

# Performance Evaluation of Manually Operated Basket Rotor Weeder for Maize Crop

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## ABSTRACT

Agriculture is one of the most significant sectors of the Indian economy. The population of India was 1.332 billion in 2017 and estimated 1.807 billion by end of 2050. Hence it is required to produce more food to meet the needs of growing population. The yield of a crop can be increased by using high yield variety of seeds, or using proper agricultural practices and preventing yield loss due to natural factors like weeds, insects, and rodents etc. Out of these factors weed is one of important component which cause the serious damage to the crop yield, this include the decrease in crop yield, increase the cost of production, lower the quality of crop. Weed causes 20-30% loss in yield quite usual which might increase up to 80% if an adequate crop practice is not observed. By adopting the proper weed management technologies, additional national income of Rs 1, 05,036 cores per annum (NRCWS, 2007) can be recorded.

The present study was carried out by performance evaluation of manually operated basket rotor weeder with 1:1.5, 1:2 and 1:3 speed ratios with chain and sprocket system. The results of the manually operated basket weeder shows the weeding efficiency was 68.92, 81.93 and 75.47% with 1:1.5, 1:2 and 1:3 speed ratios. The plant damage was 1.666, 0.96 and 2.38% with 1:1.5, 1:2 and 1:3 speed ratios. The field efficiency was found to be 78.86, 83.92 and 60.36% with 1:1.5, 1:2 and 1:3 speed ratios. The cost of operation was 1600.56, 1516.96 and 2097 Rs ha<sup>-1</sup> with 1:1.5, 1:2 and 1:3 speed ratios respectively.

**Key Words:** *Basketweeder, Speed ratios, Weed and Maize crop.*