Bangladesh Rice J. 3(1&2): 1-5, 1992

EFFECT OF SOIL SALINITY AND PHOSPHORUS ON THE GROWTH YIELD AND MINERAL NUTRITION OF RICE

M. A. Mazid Miah, G. M. Panaullah, M. Shamsur Rahman and M. Ishaque[1]

ABSTRACT

A greenhouse experiment was conducted at IRRI with three levels of salinity (ECe 2.4, 6.0 and 11.8 dS/m), four levels of P (0, 25, 50 and 100 mg/kg soil) and two rices (a salt-tolerant experimental line, 1R9884-54-3. and a salt-sensitive variety IR 26). Salinity decreased plant height, shoot at 7 weeks after transplanting (WT), straw and grain yields of rice. The decrease was more prominent in 1R26 than in 1R9884-54-3. In general, the shoot, straw and grain yields were higher in 1R9884-54-3 than in 1R26. Application of P at rates as high as 100 mg/kg soil increased the shoot and straw yields at increased salinity level, while application of 50 mg P/kg soil increased grain yield over control. Salinity increased the concentration of N. Ca, Mg and Na in shoot and grain and those of N, Ca, Mg, Na, Fe, Zn and Cu in straw, but decreased the concentrations of K, Mn and Cu in shoot and straw and those of Fe, Zn and Cu in grain. The cultivar 1R26 had a higher concentrations of Na and a lower concentration of K at increased salinity levels than had 1R9884-54-3.

[1] Soil Chemistry Division, Bangladesh Rice Research Institute, Gazipur 1701, Bangladesh.

Bangladesh Rice J. 3 (I&2): 6-10, 1992

DESIGN, DEVELOPMENT AND TEST OF A PADDY-WHEAT POWER THRESHER

Md. Helal Uddin Sarkar[1]', Md. Muzzammil Haq[2], Md. Abul Quasem[1]

ABSTRACT

A power thresher was developed for wheat and rice. A 6.5hp diesel engine was used for the thresher. The threshing capacities for wheat and rice were 205 kg/hr and 160 kg/hr respectively when operated by two persons. The capacity for wheat threshing is satisfactory. But, the capacity for rice was still lower than expected. The threshing efficiency for wheat and rice were 98.5% and 97.5% respectively. The grain damage was less than 2% for both the crops. The price is comparative low as a power thresher.

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Bangladesh Rice J. 3(1&2): 11-13, 1992

DIRECT-SEEDING OF MODERN VARIETY AS LATE SEASON RAINFED LOWLAND RICE IN BANGLADESH

M. A. Salam, M. A. Kabir and N.M. Miah[1]

ABSTRACT

Photoperiod-insensitive (PI) varieties and lines showed 2 weeks earliness than photoperiod-sensitive (PS) varieties at 1 September broadcasting. BR2I gave a significantly higher yield (2.9 t/ha) than) Hashikalmi (1.5 /ha) with a similar growth duration at this seeding. The PS early line BR1867-20-1-4. flowered on similar dates to BR14 at this seeding, showing insignificant yield differences between them. When seeding was delayed to 9 and 18 Sept the PS n lines flowered similar dates to BR21 and formers produced significantly higher yields than the latter at each seeding date. BR1867-20-l-4 and BR1870-67-1-3 were found superior to BR22 as they flowered about 3 weeks earlier at 9 September seeding and showed significant yield differences at the last date of seeding. BR11 and BR14 were poorly adapted to delayed seeding (9 and 18 September).

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[1] Plant Breeding Division, Bangladesh Rice Research Institute. Gazipur-1701. Bangladesh.

Bangladesh Rice 1. 3(l&2): 14-20, 1992

ASSESSMENT OF OWECT-SEEDED RICE IN AN IRRIGATED SYSTEM,IN TUE PHILIPPINES

M. A. K. Khan[1], S. I. Bhuiyan[2] and R. C. Undan[3]

ABSTRACT

A study was conducted to assess the direct-seeded rice in dry season 1989-1990. at Central Luzon of the Phifippines where rate of adoption of direct-seeded rice has been increasing. The land with topographical elevation where water can easily be controlled especially at crop establishment period are chosen for direct-seeded rice. During sowing azid up jo a few days of seeding, the paddy had lo be free from water because crop submergence condition was the major problems of d rice. Direct rice gave more benefit in terms of reducing labour, increasing yield (23! kg/ha) and income (P 2949/ha) than transplanted rice in irrigated dry season cropping.

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Blangla4esh Rice 1. 3(1&2): 21-24, 1992

GENOTYPE-ENVIRONMENT INTERACTION AND STABILITY OF YIELD IN RAU4FED LOWLAND RICE

M. A. Salam, M. A. Kabir, N.M. Miah[1] and M. Howlader[2]

ABSTRACT

The stability and adaptation of seven rainfed lowland rice (RLR) varieties/lines (Genotypes) were exa by the use of trath yields (t/ha). grown in rep icaie,J irials for Ihrec consecuth'e years at three locations in Bangladesh. The Comilla site was the mast favourable environment - followed by Rajshahi and Gazipur. All the genotypes.including Bill t,were found unstable after the description of Eberhart and Russell (1966). This problem was minimized when the b value was applied to measure the stability and adaptation after Finlay and Wilkinson (1963). Then 8R850-22- 8E867-20-l-4, BR11,and BR22 obtained average stability with general adaptation when BR1870.89-1-1 was poorly adapted to all environments. BR23 showed environmental responsiveness (below average stability) and specifically adapted to favourable environments. BR1725.13-7.1-6 was identified to be the most promising line because it had greater resistance to environmental changes (above average stability), suggesting its suitability for unfavourable environments.

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Bangladesh Rice Journal. 3(1&2): 25-29, 1992

ALLELIC RELATIONSHIP FOR BACTERIAL BLIGHT RESISTANCE IN RICE

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ABSTRACT

Inheritance of bacterial blight (BB) resistance caused by Xanthomonas campestris pv. oryzae in three resistant lines namely BR161-2B-25, RP633-76-1 and BR319-1-HR11 were studied. The test materials were crossed among themselves and with three susceptible local cultivars namely Dharial, Marichbati and Panbira in all possible combinations. Disease evaluation 2-weeks after inoculation of the parents F_1, F_2 and F_3 generations indicated that the resistance in the three lines was controlled by a single recessive gene. The gene for BB resistance in the three resistant lines was allelic and no influence of the cytoplasmic factor was evident.

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[1]Plant Breeding Div.; [2] Plant Pathology Div., Bangladesh Rice Research Institute. Gazipur-170l, Bangladesh.

Bangladesh Rice J. 3(1&2): 30-33, 1992

BR22 AND BR23 - TWO PHOTOPERIOD SENSITIVE MODERN RICE VARIETIES

M. A. Salam, M. A. Kabir and N.M. Miah[1]

ABSTRACT

BR22 has been developed from the cross Nizersail X BR51-46-5 and BR23. DA29 X BR4. Nizersail and DAZ9 are the two strongly photeperiod-sensitive (PS) tnditioi varieties suitable for rainfed lowland rice (RLR) ecosystem of Bangladesh. BR22 and BR23 show the degree of sensitivity to photoperiod as strong as Nizersail. On the otherhand, these varieties posses modem plant architecture but intermediate stature with lodging resistance and high-yield potential comparable to other modem rices. The long felt requirement of modem but strong PS varieties for RLR is accomplished by the development of these two varieties. Moreover, these varieties are adapted for late (September) planting where Nizersail and similar other traditional varieties have been p with low yield.

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[1]Plant Breeding Division, Bangladesh Rice Research Institute. Gazipur-170l, Bangladesh.

Bangladesh Rice J. 3(l&2): 34-38, 1992

EFFECT OF WATER MANAGEMENT PRACTICES ON DIRECT-SEEDED AND TRANSPLANTED RICE CULTIVATION

M. A. K. Khan[1], S. I. Bhuiyan[2] and R C. Undan[3]

ABSTRACT

For potential yield, direct-seeded and transplanted rice required similar amounts of water. Saturated water regime is a suitable water management treatment to save irrigation water. Four water treatments at different levels were imposad for both direct-seeded and transplanted rice to identify the degree of drought tolerance of these two crop establishment techniques. Direct-seeded rice matured two weeks earlier than transplanted rice when the entire lime period in the nursery and field is considered.

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Bangladesh Riec J. 3(1&2): 39-43, 1992

EFFECTIVE AND ECONOMIC CANAL, LINING FOR MINOR IRRIGATION SYSTEM

H. R. Molla and M. I. Islam[1]

ABSTRACT

A study was conducted at Bangladesh Rice Research Institute farm, Gazipur to determine the suitable indigenous low cost materials such as clay and clay mixed with rice husk linings in different ratios for small scale irrigation canal lining. During the study period five lining materials and their durability at field level were tested. The study indicated that the clay lining of 10.0 cm thick is more suitable for small scale irrigation system in respect of cost and seepage loss reduction. However, 1.3 cm thick cement sand plaster in 1:3 ratio is promising though the cost is 3.5 times higher than the clay lining. Moreover, durability of cement sand plaster lining is more than clay lining and it can resist the various types of field hazards.

[1] Senior Scientific Officer, Irrigation and Water Management Division. Bangladesh Rice Research Institute, Gazipur- 1701 Bang] adesh.

Bangladesh Rice J. 3(1 &2): 44-50, 1992

IMPROVED WATER DISTRIBUTION FOR MAXIMIZING COMMAND AREA OF A TUBEWELL PROJECT

Md. Nazmul Nassan, H. R Molla, M. A. Kashem Khan and M. A. Sattar[1]

ABSTRACT

A field study was conducted in two selected tube wells of North Bangladesh Tube well Project to evaluate the water distribution status in relation to maximizing command area of the Tubewells the study conveyance loss of the main and earthen canals, operating hours of the pump, outlet-wise water use of the Tubewells, rainfall and evaporation data were recorded. Water loss in the main lined canals of the two Tubewells were 91.0 and 52.0 li/hr/m^2 before repairing of the canals while the corresponding figures were 43.0 and 7.0 li/hr/m^2 after repairing of the canals. Similarly water loss in the earthen canals were 105.0 and 208.0 li/hr/m^2 which were 8 and 9% of he outlet discharges, Total distribution loss for each Tubewells were about 42 and 30%. Field data indicated that the deep Tubewells command area could be increased significantly through reduction of conveyance losses and improved water management practices.

[1]Irrigation and Water Management Division. Bangladesh Rice Research Institute, Gazipur 1701.

Bangladesh Rice J. 3(1&2): 51-56, 1992

FARM LEVEL WATER UTILIZATION IN AN IRRIGATION PROJECT

G. Mowla , M. K. Mondal, M. N. Islam and M. T. Islam[1]

ABSTRACT

Measured discharge were more than the designed in the head and middle tertiaries of S4K canal and were less than the design discharge in other tertiaries. The tertiaries al the upstream section of each secondary canal received more flow than the middle and tail tertiaries. Higher water delivery rate was observed in monsoon season. Irrigation coverage considerably increased in the middle and tail end tertiaries due to proper monitoring of water allocation and equitable distribution of water. Traditionally farmers applied about 40% more water than actually needed for rice cultivation. After demonstration of Water saving techniques, farmers are using nearly optimum amount of water for growing rice in both the wet (Aus) and monsoon (Aman) seasons and water use efficiency has increased to about 100% in monsoon season.

[1]Irrigation and Water Management Division. Bangladesh Rice Research Institute, Gazipur 1701.

Bangladesh Rice J. 3(1&2): 57-59, 1992

RESIDUAL SOIL MOISTURE UTILIZATION FOR NON-RICE CROP PRODUCTION IN BANGLADESH

M. K. Mondal, M. N. Islam and 0. Mowla[1]

ABSTRACT

The opportunities for dry season crop diversification in the rainfed environment is limited due to water availability. In the irrigated riceland non rice crop gained ground as an alternative to continuous rice because of higher residual soil moisture than the rainied farms. Before 1981, the coverage of non rice crops in the Ganges-Kobadak (0-K) project area in the dry Season (November to February) was almost nil, The study showed that mean yield of lathyrus. gram, wheat, onion & lentil were 790, 1258, 1987. 1445 & 280 kg/ha respectively under recommended management (RM) plots and 658. 1082. 1750. 7202 & 180 kg respectively under farmers management (FM) plots in the dry season. About 50% tanners' of 0-K area are now adopting non-rice crops using residual soil moisture in the dry season. Irrigation schedule should be adjusted in order to allow harvesting monsoon rice in time so that non rice crops can be established at optimum time (mid November) for higher yields. This practice will also help the timely establishment of the following wet season (March-July) rice,

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[1]Irrigation and Water Management Division. Bangladesh Rice Research Institute, Gazipur 1701.

Bangladesh Rice J. 3(1&2): 60-64, 1992

WOMEN PARTICIPATION IN RICE POST-HARVEST PROCESSING IN BANGLADESH

A. Ahmed, M. A. K. Miah and M. A. Baqui [1]

ABSTRACT

Women in Bangladesh play a major role in rice production, especially post-harvest processing. Rural women work longer hours in domestic and agricultural production because they have primary responsibility for both family and child care. About 85% of the rice post-harvest activities in the rural area are done by the women. These activities are threshing crops, sun drying, parboiling paddy, milling and separating husk, bran and broken rice. More than 50% of the workers in the rice mills are women but are getting less wage than men. It is recommended that a programme should be undertaken for increasing the adoption of the appropriate post-harvest technologies by rural women through training, women rally etc. and the rice mill women workers should undergo proper training in rice processing.

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[1]FMPHT Division. Bangladesh Rice Research Institute, Gazipur 1701.

Bangladesh Rice J. 3(I&2): 65-70 1992

EFFECT OP PLANTING TJME AND WATER MANAGEMENT ON THE ESTABLISHMENT OFSESDANIA ROSTRATA AND AESCHYNOMENE AFRASPERA IN WET-DRY TRANSITION PERIOD AND THEIR INFLUENCE ON SUCCEEDING RICE

M. A. Quddus[1'], D. P. Garrity [2]and J. A. Irabagon[3]

ABSTRACT

The experiment was conducted at the International Rice Research Institute, Outreach Station, Guimba, Philippines, from November, 1989 to Mar, 1990. Sesbania rostrata and Aeschyrwm.ne afraspera were grown under two Levels of water management with four sowing dates in wet-dry transit period. Irrespeaive of sowing lime and water management Aesehynomene produced 26 percent higher fresh weight than Sesbania. Green manuring crops grown under different owing dates and level of water management did not have nay significant influence on the yield of the succeeding rice crop.

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[1]Bangladesh Rice Research Institute, Gazipur-I70l, Bangladesh; [2] The International Rice Research Institute. Los Banos and [3] Central Luzon State University, Philippines,

Bangladesh Rice J. 3(1&2): 71-77, 1992

ERGONOMICS OF A TWIN TREADLE PUMP FOR LIFTLNG SURFACE WATER

M. M. Haq, S. M. M. R M. A. Baqui, M. A. Zami and M. T. Islam[1]

ABSTRACT

An ergonomic study was conducted on Twin Treadle pump for lifting surface water at the demonstration site in the Bangladesh Rice Research Institute (BRRI) during 19B7 to 1989. Nine male operators of different weights and age groups were selected randomly to operate the pump. The pump was installed at operating heads ranging from 1.25 to 3.35 meter and the discharge of the pump ran from 78 to 45 (1/min), The maximum energy expenditure rate to operate the pump was 2.24 kcal/min. which did not exceed the tolerance limit of 6 kcal/min and the pulse rate of the op ranged from 96 beat The optimum efficiency was found to be 20% at 1.58 meter operating head. The study indicated that the Twin Treadle pump was found to be ergonomically satisfactory for surface water lifting. Strain developed on the operator's body was found to be harmless. However to avoid feet burning i is recommended to use footwear in operating the pump.

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[1]FMPHT Division. Bangladesh Rice Research Institute, Gazipur 1701.

Bangladesh Rice J. 3(1&2): 78-82, 1992

NITROGEN IN SOIL PLANT SYSTEM UNDER WETLAND RICE CULTURE

M. A. Saleque, N. I. Bhuiyan G.M. Panaullah, M. Nuruzzaman and S. K. Zaman[1].

ABSTRACT

A greenhouse study was conducted to evaluate the response of wetland rice to applied N in soils containing different levels of native N. The hypothesis tested were that the soil native N has an influence on grain yield of rice; response of rice to applied N in soils containing a higher level of native N would be lower than in the soils with lower level of native N; and a soil with more than 0.25% of native N would not give any yield benefit with applied N. Two original soils with extreme native N content (0.08% and 0.26%) were mixed in different proportions to get five soils - S_1, S_2, S_3, S_4 and S_5 in descending order of native N. Four levels of applied N -0, 30, 60 and 120 ppm N were tested with 10kg of soils.

The average effect of native N showed that the grain yield increased with the increase in native N of the soil, however, the yield increase between ‘, S 2 33 or S were significant only in dry season but not in wet season. Application of N increased grain yield in all the five soils. But the trend of yield increase in different soils were not similar. In S’, the grain yield increased progressively with the increase in N levels in dry season, but in wet season the significant yield increase was found only upto 30 ppm N application. In S the grain yield increased progressively with the increase in applied N levels in both the seasons. However, in dry season, there was no significant difference in yield between N and N treatments. In - S_2, S_3, and S_4 there were also an increase in yield due to applied N, however, the yield advantage due to N application was only conspicuous in dry season.

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[1] Soil Chemistry Division; Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh.

Bangladesh Rice J. 3(1&2): 83-88, 1992

SEEDLING AGE EFFECT ON YIELD OF IRRIGATED RICE

B.C. Roy[1], S. A. Sattar[2], M. A. Gaffer and M. A. Islam[3]

ABSTRACT

A study was conducted to determine the seedling age effects on yield of BRI4 and IR50 during 1987 at the Bangladesh Rice Research Institute. The number of panicles per plant decreased slightly as seedling age increased in both the varieties. 1R50 produced more panicles but less number of grains per panicles than BR The highest grain was obtained with 60 day-old seedling of both the varieties. Grain weight of both the varieties decreased with increase of seedling ages irrespective of the tiller types. The grain yield from 20 to 60 and 20 to 80 day- old seedlings were significantly identical for BRI4 and 1R50. Respectively. The straw yield reduced significantly with seedling ages older than 60 days of BRI4 and 40 days of 1R50. In both the varieties, field duration decreased but growth duration increased with increase in seedling ages but the changes were not proportional to the changes in seedling ages.

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Bangladesh Rice J. 3(1&2): 89-94, 1992

PERFORMANCE OF UPLAND RICE AND CABBAGE ON A RED BROWN TERRACE SOIL AS AFFECTED BY FERTILIZER MANAGEMENT

S. Rahman, M. Abmed. G.M. Panaullah, M. Ishaque, N. I. Bhuyian[1], M. Nasiruddin[2] and M. A. Mazid Miah[1]

ABSTRACT

The chemical characteristics of a Red Brown Terrace soil (Typic Paleudult) and fertilizer management for upland rice and cabbage were studied in a series of laboratory and field experiments. The soil is acidic with a topsoil pH of 4.6. and deficient in N and P under aerobic condition. Manganese was detected in an almost toxic concentration in the H_2O extract (13ppm) and in NR extract (56 ppm) of the soil while Fe was found in only trace ('Tr) amounts in H_2O extract and 1.6 ppm NH_4OAc indicating an imbalance between Fe and Mn in the soiL A modern rice breeding line, 1R51'18-t-l.4. and a local rice variety Kataktara, showed symptoms of leaf chiorosis and necrosis as a result of an excess uptake of Mn relative to Fe. Upland rice responded to applied N up to 90 kg/ha. but in spite of the severe P deficiency a negligible response of rice at the rate of 120 kg P_2O_5/ha, was observed. However, cabbage yield increased when the P increased (tom 100 to 300 kg/ha.

[1] Soil Chemistry Division; [2] Plant Breeding Division, Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh.

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INTEGRATED NUTRIENT MANAGEMENT FOR SUSTAINABLE RICE PRODUCTION

M. Nuruzzaman, N. I. Bhuiyan, G.M. Panaullah, and M. A. Saleque[1]

ABSTRACT

A field experiment was conducted at the Bangladesh Rice Research Institute (BRRI) Farm with permanent layout in order to determine the effect of different nutrient management practices for sustainable rice production. The treatments were control (T 40-8-12-5 kg/ha of NPKS. respectively (T_2), 80-16-24-10 kg/ha of NPKS, respectively (T_3), 120-24-36-15 kg/ha of NPKS. respectively (T_4),T_2 + 5t/ha cow-dung + 2.5t/ha ash (T_5),T_3 + 5t/ha cow-dung + 2.5t/ha ash (T_6),and the variety was BR3 for irrigated and BRI for rainfed seasons. Results from first two experiments, indicated that cow-dung and ash may be used as a partial substitute for chemical fertilizers. Thus, soil fertility can be improved by regular incorporation of organic manures with chemical fertilizers.

[1] Soil Chemistry Division; Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh.

Bangladesh Rice J. 3(I&2): 98-106. 1992

HUMAN ENERGY EXPENDITURE IN LIFTING GROUND WATER DY MANUAL PUMPS

S. M. M. Rahman, M. A. Baqui, M. M. Haq. M. A. Zami and M.T Islam[1]

ABSTRACT

Three manual pumps were evaluated or ground water pumping and their ergonomic characteristics at the Bangladesh Rice Research Institute. Energy spent (kcal/min) varied from 3.06 to 4.19 for Treadle, 3.04 to 5.23 for Rower and 2.SS to 3.98 for (No. 6) hand pump at 5.5 to 7.5 in heads. Discharge (1/min) varied from 28 to 41 for Treadle, 22 to 26 for Rower and 15 to 23 for hand pumps. The energy expenditure indicated that operation of the pumps exerts a medium work load for a standard operator. The average pulse rate (107-124 beat of the operator obtained during the study continued the range of the above mentioned work load. Thus the overall physical strains on the operator's body were within normal endurance limit. Based on the results of the study, the Twin-treadle pump was found to be ergonomically best among& the pumps.

[1] FMPHT Division; Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh.

Bangladesh Rice J. 3 107-112, 1992

ANTHROPOMETRIC AND ERGONOMIC STUDY OF A DIAPHRAGM PUMP

M. A. Baqui, M. M. Haq, S. M. M. Rahman, M. A. Zami, M. A. K. Miah, M. T. Islam and M. S. Islam[1]

ABSTRACT

A study was conducted to determine anthropometric and ergonomic characteristics of a BRRI diaphragm pump at the Bangladesh Rice Research Institute (BRRI) from 1987 to 1989. The pump was operated by nine male operators selected from different weight and age groups operated at heads ranging from 1.25 to 3.35 meter. The pump discharge varied from 120 to 250 l The total energy expenditure rate varied from 2.70 to 2.72 (kcal/min) and the pulse rates of the operators ranged from 92 - 105 (beat/ruin). The pump efficiency was 32% at 2.75m head. The energy expenditure and pulse rate fell under light load according to Passmore and Darnin (2.5 - 5.0 kcal/min.). The study indicated that the diaphragm pump was anthropometrically and ergonomically acceptable for surface water pumping.

[1] FMPHT Division; Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh.

Bangladesh Rice J. 3(1&2): 113-118, 1992

STORAGE OF PADDY IN RURAL BANGLADESH

M. A. K. Miah, A. Ahmed, M. A. Baqui, M. Haq, and S. M. M. Rahman[1]

ABSTRACT

An experiment was conducted to identify suitable storage structures of paddy used by farmers and to evaluate their performance. The study showed bamboo made Dole', clay burnt 'Matka' and gunny bags were the main storage stnsctures used by the farmers for paddy rice and seed purposes respectively. The viability of seed was 95-88% in 'Dole, 90-91% in gunny bag during 5 months of storage whereas the viability of seed tell to 77% in 'Matka. On the whole. gunny bag performed better (90-72%) than others in respect of viability of seed over the seven months of storage.

[1]Farm Machinery and Post harvest Technology Division. Bangladesh Rice Research Institute. Gazipur-1701.

Bangladesh Rice J. 3(1&2): 119-122, 1992

EFFECT OF PLANTING METHODS AND NITROGEN RATES ON YIELD COMPONENTS AND YIELD OF LOWLAND RICE

M. G. Ali, S. A. Sattar[1], M. A. Gaffer[2] and A. A. Mamun[2]

ABSTRACT

A field experiment was conducted at the Bangladesh Rice Research Institute, Gazipur during 1987 to determine the yield performance of direct-seeded and transplanted lowland rice grown with two rates of nitrogen. Direct-seeded rice produced more panicles per unit area with heavier grains while transplanted rice produced more grains per unit area due to more grains per panicle. Grain yield was the highest (5.15/ha) front transplanted than from direct-seeded ones. Among the two direct-seeded methods. higher grain yield (4.93 t/ha) was obtained from line sown than front broadcast sown (4.74 t/ha). Total biomass production was affected 28 to 33% by nitrogen application rather than by planting methods. Grain and straw yields were significantly increased due to application of nitrogen irrespective of planting methods.

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ECONOMICS OF MODERN AUS RICE CULTIVATION IN BANGLADESH

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ABSTRACT

In site 1, 30.38 % of the total rice area was found under modem varieties (MVs) producing on an average, 3.6 Mia whereas in site 2 it was 34.63 % yielding 3.9 t/ha. The gross returns for local varieties (LVs) and modem varieties were Tk 8362/ha and Tk 17769/ha in site 1but in site 2 these were to be Tk. 9097/ha and Tk. 19065/ha respectively. The total cost for MV in site 2 was Tk.13717/ha and in site 1, Tk 13004/ha) on full cost basis. The net returns obtained for LV and MV were Tk 531/ha and Tk 5348/ba in site 2 and Tk 88/ha and Tk 4765/ha in site 1 on full cost basis respectively. The benefit cost ratios were similar for LVs and MV Sixty percent farms practiced modern-modern-fallow rice cropping patterns producing the yield of 4.0 - 4.3 -0 t/ha in site 2. The findings indicated that MV cultivation was profitable than LV Aus rice on both full cost and cash cost basis.

[1]SO, PSO, SSO Agril. Economics Division and SO, RFS Division, respectively, BRRI. Gazipur-1701, Bangladesh

Bangladesh Rice J. 3(1&2): 128-131, 1992

PHYSICOCHEMICAL PROPERTIES OF MODERN AND LOCAL RICE VARIETIES OF BANGLADESH

Sunil K. Biswas, Bilkis Banu, Khandaker A. Kabir, Fatema Begum and Nurul H. Choudhury[1,]

ABSTRACT

Physicochemical properties of 34 rice varieties were studied. Milling out-turn of the studied varieties ranged from 68 to 72% and head rice yield from 61 to 96%. Thirteen varieties had either white belly or white center in the grain. Habiganj hero II, Habiganj boro VI and Habiganj boro VIII had opaque grains. Thirteen samples had either long slender medium slender or short held grains. The varieties had 25-27% amylose except BR7, Hbj B II. Hbj B IV and Hbj B VIII. BRS. DA29, HBJ B IV and Hbj B VI had 9-10.5% protein content. The cooking time of the varieties varied from 14 to 21 minutes. Elongation ratio and volume expansion ratio varied from 1.3 to 1.9 and from 3.4 to 3.9 respectively.

[1] Grain Quality and Nutrition Division; Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh.

Bangladesh Rice J. 3(1&2): 132-138, 1992

OPERATION OF MANUAL PUMPS IN THE FARMERS FIELD IN BANGLADESH I- A FEASIBILITY STUDY

M. T. Islam, M. M. Haq, M. A. Baqui, M. S. Islam, and K. A. Haq[1]

ABSTRACT

This study deals with the feasibility of adoption of three manual pumps namely, BRRI Diaphragm pump (BRRI pump). Twin Treadle pump and Rower pump in the farmers' fields. The average discharges (I/s) of BRRI. Treadle and Rower pumps were 4.14, 1.06 and 0.93 at 1.11, 1.06 and 116 m operating heads respectively. It was also found that two BRRI Diaphragm! seven Treadle! Eight Rower pumps perform the same purpose for irrigating a hectare of rice field. At full cost basis, per hectare irrigation cost for rice cultivation by the BRRI pump was Tk. 9424.90 which was the lowest among the three pumps. The cost of irrigation for the Treadle, and the Rower pumps were Tk. 15,589.00 and 19,444,30 respectively. At cash cost basis, these cost were Tk. 1590.00 and 1225.00 and 1927.00 respectively for BRRI, Treadle and Rower pumps. Study shows that potentials of BRRI Diaphragm pump exists for its high discharge in rice field irrigation. The Treadle and the Rower pumps might be suitable for small scale vegetable field irrigation.

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OPERATION OF MANUAL PUMPS IN TUE FARMERS FIELD OF BANGLADESH II - FIELD EVALUATION AND EXTENSION

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ABSTRACT

Three manual pumps namely, Diaphragm pump(BRRI pump). Treadle pump arid Rower pump were evaluated in the farmers field. The average discharges were 3.89, 1.07 and 1.40 1/s for the BRRI, the Treadle and the Rower pumps respectively at 1.12, 1.12 and 1.05 metre operating heads. At full cost basis, the irrigation cost for rice cultivation by the RRI pump was Tk. 8,162Tha. The irrigation costs were Tk. 18,498 and 26285 per ha by the Treadle and the Rower pumps respectively. I the about wages are ignored. the irrigation cost for I ha rice area were 11 1,650, 1,137 and 1,960 by the BRRI, the Treadle and the Rower pumps respectively. On the other hand, the irrigation cost by the power pump was Tk. 2,053/ha only. The RRRI pump could be the most suitable one though its repair and maintenance cost is high. The Treadle and the Rower pumps might be suitable for vegetable crop as their discharges are low.

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ADAPTABILITY OF PHOTOPERIOD MODERN RICE VARIETIES IN THE BORG SEASON

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ABSTRACT

Four photoperiod-sensitive (PS) modem varieties (MV) were evaluated at four seeding dates, viz 2, 9. 15. and 23 November La determine the feasibility of early harvest with PS varieties than usual Boro rices and their adaptability in November seeding. All the PS varieties and the photoperiod-insensitive (P check BRI4 showed similar growth duration in each seeding date duo to the extended cut-off date for critical temperature (CT) of 18°C from 28 February in 10 March during 1989-91. The adaptability of PS materials in respect to grain yield showed the restriction of seeding within 15 November, except BR11 which yielded 4.6-4.8 t/ha at all seeding times similar to the standard P variety BRI4 (4.4-4.6 t/ha).

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NITROGEN FERTILIZER AND GREEN MANURE COMBINATIONS ON THE YIELD OF TRANSPLANTED RICE

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ABSTRACT

The experiment was conducted during the wet season to evaluate the effect of added nitrogen cither from synthetic N fertilizer (SNE) urea at rates of 0, 30, 60 and 90kg N/ha or from green manure crops Azolla and Dhaincha (grown in situ) incorporation alone or from their combinations. i. e. green manures plus 30 kg/ha from SNF. on transp'anted IR62 rice. Dhaincha incorporated at 40 days after emergence contributed the highest amount of nitrogen (39 kg NTha) as compared to azolla (14 kg Njba). At 35 DAT, tiller counts of 1R62 with green manures were only similar to control but increased when supplemented with 30kg NIha. Regardless of treatments, panicle length, number of grains per panicle and weight of 1,000 grains were similar. Panicle weight of 1R62 was heavier with azolla and dhaincha alone or when supplemented with 30kg N/ha over the treatment with 90 kg N/ha from urea. Percent unfilled grains, however, was higher in 60 and 90 kg N/ha than azolla or dhaincha. R62 applied on'y with azolla produced the highest grain yield but was comparable to dhathcha + 30 kg N/ha and the control treatment. Total dry matter yield. straw (dry) yield md nitrogen uptake were in creased with increased level of synthetic N fertilizer. Net return from the control plot was higher than all other treatments except the 30 kg N/ha (SNF) which was comparable to the control. Lowest net return was obtained from the azolla plot supplemented with 30 kg N/ha.Farmer's major problem in adopting green manure practice was identified as the lack of seed or inoculum availability of potential green manure crops.

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FACTORS AND INCOME DIFFERENTIALS IN THE CULTIVATION OF AMAN RICE IN THE COASTAL AREAS OF BANGLADESH

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ABSTRACT

The study was conducted to determine the factors contributing to distribution of share of income in rainfed lowland (transplanted Aman) rice cultivation in the coastal belt of Bangladesh. The study showed the gross returns obtained from modem transplanted Aman rice cultivation were double than that for local improved varieties (LIV). In sharing incomes among production participant's farmer's shares was 82-90 percent of the total income from MV rice. Therefore, MV rice cultivation is profitable in the coastal region.

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INOICA-JAPONICA RICE CULTIVATION UNDER INTERVAL IRRIGATION PRACTICES IN JAPAN

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TOP-DRESSING OF POTASSIUM ON GROWTH M YIELD OF RICE UNDER WATER CULTURE

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