

Farm machinery: The economics of paddy harvesting

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■ **ABSTRACT** : The present study assessed the potential of using paddy harvesters and its impact on timeliness, harvesting cost, crop yield, farm income and employment. The results indicated that mechanical harvester ensured rapid harvesting, reduced harvesting costs, minimised post harvest losses, raised income of farmers and assisted farmers in overcoming labour shortages during peak harvesting period. The machine replaced labour by about 90 per cent, reduced harvesting costs by Rs. 5500 per hectare and increased net return by around Rs. 35000/ha. Field conditions such as crop density, crop maturity, soil moisture condition, weed population, plot size, lodging and operators skills determines the efficiency of harvesting. Mechanical harvester harvested 10 acres per day. The mechanical harvester is impressive equipment, which reduced the cost of paddy production by about 25-30 per cent and reduced post harvest losses to a considerable extent. Negative effects are noticed on employment opportunities and also on the income of harvesting labourers. Although the mechanical harvester has gained greater acceptance among farmers, the price of the machine is around 15 lakhs; which tend to discourage them to invest on this technology. However, it is possible to popularize these machines in major rice producing areas by providing financial incentives to farmers and companies and by way of conducting appropriate training programmes.

■ **KEY WORDS** : Mechanical harvester, Employment

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Harvesting, threshing and winnowing represent the final field operations in the paddy production process. It is at this particular point that the farmers and labourers receive their pay off through cultivation. Harvesting is traditionally carried out in Karnataka by using sickles. Four wheel tractors/low capacity mechanical threshers are generally used for threshing, winnowing is carried out by fan attached to tractor or through manual winnowing. The harvesting and threshing operations consume as much as 50 per cent of the total farm power requirement for paddy cultivation in Karnataka. Harvesting, threshing and winnowing are done separately and require a great deal of labour application, usually in the range of 10-15 labour days per ha depending on the condition of the crop and variety. Both men and women participate in these operations and the wage rate in cash or kind is substantially high as Rs. 200-250/day. Owing to the high level of labour requirements and the concurrent maturity of crops in many farmers fields, more often difficulties are encountered in mobilizing sufficient labour and harvesting is delayed beyond the optimum crop maturity conditions. The delay in harvesting result, reduction of the quality and quantity of paddy. This can be a costly practice if the harvesting takes

place during rainy season. Labour scarcity during the peak labour demanding period and the high wage rate involved are becoming a challenge for rice cultivation. The cost of labour is about 40-45 per cent of the total cost of production of paddy, out of which 50 per cent is used for harvesting, threshing and winnowing operations.

These constraints could be overcome through the introduction mechanical paddy harvesters. It will provide solutions scarcity of labour during peak harvesting season and also assist in achieving timeliness, minimizing drudgery, reducing crop losses and improving the quality of paddy. It has been reported that grain losses were below 3 per cent and grain damage was about 0.5 per cent when harvesting is done with paddy harvester in Japan. In this context an effort is made through this paper to achieve the following objective to evaluate the impact of using the mechanical harvester on timeliness, harvesting costs, crop yield, farm income and labour use.

■ METHODOLOGY

Field level data on use of harvester were collected through personal interview with the farmers. Data pertaining to *Kharif* 2011-12 were used for the analysis. 90 farmers were