Transformation of BRRI Rangpur

Date: 26 September 2022

Dr. Md. Rokebul Hasan
Senior Scientific Officer and Head
BRRI Regional Station, Rangpur

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Growing science for food security

Overview of the Presentation

1. General Information
2. Transformational phase
3. Research facilities
4. Achievements
5. On-going research & Way forward
6. Conclusion

1. General Information

Vision of BRRI Rangpur

Development of climate smart sustainable, safe and profitable modern high yielding rice varieties and production technologies for sustaining food security

Mission of BRRI Rangpur

Ensuring food security by development of location specific rice varieties, production technologies and rapid technology dissemination with sustaining biodiversity to meet the future challenges of diminishing natural resources and climate change adversities.

Mandate of BRRI Rangpur

1. To develop cold tolerant rice variety for Boro season
2. To develop flash flood submergence tolerant and premium quality rice variety for T. Aman season
3. Generation of region specific production technologies for yield improvement
4. To provide technical support and training to the extension organizations (GO & NGO) for modern rice production practices
5. To extend rice related best technologies suitable for well being of the needy farmers
6. Coordination with different organizations (GO & NGO) for sharing knowledge, resources and ideas

Strength of BRRI Rangpur-2022

SN	Name and designation	GOB/Project
1.	Md. Rokebul Hasan, PhD, SSO and Head	GOB
2.	Anowara Akhter, *MS*, SSO	GOB
3.	Tapon Kumar Roy, *MS*, SO	GOB
4.	Md. Khalid Hasan Tarek, *MS*, SO	GOB
5.	Md. Solaiman Hossain, *MS*, SO	GOB
6.	Md. Rashid Shahariar Ripon, *MS*, SO	GOB
7.	Md. Anisar Rahman, *MS*, SO	TRB
8.	Md. Abdus Sattar, *Dip. in Ag*, FA	GOB
9.	Debbrata Mohonta, *Dip. in Ag*, SA	GOB
10.	Md. Forman Ali, *Dip. in Ag*, SA	TRB

Strength of BRRI Rangpur-2022

Support Service

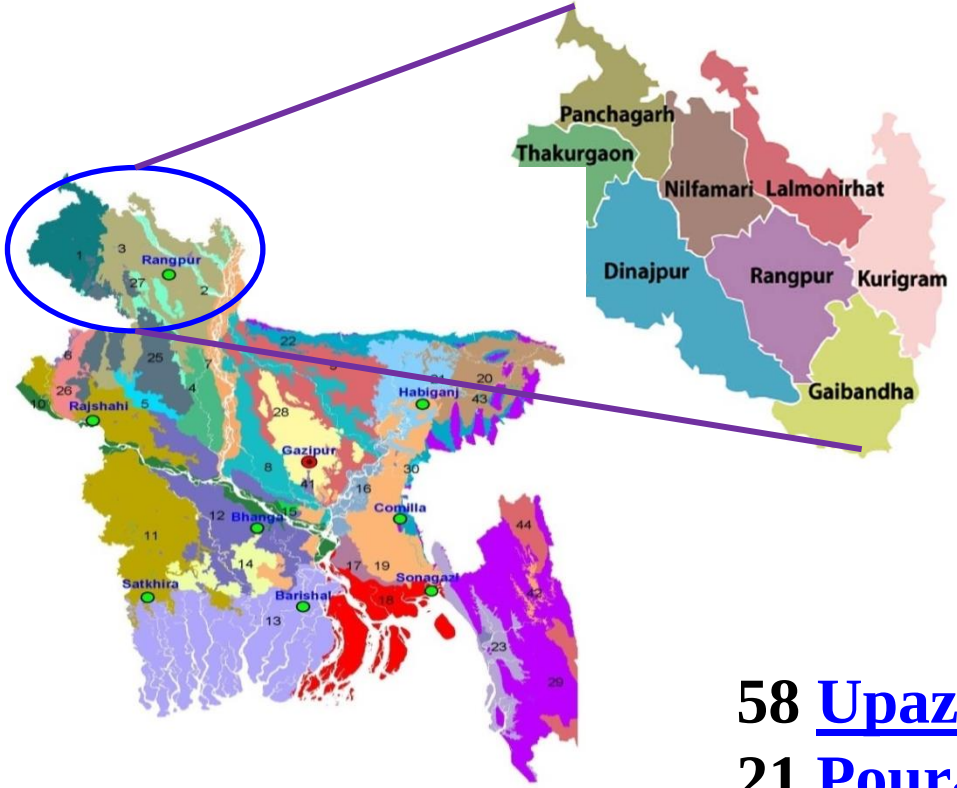
1	Md. Mozammel Haque, Store Officer	GOB
2	Md. Johirul Alam Khan, UDA cum Accountant	GOB
3	Md. Ashraf Ali, Driver	GOB
4	Md. Ismail Hossain, OA cum CO	GOB
5	Md. Zamiar Hossain, Guard cum Cook	GOB
6	Md. Ataur Rahman, Security Guard	GOB
7	Md. Forid Miah Shekh, Security Guard	GOB
8	Md. Amiruzzaman, Cleaner	GOB

Regular Labour: 29
Irregular Labour: 04

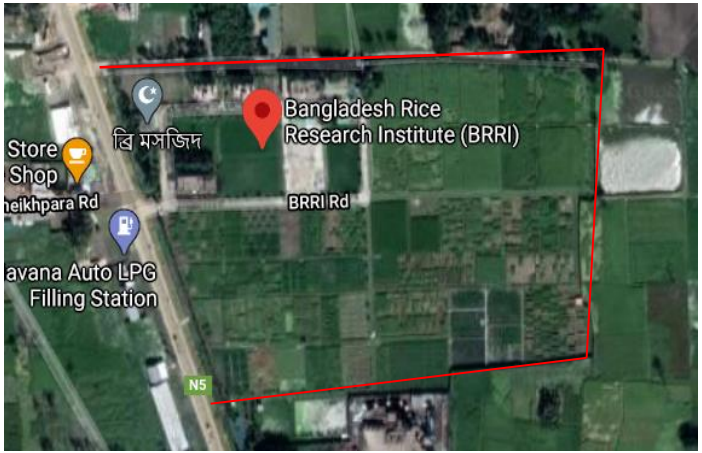
At a glance of BRRI Regional Rangpur

- The BRRI Regional Station, Rangpur was established in 1991
- The Station is located about 7 km west of the Divisional city of Rangpur in the Tista Meander Floodplain (AEZ-3) agro-ecological region
- Of the 6.07 ha of land belonging to this regional station of BRRI, about 4.05 ha is used for research purposes.
- The soil is silty loam, slightly acidic (pH 6.4) with a low organic matter content (1.2-1.3%)
- The annual rainfall at this station is around 2192 mm

At a glance BRRI Rangpur



Latitude 25°41'45.69" N
Longitude 89°16'1.37" E
Altitude: 34 m



58 Upazilas, 01 City Corporation,
21 Pourasavas and 536 Union councils

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Flood and Drought Prone Areas of Rangpur region

District	Net crop area	Flash Flood prone area		Drought prone area	
	(ha)	(ha)	%	(ha)	%
Rangpur	2,00,000	40,000	20	25,000	13
Gaibandha	1,49,749	75,000	50	5,000	3
Kurigram	1,62,480	30,000	18	40,000	25
Lalmonirhat	91,771	13,581	15	8,410	9
Nilphamari	1,28,515	9,000	7	2,000	2
Dinajpur	2,58,259	39,402	15	66,025	26
Thakurgaon	1,41,559	21,025	15	37,000	26
Panchagarh	1,12,428	5,600	5	45,000	40
Region	12,44,761	2,33,608	19	2,28,435	18

Note: Entire eight districts are under cold prone area

Source: AD Office, DAE

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Cropping intensity in Rangpur-Dinajpur Region

Region	District	Rate of Cropping intensity	
		District wise (%)	Avg. Region based (%)
Rangpur	Rangpur	251.47	230.57
	Gaibandha	215.15	
	Kurigram	225.84	
	Lalmonirhat	229.68	
	Nilphamari	223.75	
Dinajpur	Dinajpur	233.53	228.43
	Thakurgaon	244.77	
	Panchagarh	207.00	
Rangpur-Dinajpur Region			229.5%

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Source: AD Office, DAE, 2020

Major Cropping Pattern in Rangpur region

Region	District	Major cropping pattern	Covered area (ha)	Net cropped area (%)
Rangpur	Rangpur	Boro-Fallow-T. Aman	81,300	49
		Potato-Boro-T. Aman	15,200	9
		Maize-Fallow-T. Aman	7,750	4
	Gaibandha	Boro-Fallow-T. Aman	96,670	64
		Potato-Boro-T. Aman	8,000	5
		Boro-Fallow- Fallow	6,700	4
	Kurigram	Boro-Fallow-T. Aman	83,500	56
		Boro-Fallow- Fallow	10,600	7
	Lalmonirhat	Boro-Fallow-T. Aman	44,600	45
		Maize-Fallow-T. Aman	19,550	20
		Tobacco-Maize-T. Aman	5,710	6
	Nilphamari	Boro-Fallow-T. Aman	65,300	54
		Potato-Boro-T. Aman	10,070	8
		Maize-Fallow-T. Aman	7,860	6

Source: AD Office, DAE, 2020

Major Cropping Pattern in Dinajpur region

Region	District	Major cropping pattern	Covered area (ha)	Net cropped area (%)
Dinajpur	Dinajpur	Boro-Fallow-T. Aman	1,38,400	50
		Maize-Fallow-T. Aman	32,510	12
		Potato-Boro-T. Aman	21,090	7
		Wheat-Fallow-T. Aman	12,960	5
	Thakurgaon	Boro-Fallow-T. Aman	45,050	30
		Wheat-Fallow-T. Aman	24,400	16
		Potato-Maize-T. Aman	11,550	8
		Wheat-Fallow-T. Aman	9,450	6
	Panchagarh	Boro-Fallow-T. Aman	32,400	29
		Maize-Fallow-T. Aman	11,050	10
		Wheat-Fallow-T. Aman	9,300	8

Source: AD Office, DAE, 2019

2. Transformation Phase

Transformation of Rice Research

1991-2000

Phase 1

1. Location specific production technology developed
2. Adaptation and validation trials
3. Technology transfer

2001-2010

Phase 2

1. Location specific production technology developed
2. Adaptation and validation trials
3. Technology transfer

2011 & forward

Phase 3

1. Region specific varietal development
2. Location specific production technology developed
3. Adaptation and validation trials 4. Technology transfer

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3. Research Facilities

1. Laboratory
2. Conventional breeding
3. Field facility (10 Acres)

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4. Achievement of Rangpur Regional Station

1. **Monga Mitigation Model: Create Employment opportunity for the agricultural day labourers during the seasonal crisis period through the intervention of short duration rice variety, BRRI dhan33 in Rangpur Region**
2. **Provide support to development of submergence tolerant rice varieties (BRRI dhan51, BRRI dhan52 and BRRI dhan79)**
3. **Quality seedling raising technique in boro season**
4. **Fertilizer management of submergence tolerant rice**
5. **Cultivation technique of short duration variety at drought prone areas of Rangpur region**

Continued….

4. Achievement of Rangpur Regional Station

6. Late transplanting of BRRI dhan46 after rescission of flood water
7. Potato-T. Aus-T. Aman-Mungbean: A sustainable Technology for Four Cropped Cropping pattern in Rangpur Region
8. Rice cultivation technique through Dry Direct Seeded Rice (DDSR) in Aus and Aman season due to changing environment in Bangladesh
9. Weed dynamics in different cropping systems in NW region
10. Improvement of Bolan practice in T. Aman

Leaders of BRRI Rangpur

SN	Name and designation	Tenure
1.	Gazi Jasim Uddin Ahmed, *PhD*, PSO	14-08-1991 to 02-02-1994
2.	Saleha Khatun, *PhD*, SSO	03-02-1994 to 15-08-1995
3.	Sheikh Md. Abdus Sattar, *PhD*, PSO	16-08-1995 to 16 -06-1999
4.	Jatish Chandra Biswash, *PhD*, PSO	17-06-1999 to 27-03-2002
5.	Md. Abdul Mazid, *PhD*, PSO	28-03-2002 to 01-11-2008
6.	Md. Abdul Mannan Akhand, *PhD*, PSO	02-11-2008 to 22-05-2009
7.	Md. Abdul Jalil Mridha, *PhD*, PSO	23-05-2009 to 07-02-2010
8.	Md. Gous Ali, *PhD*, PSO	08-02-2010 to 23-04-2014
9.	Md. Shahidul Islam, *PhD*, PSO	24-04-2014 to 30-10-2016
10.	Md. Abu Bakar Siddique Sarker, *PhD*, PSO	31-10-2016 to 03-04-2019
11.	Md. Adil Badshah, *PhD*, PSO	04-04-2019 to 24-09-2020

Independence Award-2018

Received the Independence Award 2018 for food security. This will inspire to all rice scientists.

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5. On going research (VDP)

#	Project Name	Tenure
1.	Breeding for Standard Rice Varieties for Rangpur region	2014-on going
2.	Breeding for Second Generation Rice (2_GR)	2019-2025
3.	Breeding for Antioxidant Rice (Black/ red/purple)	2020-2025
4.	Breeding for Photoperiod-sensitive rice varieties (PSR) for Lowland and Charland ecosystem	2020-2025
5.	Development of Medium Stagnation and Submergence Tolerant Rice (MSSTR)	2020-On going
6.	Breeding for Basmati type Rice	2020-2025

5. Way Forward

5. Way Forward

To increase yield and incorporate other improved novel traits, the following areas need to be addressed:

1. Collection of germplasms from different national and foreign sources
2. Well characterization should be made in both phenotypic and genotypic levels of collected germplasms
3. Selective breeding should be made based on genomic selection
4. Establishment speed breeding facilities for the shortening of breeding cycle
5. Covered threshing floor is needed for seed processing

6. Conclusion

1. BRRI Rangpur is working on breaking the yield ceiling, Aromatic Rice, Photoperiod sensitive Rice, Flash flood submergence tolerance, Anti-oxidant and Basmati Type Rice by using the power of selection (Transgressive breeding)

2. Location specific sustain, safe and profitable rice production technologies are being generated in continuous manner

3. BRRI developed best technologies are disseminated in Dinajpur-Rangpur Region

Acknowledgement

- All heads of BRRI Rangpur
- All scientists, staffs and labours of BRRI Rangpur
- All divisions, regional stations and sections
- BRRI Authority

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