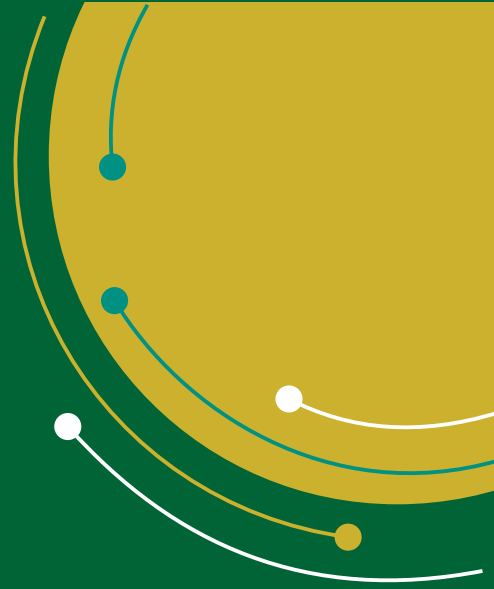
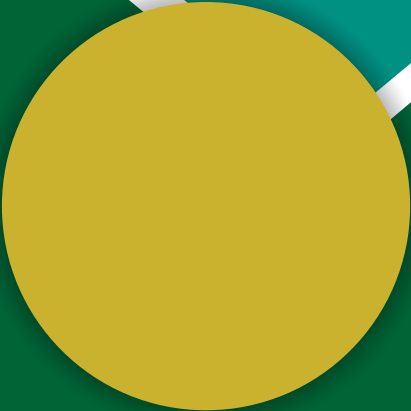


# Self Propelled Multicrop Reaper



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With the introduction of modern techniques in farming, per unit areas increase in yield also demands a quick and efficient method of harvesting. The harvesting of crop at right time of maturity results in maximum production with the minimum field losses. Due to the shortage of labor, large quantity of grains is lost in the field because of delayed harvesting, therefore, different harvesting methods like combine harvester, tractor mounted reaper and self-propelled reaper are replacing the conventional methods. Since 70% land holdings are small and farmers cannot afford high price machinery, therefore, small size low cost multi-crop reaper seems to be the solution of problem. A self-propelled multi crop reaper might be more feasible than manual harvesting for small land holders.

## Machine development

A locally available self-propelled rice crop reaper with 152.4 cm cutter bar swath width was procured and field tested. The reaper was dismantled. Reverse engineering approach was employed to modify designs and developing drawings of various components viz: star wheel, crop divider, row divider, cutter bar, conveyor chains and belt conveyors. All the fabrication work was completed in the workshop of the Department of Farm Machinery & Power, University of Agriculture, Faisalabad. The reaper was tested for harvesting multi crops like wheat, rice and brassica to meet the harvesting requirements of crops for the two successive years.

The overall performance of self-propelled reaper was quite satisfactory. The average shatter losses for rice, wheat and brassica were 0.47%, 0.26% and 0.47% respectively with an average field efficiency of 69.21%. The cost of harvesting by the modified self-propelled reaper was 3, 2.8, & 2.6 times less than manual harvesting of rice, wheat, and brassica crops, respectively. The good field operation performance of this small multi-crop self-propelled reaper is the sign of easy adoption of this technology by small and medium farmers. The field capacity of this machine is 1-ac/hr with a diesel consumption of 1-L/hr. This machine costs Rs. 15000/-



Multi-crop self-propelled reaper harvesting brassica



1. Vertical crop supporting platform
2. V-belts for tall crop
3. Original crop supporting platform
4. Row divider (five)
5. Crop divider
6. Star wheel
7. Cutter bar
8. Modified tyre

Multi-crop self-propelled reaper





Multi-crop self-propelled reaper  
harvesting rice



Multi-crop self-propelled reaper  
harvesting wheat

## Impact

The harvesting of crop at right time of maturity results in maximum production with the minimum field losses. Due to the shortage of labor, large quantity of grains is lost in the field because of delayed harvesting, therefore, different harvesting methods like combine harvester, tractor mounted reaper and self-propelled reaper are replacing the conventional methods. Since 70% land holdings are small and farmers cannot afford high price machinery,

therefore, small size low cost multi-crop reaper might be the solution of problem. This self-propelled multi crop reaper is more feasible than manual harvesting. The cost of harvesting wheat, rice, and brassica crops is cheaper with self-propelled reaper than that with manual harvesting respectively. This reduction in the cost of crop harvesting is an attractive incentive for small farmers to adopt self-propelled reaper.