

A review on harvesting and threshing methods for paddy crop - II

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ABSTRACT

Threshing of paddy crop can be carried out using manual, animal or mechanized power sources depends on the farmland size. In a thresher, rasp bar, spike tooth, peg tooth and wire-loop type threshing elements can be fitted with the threshing cylinder irrespective of direction of crop feed and flow. Different elements are responsible to thresh the crop with different actions which include impact, rubbing, combing, squeezing and their combination. In paddy threshing, removal of hull is not required which determines the selection of threshing elements and thus the threshing efficiency, energy consumption and grain loss. The wire loop type threshing element was reported most suitable for paddy threshing. Factors like cylinder speed, cylinder type and diameter, concave clearance and throughput rate affect the threshing performance. A low speed of cylinder produces more un-threshed grains. It can be compensated using for axial flow thresher as it has high crop retention period. Contrarily, a high speed is responsible for better threshing efficiency along with the more grain breakage and energy consumption. Using tangential flow thresher crop retention period can be minimized. The work rate of pedal and power thresher was, respectively 2 and 10 times more than that of manual threshing.

KEYWORDS: Energy consumption, Grain loss, Threshing element, Threshing efficiency.

INTRODUCTION

Reaping and threshing of the crop are two most important operations which determine the percentage of grain recovery from the crop standing in the field. It requires appropriate mechanization to produce efficient threshing with minimum grain loss. In India, threshing of paddy crop is carried out through various methods. Other than the threshing efficiency of manual and mechanized methods, the throughput capacity is a major concern which can be achieved only using power-operated threshers. The methods adopted for paddy threshing is largely dependent on the field size. Unavailability of proper size machines in peak season leads to increase in time requirement and input cost. Small scale combine harvester is not very popular in India because its cost is not affordable for small farmers. The paddy thresher may be equipped with different types of threshing elements. In this study, the performance of different types of threshing methods, threshing elements that are used in paddy thresher and the factor that affects the threshing performance are reviewed and discussed.