

# On farm verification of performance of weeders to increase the crop yield in Kandhamal District of Odisha, India

## Abstract

The trial was conducted in Kandhamal district of Odisha during 2006-2008 (3 years) in an objective to find out the new technology already tested in the research station in the farmer's field. The area of Phulbani consists of hill ranges which belong to main line of Eastern Ghats along with some plains and Valleys lying between the hill ranges. Cultivation of rice in Kharif is main crop in this zone due to basic need of the farmers. Weeds are the most important factors reducing productivity of this crop. Farmers control weeds by hand picking and hoeing which substantially become more expensive and add to the cost of cultivation. Weeding by mechanical devices reduces the cost of labor and also time. So 4 weeding methods were tried during this period. Among four weeders tested in Phulbani during 2006-08 (3years) in on farm to control weeds in groundnut crop, and their efficiency was compared with hand weeding. Phulbani dry land weeder gave benefit: cost ratio of 1.56 as compared to the B:C ratio of 1.01 with hand weeding. Three weeding methods viz. Wheel finger weeder, Phulbani dry land weeder, local gadi were tested in groundnut crop against hand weeding under on-farm trial. Wheel finger weeder recorded highest field capacity (0.097 ha/hr) followed by Phulbani dry land weeder (0.076 ha/day) Phulbani dry land weeder gave the highest pod yield of groundnut (15.4 q/ha) and benefit cost ratio of 1.56 during 2008-09 followed by Wheel finger weeder which gave groundnut pod yield of 14.6q/ha and B:C ratio of 1.50. Considering the mean performance over three years Phulbani dry land weeder gave 35.1% higher pod yield than hand weeding. Manual weeding gave lowest pod yield of 11.4 q/ha and lowest benefit cost ratio of 1.01 during 2008-09. Phulbani Dry land weeder is easily acceptable by farmers due to its low cost (Rs 20/- per piece) and higher effective field capacity.

Volume 9 Issue 1 - 2019

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**Received:** October 24, 2017 | **Published:** January 18, 2019

## Introduction

The trial was conducted in Kandhamal district of Odisha during 2006-2008 (3 years) in an objective to find out the new technology already tested in the research station in the farmer's field. The area of Phulbani consists of hill ranges which belong to main line of Eastern Ghats along with some plains and Valleys lying between the hill ranges. Cultivation of rice in Kharif is main crop in this zone due to basic need of the farmers. Weeds are the most important factors reducing productivity of this crop. Farmers control weeds by hand picking and hoeing which substantially become more expensive and add to the cost of cultivation. Weeding by mechanical devices reduces the cost of labor and also time.<sup>1</sup>

## Materials and methods

Treatments tried are shown below during the years from 2006 to 2008 (3 years) during *kharif* season, in a farmers field in Kandhamal district of Odisha, under Dry land Agril Research project, Phulbani

Treatment
T1-Phulbani Dry land weeder
T2-Wheel finger weeder
T3-Local Gadi
Hand weeding

## Result and discussion

Wheel finger weeder recorded highest field capacity (0.097 ha/hr) followed by Phulbani dry land weeder (0.076 ha/day) (Table 1).

Phulbani dry land weeder (Figure 1) gave the highest pod yield of groundnut (15.4 q/ha) and benefit cost ratio of 1.56 during 2008-09 followed by Wheel finger weeder which gave groundnut pod yield of 14.6q/ha and B:C ratio of 1.50. Considering the mean performance over three years Phulbani dry land weeder gave 35.1% higher pod yield than hand weeding. Manual weeding gave lowest pod yield of 11.4 q/ha and lowest benefit cost ratio of 1.01 during 2008-09. Phulbani Dry land weeder is easily acceptable by farmers due to its low cost (Rs20/- per piece) and higher effective field capacity.



Figure 1 Weeding by Phulbani Dry land weeder

**Table 1** Groundnut pod yield and B:C ratio in different treatments

Treatment	Groundnut pod yield,q/ha				Effective field cap(ha/day)	Gross return, Rs/ha	Net return, Rs/ha	B:C Ratio
	2006-07	2007-08	2008-09	Mean				
T1-Phulbani Dry land weeder	15.1	15.7	15.4	15.4	0.076	30,700	11,054	1.56
T2-Wheel finger weeder	14.9	14.7	14.6	14.8	0.097	29,200	9,714	1.5
T3-Local Gadi	13.2	13.3	12.5	13	0.03	24,960	4,966	1.25
Hand weeding	11.2	11.5	11.4	11.4	0.015	22,800	204	1.01
Mean	13.6	13.8	13.5	13.6	0.055	26915	6484.5	1.33
SEm+	0.5	0.1	0.12	0.18				
CD(5%)	1.53	0.3	0.36	0.56				

### Acknowledgments

None.

### Conflicts of interest

The authors declared there is no conflict of interest.

### References

1. Anonymous (2006-2008) *Annual report of AICRP*, Phulbani, 2006.