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DEVELOPMENT AND PERFORMANCE EVALUATION OF STONE COLLECTING MACHINE

ABSTRACT

Keywords: stones physical properties, performance, stone collection.

To prepare land for agricultural purposes, it is often necessary to remove stones to allow uniform cultivation of the land. In dry areas, the soil contains a number of small stones due to which farmers face difficulties during cultivation. These stones interfere with growing plants, damage tillage tools and damage harvesting machinery. Hence, it was planned to fabricate a stone collecting machine and to evaluate its performance. The performance results were analyzed in terms of stone collecting efficiency and left out stones. The effects of treatments like forward speed and conveyor speed on stone collecting efficiency and left out stones were evaluated. Machine performance parameters like fuel consumption, field capacity, field efficiency and cost of operation were also studied.

The average values of field efficiency, fuel consumption and operating cost were found 76.05 %, 4.01 l/h and 2717.33 Rs./ha respectively. The stone collecting machine saves money about 44.16 % and time 95.40 % over manual operation respectively.