

Performance evaluation of Ambika paddy weeder for paddy in farmer's field

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ABSTRACT

The Ambika paddy weeder was evaluated for its field performance in farmers field at Krishi Vigyan Kendra Dantewada. In this study, field experiments was conducted in paddy field during the year 2014-15 kharif season to evaluate the working capacity, efficiency and costs of economics. The Ambika Paddy Weeder was operated in line sown rice crop to uproot the weeds and its performance as compared to hand weeding was evaluated. The result indicated that the field capacity was 0.014 ha/hr with a field efficiency 77.77 per-cent and weeding efficiency was found to be 80.11 per-cent. The minimum cost of weeding operation was observed under hand operated Ambika paddy weeder was found to be Rs.1574ha⁻¹.

Keywords: Ambika paddy weeder, field capacity, hand weeding, mechanical weeding, weeding efficiency

With in the world wide cultivated cereals, paddy is one of the leading food crops of the world and 95 per-cent of the world paddy production done by Asian countries. (Farahmandfar *et al.*, 2009). Weeding in paddy is timely operation to be executed to get maximum yield otherwise weed will compete for the nutrients with crop. During early establishment, the weeds make 20-30 per-cent of their growth while the crop makes 2-3 percent of its growth (Moody, 1990). In rice cultivation, manually weeding is one of the time and energy consuming operation and also labour cost increasing tremendously from last decade. Hence cost of cultivation is getting increased every day. The chemical weeding is one of the effective method but it leads to various environmental and health issues. Hence there is need of low cost mechanical weeding to minimize maximize the yield. Mechanical weeding equipments are available in the market, which are either costlier or effectively not suitable for weeding in rice and also the framers of dantewada district have been interested to grown organic rice. Keeping the above point in view, the study was undertaken to evaluate the performance of ambika paddy weeder in farmers field at Krishi Vigyan Kendra Dantewada.

MATERIALS AND METHOD

The push type ambika paddy weeder consists of serrated strips, float, frame and handle. Strips are cut sharply in M Shape uniformly along its length mounted on round blade welded to frame (Fig 1). The float, serrated strips and handle are joined to the frame. The

float controls working depth and does not allow rotor assembly to sink in the puddle. The ambika paddy weeder was used to evaluate for its performance in 8 ha area of paddy variety Samleshari in farmers field. The test conditions during the assessment of ambika paddy weeder are given in table 1.

Table 1: Test conditions during the assessment of Ambika paddy weeder

Sr. No	Parameters	Particulars
1	Year/Season	2014-15 / Kharif
2	Farming situation	Rain fed
3	Location	Farmers field
4	Type of soil	Sandy loam
5	Type of land	Medium
6	Variety	Samleshari

Performance of technology with performance indicators

1. Field capacity ha hr⁻¹
2. Field efficiency %
3. Weeding efficiency %
4. Cost of operation, Rs hr⁻¹

RESULTS AND DISCUSSION:

Field capacity and field efficiency

Effective field capacity and field efficiency of the tested ambika paddy weeder are illustrated in Table2. The result indicated that the average area covered was observed to be 0.014 ha hr⁻¹ and field efficiency was observed to be 77.77 per-cent. The time required for intercultural operation of one hectare area was recorded as 71.42 h.



Fig 1 : Farmers using Ambika paddy weeder to uproot weed between paddy crops

Table 2: Average parameters recorded of Ambika paddy weeder in line sowing of rice

Sr. No.	Parameter	Values
1	Field capacity (ha hr ⁻¹)	0.014
2	Weeding efficiency (%)	80.11
3	Travel speed (Kmph)	1.66
4	Working depth of operation, (mm)	28
5	Working width of operation, (mm)	110
6	Field efficiency, (%)	77.77
7	Cost of operation (Rs ha ⁻¹)	1574

Weeding efficiency and cost of operation

The weeding efficiency was recorded as 80.11% by weed count method *i.e.* No of weeds in 1 m² area before and after weeding was count to be 171 and 34 respectively. The minimum cost of operation was observed under Ambika paddy weeder is Rs 1574 ha⁻¹ as compared to hand weeding of Rs 3450 ha⁻¹ involving 23 human labours whose efficiency was variable.

Uproot the weeds by using Ambika Paddy Weeder in line sowing of rice was found to be more economical for the farmers as it reduced time as well as the cost of weeding operation compared to conventional hand weeding method.

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