Performance of 28 Cultivars of FAG Rice in Moulvibazar and Habiganj Districts

2003 T. Aman Season

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Background

Rice is the dominant crop in respect of both the cropped area output within the food grain sub-sector of Bangladesh. It is the nation's most strategic commodity. It contributes nearly 20% of GDP and occupies 75% of cropped land. Rice production provides nearly 50% of employment and 75% of calories consumed in the country. Furthermore, the rural and urban poor spend up to 60% of their income on it. By far the largest component of our agricultural produce is rice, which is the staple food of over 130 million Bangladeshis.

More than five thousand genotypes of rice have so far been collected and preserved, and more remain to be discovered in Bangladesh. It is suspected that a large number of genotypes were lost forever due to the induction of the modern high yielding varieties since the sixties of the past century to meet the food requirement of the ever-expanding population. However, many good varieties of the indigenous rice have survived under the invasion of the HYVs and have remained in cultivation due to their special characteristics. Three such characteristics that made the rice exceptional are fineness (small and elongated grain), aroma and glutinousness.

The present food production in Bangladesh is about 27million m. tons (2001-2002). The country seems to have attained a sustainable level self-sufficiency in food production. In general, farmers sell their paddy below its production cost. In particular, the price of coarse rice falls tremendously during and after harvesting the crop. On the other hand, the price of fine rice is comparatively stable, being higher yielding greater profit than do the coarse rice varieties. Thus, the Indian fine rice (Miniket, Sorna etc) is very popular in Southwest and Northern border districts of the country. Similarly, BRRI dhan28 has already gained popularity all over the country. Bangladesh is an abundant source of genetic variations of fine, fine & aromatic and glutinous (FAG) rice. The production of these popular FAG rice varieties are location specific; their production being confined to certain traditional production pockets of Bangladesh (e.g. Dinajpur, Rajshahi, Mymensingh, Sylhet etc).

The agro-ecological conditions of the northeast are very diverse, providing suitable environment for growing rice varieties with wide genetic variations. Traditional varieties still continue to be grown in large areas of the region due to the particular conditions that prevail. The loss in gross production due to lower yields of fine varieties of rice is more than offset by their substantially higher prices. Consumers do not hesitate to pay higher prices for the FAG rice.

The demand of fine, fine & aromatic rice is much higher than production in the Sylhet region. Cultivation of FAG rice has tremendous potential in Sylhet region due to high market demand and to the desire among the resource poor farmers (RPFs) in the area to increase their net incomes from the production of these fine, fine & aromatic and glutinous rice cultivars within the traditional rain fed T. Aman cropping pattern. This tendency is bringing about a "sea-change" in the past slow growth in rice production in Sylhet region. There is considerable scope for export of surplus fine, fine & aromatic and glutinous rice to markets outside of Bangladesh, i.e., Middle East, Europe and North America.

According to Bangladesh Rice Exporters Association (BREA) statistics, Bangladesh exported 700 MT of aromatic rice in 2000, 780 MT in 2001 and 1,100 MT in 2002. In 2002 export verities included Chinigura (702 MT), Kalijira (273 MT), Kataribhog (120 MT) and Basmati (5 MT). Bangladesh's meager export of 1,100 MT of fine variety aromatic rice and in 2002 went to the US, UK, Canada, Australia and Middle Eastern destinations mainly to feed the ethnic consumers. On the other hand, neighbouring Thailand, Pakistan and India continued to command the world aromatic rice market by exporting over ten lakh, five lakh, and four lakh MT respectively in 2002. The issue of Bangladesh's failure in capturing the potential world market of aromatic rice, where 7 million MT is traded annually, government plans to work out a time bound action plans to give a big push to aromatic rice export from Bangladesh.

Some constrains to increase rice export from Bangladesh-local aromatic varieties are short and bold-type grain while global preference is tilted towards long and slender type like Basmati (India and Pakistan) and Jasmine (Thailand), low yield resulting high price, poor milling and grain recovery, and erratic domestic market. However, currently there is a levy of 46 US dollars per MT of rice to European Union. The government needs to gain levy and quota-free access to European markets. Moreover, the important issues are to select desired rice varieties and maintain uniformity and better management at every levels of aromatic rice production.

The sub-project on Fine, Fine & Aromatic and Glutinous rice (FAG) variety has been undertaken in the Northeast region of Bangladesh. It aimed to promote opportunities to build upon the lessons and experience learned from local resource poor farmers with technical inputs from BRRI, AAS and facilitated by HEED Bangladesh.

In 2003 T. Aman season AAS extended its study area and further tested the performance of 28 cultivars of FAG rice in Moulvibazar and Habiganj districts. The methods of field-testing for 28 cultivars of FAG rice during 2003 T. Aman season and their findings are presented in the following sections of this performance report.

Purpose

The purpose of the seasonal report of “2003 T. Aman” of the sub-project on production and marketing of FAG rice through farmer’s participation in Northeast region in Bangladesh has been to compile the findings and lessons learned from the sub-project activities in Moulvibazar and Habiganj districts of Sylhet division and to share the conclusions of these findings and lessons among the network partners, relevant scientists, exporters and other relevant stakeholders in the country.

Methodology

Location/ Research Site

The FAG rice sub-project has been implemented in 5 upazilas of Moulvibazar district since 2002 T. Aman season. In 2003 T. Aman season AAS has extended this program at Bahubal, Chunarughat and Madhabpur upazilas in Habiganj district. In Moulvibazar out of 5 upazilas, sub-project has been implementing in Sadar and Srimangal upazilas by AAS and in Kamalganj district, it has also been implementing in Kulaura and Rajnagar upazilas by HEED-Bangladesh. The sub-project activities were implemented by AAS at 35 villages in Moulvibazar district and 18 villages in Habiganj district in 2003 T. Aman season. These villages were selected by the assigned agronomist using the AAS developed village selection strategy and process.

Group formation and farmers selection

Resource poor farmers groups for FAG rice were formed at nine villages during T.Aman 2002 season. The additional 44 resource poor farmer groups (RPFGs) were formed during 2002-3 Boro season and before starting 2003 T. Aman season. Each resource poor farmer group (RPFG) was formed with 10 resource poor farmers (RPFs) with a coordinator at each project village. Farmers for trial and demonstration on FAG rice were selected with cooperation of group coordinators of the RPFGs and using pre-determined selection criteria at each project village.

Farmers Training

Farmer’s group formation and participatory training were conducted at the beginning of 2003 T. Aman season. At the beginning of the training, farmer’s knowledge of FAG rice cultivars and their production practices were collected. Later improved production practices of FAG rice were matched with farmer knowledge in a participatory process. Through this participatory presentation and discussion farmer’s learning of FAG rice technology were clarified among the participating farmers. The training process and its output documented for sharing among the participating farmers and other stakeholders.

Varietal Trial

At the beginning of FAG rice varietal trial for 2003 T. Aman two pre-tested resource poor farmer (Mr. Mozam Miah and Mr. Abdul Haque) were selected for varietal trial using AAS developed farmers selection strategy and criteria. Mr. Mozam was selected from Varaura village in Srimangal upazila and Mr. Abdul Haque was selected from Mohammadpur village in Sadar upazila (Annex-III).

A total of 28 FAG rice cultivars were selected for varietal trial to assess their performance in Northeast region of Bangladesh. Among the 28 FAG rice cultivars 22 were cultivated as trial in 2002 T. Aman season. Seed of 28 cultivars were collected from different sources (Annex-I). Seed of 28 cultivars were sown (250 gm each cultivars) with special care on 20 July (Mr. Haque) and 23 July (Mr. Mozum) 2003 in seedbeds for raising quality seedlings. Post sowing seedbed management practices were provided by the farmers under the direct supervision of the assigned Agronomist of the sub-project.

Each trial plot divided into 28 segments. Each segment was 1 decimal and was used to trial one only of the 28 FAG rice cultivars. Thus, there were 28 segments of 1 decimal each for the trial of the 28 FAG cultivars. Four modern cultivars of BRRI (fine and aromatic rices) separated one side for better fertilizer management practices. Similarly, ten glutinous cultivars separated another side in the same trial plot.

The seedlings were transplanted 12 August (Mr. Haque) and 16 August (Mr. Mozum) with 23 days old seedling of 28 cultivars in each trial plots.

2-3 seedlings per hill for the four modern varieties of BRRI and 3-4 seedlings per hill for local cultivars were transplanted in the prepared trial plots. The rest of 312 demonstration plots in 53 villages per hill 3-6 seedlings were transplanted. The spacing between rows was 20 cm and 15 cm between the hills both in trial and demonstration plots.

Each varietal trial plots were fertilized with urea, TSP, MP and Gypsum at the rate of 90 kg, 70 kg and 40 kg for local cultivars of FAG rice respectively. On the other hand Urea, TSP, MP and Gypsum were used at the rate of 150 kg, 100 kg, 70 kg and 60 kg per hectare for the four modern BRRI varieties. Varietal trial plots fertilized with cow dung at of 7 Mt/ha during land preparation. Farmers provided the post transplanting management such as weed control, irrigation, and top dressing of urea as per guidelines.

Yield component data and plant height (cm) were collected from 16 hills at 4 spots (4 hills/spot) for each variety of varietal trial plots. Three representatives (average) hills were harvested for 28 cultivars for the yield component from the varietal trial plots. Later, panicles were detached from three representative hills for each cultivar separately. After collecting the panicles of each cultivar it was sent into BRRI, Gazipur for counting filled and unfilled grain and 1000 grain weight was adjusted at 14% moisture content for 28 FAG rice cultivars.

The crop was harvested by keeping two hills at the border of the four sides to avoid the border effect for appraising the 28 cultivars. After harvesting the crop, threshing, drying and cleaning were done for each cultivar separately. Each of the varietal trial plots the grain-yield, yield contributing characters, growth duration and plant height of the 28 FAG rice cultivars are provided accordingly in Table-1 & 2. The average result of two varietal trial plots of each cultivar was given in Table-3.

Assigned Agronomist of the sub-project collected primary data of cost and return of 28 cultivars of FAG rice from trial plots and demonstration plots at different project villages. Later, the collected data on cost and return of 28 cultivars calculated and presented in Table-5.

Fertilizer Trial

Two pre-tested resource poor farmer Mr. Fahim Miahh and Mr. Choyan Datta were selected accordingly from Uttar Varaura and Nischintapur villages in Srimangal Upazila. At fertilizer trial plots BRRI dhan34 cultivars was used. In each fertilizer trial plot divided into 12 segments and each segments separated with strong bunds. In each fertilizer trial plots 3 replications with 4 treatments (organic, inorganic, organic with inorganic and control) were setup.

Seed of BRRI dhan34 was sown (250 gm) in the seedbed on 10 July (Mr. Frahim) and 14 July (Mr. Choyan) for fertilizer trial. Post showing management in the seedbed was taken by the respective farmer.

Infield-layout was done for the observational fertilizer trial with four treatments before transplanting the seedling and application of fertilizer. The "fertilizer trial" seedlings were transplanted on 6 August at Mr. Frahim's plot and 10 August 2003 at Mr. Choyan's plot; using 27 days old seedlings.

Organic fertilizer (cow dung) was applied at the rate of 10 Mt/ha and inorganic treatment plots fertilized with Urea, TSP, MP and Gypsum at the rate of 90 kg/ha, 70 kg/ha, 50 kg/ha and 40 kg/ha respectively in both the fertilizer trial plots. Organic with inorganic treatment plots fertilized with 5 t /ha of cow dung and Urea, TSP, MP and Gypsum at the rate of 90 kg/ha, 70 kg/ha, 50 kg/ha and 40 kg/ha respectively in both the fertilizer trial plots. The farmers as per pre-determined guidelines provided post-transplanting management such as weed control, irrigation and top-dressing with Urea. The tiller count, plant height, yield component data and grain yield of two different fertilizer trials was collected using the same procedure applied during the varietal trial. The tiller number, grain yield and yield contributing characters, growth duration and plant height of two different fertilizer trial are provided in Table-6 & 7 respectively. The average results of different two fertilizer trials are shown in Table-8.

Farmers' Field Demonstration

Seeds of 15 FAG rice cultivars were distributed (1.5 kg of each cultivars) among the 312 farmers at Habiganj and Moulvibazar districts. The seed of 15 FAG rice cultivars sown in seedbed during 12 July 2003 to 7 August 2003 by the 312 farmers in project areas.

The seedling age ranged from 25-40 days was transplanted during 6 August to 1 September 2003 by the trained 312 farmers in the project areas.

The respective demo farmers provided post transplanting cultural management practices as per guidelines developed during the farmer's training sessions.

The grain yield data collected and adjusted at 14% moisture content for each demo farmers and variety-wise average grain yield is provided in Table-4.

Field day

A total of 693 resource poor farmers (RPFs) participated at 7 field days at trial and demonstration villages in Moulvibazar and Habiganj districts during ripening stage of

2003 T. Aman season. At each field day, after field visit farmers participated in open discussion about the varietal assessment based on their knowledge and learning during field visit. Total 28 FAG rice cultivars were divided into three categories, such as fine, fine and aromatic, and glutinous. During the field day, project staff acted as facilitators. Moreover, field days were informal, highly participatory and very cost effective ways to discriminate the accumulated knowledge and lessons. Farmer's assessment on the 28 FAG rice cultivars is summarized and presented in Table 9.

Findings

The performance of 28 FAG rice varieties was evaluated through varietal trial, varietal demonstration, fertilizer trial, cost and return analysis and farmers participatory assessment at field day during 2003 T. Aman season at 53 villages in Habiganj and Moulvibazar districts. The findings of FAG rice study during 2003 T. Aman season is given below:

Fine Rice

The average grain yield of two trial plots of BRRI dhan39 was 2.54 t/ha and that was 2.71 t/ha in demonstration plots. The average grain yield of Parbatjira and Bashful of two trial plots were 0.79 t/ha and 2.53 t/ha respectively (Table 3 & 4).

The average tiller per hill of two varietal trial plots was highest with BRRI dhan39 (13.99 Nos.) and followed in order by Parbatjira (11.86 Nos.) and Bashful (11.67 Nos.). The average panicle per hill was highest with BRRI dhan39 (7.37 Nos.) and followed in order by Bashful (6.23 Nos.) and Parbatjira (5.82 Nos.). The average number of filled grains per panicle was highest with Bashful (101.50 Nos.) and followed in order by BRRI dhan39 (84.50 Nos.) and Parbatjira (75.50 Nos.). The average unfilled grain per panicle was lowest with Bashful (9 Nos.) and highest with Parbatjira (41 Nos.). The average 1000 grains weight was highest with BRRI dhan39 (25.4 gm) and followed in order by Bashful (24.32 gm) and Parbatjira (9.47 gm). 1000-grain weight of Parbatjira is the lowest among the tested 28 FAG rice cultivars during 2003 T. Aman season (Table 1, 2 & 3).

The average growth duration of two varietal trial plots, was lowest with Parbatjira (107 days) and that was highest was Bashful (134 days). The average plant height was highest with 128.9 cm in Bashful, followed in order by 123 cm in Parbatjira and 115.21 cm in BRRI dhan39 (Table 1, 2 & 3).

Fine and Aromatic Rice

Among the 15 fine and aromatic rice cultivars the average grain yield of two trial plots was highest with 3.40 t/ha in BRRI dhan34 followed in order by 3.15 t/ha in BRRI dhan38 and 3.07 t/ha in Kataribhogh. Similarly, the grain yield in demonstration plots was highest with 3.37 t/ha in BRRI dhan34 in Habiganj as well as Moulvibazar districts (Table-3 & 4).

The average tiller per hill of 15 fine and aromatic rice cultivars was highest with 16.73 Nos. in BRRI dhan38 followed in order by 16.12 Nos. in BRRI dhan34 and 15.22 Nos. In

BRRI dhan37. The average panicles per hill of 15 fine and aromatic rice cultivars ranged from 5.48 to 8.41 Nos. and that was highest with BRRI dhan34 (Table 1,2 & 3).

The average number of filled grain per panicle was highest with 122 Nos. in BRRI dhan34 followed in order by 118.5 Nos. in Kalijira (Dinajpur) and 117.5 Nos. in Chinigura-2. The unfilled grain per panicle was lowest with BRRI dhan38 and highest with Bagun Bechi (Table 1, 2 & 3).

Thousand-grain weight is the lowest with BRRI dhan34 (11.69 gm) followed in order by Tulshimala (12.10 gm) and Chinigura-1 (12.23). However, thousand-grain weight fluctuates between 11.69-20.36 gm for the fifteen tested cultivars (Table1, 2 & 3).

The average growth duration was lowest with Begun Bechi (105 days) and highest with Khachra (145 days).

The average plant height was highest with 142.53 cm in Kalijira (Dinajpur) followed in order by 140.92 cm in Kalijira (Mymensingh) and 138.53 cm in Kalijira (Srimangal). The average lowest plant height was with 122.97 cm in BRRI dhan34 (Table 1, 2 & 3).

Glutinous Rice

More or less similar grain yield was achieved with the 10 tested Glutinous rice cultivars from trial and demonstration plots during 2003 T. Aman season. The Average grain yield of two varietal trial plots ranged from 2.49 t/ha to 3.14 t/ha. The grain yield from demonstration plots varied from 2.45 t/ha to 2.91 t/ha. The average highest grain yield was found with Aikka Beruin (3.07 t/ha) from the two varietal trial plots. The same variety yielded 2.91 t/ha in demonstration plot (Table-3 & 4).

The average tiller per hill of two varietal trial plots was highest with 13.18 Nos. in Aikka Beruin followed in order by Khara Beruin (12.95 Nos.) and Modhu Beruin (12.56 Nos.). The average tiller per hill of two varietal trial plots was least with 10.29 Nos. in Pakh Beruin (Table 1, 2 & 3).

The average panicle per hill of two varietal trial plots was highest with Mou Beruin and Modhu Beruin (7.06 Nos.) followed in order by Khara Beruin (7.05 Nos.) and Sonamukhi (7.04 Nos.) and that of the remaining 6 cultivars ranged from 6.51 to 6.98 panicles per hill (Table 1, 2 & 3).

The average number of filled grains of two varietal trial plots was highest with Jatai (88 Nos.) followed in order by Aikka Beruin (86.5 Nos.) and Kathali Beruin (84.5 Nos.). The average filled grain per panicle ranged from 48.5-78.5 Nos. for the remaining six cultivars. The average unfilled grain per panicle fluctuated between 3.5 to 14.5 Nos. in 10 cultivars under varietal trial. Thousand grains weight is the highest with Pakh Beruin (27.14 gm) and lowest with Sonamukhi (17.99 gm). The average grain weight ranged from 18.67 to 26.84 gm for the remaining eight cultivars (Table 1, 2 & 3).

The average growth duration of two varietal trial plots was highest with Push Beruin (140 days) followed in order by Kathali Beruin (138 days) and Jatai (137.5 days). The average lowest growth duration was with sonamukhi (132 days). The average plant height was highest with Kathali Beruin (148.21 cm) followed in order by Modhu Beruin (146.32 cm),

and Pakh Beruin (144.89 cm). The average plant height of remaining seven cultivars ranged from 130.69 cm to 142.75 cm (Table 1, 2 & 3).

Cost and Return of FAG Rice

Cost and return of the main product and by-product of 22 cultivars of FAG rice is provided in Table 5.

The net-return on cash cost basis of the most tested cultivars of FAG rice was found economically encouraging. The net-return on full cost basis of the most tested cultivars of FAG rice was found economically discouraging. Moreover, the net-return on full cost basis of Parbatjira cultivars was found negative values as like as 2002 T. Aman season.

Similar trend of findings was observed for benefit-cost-ratio and net return in terms of gross value of the product (%) with the cash cost basis and full cost basis of 28 tested cultivars of FAG rice.

Thus, most of the tested cultivars of FAG rice were found economically viable with farmers on cash cost basis with better farm-gate price for FAG rice.

However, the per hectare net-return on cash cost basis was highest with BRRI dhan34 (Tk.39221), followed in order by Kalijira (Srimangal) (Tk.34759), Kalijira (Dinajpur) (Tk.3262) and Kataribhogh (Tk.31925) among the 15 fine and aromatic rice cultivars tested during 2003 T. Aman season. The benefit cost ratio on cash cost basis was highest with BRRI dhan34 (6.13), followed in order by BRRI dhan37 (5.91), Chinigura 2 (5.87), BRRI dhan37 (5.91) and Tulshimala (5.75) among the fifteen fine of aromatic rice cultivars tested during 2003 T. Aman season (Table 5).

Similarly, the net return on cash cost basis was highest with Aikka Beruin (Tk.28248), followed in order by Modhu Beruin (Tk.27,970), Mou Beruin (Tk.26,445), Kalo Beruin (Tk.36398) and Khara Beruin (Tk.25,105) during 2003 T. Aman season. The benefit cost ratio on cash cost basis was highest with Aikka Beruin (6.05), followed in order by Modhu Beruin (5.88), Jatai (5.49), Kalo Beruin (5.41) and Kathali Beruin (5.23) among the ten glutinous rice cultivars tested during 2003 T. Aman season (Table 5).

Fertilizer Trial of BRRI dhan34

In fertilizer trial plot of one research farmer (Mr. Frahim) there were four treatments i.e., organic, inorganic, organic with inorganic, and control. On the basis of data (Table 6) we find that organic with inorganic fertilizer gave the average highest grain yield (3.44 t/ha), tiller per hill (15.36 Nos.), panicle per hill (9 Nos.), filled grain per panicle (138 Nos.), unfilled grain (16.33 Nos.), thousand grains weight (11.77 gm) and plant height (119.85 cm) than other treatments. On the other hand growth duration was found to be shortest with inorganic treatment than that other three treatments.

In fertilizer trial plot of another research farmer (Mr. Choyan) there were also four treatments. On the basis of data (Table 7) we found that organic with inorganic fertilizer gave the average highest grain yield (3.53 t/ha) and also highest panicle (8.80 Nos.), filled grains (143 Nos.), thousand grains weight (11.40 gm) and plant height (124.76 cm) than other treatment.

On an average within two fertilizer-trial-plots we found that (Table 8) organic with inorganic fertilizer gave the highest grain yield (3.47 t/ha) and followed in order by inorganic fertilizer (3.28 t/ha), organic (3.12 t/ha) and control (2.43 t/ha). The average tiller per hill was highest with inorganic fertilizer (14.95 Nos.) and lowest with control (10.57 Nos.). The average panicle was highest with combined organic and inorganic fertilizer (8.90 Nos.) and followed in order by inorganic (7.96 Nos.), organic (7.50 Nos.) and control (6.35 Nos.). On an average organic and inorganic fertilizer gives the highest result on filled grain (140.5 Nos.), 1000 grains weight (11.58 gm) and plant height (122.30 cm). The average shortest growth duration (130.50 days) was found with the inorganic fertilizer treatment (Table 8).

Kalijira Demonstration Plot

A demonstration plot with five varieties of Kalijira was setup during 2003 T. Aman season at Varaura village in Srimangal Upazila. The varieties were Kalijira (Srimangal), Kalijira (Dinajpur), Kalijira (Mymensingh), Kalijira (Chapai-1) and Kalijira (Chapai-2). Kalijira (Chapai-2) looks like as same as Kalijira (Dinajpur). Seedling of fine varieties was transplanted in demonstration plot in same day and same age in 5 segments. Intercultural operation and fertilizer management was same for each variety.

Among the five varieties, grain yield from demonstration plot was highest with 2.89 t/ha in Kalijira (Srimangal) and it ranged between 2.51-2.67 t/ha in remaining varieties. Grain size of Kalijira (Srimangal) is the bighest of all Kalijira varieties. Fermers commented that Kalijira (Dinajpur) and Kalijira (Chapai-2) were the same and Kalijira (Dinajpur) was the finest among the rest four varieties.

Varietal assessment during field days

At the end of each field day at trial and demonstration sites participating farmers ranked the FAG rice cultivars and provided their specific comments according to the following three categories i.e., Fine, fine and aromatic, and glutinous rice.

Among the three fine rice cultivars, farmers ranked BRRI dhan39 as the best followed in order by Bashful and Parbatjira.

Among the fifteen fine and aromatic rice cultivars, farmers ranked BRRI dhan34 as the best followed in order by Tulshimala, Kataribhogh, BRRI dhan38, BRRI dhan37, Kalijira (Srimangal), Chinigura-1, Chinigura-2, Kalijira (Dinajpur), Chinisagor, Kalijira (Mymensingh), Chachra, Samudra fena, Garai and Begun Bechi.

Among the ten glutinous rice cultivars farmers ranked Aikka Beruin as the best followed in order by Modhu Beruin, Mou Beruin, Khara Beruin, Kalo Beruin, Kathali Beruin, Pakh Beruin, Sonamukhi, Push Beruin and Jatai.

Conclusion

Among the tested three fine rice cultivars, Parbatjira was rejected by the farmers during 2003 T. Aman season as like as 2002 T. Aman season in the project area. But the grain size of Parbatjira is the lowest among the tested FAG rice cultivars. Moreover, Parbatjira (fine) is short duration in T. Aman season and it has photoperiod-insensitive characters alike Begun Bechi, a finer and aromatic rice cultivars.

Among the tested 15 fine and aromatic rice cultivars, the performance of BRRI dhan34 was found to be best followed in order by Tulshimala, Kataribhogh and BRRI dhan38 during the 2003 T. Aman season in the project area. In 2002 T. Aman season the performance of BRRI dhan34 was also the best. Thus, the sub-project (AAS component) identified BRRI dhan34 as having a tremendous potential for producing such rice during the T. Aman season in Sylhet region. BRRI dhan34 is a modern, fine-grain rice variety and it has pleasant aroma as well. Moreover, it is highly adaptable for production in T. Aman season. Its overall yield acceptability was found to be very high among farmers of Moulvibazar and Habiganj districts. This high level of acceptability was consistently assessed and documented during farmer's participatory field days/ visits at trial sites during ripening stage of cultivars of 2003 T. Aman season. Yield and profitability of BRRI dhan34 is also very high when compared with the other 14 fine and aromatic cultivars tested. Moreover, profitability of BRRI dhan34 was found to be better on a cash cost basis than a full cost basis when compared with the other tested FAG rice cultivars. The implication of this is that resource poor farmers far better with FAG rice than with non-FAG rice alternatives. They and their families are benefiting in economic ways from the introduction of high value FAG rice cultivation in the project area.

Average panicle production per hill with tested fine and aromatic rice cultivars was low with satisfactory grains per panicle and the proportion of filled grains production. 1000-grain weight is the lowest with BRRI dhan34, followed by Tulshimala. The growth duration of BRRI dhan34 and Tulshimala was found acceptable (in the intermediate range) during the T. Aman season.

More or less similar performance on grain yield of ten tested glutinous cultivars were observed during 2003 T. Aman season comparing with 2002 T. Aman. The average panicle per hill, filled grains per panicles, filled grains and growth duration of ten tested glutinous cultivars were found acceptable among the farmers in the project areas. Moreover, profitability of ten Beruin cultivars was found to be far better on a cash cost basis than a full cost basis.

Among the four fertilizer treatments, organic with inorganic fertilizer performed best than other three treatments in terms of yield and yield contributing characters of BRRI dhan34 during 2003 T. Aman season. Performance variation between organic with inorganic and inorganic fertilizers were found to be very close.

Recommendation

The sub-project will take initiative to disseminate BRRI dhan34, Tulshimala and chinisagor fine and aromatic rice cultivars in Moulvibazar district (Sadar & Srimangal Upazilas) through cost effective approach using AAS developed RPFGs of FARMSEED network.

The variety selection process will continue through farmers field trial and demonstration followed by varietal assessment using farmers participatory field days/workshops and rice quality test.

Both Begun Bechi (fine & aromatic) and Parbatjira (fine) will be demonstrated during 2003/04 Boro season.

The sub-project needs to develop a clean seed supply system for traditional FAG rice cultivars in the project areas. This will be done with the help of BRRI. The FARMSEED strategy and network should also be used for this purpose.

FAG rice is high value as compared with coarse rice and should be introduced among properly trained and motivated resource poor farmers (RPFs) both within and outside the project areas.

FAG rice production system should be developed for acceptable cultivars using AAS established RPFGs, its FARMSEED and FAG rice sub-projects in the project areas. A Farmer driven FAG rice seed procurement linkage should be developed with private sector outlets and HEED Bangladesh.

Modern, privately owned milling systems suitable for FAG rice processing should be introduced in the project areas. Both IRRI and BRRI can play a key role in developing improved milling systems for FAG rice processing and packaging in the project areas.

The project tested Beruin rice cultivars are not glutinous rice varieties in the scientific sense. Rather these are highly sticky rice and some of them have a milled aromatic character. However, Beruin cultivars can easily enter into the export market though systematic promotional approach. At this stage the sub-project may take initiative testing its acceptability in the Japanese, Chinese and Korean in communities in Dhaka.

The sub-project should take initiative for linkage development among FAG rice producers, millers (using improved FAG rice processing systems) and wholesale/retail market outlets (both domestic and international).

Table 1: Comparison of different characteristics of 28 FAG rice cultivars tested in 2003 T. Aman season at trial plot 1.

Farmers Name : Abdul Haque Village : Mohammadpur

Upazila : Sadar Dist : Moulvibazar

Sl No.	Variety	Tiller per hill (Nr)	Panicle per hill (Nr)	Filled grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha) at 14% Moisture
A. Fine Rice									
1	Parbatjira	11.72	6.23	87	35	9.43	109	127.00	0.96
2	BRRI dhan39	15.32	7.26	89	16	24.02	123	118.23	2.48
3	Bashful	12.27	6.34	119	10	22.89	136	131.49	2.58
B : Fine and Aromatic Rice									
1	Chinisagor	11.12	7.80	113	11	12.32	133	130.10	2.41
2	Chinigura-1	13.31	7.00	102	17	12.38	137	135.50	2.98
3	Chinigura-2	14.81	7.12	111	19	12.69	135	137.20	2.80
4	Kalijira (Dinajpur)	10.00	7.04	143	7	11.72	135	143.37	2.95
5	Begun Bechi	11.25	5.87	54	55	13.89	103	140.30	0.93
6	Khachra	11.21	6.34	120	20	12.19	145	120.25	2.63
7	Tulshimala	11.57	7.20	99	7	11.70	133	133.40	2.80
8	Kataribhogh	15.32	7.78	106	11	14.94	137	134.17	3.05
9	BRRI dhan34	17.00	8.72	112	19	11.91	138	120.10	3.35
10	BRRI dhan37	16.12	8.12	84	40	15.16	138	125.31	2.70
11	BRRI dhan38	15.91	8.50	80	10	20.00	140	128.35	3.10
12	Samudra Fena	12.24	7.10	86	11	17.12	140	130.52	2.79
13	Kalijira (Srimangal)	11.89	7.00	106	34	14.08	142	136.37	2.90
14	Kalijira (Mymensingh)	10.57	6.00	92	8	13.07	140	140.21	2.48
15	Garai	13.42	7.12	56	18	20.61	135	132.32	2.53
C : Glutinous Rice									
1	Aikka Beruin	12.37	6.50	94	10	27.62	137	141.50	2.95
2	Khara Beruin	13.57	7.10	62	19	22.34	135	135.30	2.42
3	Modhu Beruin	11.00	7.12	63	18	20.27	137	145.30	2.78
4	Push Beruin	12.81	6.91	81	18	21.75	140	141.50	2.57
5	Pakh Beruin	10.41	7.10	48	4	28.68	132	146.21	2.63
6	Kalo Beruin	10.49	6.13	67	18	24.07	136	138.32	2.82
7	Kathali Beruin	11.51	7.15	71	18	28.06	139	147.21	2.95
8	Mou Beruin	11.10	7.00	46	4	26.41	135	138.32	2.76
9	Jatai	11.11	6.68	71	11	21.55	140	137.52	2.92
10	Sonamukhi	11.23	7.12	60	5	18.67	134	131.24	2.63

Table 2: Comparison of different characteristics of 28 FAG rice cultivars tested in 2003 T. Aman season at trial plot 2.

Farmer's Name: Mozam Miah Village : Uttar Varaura

Upazila : Srimangal Dist : Moulvibazar

Sl No.	Variety	Tiller per hill (Nr)	Panicle per hill (Nr)	Filled grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha) at 14% Moisture
A. Fine Rice									
1	Parbatjira	12.00	5.42	64	47	9.52	105	119.00	0.62
2	BRRI dhan39	12.67	7.49	80	28	26.47	118	112.20	2.68
3	Bashful	11.00	6.12	84	8	25.75	132	126.31	2.48
B : Fine and Aromatic Rice									
1	Chinisagor	10.00	6.56	81	10	12.63	130	134.15	2.40
2	Chinigura-1	11.10	6.96	95	23	12.23	135	140.10	2.72
3	Chinigura-2	12.12	7.00	124	9	12.44	135	135.51	2.89
4	Kalijira (Dinajpur)	13.87	6.90	103	17	12.39	132	141.70	2.64
5	Begun Bechi	11.36	5.00	71	17	13.13	107	135.57	1.00
6	Khachra	11.25	6.50	114	16	13.00	145	128.29	2.50
7	Tulshimala	13.14	7.30	125	16	12.51	131	141.23	3.10
8	Kataribhogh	14.00	7.35	119	26	14.40	135	138.62	3.10
9	BRRI dhan34	15.24	8.10	132	24	11.47	133	125.81	3.45
10	BRRI dhan37	14.32	8.00	96	13	14.47	136	122.10	3.10
11	BRRI dhan38	17.56	8.10	83	4	20.68	138	120.13	3.15
12	Samudra Fena	10.58	6.84	94	5	17.91	137	136.34	2.87
13	Kalijira (Srimangal)	13.29	6.92	114	25	13.95	140	140.69	3.00
14	Kalijira (Mymensingh)	13.00	6.32	120	14	12.95	140	140.92	2.73
15	Garai	11.12	6.89	75	7	20.11	132	135.00	2.69
C : Glutinous Rice									
1	Aikka Beruin	14.00	6.89	38	6	26.67	132	144.00	3.00
2	Khara Beruin	12.35	7.00	67	10	23.21	135	130.00	2.62
3	Modhu Beruin	14.12	7.00	70	5	22.16	135	147.35	2.95
4	Push Beruin	11.57	6.12	76	3	20.42	140	138.21	2.42
5	Pakh Bniroin	10.17	6.34	57	3	25.01	135	143.57	2.72
6	Kalo Beruin	12.02	6.57	80	8	22.39	130	140.69	2.93
7	Kathali Beruin	10.57	6.82	98	7	25.48	137	149.21	3.00
8	Mou Beruin	13.52	7.12	51	3	26.29	135	135.45	2.97
9	Jatai	12.10	6.69	105	3	27.89	135	132.72	2.68
10	Sonamukhi	12.39	6.96	73	4	17.31	130	130.15	2.75

Table 3: Average comparison of different characteristics of 28 FAG rice cultivars tested in 2003 T. Aman season at trial plot 1 & 2.

Trial Plot No	Variety	Tiller per hill (Nr)	Panicle per hill (Nr)	Filled grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha) at 14% Moisture
A: Fine Rice									
1	Parbatjira	11.72	6.23	87	35	9.43	109	127.00	0.96
2		12.00	5.42	64	47	9.52	105	119.00	0.62
Average		11.86	5.82	75.50	41	9.47	107	123.00	0.79
1	BRRI dhan39	15.32	7.26	89	16	24.02	123	118.23	2.48
2		12.67	7.49	80	28	26.47	118	112.20	2.68
Average		13.99	7.37	84.50	22	25.24	120.5	115.21	2.58
1	Bashful	12.27	6.34	119	10	22.89	136	131.49	2.58
2		11.00	6.12	84	8	25.75	132	126.31	2.48
Average		11.67	6.23	101.50	9	24.32	134	128.9	2.53

(Table 3 contd.)

Trial Plot No.	Variety	Tiller per hill (Nr)	Panicle per hill (Nr)	Filled grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha) at 14% Moisture
B : Fine and Aromatic Rice									
1	Chinisagor	11.12	7.80	113	11	12.32	133	130.10	2.41
2		10.00	6.56	81	10	12.63	130	134.15	2.40
Average		10.56	6.94	97	10.50	12.47	131.5	132.12	2.40
1	Chinigura-1	13.31	7.00	102	17	12.38	37	135.50	2.98
2		11.10	6.96	95	23	12.23	135	140.10	2.72
Average		12.20	6.98	98.5	20.0	12.30	136	137.80	2.85
1	Chinigura-2	14.81	7.12	111	19	12.69	135	137.20	2.80
2		12.12	7.00	124	19	12.44	135	135.51	2.84
Average		13.46	7.06	117.5	17	12.56	135	136.35	2.89
1	Kalijira (Dinajpur)	10.00	7.04	143	7	11.72	135	143.37	2.95
2		13.87	6.90	103	17	12.39	132	141.70	2.64
Average		11.93	6.97	118.5	12	12.05	133.5	142.53	2.79
1	Bagun Bechi	11.25	5.87	54	55	13.89	105	140.30	0.93
2		11.36	5.00	71	17	13.13	107	135.57	1.00
Average		11.30	5.48	62.5	36	13.51	105	137.33	0.96
1	Khachra	11.21	6.34	120	20	12.19	145	120.25	2.63
2		11.25	5.50	114	16	13.00	145	128.29	2.50
Average		11.23	6.42	117	18	12.59	145	124.27	2.56
1	Tulshimala	11.57	7.20	99	7	11.70	133	133.40	2.80
2		13.14	7.30	125	16	12.51	131	141.23	3.10
Average		12.35	7.25	112	11.5	12.10	132	137.31	2.95
1	Kataribhogh	15.32	7.78	106	11	14.94	137	134.17	3.05
2		14.00	7.35	119	26	14.40	135	138.62	3.10
Average		14.66	7.56	112.5	18.5	14.67	134	136.39	3.07
1	BRRI dhan34	17.00	8.72	112	19	11.91	138	120.10	3.35
2		15.24	8.10	132	24	11.47	133	125.81	3.45
Average		16.12	8.41	122	21.5	11.69	135.5	122.97	3.40
1	BRRI dhan37	16.12	8.12	84	40	15.16	138	125.31	2.70
2		14.32	8.00	96	13	14.47	136	122.10	3.10
Average		15.22	8.06	90	26.5	14.81	137	123.70	2.90
1	BRRI dhan38	15.91	8.50	80	10	20.00	140	128.35	3.10
2		17.56	8.10	83	4	20.68	138	120.13	3.15
Average		16.73	8.30	81.5	7	20.34	139	124.24	3.12
1	Samudrafena	12.24	7.10	86	11	17.12	140	130.52	2.79
2		10.58	6.84	94	5	17.21	137	136.34	2.87
Average		11.41	6.97	90	8	17.5	138.5	133.43	2.83
1	Kalijira (Srimangal)	11.89	7.00	106	34	14.08	142	136.37	2.90
2		18.29	6.92	114	25	13.95	140	140.69	3.00
Average		12.59	6.96	110	29.5	14.01	141	138.53	2.95
1	Kalijira (Mymensingh)	10.57	6.00	92	8	13.07	140	140.21	2.48
2		13.00	6.32	120	14	12.95	140	140.92	2.73
Average		11.78	6.16	106	11	13.01	140	140.56	2.60
1	Garai	13.42	7.12	56	18	20.61	132.32	132.32	2.53
2		11.12	6.89	75	7	20.11	140.92	140.92	2.73
Average		12.27	7.00	65.5	12.5	20.36	137.5	136.62	2.63

(Table 3 contd.)

Sl No.	Variety	Tiller per hill (Nr)	Panicle per hill (Nr)	Filled grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha) at 14% Moisture
C : Glutinous Rice									
1	Aikka Beruin	12.37	6.50	94	10	27.62	137	141.50	3.14
2		14.00	6.89	88	6	26.67	132	144.00	3.00
Average		13.18	6.69	86.5	8	27.14	134.5	142.95	3.07
1	Khara Beruin	13.57	7.10	62	19	22.34	135	135.30	2.42
2		12.35	7.00	67	10	23.21	135	130.00	2.62
Average		12.95	7.05	64.5	14.5	22.77	135	132.65	2.52
1	Modhu Beruin	11.00	7.12	63	18	20.27	137	145.30	2.78
2		14.12	7.00	70	5	22.16	135	147.35	2.95
Average		12.56	7.06	66.5	11.5	21.21	136	146.32	2.86
1	Push Beruin	12.81	6.91	81	18	21.75	140	141.50	2.57
2		11.57	6.12	76	3	20.42	140	138.21	2.42
Average		12.19	6.51	78.5	10.5	21.08	140	139.85	2.49
1	Pakh Beruin	10.41	7.10	48	4	28.68	132	146.21	2.63
2		10.17	6.34	57	3	25.01	135	143.57	2.72
Average		10.29	6.72	52.5	3.5	26.84	133.5	144.89	2.67
1	Kalo Beruin	10.49	6.13	67	18	24.07	136	138.32	2.82
2		12.92	6.57	80	8	22.39	130	140.69	2.93
Average		11.70	6.35	73.5	13	23.23	133	139.50	2.87
1	Kathali Beruin	11.51	7.15	71	18	28.06	139	147.21	2.95
2		10.57	6.82	98	7	25.48	137	149.21	3.00
Average		11.04	6.98	84.5	12.5	26.77	138	148.21	2.97
1	Mou Beruin	11.10	7.00	46	4	26.41	135	138.22	2.76
2		13.52	7.12	51	3	26.29	135	135.45	2.97
Average		12.31	7.06	48.5	3.5	26.35	135	136.83	2.86
1	Jatai	11.11	6.68	71	11	21.55	140	137.52	2.92
2		12.10	6.69	105	3	27.89	135	132.72	2.68
Average		11.60	6.68	88	7	24.72	1375	135.12	2.80
1	Sonamukhi	11.23	7.12	60	5	18.67	134	131.24	2.63
2		12.39	6.96	73	4	17.31	130	130.15	2.75
Average		11.81	7.04	66.5	4.5	17.99	132	130.69	2.69

Table 4 : Average yield of 15 cultivars of FAG rice demonstration at farmer's field.

Sl No.	Variety	Plot (Nr)	Average Yield (t/ha)
A. Fine Rice			
1	BRRI dhan39	7	2.71
B. Fine and Aromatic Rice			
1	Chinisagor	15	2.52
2	Chinigura-1	8	2.74
3	Khachra	4	2.52
4	Tulshimala	15	2.78
5	Kataribhogh	10	2.93
6	BRRI dhan34	20	3.32
7	BRRI dhan37	7	2.87
8	BRRI dhan38	6	2.98
C. Glutinous Rice			
9	Aikka Beruin	5	2.91
10	Khara Beruin	6	2.47
11	Modhu Beruin	4	2.80
12	Push Beruin	3	2.45
13	Pakh Beruin	4	2.65
14	Kalo Beruin	5	2.82
15	Mou Beruin	4	2.78

Table 5 : Cost and return of 28 FAG rice cultivars for 2003 T. Aman season.

Item		Variety											
		Fine			Fine & Aromatic								
		Parbatjira	BRRI dhan39	Bashful	Chinisagor	Chinigura-1	Chinigura-2	Kalijira (Dinajpur)	Bagun Bechi	Khachra	Tulshimala	Kataribhogh	BRRI dhan34
Paddy Yield (kg/ha)		960	2570	2500	2400	2800	2890	2790	1000	2500	2900	3000	3400
Price of paddy (Tk./kg)		12.50	8.75	8.75	13.75	13.00	12.50	14	11.50	12.50	12.50	12.50	13.50
Straw Yield (kg)		672	1806	1750	1680	1960	2023	1953	700	1750	2030	2100	2380
Price of straw (Tk/kg)		.40	.40	.40	040	.40	.40	.40	.40	.40	.40	040	.40
Gross return (T//ha)		12268	23209	22575	33672	37184	36934	39841	11780	31950	37062	38340	46852
Total cost (Tk/ha)													
i)	Full cost basis [a]	21706	22407	21904	23553	25032	26231	26290	21300	23425	23215	25221	26790
ii)	Cash cost basis [b]	5794	6750	6340	8230	7300	6290	7215	5390	6575	6440	6915	7631
Net return (Tk./ha)													
i)	Full cost basis	-9838	802	671	10119	12152	10703	13551	-9520	8525	13847	13119	20062
ii)	Cash cost basis	6474	16459	16225	25442	29884	30644	32626	6390	25375	30622	31925	39221
Benefit cost ratio													
i)	Full cost basis	-0.56	1.03	1.03	1.42	1.48	1.40	1.51	-0.55	1.36	1.59	1.52	1.74
ii)	Cash cost basis	2.11	3.43	3.56	4.09	5.09	5.87	5.52	2.18	4.85	5.75	5.54	6.13
Net return in terms of gross value of the product (%)													
i)	Full cost basis	-0.19	3.45	2.97	30.05	32.68	28.97	34.01	20.81	26.68	37.36	34.21	42.81
ii)	Cash cost basis	52.77	70.91	71.87	75.55	80.36	82.96	81.89	54.24	79.42	82.62	83.26	83.71

[a] Full cost includes human labours, bullock power, seeds, fertilizers, insecticides, interest on working capital and land rent.
[b] Cash cost included seeds, fertilizers, insecticides, irrigation and interest of the out flow cash.
** Grain and straw is considered at 1: 0.7 for this cost analysis.
* Average paddy yield estimated from both trial and demo plots.

(Table 5 contd.)

Items		Variety					
		Fine & Aromatic					
		BRRI dhan37	BRREI dhan 38	Samudra Fena	Kalijira (Srimangal)	Kalijira (Mymensingh)	Garai
Paddy Yield (kg/ha)		2900	3120	2830	2900	2600	2630
Price of paddy (Tk./kg)		13.00	12.00	12.00	13.25	13.50	11.50
Straw Yield (kg)		2030	2184	1981	2030	1820	1851
Price of straw (Tk/kg)		.40	.40	.40	.40	.40	.40
Gross return (T//ha)		37792	38313	34752	39237	35828	29666
Total cost (Tk/ha)							
i)	Full cost basis [a]	25352	25741	23691	23840	23051	24552
ii)	Cash cost basis [b]	6390	6845	6954	6878	6570	6233
Net return (Tk./ha)							
i)	Full cost basis	12440	12572	11061	15397	12777	5114
ii)	Cash cost basis	21402	31468	27798	32359	29258	23433
Benefit cost ratio							
i)	Full cost basis	1.49	1.48	1.46	1.64	1.55	1.20
ii)	Cash cost basis	5.91	5.59	4.99	5.70	5.45	4.75
Net return in terms of gross value of the product (%)							
i)	Full cost basis	32.91	32.81	31.82	39.24	35.66	17.23
ii)	Cash cost basis	83.09	82.13	79.98	82.47	81.66	78.98

(Table 5 contd.)

		Variety									
		Glutinous									
		Aikka Beruin	Khara Beruin	Modhu Beruin	Push Beruin	Pakh Beruin	Kalo Beruin	Kathali Beruin	Mou Beruin	Jatai Beruin	Sonamukhi
Paddy Yield (kg/ha)		3000	2520	2860	2490	2670	2270	2970	2860	2800	2690
Price of paddy (Tk./kg)		11	12.00	11.50	11.25	11.00	11.00	10.00	11.25	10.00	10.00
Straw Yield (kg)		2100	1764	2002	1743	1869	2009	20.79	2002	1960	1883
Price of straw (Tk/kg)		.40	.40	.40	.40.40	.40.40	.40	.40	.40	.40	.40
Gross return (T//ha)		33840	30945	33690	28709	30117	32373	30531	32975	28784	27653
Total cost (Tk/ha)											
i)	Full cost basis [a]	24150	25709	24905	24170	23906	23805	22641	23740	23500	24107
ii)	Cash cost basis [b]	5592	5840	5720	5743	6202	5975	5832	6530	5240	5345
Net return (Tk./ha)											
i)	Full cost basis	9690	5236	8985	4539	6211	8568	7890	9235	5284	3546
ii)	Cash cost basis	28248	25105	27970	22966	23915	26398	24699	26445	23544	22308
Benefit cost ratio											
i)	Full cost basis	1.40	1.5	1.36	1.02	1.25	1.35	1.34	1.38	1.22	1.14
ii)	Cash cost basis	6.05	5.29	5.88	4.99	4.85	5.41	5.23	5.04	5.49	5.17
Net return in terms of gross value of the product (%)											
i)	Full cost basis	28.63	16.92	26.66	15.81	20.62	26.46	25.84	28.00	18.35	12.82
ii)	Cash cost basis	83.47	81.12	83.02	79.99	79.40	81.54	80.89	80.19	81.79	80.67

Table 6: Comparative effect of organic, inorganic and organic, and inorganic fertilizer application on yield and yield components of BRRI dhan34 rice cultivar's replication trial plot 1.

Farmers Name: *Frahim Miah* ***Village:*** *Uttar Varaura* ***Upazila:*** *Srimangal* ***District:*** *Moulvibazar*

Replication No.	Fertilizer	Tiller per hill (Nr)	Panicle per hill (Nr)	Field grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha)
BRRI dhan34									
1	Organic	14.21	7.10	134	22	12.00	135	115.20	3.30
2	Organic	12.62	8.15	121	27	10.69	135	113.89	2.99
3	Organic	12.31	7.19	132	19	11.70	135	114.49	3.18
Average		13.04	7.48	129	22.66	11.46	135	114.52	3.15
1	Inorganic	16.32	7.20	135	25	11.56	132	113.89	3.28
2	Inorganic	13.92	8.10	130	30	10.89	132	114.67	3.27
3	Inorganic	14.74	8.10	138	32	11.50	132	112.39	3.42
Average		14.99	7.80	134.33	29.00	11.31	132	113.65	3.32
1	Organic + Inorganic	14.31	10.00	136	19	11.83	137	119.00	3.47
2	Organic + Inorganic	17.67	9.00	148	22	12.00	137	122.20	3.65
3	Organic + Inorganic	14.10	8.00	130	26	11.50	137	118.37	3.21
Average		15.36	9.00	138	16.33	11.77	137	119.85	3.44
1	Control	11.72	6.00	110	28	10.76	140	110.35	2.44
2	Control	9.32	6.00	105	26	11.57	140	112.69	2.35
3	Control	11.75	6.00	112	35	10.90	140	110.20	2.51
Average		10.93	6.00	116.66	29.66	11.07	140	111.08	2.43

Table 7: Comparative effect of organic, inorganic and organic, and inorganic fertilizer application on yield and yield components of BRRI dhan34 rice cultivars replication trial plot 2.

Farmers Name: *Chayan Datta* ***Village:*** *Nischintapur* ***Upazila:*** *Srimangal* ***District:*** *Moulvibazar*

Replication No.	Fertilizer	Tiller per hill (Nr)	Panicle per hill (Nr)	Field grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha)
BRRI dhan34									
1	Organic	12.21	7.68	125	27	11.80	132	120.37	3.21
2	Organic	13.59	7.40	121	19	11.20	132	118.49	3.10
3	Organic	12.47	7.50	119	29	11.10	132	120.57	3.00
Average		12.75	7.52	123	25	11.36	132	119.81	3.10
1	Inorganic	14.70	8.10	149	22	11.22	129	124.60	3.40
2	Inorganic	14.24	8.30	130	32	11.10	129	124.94	3.35
3	Inorganic	15.80	8.00	127	27	1080	129	122.31	3.00
Average		14.91	8.13	135	27	11.04	129	123.95	3.25
1	Organic + Inorganic	16.31	8.30	134	22	10.98	130	126.60	3.48
2	Organic + Inorganic	13.62	9.00	151	19	11.87	130	124.39	3.57
3	Organic + Inorganic	13.50	9.10	144	24	11.35	130	123.29	3.55
Average		14.47	8.80	143	21.66	11.40	130	124.76	3.53
1	Control	10.31	7.10	107	33	10.62	135	118.51	2.62
2	Control	9.10	6.50	98	26	10.98	135	115.49	2.20
3	Control	11.25	6.50	101	37	11.10	135	116.35	2.51
Average		10.22	6.70	113	32	10.90	135	116.78	2.44

Table 8: Average Comparative effect of organic, inorganic and organic, and inorganic fertilizer application on yield and yield components of replication trial plot 1 & 2.

Replication No.	Fertilizer	Tiller per hill (Nr)	Panicle per hill (Nr)	Field grain per panicle (Nr)	Unfilled grain per panicle (Nr)	1000 grain weight (gm) at 14% moisture	Growth duration (days)	Plant height (cm)	Yield (t/ha)
3	Organic	13.04	7.48	129.00	22.66	11.46	135	114.52	3.15
3	Organic	12.75	7.52	123.00	25.00	11.36	132	119.81	3.10
Average		12.89	7.50	126.00	23.83	11.41	133.50	117.16	3.12
3	Inorganic	14.899	7.80	134.33	29.00	11.31	132	113.65	3.32
3	Inorganic	14.91	8.13	135.00	27.00	11.04	129	123.95	3.25
Average		14.95	7.96	134.66	28.00	11.18	130.50	118.80	3.28
3	Organic + Inorganic	15.36	9.00	138.00	16.33	11.77	137	119.85	3.44
3	Organic + Inorganic	14.47	8.80	143.00	21.66	11.40	130	124.76	3.53
Average		14.91	8.90	140.5	18.99	11.58	133.50	122.30	3.47
3	Control	10.93	6.00	116.66	29.66	11.07	140	111.08	2.43
3	Control	10.22	6.70	113.00	32.00	10.90	135	116.78	2.44
Average		10.57	6.35	114.83	30.83	11.98	137.50	113.93	2.43

Table 9 : Assessment of 28 FAG rice cultivars during farmers field days.

Sl No.	Variety	Ranking	Farmers Comments
Variety: Fine			
1	BRRI dhan39	1	It is a short duration crop. Diseases infection and pest infestation are higher than other varieties. BRRI dhan39 based cropping pattern with cash crops in more profitable.
2	Bashful	2	Plant is hard and lodging does not occur. Diseases infection and pest infestation is low. Rice is fine and long and colour is golden white.
3	Parbatjira	3	It is suitable for Boro season. Higher yield can achieve in the Boro season.
1	BRRI dhan34	1	It is suitable for Moulvibazar and Habiganj districts. Rice grain smaller than local Kalijira. It has drought tolerant capacity.
2	Tulshimara	2	It is alike Kalijira (Dinajpur). But yield is higher than Kalijira (Dinajpur). Plant is long and lodging occurs easily.
3	Kataribhogh	3	It is susceptible to disease. It is not strong and stout. Its yield is good and lodging occurs easily.
4	BRRI dhan38	4	The awn of the grain is longer than BRRI dhan37. Rice awn colour is golden white. It is very difficult for threshing.
5	BRRI dhan37	5	Rice colour, grain shape, size and aroma alike Kataribhogh. At the end of the un-husked paddy slightly curve with small awn. It is not drought tolerant.
6	Kalijira (Srimangal)	6	It has strong aroma. Grain size is bigger than Kalijira (Mymensingh) but yield is high. Long duration variety. It is used for polao rice.
7	Chinigura-1	7	It has strong aroma. It is slightly coarse than Chinigura-1.
8	Chinigura-2	8	Plant is hard and lodging does not occur. Yield will be slightly lower than Chinigura-2.
9	Kalijira (Dinajpur)	9	It has strong aroma. Plant is high but yield is low. Price of rice is high. It is used for polao rice.
10	Chinisagor	10	It is comparable with Chinigura-2. It has strong aroma. Price of rice is high. Short-durated variety.
11	Kalijira (Mymensingh)	11	It has strong aroma. Grain is smaller than Kalijira (Srimangal). Its market price is high and very tasty to eat. Plant is long. Yield is low.
12	Chachra	12	Long duration variety. It has strong aroma. Plant is hard and lodging does not occur.
13	Samudra Fena	13	Stem is medium stout. Plant is hard and lodging does not occur. Rice grain is small bold. It alike Begun Bechi but grain size is big.
14	Garai	14	It has modest aroma. It is not strong and stout. At the end of the rice there is a black spot.
15	Begun Bechi	15	It is suitable for Boro season.

(Table 9 contd.)

Sl No.	Variety	Ranking	Farmers Comments
Variety : Glutinous			
1	Aikka Beruin	1	It is sown at Aus season and harvest at Aman season. When plant growth is excessive than leaves is cut And used as cattle feed without any yield loss. Long durated crop. But yield is good.
2	Modhu Beruin	2	It has modest most aroma. It is very delicious to eat with milk. At the end of the rice there is a black spot. Its market price is high.
3	Mou Beruin	3	Stem is soft. Leaf is thick, long and black green. Rice is medium coarse and long. Panicle per hill is high.
4	Khara Beruin	4	Plant is medium in height, stem is strong and stout. Leaf is long and green. Rice is medium coarse and long.
5	Kalo Beruin	5	Stem is medium stout. Rice colour is black. Rice is coarse and medium long.
6	Kathali Beruin	6	Long durated variety. Plant is high and leaf is long and green. Rice is coarse and long. Yield is good.
7	Pakh Beruin	7	There are two wings like bards at the side of the paddy. So it is called Pakh Beruin. Rice is coarse, flat and short.
8	Sonamukhi	8	Plant is medium in height and short durated crop. Rice colour is red and there is a golden spot at the mouth of the grain.
9	Push Beruin	9	Long duration variety. Plant is hard Long and leaf is deep green. Rice grain is small bod.
10	Jatai	10	Plant is deep green, hard and medium in height. Grain size is round and coarse.

Annex I : FAG rice varieties and their seed sources.

Sl No.	Variety	Quality of Rice	Source
1	Parbatjira	Fine	Nilphamari district
2	BRRI dhan39	Fine	BRRI, Gazipur district
3	Bashful	Fine	Kamalganj
4	Chinisagar	Fine & Aromatic	Jamalpur district
5	Chinigura-1	Fine & Aromatic	Dinajpur district
6	Chinigura-2	Fine & Aromatic	Dinajpur district
7	Kalijira (Dinajpur)	Fine & Aromatic	Dinajpur district
8	Begun Bechi	Fine & Aromatic	Dinajpur district
9	Kachra	Fine & Aromatic	Borguna district
10	Tulshimala	Fine & Aromatic	Jamalpur district
11	Kataribhogh	Fine & Aromatic	Dinajpur district
12	BRRI dhan34	Fine & Aromatic	BRRI, Gazipur district
13	BRRI dhan37	Fine & Aromatic	BRRI, Gazipur district
14	BRRI dhan38	Fine & Aromatic	BRRI, Gazipur district
15	Samudra Fena	Fine & Aromatic	Kamalganj, Moulvibazar
16	Kalijira (Srimangal)	Fine & Aromatic	Srimangal, Moulvibazar
17	Kalijira (Mymensingh)	Fine & Aromatic	Muktagacha, Mymensingh
18	Garai	Fine & Aromatic	Kamalganj, Moulvibazar
19	Aikka Beruin	Glutinous, Coarse	Srimangal, Moulvibazar
20	Khara Beruin	Glutinous, Aromatic	Srimangal, Moulvibazar
21	Modhu Beruin	Glutinous, long, Aromatic	Srimangal, Moulvibazar
22	Push Beruin	Glutinous, medium & Short	Kamalganj, Moulvibazar
23	Pakh Beruin	Glutinous, Short & Flat	Srimangal, Moulvibazar
24	Kalo Beruin	Glutinous, Coarse	Srimangal, Moulvibazar
25	Kathali Beruin	Glutinous, Coarse	Srimangal, Moulvibazar
26	Mou Beruin	Glutinous, Coarse	Srimangal, Moulvibazar
27	Jatai	Glutinous, Coarse	Srimangal, Moulvibazar
28	Sonamukhi	Glutinous, medium & short	Srimangal, Moulvibazar

Annex II : List of demo. farmers in different upazilas of Moulvibazar and Habiganj districts during 2003 T. Aman season.

Sl No.	Farmer's Name	Village	Union	Upazila	District
1	Rakesh Debnath	Kadupur	12, Giasnagar	Moulvibazar Sadar	Moulvibazar
2	Shazahan Miah	"	"	"	"
3	Juahir Miah	"	"	"	"
4	Rakib Miah	"	"	"	"
5	Nosib Miah	"	"	"	"
6	Lamohon Debnath	"	"	"	"
7	Kamru Miah	Akborpur	"	"	"
8	Moshahid Miah	"	"	"	"
9	Uson Miah	"	"	"	"
10	Kadir Miah	"	"	"	"
11	Saiful Miah	Shahapur	"	"	"
12	Safu Miah	"	"	"	"
13	Lockman Miah	"	"	"	"
14	Sadar Miah	"	"	"	"
15	Kador Miah	"	"	"	"
16	Sudhir Paul	"	"	"	"
17	Suzat Miah	"	"	"	"
18	Mukit Miah	"	"	"	"
19	Akhlas Miah	"	"	"	"
20	Foyraj Miah	Mohammadpur	Giasnagar	"	"
21	Anwar Hossain	"	"	"	"
22	Mosu Miah	"	"	"	"
23	Alanin Miah	"	"	"	"
24	Firoj Miah	"	"	"	"
25	Kadir Miah	"	"	"	"
26	Abdur Rouf	"	"	"	"
27	Asad Miah	"	"	"	"
28	Mukit Miah	Ranguria	"	"	"
29	Latu Miah	"	"	"	"
30	Mubarok Miah	"	"	"	"
31	Porimal Ghosh	"	"	"	"
32	Noni Roy Master	"	"	"	"
33	Samir Miah	Ranguria	"	"	"
34	Firoj Miah	Dashrail	"	"	"
35	Anmswr Miah	"	"	"	"
36	Kadir Miah	"	"	"	"
37	Sufian Miah	"	"	"	"
38	Ahad Miah	"	"	"	"
39	Jamal Miah	"	"	"	"
40	Asaddor Miah	"	"	"	"
41	Jalu Miah	"	"	"	"
42	Tajul Miah	"	"	"	"
43	Dulon Miah	"	"	"	"

Sl No.	Farmer's Name	Village	Union	Upazila	District
44	Mojbor Miah	Anikali Bara	"	"	"
45	Nurul Islam	"	"	"	"
46	Sultan Miah	"	"	"	"
47	Sadekur Miah	"	"	"	"
48	Sharif Miah	"	"	"	"
49	Shahid Miah	"	"	"	"
50	Ajit Sarker	"	Kalapur	Srimangal	"
51	Monujit Sarker	Mazdihi	"	"	"
52	Doyal Sarker	"	"	"	"
53	Nitai Sarker	"	"	"	"
54	Abdur Rahman	Razapur	"	"	"
55	Dudu Miah	"	"	"	"
56	Subodh Debnath	"	"	"	"
57	Monoranjon Paul	"	"	"	"
58	Abndul Azij	"	"	"	"
59	Salaque Miah	"	"	"	"
60	Monindra Paul	Uttar Noagaon	Srimangal	"	"
61	Subal Debnath	"	"	"	"
62	Indra Bhushan Debnath	"	"	"	"
63	Rukun Uddin	Lalbug	"	"	"
64	Nabizuddin	"	"	"	"
65	Joyanta Deb	Mazhar Gao	Srimangal	Srimangal	Moulvibazar
66	Ajit Deb	"	"	"	"
67	Puron Deb	"	"	"	"
68	Prodip Deb	"	"	"	"
69	Aban Deb	"	"	"	"
70	Probhat Debn	"	"	"	"
71	Anjan Deb	"	"	"	"
72	Nipa Deb	"	"	"	"
73	Aparna Debn	"	"	"	"
74	Shali Rani Deb	"	"	"	"
75	Milon Deb	"	"	"	"
76	Juthika Deb	Uttar Varaura	"	"	"
77	Sukhla Deb	"	"	"	"
78	Helal Miah	"	"	"	"
79	Mono Deb	"	"	"	"
80	Nibaron Deb	"	"	"	"
81	Junto Deb	"	"	"	"
82	Nikesh Goup	"	"	"	"
83	Mojum Miah	"	"	"	"
84	Frahim Miah	"	"	"	"
85	Ratan Deb	"	"	"	"
86	Ranu Goup	"	"	"	"
87	Helen Goup	"	"	"	"
88	Rina Goup	"	"	"	"
89	Reba Goup	"	"	"	"

Sl No.	Farmer's Name	Village	Union	Upazila	District
90	Gul Bahar	Uttar Varaura	Srimangal	Srimangal	Moulvibazar
91	Sabara Khatun	"	"	"	"
92	Dud Begum	"	"	"	"
93	Monwara Begum	"	"	"	"
94	Shahanara Begum	"	"	"	"
95	Anima Deb	"	"	"	"
96	Pronoti Deb	"	"	"	"
97	Matuti Deb	"	"	"	"
98	Shikha Deb	"	3, Srimangal	"	"
99	Monju Deb	"	"	"	"
100	Khusha Deb	"	"	"	"
101	Sukriti Goup	"	"	"	"
102	Shipra Deb	"	"	"	"
103	Asit Paul	South Varaura	"	"	"
104	Dipok Baidda	"	"	"	"
105	Gopal Nath	"	"	"	"
106	Banu Deb	"	"	"	"
107	Amin Miah	"	"	"	"
108	Dipali Deb	"	"	"	"
109	Hena Deb	"	"	"	"
110	Lila Deb	"	"	"	"
111	Monju Deb	"	"	"	"
112	Mohsin Miah	East Varoura	"	"	"
113	Kishore Deb	"	"	"	"
114	Dipok Deb	"	"	"	"
115	Narayan Deb	"	"	"	"
116	Proturobi Dash	"	"	"	"
117	Shahnara Begum	"	"	"	"
118	Kalpona Deb	"	"	"	"
119	Nikhil Deb	Badya Alisha	Bhunobir	"	"
120	Gobinda Cor	"	"	"	"
121	Bijon Deb	"	"	"	"
122	Dipok Deb	"	"	"	"
123	Ranjon Cor	"	"	"	"
124	Sudhanshu Cor	"	"	"	"
125	Nipu Deb	"	"	"	"
126	Handu Miah	Alishar Kul	"	"	"
127	Tara Miah	"	"	"	"
128	Abdur Rahman	"	"	"	"
129	Abdul Mozid	"	"	"	"
130	Kamru Miah	"	"	"	"
131	Sayed Miah	"	"	"	"
132	Moshahid Miah	"	"	"	"
133	Rahamat Ali	"	"	"	"
134	Majid Miah	"	"	"	"
135	Jalal Miah	"	"	"	"
136	Safor Ali	"	"	"	"

Sl No.	Farmer's Name	Village	Union	Upazila	District
137	Salam Miah	Rajpara	Bhunobir	Srimangal	Moulvibazar
138	Sayed Miah	"	"	"	"
139	Billal Miah	Sadatpur	"	"	"
140	Badrul Islam	"	"	"	"
141	Suruk Miah	"	"	"	"
142	Sabbat Ali	"	"	"	"
143	Taher Ali	"	"	"	"
144	Rajaul Karim	"	"	"	"
145	Muslim Miah	"	"	"	"
146	Abdul Basit	Patrikul	"	"	"
147	Asaddar Miah	"	"	"	"
148	Fatick Miah	"	"	"	"
149	Molin Miah	"	"	"	"
150	Monir Miah	"	"	"	"
151	Anor Miah	"	"	"	"
152	Kabir Miah	"	"	"	"
153	Shamim Ahmmad	"	"	"	"
154	Safar Ali	Aol	"	"	"
155	Monoara Begum	"	"	"	"
156	Sunil Chandra Deb	"	"	"	"
157	Shahid Miah	"	"	"	"
158	Abul Kashem	"	"	"	"
159	Kalo Miah	Monipuripara	Ashidron	"	"
160	Dulal Miah	"	"	"	"
161	Nurul Islam	"	"	"	"
162	Chandra Debnath	"	"	"	"
163	Abul Bashar	"	"	"	"
164	Sudham Debnath	Khandoker Goal	"	"	"
165	Ronojit Debnath	"	"	"	"
166	Srihori Debnath	"	"	"	"
167	Horgobinda Debnath	"	"	"	"
168	Ahad Miah	"	"	"	"
169	Delwar Hossain	Bichok	"	"	"
170	Khalik Miah	"	"	"	"
171	Boshir Miah	"	"	"	"
172	Puyronjoy Copali	"	"	"	"
173	Golap Miah	Achock	"	"	"
174	Helal Miah	"	"	"	"
175	Mojahid Miah	"	"	"	"
176	Safikur Rahman	"	Vunobir	"	"
177	Salim Miah	Chalkgaon	"	"	"
178	Oahid Miah	"	"	"	"
179	Oatir Miah	"	"	"	"
180	Koyas Miah	"	"	"	"
181	Goura Mohan Shil	Rustompur	"	"	"

Sl No.	Farmer's Name	Village	Union	Upazila	District
182	Anjon Sarker	Rustompur	Vunobir	Srimangal	Moulvibazar
183	Aroti Sarker	"	"	"	"
184	Nirjola Sarker	"	"	"	"
185	Ali Akbnor	Tapara	"	"	"
186	Raji Deb	"	"	"	"
187	Digen Deb	"	"	"	"
188	Monnaf Miah	"	"	"	"
189	Nurul Islam	"	"	"	"
190	Manik Miah	"	"	"	"
191	Samsul Haque	"	"	"	"
192	Saban Ali	"	"	"	"
193	Alam Miah	Loircul"	"	"	"
194	Kadir Miah	"	"	"	"
195	Dudhu Miah	"	"	"	"
196	Akbar Ali	Madhobpasha"	Sindur Khan	"	"
197	Fazlul Hoque	"	"	"	"
198	Rahamat Ali	"	"	"	"
199	Rashid Miah	"	"	"	"
200	Juotirmoy Dey	Nischantapur	Mirzapur	"	"
201	Ranadhir Dutta	"	"	"	"
202	Chayan Dutta	"	"	"	"
203	Sajal Deb	"	"	"	"
204	Arabnindu Deb	"	"	"	"
205	Joynal Miah	Charigoan	Vadeshwar	Bahubal	Habiganj
206	Atiqul Hossain	"	"	"	"
207	Eunus Ali	"	"	"	"
208	Surat Ali	"	"	"	"
209	Kashem Ali	"	"	"	"
210	Edris Miah	"	"	"	"
211	Jitu Miah	"	"	"	"
212	Khorshedul Ali	Abdafatia	"	"	"
213	Afsar Uddin	"	"	"	"
214	Nasir Uddin	"	"	"	"
215	Rahim Ullah	"	"	"	"
216	Abdul Ali	"	"	"	"
217	Abdal Miah	Abdulla Pur	Mirpur	"	"
218	Ator Miah	"	"	"	"
219	Aminul Islam	"	"	"	"
220	Dabru Miah	"	"	"	"
221	Shamim Miah	"	"	"	"
222	Ayub Ali	Shailgash	Chunarughat	Chunarughat	"
223	Awal Miah	"	"	"	"
224	Modhu Miah	"	"	"	"
225	Ruman Khan	Shailgash	"	"	"
226	Nur Hossain	"	"	"	"
227	Riad Miah	"	"	"	"

Sl No.	Farmer's Name	Village	Union	Upazila	District
228	Rahman Miah	South Narapati	6 Chunarughat	Chunarughat	Habiganj
229	Abdul Hamid	"	"	"	"
230	Firoz Ullah	"	"	"	"
231	Salim Miah	"	"	"	"
232	Hasan Miah	"	"	"	"
233	Farid Mollah	"	"	"	"
234	Atab Ullah	"	"	"	"
235	Yakut Miah	Gugaura	"	"	"
236	Hamid Miah	"	"	"	"
237	Modhu Miah	"	"	"	"
238	Shafique Miah	"	"	"	"
239	Juned Miah	"	"	"	"
240	Dulal Miah	"	"	"	"
241	Mokbul Hossain	"	"	"	"
242	Siraj Miah	Hatura Kandi	Ubahata	"	"
243	Malek Miah	"	"	"	"
244	Mashuk Miah	"	"	"	"
245	Matin Miah	"	"	"	"
246	Awal Miah	"	"	"	"
247	Abdus Shahid	"	"	"	"
248	Akkas Ali	Noagaon	"	"	"
249	Muksed Miah	"	"	"	"
250	Kayum Miah	Ponargaon	8, Satia juri	"	"
251	Govi Miah	"	"	"	"
252	Mannan Miah	"	"	"	"
253	Matlib Miah	"	"	"	"
254	Abul Fazal	"	"	"	"
255	Kashem Ali	"	"	"	"
256	Giasuddin	Ushainagar	"	"	"
257	Abdul Aziz	"	8, Satia juri	"	"
258	Imam Ali	"	"	"	"
259	Monindra Master	"	"	"	"
260	Matin Miah	"	"	"	"
261	Abdus Salam	Pirergaon	9, Ranigonj	"	"
262	Kabir Miah	"	"	"	"
263	Abdur Rahman	"	"	"	"
264	Mutalib Miah	Mirashi	"	"	"
265	Jabbar Miah	"	"	"	"
266	Manik Miah	Narayanpuyr	9, Nayapara	Madhobpur	"
267	Shafique Miah	"	"	"	"
268	Farid Miah	"	"	"	"
269	Nasir Miah	"	"	"	"
270	Helal Miah	Itakhola	"	"	"
271	Sohag Miah	"	"	"	"
272	Ful Miah	"	"	"	"
273	Jalal Choudhury	"	"	"	"
274	Abdus Salam	"	"	"	"

Sl No.	Farmer's Name	Village	Union	Upazila	District
275	Siddiqur Rahman	Itakhola	9, Nayapoara	Madhobpur	Habiganj
276	Rahim Sardar	"	"	"	"
277	Sanu Miah	"	"	"	"
278	Abdul Sattar	Bewlghor	Jagodishpur	"	"
279	Jugesh Biswas	"	"	"	"
280	Shafique Uddin	"	"	"	"
281	Shaheb Uddin	"	"	"	"
282	Ashab Uddin	"	"	"	"
283	Moti Miah	"	"	"	"
284	Tajul Islam	Shajahanpur	Shajahanpur	"	"
285	Nasir Uddin	"	"	"	"
286	Shahad Miah	"	"	"	"
287	Monsur Miah	"	"	"	"
288	Wadud Miah	"	"	"	"
289	Dipok Chandra Paul	Shajahan pur	Shajahanpur	"	"
290	Atindra Paul	"	"	"	"
291	Ripon Chandra Paul	"	"	"	"
292	Firoz Miah	Fothapur	"	"	"
293	Dud Miah	"	"	"	"
294	Jabed Miah	"	"	"	"
295	Mokbul Hossain	Ratanpur	"	"	"
296	Motalib Miah	"	"	"	"
297	Wahab Miah	"	"	"	"
298	Bador Uddin	"	"	"	"
299	Shaheb Ali	"	"	"	"
300	Dud Miah	"	"	"	"
301	Debendra Deb	Esobpur	Srimangal	Srimangal	Moulvibazar
302	Jadugopal Debnath	"	"	"	"
303	Miladur Rahman	"	"	"	"
304	Tuton Deb	"	"	"	"
305	Nepoal Deb	"	"	"	"
306	Abdur Rahim	Sirajnagar	Kalapur	"	"
307	Arju Miah	"	"	"	"
308	Abdul Hanna	"	"	"	"
309	Abu Taher	"	"	"	"
310	Abdul Kadir	"	"	"	"
311	Joynal Miah	"	"	"	"

Annex III : List of trial farmers during 2003 T. Aman season.

Sl No.	Farmer's Name	Type of Trial	Village	Union	Upazila
1	Abdul Haque	Varietal trial	Mohammadpur	Giasnagar	Moulvibazar Sadar
2	Mozam Miah	Varietal trial	Uttar Varaura	3, Srimangal	Srimangal
3	Frahim Miah	Fertilizer trial	Uttar Varaura	3 Srimangal	Srimangal
4	Chayan Datta	Fertilizer trial	Nischintapur	Mirzapur	Srimangal