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Research Notes

Productivity of rice as influenced by innovative management practices of modified SRI approach

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In order to sustain present food sufficiency and to meet future food requirements, we have to realize a minimum annual growth rate of 3% in rice productivity. (Thiyagarajan *et al.*, 2002). New and innovative methods of rice cultivation must be identified to increase the productivity. Under the system of rice intensification (SRI) planting young seedlings with single seedling per hill, wider spacing, inter cultivation with conoweeder, intermittent irrigation provide better growing condition for the rice crop. (Uphoff, 2002).

Most rice farmers plant aged seedlings (30-40 days old) in clumps, at closer spacing with too much of standing water. Such practices are being followed to reduce the risk of crop

failure. There is a wide spread feeling among the farmers that more mature plants would survive better when planted in clumps and ensure good crop yields even few seedlings might fail and others survive and result in more yield. Hence present study on the effect of age of seedlings, number of seedlings/hill and row spacing on productivity of rice was taken up.

Field experiments were conducted at TRRI, Aduthurai during 2003-2004 & 2004-2005 in the factorial randomized block design with three replications. Two seedling ages (14 days old and existing 30 days old), three levels of number of seedlings/hill (one, two and three seedlings/hill), three plant spacing (20 x 20

cm, 22.5 x 22.5 cm and 25 x 25 cm) were studied in factorial combinations comprising of eighteen treatments. Growth and yield attributing characters were recorded. Grain yield was recorded at 14% moisture content. The data collected were analysed statistically (Panse and Sukhatme, 1967). Net income and B: C ratio were worked out and presented.

Growth and yield attributes, grain yield and economics were significantly influenced by the treatments. Plot planted with 14 days old seedling recorded significantly higher plant height (83.8 cm) than aged seedlings (81.4 cm). Planting seedlings in clumps reduced the plant height. The spacing 25 x 25 cm significantly increased the plant height (84.1 cm). The number of productive tillers (343/m²), number of grain/panicle (140) and 1000 grain weight (16.7 g) were significantly more under 14 days old seedlings. Among the number of seedling/hill, single seedling registered significantly higher number of productive tillers (336/m²) and grains/panicle (140) while the 1000 grain weight exhibited no significant difference. Number of productive tillers was higher under 20 x 20 cm spacing (327/m²) where as number of grains/panicle (141) and 1000 grain weight (16.8 g) were maximum with 22.5 x 22.5 cm spacing. Grain yield was significantly higher (5079 kg/ha) in the plot planted with 14 days old seedling. Similarly the highest grain yield of 4962 kg/ha was recorded with single seedling/hill. The results were in agreement with similar results reported by Stoop *et al.*, 2002 and Rajendran *et al.*, 2005. The row spacing of 22.5 x 22.5 registered significantly higher grain yield (4998 kg/ha) than other spacing tried.

The net income and B: C ratio were more under 14 days old seedlings, (Rs.11803/ha and 1.70) while the seedling number/hill and plant spacing gave mixed responses. It can be

concluded that rice crop planted with young seedlings (14 days old) at single seedling per hill at 22.5 x 22.5 cm spacing could give higher productively and profit.

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