

## Agro-economic analysis of rice transplanters in Kerala

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■ **ABSTRACT** : Agricultural mechanisation is vital in improving resource use efficiency in agriculture. Mechanisation of the labour intensive operation of transplanting is imperative for ensuring economic viability of rice cultivation in Kerala. Agro-economic analysis of transplanter use in consonance with specific agro-climatic situation is essential for planning and implementing a proper mechanization strategy and hence such an analysis was done. The relevant economic parameters were worked out *vis-a-vis* the agro-climatic and technical factors for three different rice transplanters viz., 8 row riding type, 4 row walk behind type and 6 row 4 wheel riding type. The variation of cost of operation with respect to annual working hours and effective annual area were analyzed to evolve a strategy for mechanization of rice transplanting. The seasonal command areas as well as Break Even Hours (BEH) and Break Even Areas (BEA) for the different machines have also been estimated. The information generated can serve as a guideline to farmers, policy makers and entrepreneurs for the use of rice transplanters in the region.

■ **KEY WORDS** : Agro-economic analysis of rice transplanters, Rice transplanters

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Rice is the staple food of people of Kerala and the sustenance of rice cultivation in the state is important for ensuring food security as well as for preservation of its fragile eco-system. In spite of the efforts put by the Government, the area under rice in Kerala is diminishing at a faster rate over the last few decades (Anonymous, 2010). Agricultural mechanisation could not get much encouragement until the recent years, due to the specific socio-politic situation in Kerala. James *et al.* (1995) reported that rice farm mechanization offers employment opportunities in the operation, service, manufacture and marketing of machines, which the educated youth of this highly literate state will find more attractive. There is ample scope for reduction in the cost of cultivation of rice in Kerala by the use of machines, as the wage rates in Kerala are the highest in India (James *et al.*, 1996). Further, mechanization of the highly labour intensive operations like transplanting and harvesting offers a helping hand to the farmer (James and Pillai, 1998). In the current scenario, rice farm mechanisation is regarded as the most important ingredient for sustaining its cultivation in the state.

Economic analysis of farm machinery in relation to the specific agro-climatic and socio-economic scenario provides vital information required for planning and implementing a mechanization strategy (Rajmohan *et al.*, 1998). Hence, an

analysis on the economic performance of rice transplanters in the central zone of Kerala was attempted.

### ■ METHODOLOGY

A basic economic analysis was done to compare the total cost of operation in conventional rice cultivation as influenced by mechanisation of transplanting. For comparing the economic advantage of transplanting with machine, the Less Mechanised System (LMS) was compared with Machine Transplanted System (MTS). The costs of operations including material cost, labour cost and machinery hire charges were obtained from the farmers in both systems of cultivation and were summed up to obtain the total cost of cultivation (TC). The income was worked out considering that the procurement price of raw paddy as Rs. 15/- per kg and the cost benefit ratio calculated.

Three makes of rice transplanters *i.e.* 8 row riding type Yanji Sakti (TR<sub>1</sub>), 4 row walk behind type Kubota NSP 4W (TR<sub>2</sub>) and 4 wheel riding type Kubota NSPU-68C (TR<sub>3</sub>) were considered for the analysis. The technical details of the machines were obtained from the manufacturers and the agro-climatic information required was gathered from secondary data from authentic sources (FIB, 2010) and the personal experiences of the authors. The data on field capacity, fuel