Performance of BRRI hybrid dhan 1 in Rajshahi Region

2001-02 Boro Season

Harun-Ar-Rashid[1]

Sponsored by:

Bangladesh Rice Research Institute (BRRI)
Gazipur, Bangladesh
&
Poverty Elimination Through Rice Research Assistance (PETRRA)
House # 39, Road # 23, Block-J, Banani, Dhaka-1212
Phone: 880-2-8817639-40, Fax: 880-2-8825341
Email: petrra@bdonline.com

Implemented by:

Agricultural Advisory Society (AAS)
8/7, Block-B, Lalmatia, Dhaka-1207
Phone: 880-2-8113645, Fax: 880-2-8117781
Email: aas@bdcom.com

October 2002

[1] **Executive Director, AAS**

Table of Contents

Background:

Rice is a self-pollinated crop. Each plant is capable of pollinating and fertilizing itself. Having done so, it is able to reproduce the same type, form and variety of seeds from which it originated. The hybridization of rice, however, involves the production of seeds from two separate parental lines, (the A and B lines). When the resulting offspring has one or more traits that are superior to those of their parents, we say they have achieved a state of "heterosis", i.e., they reflect a condition of hybrid vigour. It was previously thought that it is impossible to produce rice hybrids using procedures used in cross-pollinated crops such as maize, pearl millet and cotton. But, as early as in 1954, Indian rice scientists Sampath and Mohanty at the Central Rice Research Institute, Cuttack, reported the existence of cytoplasmic male sterility (CMS), a hybridizing precondition that predicted the possibility of developing hybrids in rice (Sampath and Mohanty, 1954). Nevertheless, except for China, no other rice growing country made serious efforts to explore the possibility of developing rice hybrids until the late 1980s.

In the early days, hybrid rice technology seemed to be complicated and expensive. Recent advancements, however, suggest that it is not so difficult as originally thought and modern scientific approaches have gone a lone way to minimize expenses. Breeding procedures used for developing hybrid rice are strikingly different from those used for breeding inbred rice varieties. The procedure involves three major steps. These are: the development of appropriate parental lines, seed production of experimental hybrid combinations and a final step for the evaluation and selection of attractive hybrid combinations that have resulted from step two.

The dream of high yielding rice hybrids became a reality in China with the large-scale adaptation of hybrid rice varieties in 1976. The success of hybrid rice in China triggered an interest to initiate research at IRRI in the late 1970s as well as in other Asian countries since the late 1980s. By the early 1990s IRRI had developed several CMS lines which could be used as parents for developing hybrid rice varieties suitable for local agro-ecological conditions in several countries.

China first developed and demonstrated the use of hybrid rice technology to increase rice production. In China, research on hybrid rice begun in 1964. The first set of commercial rice hybrids was released in 1976 (after 12 years of research). The use of hybrid rice technology is by now a well proven success story in China. Hybrid rice production occupies about 16 million-hectare or about 50 percent of the total rice area being cultivated. Hybrid rice production in China contributes about 18 million tones of extra paddy annually to China's and gives about 20% higher grain yield in comparison with the most popular, highest yielding non-hybrid varieties.

Hybrid rice research in the Bangladesh context was first initiated at the Bangladesh Rice Research Institute (BRRI) in 1993. Systematic efforts were begun only in 1996 with financial support from the BARC. The government of Bangladesh permitted field testing four hybrid rice varieties (Alok, Loknath, Amarsiri-1 and Sonarbangla-1) for the 1998-99 Boro season. In response to the recommendation of the NSB, four private seed companies were granted

licenses to import 2200 metric tons of hybrid rice seed for the purpose of carrying out field testing in farmers fields. Among the four rice hybrids three were from India and one from China (Sonarbangla-1). Since the first tests were carried out, the government of Bangladesh has subsequently allowed the import of three more hybrids from China. The import and marketing of rice hybrids of foreign origin in Bangladesh was undertaken by the NSB on condition that the concerned companies and organizations will develop the necessary infrastructure for production of hybrid rice seed within a stipulated period under a memorandum of joint collaboration with the hybridizing authorities in India or China. Besides the seven foreign rice hybrids, the NSB has released a BRRI developed rice hybrid in the name of **BRRI hybrid dhan 1** in Jessore and Barisal regions for cultivation in that agro-ecological zone.

The NSB also decided to disseminate this new, locally developed hybrid in other regions of the country. It was revealed from the Pilot Production plots in the last Boro Season (2000-2001) that this hybrid also has the potential to give satisfactory yield advantage in typical Boro growing areas of Rajshahi and Comilla regions but failed to get the recommendation for its inconsistent results among the demonstration plots of 2000-01 Boro season.

PETRRA sub-project on hybrid rice and BRRI decided to undertake pilot testing on BRRI hybrid dhan 1 in Rajshahi and Comilla regions during 2001-02 Boro season. The PETRRA sub-project on hybrid rice and BRRI selected Agricultural Advisory Society (AAS) as the collaborator for pilot testing BRRI hybrid dhan 1 in Rajshahi region.

Purpose:

The purpose of the pilot testing was to evaluate the performance of BRRI hybrid dhan 1 under farmer's field conditions in Rajshahi region.

Methodology:

BRRI hybrid dhan 1 was assessed against BRRI dhan29 as check during 2001-02 Boro season at 15 villages in 15 Upazilas of 6 districts (Pabna, Natore, Rajshahi, Nogaon, Bogra and Sirajganj) in Rajshahi region. At the beginning, forty-five willing farmers of 14 partner NGOs (see Annex. I) were selected and received seed in the six working districts where BRRI dhan29 is the most popular variety during Boro season (see Annex.III). Each farmer received 2 kg and 3.25 kg seed of BRRI hybrid dhan 1 and BRRI dhan29, respectively. Forty-one pilot test plots with BRRI hybrid dhan 1 and BRRI dhan29 were established in the six districts in Rajshahi region. Finally the grain yield, growth duration, yield contributing characters etc were collected from 33 demonstration plots (Annex II) and presented in this report (Table 1 & 2).

The average plot size was 16 decimals for BRRI hybrid dhan 1 and 28 decimals for BRRI dhan29. The seedling was transplanted between 24 January 2002 to 20 February 2002 with 31-45 days old seedlings for both the BRRI hybrid dhan 1 and BRRI dhan29. 1-2 seedling(s)

per hill for BRRI hybrid dhan 1 and 2-3 seedlings per hill were transplanted for BRRI dhan29. The spacing between rows and within hills were maintained at 20 cm each.

The plots were fertilized with urea, TSP, MP, Gypsum and Zinc Sulphate at the rate of 270, 130, 120, 70 and 10 kg per hectare, respectively. Post transplant management such as weed control, irrigation, top-dressing with urea and MP was done as advises was provided.

Tiller production and yield component data were collected from 16 hills at 4 spots (4 hills/spot) for each variety of the demonstration plots. The tiller count was done at 15 days interval for both the cultivars.

The panicles per hill were calculated from the same 16 hills for both cultivars before harvesting the crop of the 33 demonstration plots. Three representative (average) hills were harvested for both the cultivars for the yield component data collection of the 33 demonstration plots. Later, panicles were detached from three representative hills for each cultivar separately. After drying the detached panicles both fill and unfilled grains were threshed and counted manually at AAS head office, Dhaka. Thereafter, 1000-grain weight was taken and adjusted at 14% moisture content for both the cultivars of the demonstration plots.

The crop was harvested from 3 sample areas (15 m^2 - 3x5m for each sample area) for both the cultivars of the 33 demonstration plots. After harvesting the crop, threshing, drying and cleaning were done for both the cultivars separately. Thereafter, the grain weight of the sample area (45 m^2) and moisture content were taken separately in presence of farmers and staffs (POs & AAS) for both cultivars of the 33 demonstration plots. As per the decision, farmers and staffs were signed on the yield data sheet at each pilot test village. Later, grain yield (unhusked paddy) calculated in t ha^{-1} for both the cultivars of 33 demonstration plots.

Insect infestation, disease infection and crop lodging were estimated using 1-9 scales during crop growing period of the demonstration plots. The crop damage mainly due to storm and hail-storm was estimated in percent of the demonstration plots.

Grain yield (unhusked paddy), field duration, tiller production, yield contributing characters, insect infestation, disease infection, crop lodging and crop damage were systematically recorded for the 33 plots and presented in Table 1 and 2.

Assigned Area Coordinator of AAS collected primary data of cost and return of BRRI hybrid dhan 1 and BRRI dhan29 from 6 villages in the project areas. Later, the collected data on cost and return of BRRI hybrid dhan 1 and BRRI dhan29 calculated and presented in Table 3.

Total of 1603 farmers attended in 13 field days at the 12 'pilot-test' villages during ripening stage.

Findings:

The average grain yield at 14% moisture content, field duration, yield contributing characters, insect infestation, disease infection and storm/hail-storm damage are provided in Table 1.

The average grain yield of BRRI hybrid dhan 1 (7.22 t ha^{-1}) was about 3 percent higher than BRRI dhan29 (7.01 t ha^{-1}).

The average field duration was more or less similar with BRRI hybrid dhan 1 (110 days) and BRRI dhan29 (111 days).

The average panicles per hill of BRRI dhan29 (14.66/hill) was about 7% higher than BRRI hybrid dhan 1 (13.72/hill). Moreover, the proportion of effective tiller was about 10 percent higher with BRRI dhan29 (65.02%) than BRRI hybrid dhan 1 (59.02%).

The average number of filled grains per panicle was about 90 and 80 with BRRI dhan29 and BRRI hybrid dhan 1, respectively. But the average proportion of unfilled grains was higher with BRRI hybrid dhan 1 (38.62%) than BRRI dhan29 (29.89%).

1000-grain weight is higher with BRRI hybrid dhan 1 (25.30 gm) than BRRI dhan29, which is similar to be the expected 1000-grain weight for both of the cultivars.

The lodging habit of BRRI hybrid dhan 1 (5 plots) and BRRI dhan29 (2 plots) was found at very low level.

Low insect infestation of stem borer was observed with both BRRI hybrid dhan 1 and BRRI dhan29 in most pilot testing plots. Little higher stem borer infestation was observed with BRRI hybrid dhan 1 than BRRI dhan29.

Similarly, low disease infection of Bacterial Leaf Streak (BLS) and Bacterial leaf blight (BLB) was observed with both BRRI hybrid dhan 1 and BRRI dhan29 in most pilot testing plots. Little higher BLS and BLB infection was observed with BRRI hybrid dhan 1 than BRRI dhan29.

The average proportion of crop damage due to storm and hailstorm was higher with BRRI hybrid dhan 1 (11.48%) than BRRI dhan29 (5.41%) in most pilot testing plot in six districts.

Cost of production and return of the main product and by-product of BRRI hybrid dhan 1 and BRRI dhan29 is provided in Table 3. Gross return of BRRI hybrid dhan 1 and BRRI dhan29 are about Tk56,749 and Tk55,099 per ha, respectively, against corresponding net return on full cost basis as about Tk23,368 and 23,501 and that on cash basis as about Tk39,916 and Tk40,120. The benefit cost ratio of the cultivars of the full cost basis stands at 1.70 and 1.74, respectively, and that on cash cost basis as 3.37 and 3.68.

The net return of full cost basis of BRRI hybrid dhan 1 and BRRI dhan29 is about 41.18 and 42.65 percent of gross value of the product and by-product, respectively. The same parameter (net return) on cash cost basis of the respective cultivars stand at 70.34 and 72.81 percent. Thus, the net return in terms of gross value of the main product and by-product on full cost and cash cost basis BRRI dhan29 is slightly higher than BRRI hybrid dhan 1 (Table 3).

Conclusion:

The average grain yield of BRRI hybrid dhan 1 was 7.22 t ha^{-1}, which is more or less similar to BRRI dhan29. On the other hand, the maximum grain yield of BRRI hybrid dhan 1 was as much as 9.49 t ha^{-1} and that of BRRI dhan 29 was 9.30 t ha^{-1}. This indicates the higher-level yield potentiality of both BRRI hybrid dhan 1 and BRRI dhan29 during Boro season. The coefficient of variation around the mean in terms of percentage remains below the tolerable limits of 20 percent in case of grain yield for both the cultivars. The coefficient of variation for grain yield was more or less similar for both the cultivars.

Moreover, the average grain yield of BRRI hybrid dhan 1 is quite contrasting the farmers yield assessment, which was at least 20% higher than BRRI dhan29 in most pilot testing plots in six districts. The farmer's comparative grain yield assessment was based on the crop condition of pilot testing plots. Such low grain yield of BRRI hybrid dhan 1 under pilot testing in six districts may be due to higher percentage of unfilled grains. These are the consequences of late transplanting of the crop, unfavorable natural calamities (storm & hailstorm) during reproductive stage of the crop in most cases and nitrogen management in later stage of the crop in few cases.

Recommendation:

Such pilot testing of BRRI hybrid dhan 1 may be repeated for optimal time of transplanting during 2002-03 Boro season with minimum plots (10-15 plots) in Chalan bill areas under modest funding support from PETRRA Hybrid sub-project in Rajshahi region.

Location specific trial at time of transplanting for BRRI hybrid dhan 1 may be conducted to find out the optimal time of transplanting for yield maximization of BRRI hybrid dhan 1 across the country. Such location specific trial may also be conducted on fertilizer management, especially on nitrogen management (rate, time and method of application) across the country.

Location specific production package for BRRI hybrid dhan 1 may be fine-tuned.

Table 1: Comparison of means of different characters of BRRI hybrid dhan 1 with a check (BRRI dhan29) pilot tested in 2001-2 Boro season in Rajshahi Region.

Characteristics/ Parameters	BRRI hybrid dhan 1				BRRI dhan29			
	Mean	CV (%)	SE	Plot (Nr)	Mean	CV (%)	SE	Plot (Nr)
Paddy yield (t/ha)	7.22	18.38	1.33	33	7.01	17.29	1.21	32
Field duration (days)	110	4.08	4.00	33	111	4.06	5.00	32
Tillers and Panicles Production:								
(a) Max. tillers/hill (Nr)	24.24	22.61	5.48	29	23.05	19.28	4.44	29
(b) Panicles/hill (Nr)	13.72	14.25	1.96	29	14.66	16.60	2.43	29
(C) % Effective tillers	59.02	22.95	13.55	29	65.02	18.63	12.11	29
Grains Production:								
(a) Filled grains/Panicle	79.46	27.94	22.20	29	90.03	19.98	17.99	29
(b) Unfilled grains/Panicle	48.52	25.52	12.38	29	37.85	22.90	8.67	29
(c) % Unfilled grains Panicle	38.62	27.79	10.73	29	29.89	23.25	6.95	29
1000-grain Wt (gm)	25.30	7.86	2.19	29	21.33	11.68	2.75	29

Table 2: Comparison insect infestation, disease infection and storm damage of BRRI hybrid dhan 1 with a check (BRRI dhan29) pilot tested in 2001-2 Boro season in Rajshahi Region.

Characteristics/ Parameters	BRRI hybrid dhan 1				BRRI dhan 29			
	Mean	CV (%)	SE	Plot (Nr)	Mean	CV (%)	SE	Plot (Nr)
Insect infestation (1-9 scale)	2.30	22.99	0.53	33	1.32	40.89	0.54	31
Disease infection (1-9 scale)	2.14	33.93	0.73	21	1.23	35.63	0.44	13
Lodging (1-9 scale)	3.00	40.82	0.55	5	2.50	28.28	0.50	2
Crop damage due to storm & hailstorm (%)	11.48	66.17	7.60	33	5.41	75.74	4.09	32

Table 3: Cost and return of the two cultivars for 2001-2 Boro season

Items	Variety	
	BRRI hybrid dhan 1	**BRRI dhan29**
Paddy Yield (Kg/ha)	7220	7010
Price of Paddy (Tk/Kg)	7.5	7.5
Straw Yield (Kg/ha)	5776	5608
Price of Straw (Tk /Kg)	0.45	0.45
Gross return (Tk/ha)	56,749	55,099
Total Cost (Tk ha)		
(i) Full-cost basis [a]	33,381	31,598
(ii) Cash-cost basis [b]	16,833	14,979
Net return (Tk/ha)		
(i) Full-cost basis	23,368	23,501
(ii) Cash-cost basis	39,916	40,120
Benefit-cost ratio		
(i) Full-cost basis	1.70	1.74
(ii) Cash-cost basis	3.37	3.68
Net return in terms of gross value of the product (%)		
(i) Full-cost basis	41.18	42.65
(ii) Cash-cost basis	70.34	72.81

[a]Full-cost includes human labours, bullock power, seeds, fertilizers, insecticides, interest on working capital and land rent.

[b]Cash-cost includes seeds, fertilizers, insecticides, irrigation and interest of the outflow cash.

✧ Grain and straw is considered at 1:0.8 for this cost analysis.

Annex I: Proposed working area (Upazila) for 14 member NGOs of AAS partner NGO network for pilot testing of BRRI hybrid dhan 1 in 15 upazilas of 6 districts in Rajshahi region

Sl. No.	Partner NGO'S name, address and contact person	Proposed Area	
		Upazila	District
01.	Md. Manjur Hossain Executive Director **Bangladesh Organization for Social Service (BOSS)** Village: Dwipchar, Post: Char Ashutashpur P.S. & District: Pabna Phone: 0731-63045 Mobile: 017363780	Sujanagar	Pabna
02.	Ms. Momata Chaklader Executive Director **PABNA Protisruti** Radhanagor, Sadar, Pabna Phone: 017123708	Atghoria	Pabna
03.	Mirza Md. Azim Haider Chief Executive **Sirajgonj Flood Forum (SFF)** Village & Post: Handial Upazila: Chatmohar District: Pabna	Chatmohar	Pbana
04.	Md. Monzed Hossain Executive Director **Jamuna Samaj Kallyan Sangstha (JSKS)** Jamuna Villa Kashnathpur, Upazila: Santhia, Pabna	Santhia	Pabna
05.	Md. Nazrul Islam Executive Director **Tarash Kallyan Sangstha (TKS)** Upazila:Tarash, Sirajgonj	Tarash	Sirajgonj
06.	Md. Abdus Sattar Executive Director **Pattysha** Nimgachi, Upazila: Raigonj, Sirajgonj	Raiganj	Sirajganj
07.	Md. Ashraful Islam Executive Director **Bangladesh Rural Advancement Society (BRAS)** Village & Post- Khas Shatbaria Upazila- Shahjadpur District- Sirajgonj	Shahjadpur	Sirajganj

08	Khondakar Touhidur Rahman Executive Director **Daradra Nibaron Kendra (DNK)** Upazila: Ullapara, Sirajgonj	Ullapara	Sirajganj
9	Md. Enamul Haque Executive Director **Banga Janani (BJ)** Upazila: Gurudaspur, Natore	Gurudaspur	Natore
10	Md. Golam Mawla Executive Director **Mukhara BSK Songstha (MBSKS)** Nawparahat, Upazila:Baraigram, Natore	Baraigram	Natore
11	Ms. Daisy Ahmed Director **Palli Karma Shahyak Sangstha (PKSS)** Singra Bazar, Upazila: Singra, Natore	Singra	Natore
12	Ms. Daisy Ahmed Director **Palli Karma Shahyak Sangstha (PKSS)** Singra Bazar, Upazila:Singra, Natore	Nandigram	Bogra
13	Ms. Farida Khanom Director **Bangladesh Sramajibi Mohila Samiti (BSMS)** Upazila: Shariakandi, Bogra	Shariakandi	Bogra
14	Md. Jalal Uddin Executive Director **Tranomul** Miapara, Sadar,Rajshahi	Paba	Rajshahi
15	Md. Khairul Islam Executive Director **Bangagio Relief Committee (BRC)** Upazila: Atari, Naogaon	Atrai	Naogaon

Note: Total involved PNGOs = 14

Annex II: Final List of Demo Farmers for 2001-2 Boro season

Sl. #	Farmers' Name	Village	Upazila	District	P.O.
1	Md. Anwar Sarker	Khas Satbaria	Shahjadpur	Sirajganj	BRAS
2	Md. Rezaul Karim	Telkupi	Shahjadpur	Sirajganj	BRAS
3	Md. Omar Faruque	Nukali	Shahjadpur	Sirajganj	BRAS
4	Md. Zillur Rahman	Ramkrishnapur	Ullapara	Sirajganj	DNK
5	Md. Rafiqul Islam	Jalsukha	Ullapara	Sirajganj	DNK
6	Md. Alhaz	Sonapatil	Tarash	Sirajganj	TKS
7	Md. Amir Hossain	Sonapatil	Tarash	Sirajganj	TKS
8	Md. Sobhan	Gothila	Royganj	Sirajganj	Protyasha
	Md. Tofayel	Gothila	Royganj	Sirajganj	Potyaysha
9	Sree Madan Kumar Mahot	Gothila	Royganj	Sirajganj	Pattysha
11	Md. Sattar	Vengri	Chatmohar	Pabna	SFF
12	Md. Abdul Mannan	Vengri	Chatmohar	Pabna	SFF
13	Md. Abu Sayed	Vengri	Chatmohar	Pabna	SFF
14	Md. Mostafizar Rahman	Chandi Noarpara	Sarishakandi	Bogra	BSMS
15	Md. Bakul Hossain	Chandi Noarpara	Sarishakandi	Bogra	BSMS
16	Md. Abdul Mannan	Chandi Noarpara	Sarishakandi	Bogra	BSMS
17	Md. Panna Miah	Chandi Noarpara	Sarishakandi	Bogra	BSMS
18	Md. Abdul Khalek	Hidaskol	Atgharia	PABNA	PABNA Protisruti
19	Md. Eusuf Ali	Hidaskol	Atgharia	PABNA	PABNA Protisruti
20	Md. Majnu	Hidaskol	Atgharia	PABNA	PABNA Protisruti
21	Md. Bakkar Khan	Bilkhetupara	Sujanagar	PABNA	BOSS
22	Md. Reaz Mondal	Bilkhetupara	Sujanagar	PABNA	BOSS
23	Md. Bilu Sardar	Bilkhetupara	Sujanagar	PABNA	BOSS
24	Md. Shahjahan Ali	Chatak Borat	Sathia	PABNA	JSKS
25	Md. Almas Ali	Chatak Borat	Sathia	PABNA	JSKS
26	Md. Masud Rana	Chatak Borat	Sathia	PABNA	JSKS
27	Md. Joynal Abedin (Modhu)	Agran	Boraigram	Natore	MBSKS
28	Md. Lutfar Rahman	Agran	Boraigram	Natore	MBSKS
29	Md. Afsar Ali	Agran	Boraigram	Natore	MBSKS
30	Md. Alam	Poalshura Daripara	Gurudaspur	Natore	Banga Janani
31	Md. Badsha	Poalshura Daripara	Gurudaspur	Natore	Banga Janani
32	Md. Korban Ali	Sonabaju	Gurudaspur	Natore	Banga Janani
33.	Md. Shahjahan	Kashiabari	Atrai	Naogoan	BRC

Annex III: List of popular rice varieties at pilot testing villages in six districts for Boro 2001-02 season

Project Village	***Upazila***	***District***	***PO***	***Variety***
Partitparul/Chandina Nowar Pata	Shariakandi	Bogra	BSMS	1) BRRI dhan 28, 2) BRRI dhan 29, 3) BR-26, 4) BR-1 (Chandina), 5) BR-14, 6) IR-8, 7) IRRI Atom
Kashiabari	Atrai	Naogaon	BRC	1) BRRI dhan 29, 2) BR-10, 3) BRRI dhan 28, 4) BR-26, 5) BR-4, 6) Pari, 7) Subidh*
Jalsuka	Ullapara	Sirajganj	DNK	1) BRRI dhan 29, 2) BRRI dhan 28, 3) BR-26
Khaskatbaria	Shazadpur	Sirajganj	BRAS	1) BRRI dhan 29, 2) BRRI dhan 28, 3) IR-8, 4) BRRI dhan 36
Polsura	Gurudaspur	Natore	BG	1) BRRI dhan 29, 2) BRRI dhan 28, 3) Subidh*
Bil Khetupara	Suzanagar	Pabna	BOSS	1) BRRI dhan 29, 2) BR-14, 3) Toba Boro
Hidaskol	Atgharia	Pabna	Pabna Protisruti	1) BRRI dhan 29, 2) BR-26, 3) Toba Boro, 4) Paijam
Chatokborat	Sathia	Pabna	JSKS	1) BRRI dhan 29, 2) IR-8, 3) BR-26, 4) BR-14
Aagram	Boraigram	Natore	MBSKS	1) BRRI dhan 29, 2) BR-26, 3) BR-14
Sonapatil	Tarash	Sirajganj	TKS	1) BRRI dhan 29, 2) BRRI dhan 28, 3) BR-26, 4) BR-1 (76)
Gothita	Raiganj	Sirajganj	Pattysha	1) BRRI dhan 29, 2) BRRI dhan 28, 3) BR-26, 4) Pari/Paril
Dengri	Chatmohar	Pabna	SFF	1) BRRI dhan 29, 2) BRRI dhan 28, 3) BR-26, 4) BR-1 (76)