

Performance Evaluation of 4WD Tractor Mounted Paddy Transplanter

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ABSTRACT

The manual rice transplanting method gives the desired result but the labour requirement is very high. High labour demand during the peak transplanting period adversely affects the timeliness of this operation, thereby, reducing the crop yield. The performance of the mechanical transplanters was quite satisfactory and labour requirement is also less even though, to breakeven with the cost of manual operation, the mechanical transplanting would be economical if it is used to cover an area of 28 ha and above per year. The tractor mounted paddy transplanter can be used in paddy transplanting season as an attachment and other time it can be used for other agricultural operations. The highest average missing hills, floating hills, buried hills and damaged hills were obtained as 24.3 and 29.3 per cent, 6.1 and 6.5 per cent, 10.1 and 7.5 per cent respectively for P_1G_3 and P_2G_3 PTO and gear combinations due to high rotation speed of transplanting fingers in 3rd forward gear due to transplanting fingers were unable to pick paddy seedlings properly. The highest grain yield was obtained as 6167 kg ha⁻¹ for P_1G_2 whereas the lowest grain yield was obtained as 2407 kg ha⁻¹ for P_2G_3 of PTO & gear combinations respectively. The highest straw yield was obtained as 16800 kg ha⁻¹ for P_2G_1 whereas the lowest grain yield was obtained as 7820 kg ha⁻¹ for P_1G_3 of PTO & gear combinations respectively. From the statistical analysis results, It was observed that the optimum hill spacing was obtained by the treatment 2 (P_1G_2) with the spacing of 15.33 cm by transplanted with 4- wheel drive tractor mounted paddy transplanter.

Key words: *Hill Spacing, Paddy transplanter, PTO & Gear combination, 4WD tractor.*