

## Growth and Yield Response of Mechanical Transplanted Rice at Different Plant Densities

S. Sivaneson\* and V. Vijayakumari

Rice Research Station, Paranthan, Department of Agriculture, Sri Lanka

\*ssivaneson@yahoo.com

Optimum plant spacing is among key agronomic parameters that influence growth and yield of rice (*Oryza sativa* L.). A field experiment was conducted to evaluate the growth and yield response of mechanical transplanted rice at the Rice Research Station, Paranthan during *Maha* season, 2016/17. The machine transplanting method is considered as a practical option to minimize the labour usage with the timeliness cultivation of rice. Recent past, rice transplanter was introduced to paddy farmers of Kilinochchi district by the government of Sri Lanka. However, adaptation of this method is still low due to socio-economic background and lack of technical information. Four rows of man-propelled paddy KUBOTA (SPW 48c) transplanter was used in this study with 30 cm row spacing (non-adjustable) and 5 within row spacing levels (12, 14, 16, 18 and 21 cm), replicated four times in each. The rice variety Co-10 was used with the plot size of 4 m x 6 m. The plant height, number of tillers at different stages, percentage of canopy coverage and yield components such as panicle per hill, panicle length, grain yield and 1000 grains weight were recorded. Results revealed that the spacing of 30 cm X 16 cm produced significantly highest number of tillers and panicles than others. The spacing of 30 cm X 16 cm recorded the highest ( $p < 0.05$ ) percentage of canopy coverage (75%), 1000 grain weight (24.9 g) and grain yield (7921.9 kg/ha). This study concluded that plant spacing of 30 cm X 16 cm can be considered as optimum plant density for mechanical transplanted rice crop for the variety Co-10 compared to other tested spacing in this region.

**Keywords:** Canopy coverage, growth, mechanical transplanting, rice, spacing, yield