

## COMPLETED RESEARCH PROJECTS

### CULTIVATION OF RICE USING DIFFERENT PLANTING TECHNIQUES

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#### Extended Summary

Rice (*Oryza sativa* L) is the most important crop of tropical world and in Bangladesh. There are different methods of planting rice such as direct seeding (haphazard and line sowing), transplanting of seedlings (haphazard and line), transplanting of clonal tillers, SRI (System of Rice Intensification) etc. The effectiveness of these methods is reported by many researchers (Biswas, 2001; Biswas and Salokhe, 2001; Roy *et al.*, 1990; Biswas and Salokhe, 2002; Sharma, 1992; Alauddin, 2004; Laulanié, 1993; Roknuzzaman, 1997; Varughese *et al.*, 1993). A 2-years project was started during 2005 with the financial support of SAURES of which two experiments were conducted in Aman season, 2005 and Boro season, 2005-2006 and other two experiments in Aman season, 2006. The objective of the project was to compare the performance of hybrid and inbred variety under different cultivation methods along with the performance of clonal tillers. The rice varieties included in these studies were Sonarbangla -1 as a hybrid variety, BR11 (Mukta) in first year Aman season, BRRI dhan 32 for the second year Aman season and BRRI dhan 29 in Boro season. Three planting materials viz. sprouted seeds, nursery seedlings and clonal tillers were used in first experiment along with two planting methods viz. line and haphazard planting. Five cultivation methods viz. sprouted seeds broadcasted, sprouted seeds in line, nursery seedlings, SRI and clonal tillers were included in the second experiment. Five tiller separation days viz. tiller separation at 20, 25, 30, 35 and 40 days after transplantation were included in the third experiment and five different ages of clonal tillers viz. 20, 25, 30, 35 and 40 days were tested in the fourth experiment. Results showed that hybrid variety performed better in all the experiments compared to inbred variety. Clonal tillers performed better in Aman season but nursery seedlings in Boro season. Planting in line showed better performance with highest grain yield ( $4.81 \text{ t ha}^{-1}$ ) than haphazard method ( $4.32 \text{ t ha}^{-1}$ ). The combined effect of planting materials, varieties and planting method resulted in the highest grain yield from clonal tillers of hybrid variety with line sowing method in the first experiment (Fig. 1).

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Nursery seedlings of the inbred variety resulted the highest grain yield (8.88 t ha<sup>-1</sup>) and sprouted seeds broadcast of the inbred variety gave the lowest grain yield (6.35 t ha<sup>-1</sup>) in second experiment (Fig. 2). Earlier tiller separation (20-25 DAT) resulted higher grain yield in hybrid variety but no such variations was observed in inbred variety (Fig. 3). The inbred variety with 25 days of clonal tillers resulted the superior performance in grain yield (4.37 t ha<sup>-1</sup>) that similar (5.21 t ha<sup>-1</sup>) with hybrid variety of 40 days old (Fig. 4).

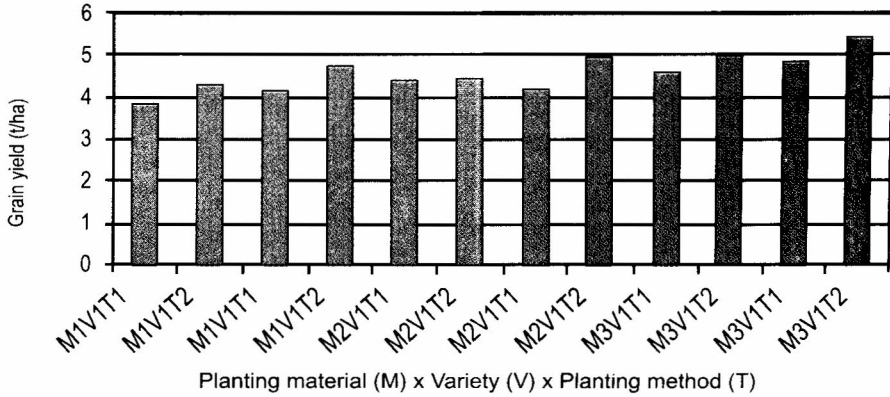


Figure 1. Influence of planting material, variety and planting method on grain yield of Aman rice (First Experiment)

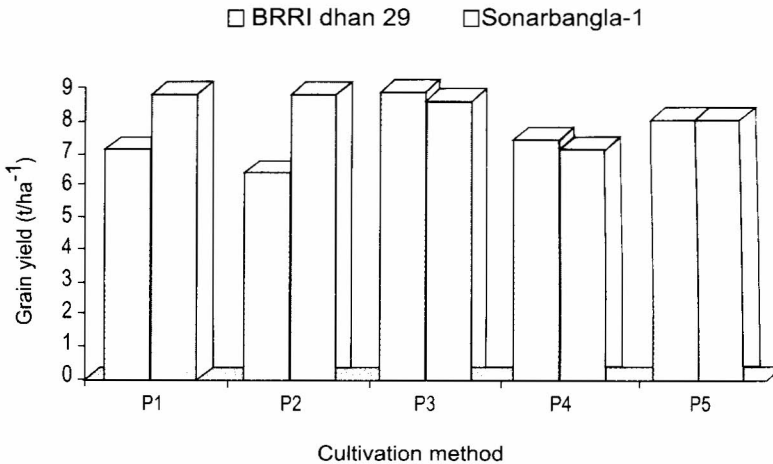


Figure 2. Influence of variety and cultivation method on grain yield of Boro rice (Second Experiment)

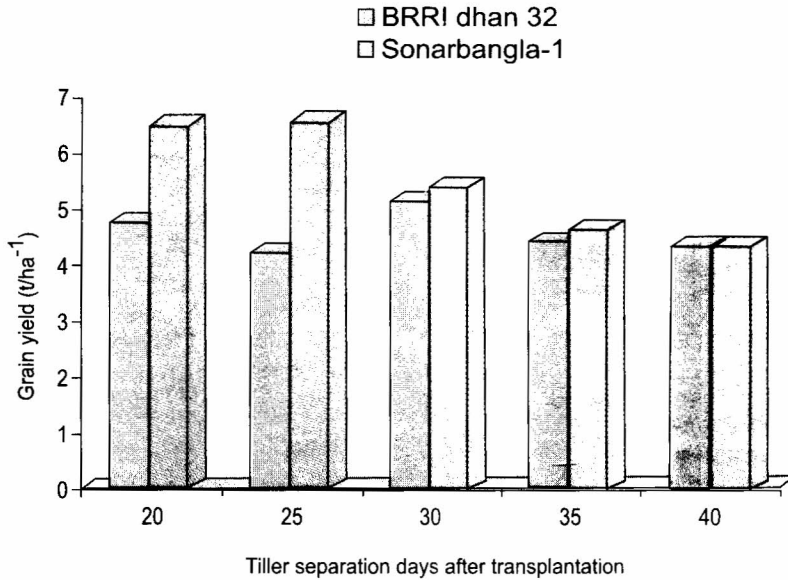


Figure 3. Influence of variety and tiller separation days on grain yield of Aman rice (Third Experiment)

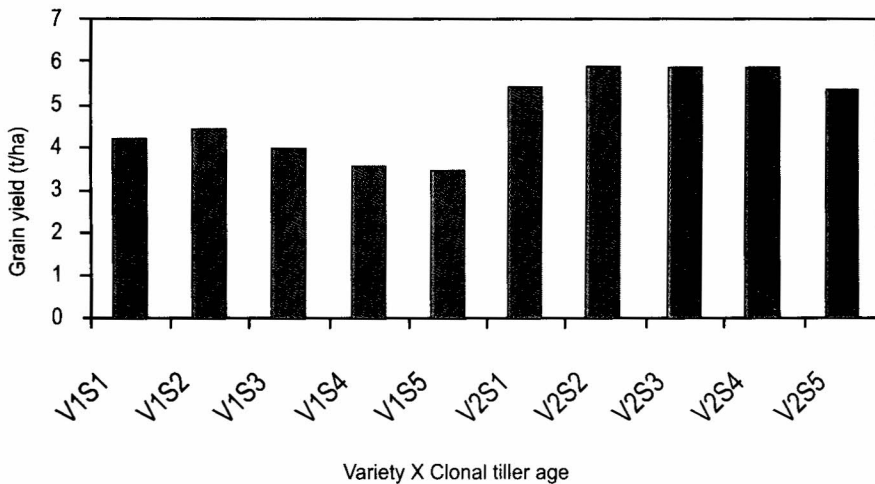


Figure 4. Influence of variety and clonal tiller age on grain yield of Aman rice (Fourth Experiment)

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