# Welcome



Adjustment of Short Duration Rice Variety in Rice-Based Cropping Pattern and Agro-Techniques to Mitigate Seasonal Food Insecurity (*Monga*) in Northern Districts of Bangladesh.

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Area : 147,570 Km<sup>2</sup> Population : 140 million (950 persons/Km<sup>2</sup>) **Title:** Adjustment of Short duration Rice variety in Ricebased Cropping Pattern and Agro techniques to Mitigate Seasonal Food Insecurity (*monga*) in Northern Districts of Bangladesh.

Monga: A local Bengali term '*Monga'* is used to describe seasonal food insecurity due to joblessness of day laborers for a particular period (mid-Sep to mid-Nov) in Northern Bangladesh.



# 7 different cropping patterns practicing by farmers in northern Bangladesh.

SI #	Jan	Feb	Mar	Apr	Мау	June	Jul	Aug	Sep	Oct	Nov	Dec
		Irrigated	Rice						Monsoon	Rice		
1												•
		Tobacco							Monsoon	Rice		
2												
		Maize							Monsoon	Rice		
3												
	Potato								Monsoon	Rice		
4				Maize								
		Wheat							Monsoon	Rice		
5												
	Potato	W.Veg.			Jute				Monsoon	Rice		
6												
7	Potota				Irrigated	Rice			Monsoon	Rice		
	]						]				<u> </u>	
Cropping pattern for monga mitigation												
	Potato		Mung						SD. Rice		Potato	

### **Research Background and Objectives**

• In monsoon (June-Aug), farmers are cultivating long duration rice in northern region, which mature 150 to 160 days (mid-Jun to mid-November).

•Farmers and agricultural day-laborers are somehow involved during June to August in monsoon rice field.

• After that, less work is available in agricultural field during mid-September to mid-November until harvesting in December.

•Therefore 68% (3-4 million) agricultural day-laborers of northern region remain unemployed during this period, which eventually causes `*Monga*'.

•When farmers & agricultural day-laborers start to harvesting their rice in late November to December, then monga somehow disappears.

•Therefore a technology regarding alternative rice based cropping pattern needs to be developed, where farmers would be able to harvest rice in mid-Sep. to mid-Nov. and day laborers will get job for harvesting of rice.

• Based on above ground, establish a research on 'short duration ricepotato-mungbean' cropping pattern to mitigate *monga* in order to maximize net profit and ensuring jobs for the day-laborers in *monga* months.

### Interaction of BR33 between Variety, Sowing method & Sowing Time

Treatment	No.of penicle/m2	No. filled grain/pen icle	Crop duration (days)	Pest infestati on/m2	Yield in ton /ha	Harvesting Dates	
BR 33 X DSS X 1st June	355 c	84 d	107 h	3.6 ab	3.3 cd	15-Sep	
BR 33 X DSS X .15 June	400.8 b	100 cd	104.2 i	2.8 b	4 ab	27-Sep	
BR 33 X DSS X .30 June	408.6 b	109 bc	100 j	1.2 c	4.1 ab	8-Oct	
BR 33 X TSS X 1st June	251.8 e	114 bc	122.8 e	3.4 ab	3.2 d	30-Sep	
BR 33 X TSS X .15 June	307.8 d	123 abc	120.4 f	2.4 b	3.7 bcd	13-Oct	
BR 33 X TSS X .30 June	317 .6 d	131 ab	118.4 g	1 c	3.8 bc	26-Oct	

### Interaction of BR11 between Variety, Sowing method & Sowing Time

Treatment	No.of penicle/ m2	No. filled grain/pe nicle	Crop duration (days)	Pest infestatio n/m2	Yield in ton /ha	Harvesting Dates
BR 11 X DSS X 1st June	395.8 b	108 bcd	130 с	4.2 a	3.5 bcd	8-Oct
BR 11 X DSS X .15 June	464.2 a	123.2 abc	128.6 d	3.2 ab	4.4 a	21-Oct
BR 11 X DSS X .30 June	468.2 a	130.2 ab	128.8 d	2.8 b	4.5 a	5-Nov
BR 11 X TSS X 1st June	406.6 b	129 ab	150 a	3.4 ab	3.9 abc	28-Oct
BR 11 X TSS X .15 June	431.6 ab	146 a	147.4 b	0.8 c	4.2 ab	9-Nov
BR 11 X TSS X .30 June	431.4 ab	142.8 a	147.4 b	0.8 c	4.16 ab	24-Nov

#### 4.5 5.0 4.5 4.0 4.0 3.5 Yield (ton/ha) (ton/ha) 3.5 3.0 -3.0 15 30 **30** Ű 30 -1st 2.5 15 30 St. Ű 2.5 June June June June 2.0 June June June June June Yield 2.0 June 1.5 1.5 1.0 1.0 0.5 0.5 0.0 0.0 **Direct Seeding Transplanting Direct Seeding** Transplanting **Planting method Planting method** 1st June 15-Jun 30-Jun 1st June 15-Jun 30-Jun

### **BRRI 33 (Short duration)**

**BR-11(Traditional)** 

# **Crop duration of rice varieties under different planting methods in different dates**



## **Conclusion:**

The yield of both rice variety (BR11 & BR33) increased yield 7% to 8% under **direct seeding** system. The yield of **direct seeded** rice was higher of 280-302 kg/ha than transplanting system because of higher plant population and thus more grain in a specific area

• The crop duration of both varieties were reduced around 18 days due to direct seeding system, because to escape transplanting shock & injury.

Around 60 day-laborers occupied/hectare of land for harvest and postharvest operations in *monga* months, where none is available for traditional monsoon rice cultivation.

• So to overcome *monga*, farmers can cultivate short duration rice either direct seeding or transplanting, where farmers will get rice and day-laborers will get job to harvest rice in *monga* months.

• After harvesting of short duration rice in *monga* months, it is now possible to cultivate winter crops like potato in right time i.e. in November, while farmers will get more yield and then mungbean cultivation as additional crop, thus more income..

## **Research in Extension**

After research and extending the said technology by RDRS the last four years, in 2008, the **Government of Bangladesh is taking** the lead role to extend the same in 40,000 hectares of lands under GO/NGO collaboration to mitigate monga.



