Boro season: BRRI dhan102, BRRI dhan89, BRRI dhan92) were tested. Fertilizer and other management practices were accomplished by following the BRRI recommendation. Yield and yield components data were collected following the standard method. The data were analyzed using the STAR software.

Results:

T. Aman 2024

The results showed that the short duration varieties BRRI dhan75, BRRI dhan87 and BRRI dhan90 seeding at 25 July and transplanting 20 August produced higher grain yield (4.105t/ha, 4.686t/ha, 3.939 t/ha respectively) than the delayed transplanting (Table 34). In case of long duration varieties; BRRI dhan52, BRRI dhan79 and BRRI dhan93 seeding on 10 July and transplanting 5 August gave better yield (3.755t/ha, 3.782t/ha and 3.952t/ha respectively) (Table 35).

Table 34. Effect of time of planting on yield growth duration (GD) of short duration varieties during T. Aman 2024 at BRRI farm, Char Badna, Barisal. (*=Rat damage)

Planting time		BRRI dhan75		BRRI dhan87		BRRI dhan90	
DS	DT	Yield (t/ha)	GD (days)	Yield (t/ha)	GD (days)	Yield (t/ha)	GD(days)
10-June	5-July	1.685*	132	2.383*	135	0.907*	132
25-Jun	20July	2.318*	127	3.403	129	2.630*	125
10-Jul	5-Aug.	2.737*	114	3.719	124	2.824*	121
25-Jul	20Aug.	**4.105**	113	**4.686**	121	**3.939**	117
10-Aug	5-Sep.	3.421	115	4.355	119	3.282	114
LSD		0.438	0.249	0.439	0.249	0.439	0.249
CV		8.485	0.122	8.485	0.122	8.485	0.122

Table 35. Effect of time of planting on yield growth duration (GD) of long duration varieties during T. Aman2024 at BRRI farm, Char Badna, Barisal. (*=rat damage)

Planting time		BRRI dhan52		BRRI dhan79		BRRI dhan93	
DS	DT	Yield (t/ha)	GD (days)	Yield (t/ha)	GD (days)	Yield (t/ha)	GD (days)
10Jun	5July	3.122	143	2.532*	140	1.759*	140
25Jun	20July	3.493	140	3.675	134	3.571	136
10Jul	**5Aug.**	**3.755**	134	**3.782**	128	**3.951**	127
25Jul	20Aug.	3.543	124	3.738	121	3.473	118
10Aug	5-Sep	3.052	126	3.425	127	3.193	127
LSD		0.456	0.779	0.456	0.779	0.456	0.779
CV		8.174	0.356	8.174	0.356	8.174	0.356

Boro 2024-25

The results showed that the short-duration varieties BRRI dhan88, BRRI dhan96 and BRRI dhan101gave the highest yield (7.27, 7.57 and 7.96 t/ha respectively) on 10 January, 25 January and 10 December transplanting dates respectively (Table 36). In case of long duration varieties BRRI dhan89, BRRI dhan92 and BRRI dhan102 performed better yield (6.98 t/ha, 7.47 t/ha and 7.33 t/ha, respectively) on 16 November seeding and 25 December transplanting (Table 37). In

both cases, delay transplanting reduced the yield. Transplanting on 25 February, all long duration varieties damaged due to heat stress and high-tide which results no grain yield.

Table 36. Effect of time of planting on yield and growth duration (GD) of short-duration varieties during Boro 2024-25 at BRRI farm, Sagordi, Barisal

Planting time		BRRI dhan88		BRRI dhan96		BRRI dhan101	
DS	DT	Yield(t/ha)	GD (days)	Yield(t/ha)	GD (days)	Yield(t/ha)	GD (days)
1-Nov	10-Dec	6.26	153	6.67	157	**7.96**	160
16-Nov	25-Dec	6.04	147	6.83	148	6.26	150
1-Dec	10-Jan	**7.27**	138	6.44	140	6.29	143
16-Dec	25-Jan	6.7	130	**7.57**	130	6.29	131
1-Jan	10-Feb	6.12	124	7.18	123	6.13	133
16-Jan	25-Feb	5.63	119	4.5	124	0	0
CV (%)		3.72	0.376	3.72	0.376	3.72	0.376
LSD (0.05)		0.5608	1.2092	0.5608	1.2092	0.5608	1.2092

Table 37. Effect of time of planting on yield and growth duration (GD) of long-duration varieties during Boro 2023-24 at BRRI farm, Sagordi, Barisal

Planting time		BRRI dhan89		BRRI dhan92		BRRI dhan102	
DS	DT	Yield(t/ha)	GD(days)	Yield(t/ha)	GD(days)	Yield(t/ha)	GD(days)
1-Nov	10-Dec	6.27	162	5.6	164	6.23	165
16-Nov	25-Dec	**6.98**	159	**7.47**	160	**7.33**	160
1-Dec	10-Jan	6.43	152	6.47	153	7.06	148
16-Dec	25-Jan	5.92	142	6.87	139	7.17	143
1-Jan	10-Feb	3.87	140	4.12	140	5.11	136
16-Jan	25-Feb	0	0	0	0	0	0
CV (%)		5.8	0.5925	5.8	0.5925	5.8	0.5925
LSD (0.05)		0.7381	1.835	0.7381	1.835	0.7381	1.835

Expt. 3.4. Long-term Missing Element Trial in Rice-Rice Cropping Pattern

F. Rahman, M.N. Islam, S. Mia, MRBH Pranto, H Khatun, M.A.I. Khan and M.R. Islam

Introduction

Nutrient deficiency problems are a major constraint on rice production in many soils of Bangladesh. Proper identification and management of these problems are a prerequisite for boosting production and sustaining higher yields over long period of time. The missing element trial is an effective field technique to identify the existence of limiting nutrient(s) in soil of that particular area.

Materials and methods

The experiments were initiated on a permanent layout at the BRRI farm Barishal in Boro 2009, using 6 treatments in RCB design with 3 replications. The fertilizer rate of Barisal site was NPKSZn @ 150-15-50-10-1 kg/ha for Boro and 60-15-50-10-1 kg/ha for Aman. Urea-N was applied in three 3 equal splits i.e. 1/3 at final land preparation, 1/3 at active tillering stage and 1/3 at 5-7 days before PI stage. Rest of the fertilizers was applied at final land preparation. BRRI dhan74 was used as a tested crop in Boro season 2024-25. For grain yield the crop was harvested from 5 m^2 areas at the center part of each plot. The grain yield was recorded at 14% moisture content. The treatment details are T1 = NPKSZn, T2 = PKSZn (-N), T3 = NPKSZn (-P), T4 = NPSZn (-K), T5 = NPKZn (-S) and T6 = NPKS (-Zn).

Results:

Table 38. Effect of long-term missing element on rice yield in Aman and Boro season, 2024-25, BRRI, Barishal

Treatment	Grain yield (t ha^{-1})	Yield decreases due to missing nutrient over NPKSZn
NPKSZn	7.19a	-
PKSZn (-N)	3.31b	-54.0
NPKSZn (-P)	7.11a	-1.1
NPSZn (-K)	7.13a	-0.8
NPKZn (-S)	6.76a	-6.0
NPKS (-Zn)	6.97a	-3.1
CV (%)	5.6	
LSD	***	

Means with the same letter are not significantly different.

Expt. 3.5. Exploring sediment deposition from tidal water in Barishal regional station

S Mia, MRBH Pranto, H Khatun and MAI Khan

Introduction:

Huge quantity of sediment deposits in the rivers, canals and agricultural fields through tidal water in Southern tidal region. Sediment is a blessing for farmers as it is enriched with nutrients. Farmers in Barishal region use less fertilizer than any other region in Aman season since the lands receive huge quantities of silt deposits from tidal flood. The quality and rate of sediment deposition differ from season to season.

Objectives:

1. To find out the organic and inorganic (nutritional) elements beneficial for plants in deposited silt.
2. To find out the sediment deposition rate in agricultural land in Barishal Regional Station.

Materials and methods:

Tidal water with sediment samples flow was trapped from fixed points in Sagradi farm, Barishal. A pot was fixed in the experimental field. After a high tide and low tide, the pot was brought from the land and kept in the room for further deposition. After completion of the deposition, supernatant water was removed and the pot was kept for drying in room temperature. For the elemental analysis of the dried sediment, the sample was stored and sent to Soil Resource Development Institute (SRDI), Barishal.

Results:

Results showed that the good quality of sediment with plant nutrients indicated that the soils of the farm were enriched and nutrient status of sediment is higher than normal soil (Table 6). pH and salinity of sediment is higher (0.48 and 0.25DS/m respectively) than soil. Organic matter (%) is lower in Sediment than soil (2.768 and 3.318 % respectively) but pH, N, P, K, S and Zn content is higher in sediment than soil (Table 39).

Table 39. Nutrient quality of sediments and soil of Sagardi Farm, Barishal in 2023-24

Sample category	pH	Organic matter (%)	Nitrogen (%)	Potassium (meq./100g soil)	Phosphorus (Olsen)	Sulphur ($\mu g\ g^{-1}$)	Zinc (μgg^{-1})
Sediment	7.5	2.768	0.198	0.447	49.85	13.75	3.638
Soil	6.8	3.318	0.174	0.377	20.93	11.23	1.588

Every year the addition of tidal sediments makes the farm fertile during Aman season. Thus, the supplementation of nutrients by tidal sediments may reduce the requirement of huge fertilizer for T. Aman rice in the tidally flooded areas of the country. The experiment needs to be continued to draw a final conclusion.

Expt. 3.6. Spatiotemporal Analysis of Boro Rice Expansion in the Barishal Region Using GIS, Remote Sensing, and Field Validation

MRBH Pranto, H Khatun and MAI Khan

Background:

The Barishal region has undergone a remarkable transformation in its agricultural landscape over the past decade, particularly in the expansion of Boro rice cultivation. Using Landsat 8 satellite imagery analyzed through GIS and remote sensing techniques, and validating the results with DAE (BBS) statistics and extensive field surveys conducted by the BRRI Regional Station Barishal, a clear shift in land use has been identified. In 2015, fallow land accounted for 38 percent of the total area, while Boro rice occupied only 2 percent. By 2020, fallow land slightly decreased to 36 percent, and the Boro area expanded to 5 percent. The most significant change, however, occurred in 2024–25, when fallow land sharply declined to 26 percent and Boro cultivation surged to 12 percent, indicating a substantial intensification of agricultural activity.

Objective:

Assessment of boro rice area expansion in southern Bangladesh through satellite data and improved agricultural interventions.

Results:

Several key drivers have contributed to this expansion of Boro rice cultivation. One major factor is the availability and adoption of newly released high-yielding BRRI rice varieties, which have been widely disseminated across the region through initiatives such as the PARTNER and LSTD projects. These improved varieties offer higher productivity and better adaptability to the agro-ecological conditions of Barishal, encouraging farmers to bring previously uncultivated land under production. Alongside varietal improvement, irrigation development has played a crucial role. Increased access to low-lift pumps and enhancements in water distribution systems—facilitated by BRRI Barishal and the BRRI Irrigation and Water Management Division—have enabled farmers to ensure a more reliable water supply during the dry Boro season.

Another major factor behind the expansion is the adoption of salinity-tolerant rice varieties such as BRRI dhan67, BRRI dhan97, and BRRI dhan99. These varieties have had a particularly positive

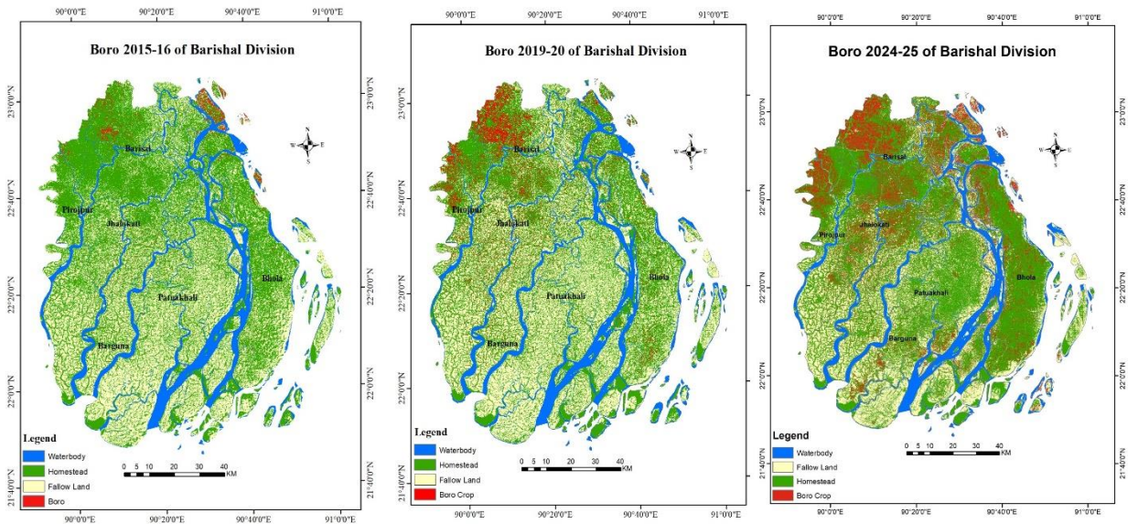

Fig. 12. Maps showing dynamics of Boro Cultivation and Fallow Land Reduction in Barishal since Boro 2015-16: Evidence from Landsat Imagery and BRRI Field Surveys

impact in coastal saline-prone areas, including Patharghata, Mothbaria, Kolapara, and Taltoli, where salinity historically prevented dry-season rice cultivation. Farmers in these zones are now able to cultivate Boro successfully on lands that would otherwise remain fellow. Additionally, improved community-driven water management practices have also contributed to the expansion. The practice of storing sweet water in canals, ponds, and other local water bodies has provided an accessible and timely irrigation source, which supports early seedbed preparation and sustains irrigation during critical crop growth stages.

Overall, the combined effects of technological advancement, improved irrigation infrastructure, enhanced water management practices, and targeted dissemination of climate-resilient rice varieties have significantly increased the Boro cultivated area in the Barishal region (Fig. 12). The reduction of fallow land from 38 percent to 26 percent and the parallel increase of Boro area from 2 percent to 12 percent clearly demonstrates the positive impact of these interventions. Sustaining this momentum will require continued support for farmers, expansion of stress-tolerant varieties, further improvement of water distribution systems, and ongoing monitoring using GIS and remote sensing to guide future agricultural planning and decision-making.

IV. SOCIO ECONOMIC AND POLICY PROGRAM AREA

Expt. 4.1: Stability analysis of BRRI released variety in 2024-25

S Mia, MRBH Pranto, H Khatun and MAI Khan

Introduction: BRRI has been developing high yielding and modern rice cultivars to address the on-farm demand in different agro-climatic conditions since 1970. Accordingly, BRRI has released a series of high yielding rice cultivars. It is necessary to know the adaptability of those cultivars whether they are suited to a particular environment. Therefore, this study was conducted to find out the suitable rice cultivars in Barishal region.

Objectives: The objective was to find out the suitable Aus, Aman and Boro rice cultivars in Barishal region.

Aus 2024

Study was accomplished at Charbadna farm, BRRI regional station, Barishal during Aus, 2024. Fourteen (14) BRRI released varieties were tested following RCB design with three replications (Table 1). Size of unit plot was 3m x3 m, plot to plot distance was 40 cm, block to block distance was 60 cm and spacing was 20 × 20 cm. Twenty-six days old seedlings were transplanted. Crop management practices were done according to BRRI recommended practice. Among the tested 14 varieties BR24 gave highest yield (5.09 t/ha) followed by BRRI dhan85 (4.83 t/ha) and BRRI dhan98 (4.75 t/ha). The lowest yield was observed in BRRI dhan43 (2.75 t/ha) (Table 40).

Table 40. Stability analysis of BRRI released variety in Aus 2024

Variety	GD (days)	Yield(t/ha)
BR21	118c	3.31cd
BR24	122c	5.09a
BR26	118c	4.55abc
BRRI dhan106	136a	5.21a
BRRI dhan27	129b	3.45bcd
BRRI dhan42	118c	3.3cd
BRRI dhan43	120c	2.75d
BRRI dhan48	129b	5.1a
BRRI dhan65	102e	3.83abcd
BRRI dhan82	107d	3.72abcd
BRRI dhan83	120c	3.74abcd
BRRI dhan85	108d	4.83ab
BRRI dhan98	127b	4.75abc
BRRI Hybrid dhan7	121c	5.03a
CV(%)	1.29	11.96

D/S: 24/04/2024 D/T: 20/05/2024

*Values followed by the same letter are not significantly different.

T. Aman 2024

During T. Aman 2024, forty-eight (48) BRRI released varieties were tested in three groups, namely, short duration (15 nos), medium duration (22 nos) and long duration (11 nos) (Tables 41-43). Among the tested short duration varieties, the highest yield was observed in BRRI hybrid dhan6 (5.04 t/ha) followed by BRRI dhan87 (4.79 t/ha), BRRI dhan95 (4.25 t/ha) and BRRI dhan53 (4.1t/ha). The lowest yield was found in BRRI dhan39 (2.58 t/ha) (Table 41). In medium duration varieties, the highest yield was found in BR4 (4.13 t/ha) followed by BRRI dhan80(3.73 t/ha) and BRRI dhan93 (3.73 t/ha). The lowest yield was observed in BR3 (1.96 t/ha) (Table 42). Finally, in the long duration varieties, the highest yield was in BRRI dhan46 (3.92 t/ha) followed by BR22 (3.66 t/ha) and the lowest yield was in BR5 (2.6 t/ha) (Table 43).

Table 41. Stability analysis of BRRI released short duration variety in T. Aman, 2024

Variety	GD (days)	Yield (t/ha)
BRRI dhan33	133b	3.96bcde
BRRI dhan39	132b	2.58f
BRRI dhan53	139a	4.1bcd
BRRI dhan56	127c	3.8cde
BRRI dhan57	133b	3.42cdef
BRRI dhan62	122d	3.72cde
BRRI dhan66	132b	3.56cde
BRRI dhan71	131b	3.36def
BRRI dhan73	133b	3.57cde
BRRI dhan75	127c	3.41cdef
BRRI dhan87	139a	4.79ab
BRRI dhan90	132b	3.09ef
BRRI dhan95	140a	4.25abc
BRRI hybrid dhan4	132b	3.63cde
BRRI hybrid dhan6	128c	5.04a
CV (%)	0.3454	7.85

D/S: 16/07/2024 D/T: 28/08/2024

*Values followed by the same letter are not significantly different.

Table 42. Stability analysis of BRRI released medium duration variety in T. Aman 2024

Variety	GD	Yield(t/ha)
BR11	143a	3.1abc
BR25	135h	3.3ab
BR3	142ab	1.96c
BR4	140de	4.13a
BRRI dhan103	140cde	3.24abc
BRRI dhan30	142ab	2.89abc
BRRI dhan31	141cd	3.05abc
BRRI dhan32	138fg	3.16abc
BRRI dhan40	140cde	3.76ab

BRRI dhan44	140cde	3.67ab
BRRI dhan49	141bc	3.31ab
BRRI dhan51	140cde	3.12abc
BRRI dhan52	140cde	2.98abc
BRRI dhan54	140cde	2.77bc
BRRI dhan70	137g	2.68bc
BRRI dhan72	135h	2.86abc
BRRI dhan77	138fg	3.71ab
BRRI dhan78	140cde	3.09abc
BRRI dhan79	140cde	2.69bc
BRRI dhan80	135h	3.73ab
BRRI dhan93	140cde	3.73ab
BRRI dhan94	139ef	3.01abc
CV(%)	0.2565	12.98

D/S: 16/07/2024 D/T: 28/08/2024

*Values followed by the same letter are not significantly different.

Table 43. Stability analysis of BRRI released long duration variety in T. Aman, 2024

Variety	GD (days)	Yield(t/ha)
BR10	147a	2.71a
BR22	147a	3.66a
BR23	147a	3.23a
BR5	147a	2.6a
BRRI dhan34	144b	2.68a
BRRI dhan37	147a	2.67a
BRRI dhan38	147a	2.62a
BRRI dhan41	146ab	3.14a
BRRI dhan46	144b	3.92a
BRRI dhan76	147a	3.31a
BRRI dhan91	147a	3.01a
CV (%)	0.4758	15.08

D/S: 16/07/2024 D/T: 28/08/2024

*Values followed by the same letter are not significantly different.

Boro 2024-25

Fifty-four (54) varieties were evaluated at Charbadna, Barishal during Boro 2024-25. The varieties were tested in two groups, namely short duration (27 nos.) and long duration (27 nos.) (Tables 44 and 45). Among the tested short duration varieties, the highest yield was observed in BRRI hybrid dhan8 (6.76 t/ha) followed by BRRI hybrid dhan3 (6.28 t/ha) and BRRI hybrid dhan2 (5.73 t/ha). The lowest yield was found in BRRI dhan107(4.11 t/ha) (Table 44). In case of the long duration varieties, the highest yielder was BR17(4.86 t/ha) followed by BRRI dhan58 (4.74 t/ha) and BRRI dhan99 (4.55 t/ha). The lowest yield was observed in BRRI dhan50 (3.47 t/ha) (Table 45).

Table 44. Yield and ancillary characters of short duration genotypes, Boro 2024-25

Variety	Growth duration (Days)	Yield (t/ha)
BR1	149b	4.31hij
BR26	132l	4.48ghij
BR6	137i	4.6fghij
BRRI dhan100	134k	4.63fghij
BRRI dhan101	139gh	4.97efgh
BRRI dhan104	145e	5.1defg
BRRI dhan105	146d	4.93fgh
BRRI dhan107	151a	4.11ij
BRRI dhan27	146d	4.47ghij
BRRI dhan28	132l	4.9fgh
BRRI dhan36	135j	4.81fghi
BRRI dhan45	134k	4.44ghij
BRRI dhan55	134k	5.07defg
BRRI dhan61	135j	5.92bc
BRRI dhan63	137i	4.88fgh
BRRI dhan67	135j	5.32cdef
BRRI dhan68	137i	4.89fgh

BRRI dhan74	140g	5.96bc
BRRI dhan81	134k	4.4ghij
BRRI dhan84	132l	4.57fghij
BRRI dhan86	134k	5.07defgh
BRRI dhan88	139h	4.98defgh
BRRI dhan96	134k	3.93j
BRRI hybrid dhan2	139h	5.73bcd
BRRI hybrid dhan3	147c	6.28ab
BRRI hybrid dhan5	135j	5.7bcde
BRRI hybrid dhan8	142f	6.76a
CV(%)	**0.3343425**	**9.234355**

D/S: 9/12/2024 D/T: 18/01/2025

*Values followed by the same letter are not significantly different.

Table 45. Yield and ancillary characters of long duration genotypes, Boro 2024-25, Barishal

Variety	GD (days)	Yield (t/ha)
BR12	147f	4.33efgh
BR14	136k	4.38efgh
BR15	147f	4.7bcde
BR16	147f	4.04hi
BR17	138i	2.73k
BR18	151c	4.4defgh
BR19	149e	3.58j
BR2	139h	4.02hi
BR3	154a	4.36efgh
BR7	152b	3.34j
BR8	151c	4.49cdefg
BR9	147f	5.11a
BRRI dhan102	150d	4.38efgh
BRRI dhan108	137j	5.1a
BRRI dhan29	150d	3.94i
BRRI dhan35	150d	4.11ghi
BRRI dhan47	145g	4.21fghi
BRRI dhan50	147f	4.49cdefg
BRRI dhan58	137j	5.05ab
BRRI dhan59	139h	4.9ab
BRRI dhan60	134l	4.5cdef
BRRI dhan64	137j	4.71bcde
BRRI dhan69	139h	4.77abcd
BRRI dhan89	149e	4.82abc
BRRI dhan92	154a	4.21fghi
BRRI dhan97	147f	4.44defg
BRRI dhan99	149e	4.24fghi
CV(%)	**0.3183443**	**4.558705**

D/S: 9/12/2024 D/T: 18/01/2025

*Values followed by the same letter are not significantly different.

V. TECHNOLOGY TRANSFER

Expt. 5.1. Advanced Line Adaptive Research Trial (ALART) for Bacterial blight (BB-1) resistant advanced lines in Aus, 2024

Rationale: For sustainable food security, we have to give more emphasis on rice production in Aus season which is more environment-friendly compared to both Boro and Aman season in respect to using underground water. Bacterial blight caused by *Xanthomonas oryzae* pv. *oryzae*, is one of the most destructive diseases affecting rice production in Bangladesh. The disease leads to significant yield losses, especially in the Aus season, which is characterized by unpredictable weather patterns and high susceptibility to pathogens. To combat this, the Advanced Line Adaptive Research Trial (ALART) was established to evaluate and identify bacterial blight-resistant advanced rice lines for the Aus season. This trial focuses on selecting rice genotypes with genetic resistance to BB, ensuring high yield potential, and enhancing the adaptability of these lines to diverse environmental conditions across different agro-ecological zones in Bangladesh. Through

ALART, new high-yielding and disease-resistant rice varieties are expected to be developed and introduced, contributing to improved food security and sustainable rice production in the country. The success of this initiative will support the development of resistant rice varieties tailored for the challenges of the Aus season and beyond. Although we have some varieties for Aus season but we need more potential varieties with higher yield, shorter growth duration, and good grain quality.
Hypothesis: There is the possibility to identify and select suitable T. Aus variety having bacterial blight resistance from the tested varieties for PVT.

Materials and methods:
Three T. Aus rice advanced lines: BR11866-5R-147 (V1), BR11867-5R-103 (V2), BR11867-5R-442 (V3) were evaluated against BRRI Dhan48 (V4) and BRRI Dhan98 (V5) as checks at farmers' field under T. aus ecosystem. The ALART was conducted in Bhola during T. Aus 2024. The trials were replicated thrice in each location. The unit plot size was 20 m^2 (5 m x 4 m). Seeding was done at 20 April, 2024. Seedling age varied from 20-23 days among the locations. Seedlings were transplanted at 20 cm x 15 cm spacing. Fertilizers i.e., Urea, TSP, MoP, Gypsum and Zinc sulphate were applied @ 195: 50: 75: 40: 5 kg/ha). All amounts of TSP, MoP, Gypsum and Zinc sulphate were applied at the time of final land preparation. Urea was applied in 3 equal splits, at around 7-10 DAT, 20-25 DAT and 35-40 DAT. Other standard management practices were followed as and when necessary. Appropriate measures were taken to control insect pests but diseases were not controlled (to identify susceptibility and tolerance level of the varieties). Date of seeding, transplanting, flowering and maturity, lodging tolerance, pest and disease incidence, phenotypic acceptance at vegetative and ripening stage, yield, and yield components were recorded. Feedback from farmers and DAE personnel were also recorded. For yield estimation, 9m^2 sample area (in some places 5 m^2 area where the plot size was small) from each plot was harvested at maturity and grain yields were adjusted to 14% moisture content.
Results:
This report presents the performance of five rice genotypes: BR11866-5R-147 (V1), BR11867-5R-103 (V2), BR11867-5R-442 (V3), BRRI dhan48 (V4), and BRRI dhan98 (V5), across eight locations in Bangladesh during the Aus season. The key metrics analyzed include grain yield (t ha^{-1}), growth duration (days), 1000-grain weight (g), panicles per square meter, filled grains per panicle, unfilled grains per panicle, and sterility (%) (Table 46, Table 47 and Table 48).
Table 46. Advanced Line Adaptive Research Trial (ALART) for Bacterial blight (BB-1) resistant advanced lines in Aus, 2024

Genotype	Grain yield (t ha^{-1})	Growth duration (day)	Plant height (cm)	Panicles m^{-2} (no.)	1000-grain weight (g)	Sterility (%)
V1= BR11866-5R-147	3.63	110	98	253	22.77	22.65
V2= BR11867-5R-103	3.31	110	99	260	20.89	27.03
V3= BR11867-5R-442	3.45	113	104	258	22.73	32.72
V4= BRRI dhan48 (Std. Ck)	3.31	112	112	264	23.50	33.49
V5= BRRI dhan98 (Std. Ck)	3.46	116	100	317	23.40	36.23

In terms of grain yield, the genotypes exhibited the following values: BR11866-5R-147 yielded 3.63 t ha^{-1}, BR11867-5R-103 yielded 3.31 t ha^{-1}, BR11867-5R-442 yielded 3.45 t ha^{-1}, BRRI dhan48 yielded 3.31 t ha^{-1}, and BRRI dhan98 yielded the highest at 3.46 t ha^{-1}. This indicates that BR11866-5R-147 and BRRI dhan98 demonstrated the highest mean yield among the genotypes, making it a strong candidate for breeding programs.
For growth duration, all genotypes showed similar values, with BR11866-5R-147 and BR11867-5R-103 both having a mean of 110 days, and BR11867-5R-442 gave the highest mean of 113 days. This consistency suggests stable growth patterns across different environments.
The 1000-grain weight data revealed that BRRI dhan48 had the highest mean value at 23.50 g, followed by BRRI dhan98 at 23.40 g, BR11866-5R-147 at 22.77 g. BR11867-5R-103 (V2) stands out with the lowest grain weight, indicating better grain size and quality.
In terms of panicles per square meter, BRRI dhan98 again showed the highest value at 317, followed by BR11867-5R-103 at 260, BRRI dhan48 at 264. This suggests that BRRI dhan98 has a higher potential for productivity.
Table 47. Disease incidence (%) of the rice genotypes under ALART (BB-1) during Aus 2024

SN	Genotype	Bacterial Blight	Blast
1	V1= BR11866-5R-147	Bhola (3)	No
2	V2= BR11867-5R-103	Bhola (3)	No

3	V3= BR11867-5R-442	Bhola (3)	No
4	V4= BRRI dhan48 (Std. Ck)	Bhola (5)	No
5	V5= BRRI dhan98 (Std. Ck)	Bhola (3)	No

*Eye estimation of the number of hills showing the signs and symptoms of disease infection. The percentage indicates the variations in disease incidence level of the tested genotypes.

Table 48. Phenotypic Acceptance of all rice genotypes under ALART (BB-1) during Aus 2024

Sl.	Genotype	Characteristics							
		Plant growth	Uniformity of flowering	Uniformity of maturity	Wrapping quality	Grain type	Flag leaf	PAcp	
								Veg.	Mat.
1	V1= BR11866-5R-147	Good	Uniform	Uniform	Well wrapped	Medium Bold	Erect	3	3
2	V2= BR11867-5R-103	Good	Uniform	Uniform	Well wrapped	Medium Bold	Erect	3	3
3	V3= BR11867-5R-442	Good	Uniform	Uniform	Well wrapped	Medium Bold	Erect	3	3
4	V4= BRRI dhan48 (Std. Ck)	Good	Uniform	Uniform	Well wrapped	Medium Bold	Erect	3	3
5	V5= BRRI dhan98 (Std. Ck)	Good	Uniform	Uniform	Well wrapped	Medium slender	Erect	3	3

Phenotypic Acceptability: 1= Excellent, 3= Good, 5= Fair, 7= Poor, 9= Unacceptable

Preference of Farmer and DAE personnel:
Farmers preferred V5= BRRI dhan98 (Std. Ck) compared to the other tested lines and check varieties due to higher yield and less susceptibility to disease.

Recommendation:
Considering yield, disease score, and all others none of the tested lines could be advanced for PVT.

Rationale of Recommendation:

1. The mean grain yield of all advanced lines was statistically similar to the check variety BRRI dhan48 and lower than BRRI dhan98. No genotype exceeded the check by 10% or more in yield, which is the minimum threshold for recommendation to PVT.
2. V1 and V2 showed susceptibility to bacterial blight (score 5 in Sirajganj), with no significant resistance advantage over checks.
3. Tungro infection was observed in Gazipur in multiple entries, including BRRI dhan48 and BRRI dhan98, affecting hill population and performance.
4. Significant bird damage (up to 70%) in Sirajganj and rat infestation in Satkhira and Rangpur compromised yield assessment in those sites.
5. No entry demonstrated consistent agronomic or phenotypic superiority across locations.

Expt. 5.2: ALART for Salt Tolerant Rice-Long Duration (STR-LD) during Aman, 2024

Results: Results presented in Table 49 and Table 50.

Table 49. Grain yield, Growth duration and Plant height of the rice genotypes under ALART STR LD during Aman 2024

Genotypes	Locations							Mean
	Bagerhat, Gopalganj	Kalapara, Patuakhali	Kaliganj Satkhira	Rampal Bagerhat	Syamnagar Satkhira	Taltoli Barguna	BRRI Gazipur	
Grain Yield (t/ha)								
V1=BR13103-4R-37	3.44	4.95	4.09	3.56	4.63	4.33	4.71	4.24
V2=BR13103-4R-7	4.92	4.60	4.13	5.30	3.87	4.30	4.30	4.50
V3=BR13105-4R-37	4.21	3.54	3.62	4.46	4.00	4.87	4.60	4.19
V4=BRR13115-4R-122	4.29	4.56	3.78	4.55	3.42	4.40	4.43	4.21
V5=BRRI dhan30 (T. Ck)	4.82	4.51	3.11	4.91	3.89	4.45	4.15	4.26
V6=BR23 (Std. Ck)	5.33	4.81	4.21	5.47	4.40	4.90	3.58	4.67
$LSD_{0.05}$				0.54				0.2
CV%				7.49				
Growth Duration (days)								
V1=BR13103-4R-37	129	141	131	131	133	132	149	135
V2=BR13103-4R-7	144	144	144	146	146	132	149	143
V3=BR13105-4R-37	138	141	138	143	140	141	141	140

V4=BRR13115-4R-122	146	145	142	148	146	137	145	142
V5=BRRI dhan30 (T.Ck)	146	145	149	138	125	143	145	142
V6=BR23 (Std. Ck)	144	148	142	145	144	141	152	145
$LSD_{0.05}$				9.90				3.74
CV%				4.31				
Plant Height (cm)								
V1=BR13103-4R-37	101	121	135	98	131	112	127	118
V2=BR13103-4R-7	110	96	107	109	96	117	105	106
V3=BR13105-4R-37	94	96	88	93	87	98	103	94
V4=BRR13115-4R-122	104	99	102	103	88	106	123	104
V5=BRRI dhan30 (T.Ck)	126	121	118	129	124	128	125	124
V6=BR23 (Std. Ck)	124	118	120	129	116	126	128	123
$LSD_{0.05}$				8.54				3.2
CV%				4.70				

Table 50. Thousand Grain Weight (gm), Panicles per square meter (no), Filled Grains per panicles, Unfilled Grains per panicles (no) and Sterility percentage (%) of the rice genotypes under ALART STR-LD during Aman 2024

Genotypes	Locations							Mean
	Bagerhat, Gopalganj	Kalapara, Patuakhali	Kaliganj ,Satkhira	Rampal, Bagerhat	Syamnagar, Satkhira	Taltoli, Barguna	BRRI, Gazipur	
Thousand Grain Weight (gm)								
V1=BR13103-4R-37	21.73	20.33	23.53	20.47	22.93	21.10	24.70	**22.11**
V2=BR13103-4R-7	21.10	20.33	22.57	20.33	22.83	21.10	23.63	**21.70**
V3=BR13105-4R-37	25.07	22.33	23.50	24.63	22.33	23.50	23.60	**23.57**
V4=BRR13115-4R-122	21.17	23.30	23.03	20.10	23.73	22.77	22.20	**22.33**
V5=BRRI dhan30 (T.Ck)	26.20	23.70	23.23	25.63	22.13	26.00	21.83	**24.10**
V6=BR23 (Std. Ck)	26.43	22.65	22.75	26.73	22.87	25.80	24.93	**24.60**
$LSD_{0.05}$				1.33				.50
CV%				3.55				
Panicles per square meter (no)								
V1=BR13103-4R-37	254	307	287	262	287	265	236	**271**
V2=BR13103-4R-7	266	248	313	264	321	283	219	**274**
V3=BR13105-4R-37	233	263	283	340	283	338	227	**281**
V4=BRR13115-4R-122	254	258	292	264	283	315	213	**269**
V5=BRRI dhan30 (T.Ck)	262	280	272	262	282	303	210	**267**
V6=BR23 (Std. Ck)	275	282	301	315	305	275	214	**281**
$LSD_{0.05}$				26.43				9.9
CV%				5.94				
Filled Grains per panicles (no)								
V1=BR13103-4R-37	95	120	223	96	226	118	115	**142**
V2=BR13103-4R-7	104	142	226	113	201	143	136	**152**
V3=BR13105-4R-37	94	115	214	85	213	125	152	**143**
V4=BRR13115-4R-122	99	147	239	99	212	163	142	**157**
V5=BRRI dhan30 (T.Ck)	102	138	213	112	212	149	119	**149**
V6=BR23 (Std. Ck)	106	143	241	106	225	151	131	**158**
$LSD_{0.05}$				17.66				6.67
CV%				7.24				
Unfilled Grains per panicles (no)								
V1=BR13103-4R-37	25	16	25	21	24	24	27	**23**
V2=BR13103-4R-7	20	25	27	18	26	24	36	**25**
V3=BR13105-4R-37	30	18	34	27	26	32	37	**29**
V4=BRR13115-4R-122	29	23	30	26	26	26	23	**26**
V5=BRRI dhan30 (T.Ck)	22	24	22	20	25	31	29	**25**
V6=BR23 (Std. Ck)	24	27	22	24	24	17	42	**26**
$LSD_{0.05}$				9.1				3.44
CV%				21.86				
Sterility percentage (%)								
V1=BR13103-4R-37	21	12	10	22	11	17	19	**16**
V2=BR13103-4R-7	16	15	11	16	13	14	21	**15**

V3=BR13105-4R-37	24	14	14	33	12	20	20	**20**
V4=BRR13115-4R-122	22	14	11	26	12	14	14	**16**
V5=BRRI dhan30 (T.Ck)	17	15	10	19	12	17	20	**16**
V6=BR23 (Std. Ck)	18	16	8	23	11	10	24	**16**
$LSD_{0.05}$				6.50				2.45
CV%				24.47				

Recommendation: Based on yield, growth duration and all other parameters none of the advanced line found suitable for PVT.

Rationale of Recommendation:

1. Yield of all the advanced lines was less than the check variety BR23.
2. Based on phenotypic acceptance there were no significant advantage over the check varieties.

Expt. 5.3. ALART, Salt tolerant rice-short duration (STR-SD), T. Aman 2024

Two salt tolerant advanced lines: BR13113-4R-63 and BR13118-4R-76 along with BRRI dhan73 (Tolerant Ck) and BRRI dhan75 (Susceptible Ck) were evaluated in ten locations during Aman 2024 (Table 51, Table 52, Table 53, Table 54 and Table 55). Trials in four locations (Satkhira Sadar, Bagerhat Sadar, Feni Sonagazi, and Noakhali Companiganj) were damaged due to heavy rain and inundation. The purpose of the study was to screen the two salt tolerant lines align with check varieties in saline areas to select the potential genotypes for PVT.

Results:

Table 51. Grain yield, Growth duration and Plant height of the four rice genotypes across six locations during Aman 2024

Genotype	Locations						Mean
	Kalapara, Patuakhali	Taltali, Barguna	Kaliganj, Satkhira	Shamnagar, Satkhira	Rampal, Bagerhat	West Byde, Gazipur	
Grain Yield (tha^{-1})							
V1=BR13113-4R-63	4.79	5.21	3.65	3.77	4.87	2.75	4.17
V2=BR13118-4R-76	5.21	4.74	3.61	3.73	4.54	2.77	4.10
V3=BRRI dhan73 (T. Ck)	3.78	4.73	3.49	4.05	5.13	2.37	3.92
V4=BRRI dhan75 (Std. Ck)	-	3.41	4.10	3.90	4.41	2.60	3.69
$LSD_{0.05}$				0.48			0.21
CV				7.51			
Growth duration (Days)							
V1=BR13113-4R-63	121	120	114	116	127	111	118
V2=BR13118-4R-76	117	126	117	120	127	124	122
V3=BRRI dhan73 (T. Ck)	123	121	117	118	128	117	121
V4=BRRI dhan75 (Std. Ck)		116	113	116	118	113	115
$LSD_{0.05}$				0.82			0.37
CV				0.42			
Plant height (cm)							
V1=BR13113-4R-63	96	97	100	98	119	107	103
V2=BR13118-4R-76	109	116	111	106	125	108	112
V3=BRRI dhan73 (T. Ck)	113	122	119	118	127	121	120
V4=BRRI dhan75 (Std. Ck)		94	103	94	112	106	102
$LSD_{0.05}$				3.13			1.40
CV				1.72			

Table 52. Yield components of the four rice genotypes across six locations during Aman 2024 growing season

Genotypes	Locations						Mean
	Kalapara, Patuakhali	Taltali, Barguna	Kaliganj, Satkhira	Shamnagar, Satkhira	Rampal, Bagerhat	West byde, Gazipur	
1000-grain weight (g)							
V1=BR13113-4R-63			22.60	22.20	23.10	18.03	21.48
V2=BR13118-4R-76			23.10	22.87	23.20	21.73	22.73
V3=BRRI dhan73 (T. Ck)			22.80	22.43	21.07	19.93	21.56
V4=BRRI dhan75 (Std. Ck)			20.23	22.20	21.13	19.13	20.68
$LSD_{0.05}$							
CV							
Panicles m^{-2}							
V1=BR13113-4R-63	282	222	290	308	245	206	259
V2=BR13118-4R-76	267	303	253	317	221	219	263

V3=BRRI dhan73 (T. Ck)	258	258	275	318	232	209	258
V4=BRRI dhan75 (Std. Ck)		248	278	320	216	208	254
$LSD_{0.05}$				23.82			10.65
CV				5.53			
Filled grains Panicle^{-1}							
V1=BR13113-4R-63	139	168	203	216	109	70	151
V2=BR13118-4R-76	140	146	225	221	95	85	152
V3=BRRI dhan73 (T. Ck)	146	150	216	231	106	72	153
V4=BRRI dhan75 (Std. Ck)		136	218	225	88	78	149
$LSD_{0.05}$				19.85			8.88
CV				7.94			
Unfilled grains Panicle^{-1}							
V1=BR13113-4R-63	32	29	25	33	26	48	32
V2=BR13118-4R-76	31	43	22	35	24	48	34
V3=BRRI dhan73 (T. Ck)	14	24	24	24	28	49	27
V4=BRRI dhan75 (Std. Ck)		18	22	25	14	50	26
$LSD_{0.05}$				19.89			8.88
CV				38.93			
Sterility %							
V1=BR13113-4R-63	18	15	11	13	19	40	19
V2=BR13118-4R-76	18	22	9	14	20	36	20
V3=BRRI dhan73 (T. Ck)	8	14	10	9	20	39	17
V4=BRRI dhan75 (Std. Ck)		11	9	10	13	40	17
$LSD_{0.05}$				10.87			4.86
CV				34.72			

Phenotypic Acceptance:

Table 53. Phenotypic Acceptance of all genotypes under ALART (STR-SD) in Aman 2024

Genotypes	Characteristics						Phenotypic Acceptance Score	
	Plant growth	Uniformity of flowering	Uniformity of maturity	Wrapping quality with culm	Grain type	Flag leaf	Veg.	Mat.
BR13113-4R-63	Excellent	Uniform	Uniform	Well wrapped	Slender	Erect	3	3
BR13118-4R-76	Good	Uniform	Uniform	Well wrapped	Medium Slender	Erect	5	5
BRRI dhan73 (T. Ck)	Good	Uniform	Uniform	Well wrapped	Medium Slender	Erect	5	5
BRRI dhan75 (Std. Ck)	Good	Uniform	Uniform	Well wrapped	Medium slender	Erect	3	5

Phenotypic Acceptability: 1= Excellent, 3= Good, 5= Fair, 7= Poor, 9= Unacceptable

Table 54. Disease incidence percentages of all genotypes under ALART (STR-SD) in Aman 2024

Genotypes	Disease score (%)*		
	BLB	ShB	False smut
BR13113-4R-63	5-95% in 2 loc.	1-5% in 4 loc.	5% in 1 loc.
BR13118-4R-76	3-60% in 2 loc.	1-5% in 4 loc.	1% in 1 loc.
BRRI dhan73 (T. Ck)	5-70% in 2 loc.	1-5% in 4 loc.	1% in 1 loc.
BRRI dhan75 (Std. Ck)	5-100 % in 2 loc.	1-5% in 4 loc.	

Abbreviations: BLB= Bacterial leaf blight (Major incidence occurred in Kaliganj, Satkhira and Kalapara, Patuakhali); ShB=Sheath blight; False smut observed in Shamnagar, Satkhira

*Eye estimation of the number of hills showing the sign and symptom of disease occurrence. The percentage indicates the variations in disease incidence level of the tested genotypes.

Table 55. Insect infestation percentages of all genotypes under ALART (STR-SD) in T. Aman 2024

Genotypes	Insect score (%)*		
	YSB	LF	Rat damage
BR13113-4R-63	3% in 4 loc.	1-4% in 2 loc.	3% in 1 loc.
BR13118-4R-76	2% in 3 loc.	1-3% in 2 loc.	4% in 1 loc.
BRRI dhan73 (T. Ck)	3% in 3 loc.	1-4% in 2 loc.	3% in 1 loc.

BRRI dhan75 (Std. Ck)	2% in 3 loc.	1-3% in 2 loc.	15% in 1 loc.

Abbreviations: YSB= Yellow stem borer; LF=Leaf folder (Rampal, Bagerhat; Kaliganj, Satkhira); Rat damage observed in Rampal, Bagerhat.

*Eye estimation of the number of hills showing the sign and symptom of disease occurrence. The percentage indicates the variations in disease incidence level of the tested genotypes.

Recommendation

The BR13113-4R-63 line is recommended for the Proposed Variety Trial (PVT).

Rationale

1. BR13113-4R-63 demonstrated superior grain yield compared to the check varieties.
2. Although some disease incidence was observed, but its yield advantage, good phenotypic appearance, and uniformity at the flowering and maturity stages make it a potential line for advancement to the Proposed Variety Trial (PVT).

VI. ROUTINE WORKS

Activity 1: Demonstration, seed production and distribution of BRRI rice varieties

1.1. Demonstration

New HYVs of BRRI were demonstrated during T. Aman 2024 covering 35 upazilas across six districts of the Barishal Division. A total of 100 bigha of demonstrations were conducted with funding from GoB, 250 acres with the LSTD project, 150 acres with the PARTNER project, and 20 bighas with the Hybrid rice project by BRRI Barishal. Among the varieties demonstrated, BRRI-Barishal aimed to encourage farmers to replace their local varieties with the latest BRRI-released Aman varieties. The highest yield was achieved by BRRI dhan103 (6.5 t/ha), followed by BRRI dhan52 (5.12 t/ha) and BRRI dhan76 (4.25 t/ha). Since the Barishal region is prone to tidal submergence and it is challenging to grow BRRI dhan103, which has a growth period of about 125-130 days, its use is limited. However, in medium lowland areas (Phase-1), particularly Uzirpur, Gournadi, and Bhola Sadar, it yielded comparatively higher than in other locations. Nonetheless, it was chosen by farmers who plan to plant oil crops after the Aman season. Other farmers prefer BRRI dhan52 and BRRI dhan76, intending to cultivate these varieties next year along with neighbouring farmers.

During Boro 2024-25, a total of 166 acres of demonstrations were conducted with funding from GoB, 75 acres with the LSTD project, 600 acres with the PARTNER project, and 20 bighas with the Hybrid rice project by BRRI Barishal. The activities covered 35 Upazilas in Barishal Division. BRRI released HYV and hybrid varieties for distribution. Farmers participating in the demonstrations were advised on how to maximize yields. At maturity, crop cut data were collected for each variety on every demonstration plot.

The hybrid variety BRRI hybrid dhan8 produced the highest average yield (10.12 t/ha) among the hybrid varieties. In HYV, BRRI dhan102 achieved the best yield at 8.12 t/ha. However, BRRI dhan74 attracted many farmers because of its coarseness, tastiness, and zinc enrichment. Overall, its lifespan is shorter than BRRI dhan89 and BRRI dhan92. Among saline-tolerant varieties, BRRI dhan97 performed well and was favored by farmers for its boldness. Farmers also preferred BRRI dan67 because of its cold tolerance and high fertility rate.

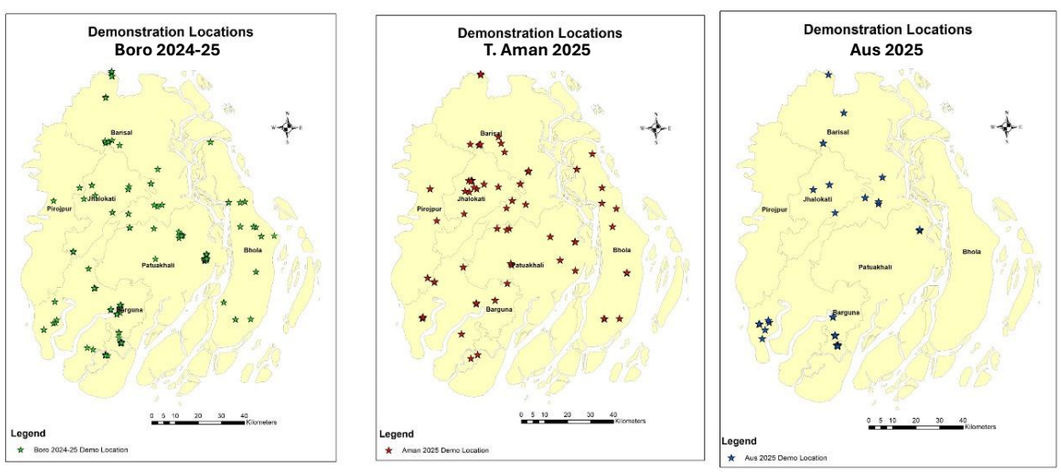

Fig. 13. Maps showing demonstration area in Barishal region during Boro 2024-25, T. Aman 2025 and Aus 2025

1.2. Seed production and distribution

For breeder seed production, a single seedling was transplanted at 20 x 20 cm spacing. BRRI recommended practices for crop cultivation were followed. In Aus, a total of 2100 kg of seeds

were produced at BRRI, Barishal. In T. Aman 2022, a total of 38700 kg of seeds were produced, with 31000 kg being breeder seed and 7700 kg being certified seed. In Boro, 20254-25, a total of 53200 kg was produced, with 31200 kg being breeder seed and 22000 kg being certified seed. A total of 30000 kg of seeds were distributed to farmers in this region during Boro 2022-23.

Activity 2: Farmers' training under different projects/GoB

Farmers' training programs were conducted in the Barishal region with DAE's collaboration, targeting farmers selected by local SAAOs from various villages. The training focused on modern rice production techniques, appropriate rice cultivars for tidal non-saline ecosystems, and effective pest, disease, irrigation, and fertilizer management. Sessions were delivered using multimedia presentations for better understanding. A total of 25 sessions were held under the GoB program, training 500 male farmers, 275 female farmers, and 30 SAAO/SA personnel. The programs helped raise awareness about BRRI rice production technologies and eco-friendly pest management. Ultimately, the training improved farmers' incomes and livelihoods by promoting the adoption of modern rice production practices.

Activity 3: Farmers' field day under different projects/GOB

Thirty-four field days were organized in the Barishal region with DAE's collaboration, involving farmers, researchers, extension workers, NGO staff, administrative personnel, and community leaders. Participants visited rice fields, harvested a 10 m² sample area, and engaged in discussions on the results. The event saw strong participation from female farmers, with approximately 3,400 attendees, including 2,400 men and 1,000 women. Farmers showed a preference for BRRI dhan52 and BRRI dhan76 due to their tolerance to tidal surges, and BRRI dhan103 for its higher yield.