

## Techno economic feasibility of rice combine harvester

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### ABSTRACT

To assess the post harvest losses and its techno-economic feasibility of using combine harvester (Escorts Class- Crop Tiger) was carried out by determining pre and post harvesting losses, timeliness of harvesting, field capacity, fuel consumption and other problems during the operation viz., noise and dust pollution, frequency of repair/maintenance and operating cost of the machine. The results revealed that the rice combine harvester had an average post harvesting losses of about 2.96 per cent of rice yield and grain breakage losses (1.50 %) were bit less. The machine was able to harvest 1.0 to 1.2 acres in an hour. The fuel consumption of the combine was found to be 8 to 9 litre of diesel per acre. As the machine was not equipped with a proper cab, dust and noise pollution posed threat to the operator's health. The cost of operation in conventional harvesting was 2.28 times more and costs about Rs. 550/acre . The pay back period was found to be less than one year, if the machine could harvest 2500 acre per year. The combine is an efficient, economical, labour and time saving machine but its initial cost is quite high.

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**Key words :** Combine, Rice, Harvesting losses, Harvesting cost, Feasibility

### INTRODUCTION

In India, considering the limited and dwindling land and water resources, slow growth in productivity and ever increasing population, minimizing post harvest losses is one of the most effective and economical way of increasing per capita food availability. The present level of post harvest losses especially in rice crop is estimated ten per cent of its production. In-order to harness full benefits of green

revolution, reduction in post harvest losses in field condition is combine harvester may be considered essential mechanization machinery. The harvesting of cereal crops is major problem since long as this operation is done manually. In the present, development of the industries and the shifting of rural labour to urban trend is prime reason of scarcity of labour during the harvesting time. After green revolution and introduction of high yielding varieties, farmers are reaping bumper crops while the problem of labour shortage has intensified. The problem of labor shortage can be solved with the use of farm machinery which helps to bring more area under cultivation, increase cropping intensity and timely harvest crops. Presently, rice threshing in India is almost fully mechanized but harvesting is still a problem. Hiregoudar *et al.*, (2005) reported that the use of novel technologies increased in last five years. There are different types of reapers, cutter binders, threshers, pull-type and self-propelled combine harvesters were available in the different parts of the country. The combine does the reaping as well as threshing simultaneously. The combine harvester is an efficient, economical, and less labour demanding machine. It increases grain recovery by minimizing harvesting and threshing losses.

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