

## Impact of weeders for weed management in system of rice intensification (SRI)

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### ABSTRACT

The study was undertaken in Shahdol District of Madhya Pradesh to determine the impact of different types of weeder in SRI. Twenty SRI trained farmers, were selected for practicing SRI trained before Jawahar paddy plant marker for line marking at equi-distance among plant to plant and row to row in the grids of 25 x 25 cms and cono weeder, rotary weeder and twin wheel hoe for weeding. It was observed that average productivity was 555 kg/ha as compared to farmers practice 275 kg/ha. Cono weeder and rotary weeder were found suitable for weeding in wet condition and twin wheel hoe in dry condition of SRI fields.

**Key words :** Weeder, Rice intensification, Transplanting

Rice is the staple food for 65% of the total population by India. The System of Rice Intensification (SRI) demonstrated that by changing the soil, water and nutrient management, the yield in rice can be increased by about 50% or more (Lin *et al.* 2005). SRI also reduces the cost of production and increases net income per hectare. This benefit to the farmer is more than the contribution of increased yields (Satyanarayana 2006). Experience with SRI method suggests that average rice yields can be doubled. Standing water in conventional paddy cultivation suppresses weed growth. In SRI, only thin film of water is given with alternate wet and drying (Satyanarayana 2006), which results more weeds growth. Present study was carried out in the paddy growing area for study the impact of different types of weeders on SRI (System of Rice Intensification) under "On Farm Testing" programme.

Traditionally, farmers of the tribal district of Shahdol use '*Deshi*' plough and cultivators for ploughing.

The cono weeder and rotating weeder are generally used in SRI for weed management practice. Twin wheel hoe is generally suitable for weed management in dry land condition and recommended for vegetable crop as well as filed crop.

The study was carried out with 20 farmers involved in paddy cultivation. In weeding operation, three types of weeders were used for weed management in SRI. Five farmers used mold bould plough for deep summer ploughing in the month of May to June, 2009 and other three farmers used cultivator and '*Deshi*' plough for primary tillage operation after first rainfall. Five farmers used 14 hp power tiller for puddling and five farmers used

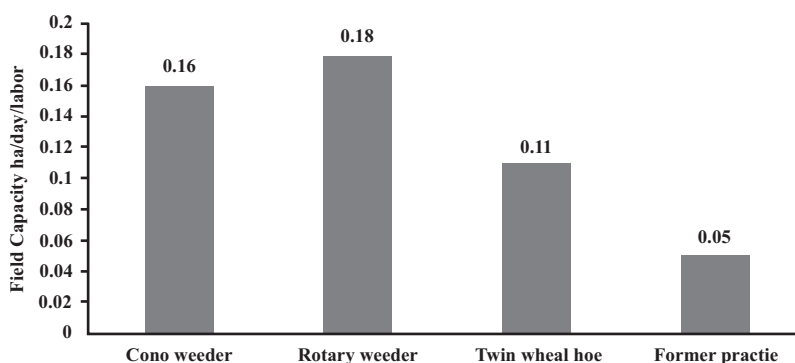
cultivators and deshi plough. Twin wheel hoe was used by only two farmers in SRI field for weed management when fields were in dry condition. All farmers sowed certified seed of *IR-64* provided by the Krishi Vigyan Kendra (KVK). Soil was kept moist, well-drained, aerated with good structure and enough organic matter to support increased biological activity. "Jawahar paddy plant marker" was successfully used for marking lines to maintain equi-distance among plant to plant and row to row in the grids of 25 x 25 cm.

Plot sizes were 0.4 ha of each farmer, date of sowing last week of June. Transplanting were started after 14 days old young paddy seedlings and completed in 18<sup>th</sup> day. After 10 days of transplanting weeding were started through cono Weeder, rotary Weeder, Twin wheel hoe and hand weeding (5 No of farmers in each method). Total three weeding operations were performed at 10 days, 15-15 day intervals. Weeding was started from 12<sup>th</sup> day of transplantation with the help of cono Weeder. Source of irrigation was canal system to control the flow better. Alternate wetting and drying was practiced and no standing water was allowed in the field. The cono weeder was manually operated between rows of paddy crop. Dimensions of cono weeder - 37 x 140 cm and weight 5 to 6 kg.

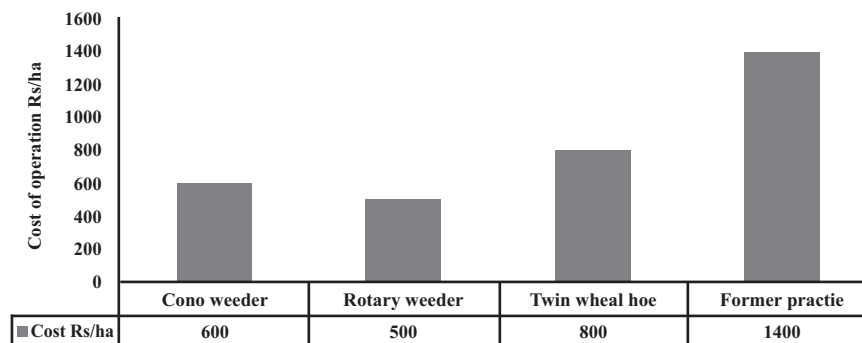
In SRI, rotary weeder was the best weeder having field capacity 0.18 ha/day/labour (Table 1). There was 50% saving in time and minimum cost of operation was Rs 500/ha (Fig. 1 and 2). Mechanization increased little input cost but it significantly increased the productivity of paddy in Systems of Rice Intensification (SRI). Small farm implements and machines i.e., power tiller, marker

**Table 1. Performance of three types of weeder in SRI**

Particulars	Unit	Weeder			
		Cono weeder	Rotary weeder	Twin wheel hoe	Farmers practice
Field capacity	ha/day/labor	0.16	0.18	0.11	0.05
Field Efficiency	(%)	60	65	60	NA
Working width	(cm)	20	20	10	NA
Working depth	(cm)	3	5	4	NA
Cost	(Rs/ha)	600	500	800	1400
Saving in Time	(%)	60	60	70	NA
Saving in cost	(%)	40	50	40	NA



**Fig-1. Field capacity of weeders**



**Fig-2. Cost of operation of weeders.**

and cono weeder played very imperative role in enhancement of productivity and reduction of drudgery in SRI. In SRI system, plant to plant and row to row equi- distance is not possible by rope but Jawahar Paddy Plant Marker was a very efficient implement for marking 25 x 25 cms grids in well puddled field and all weeders works without difficulty in horizontal and vertical direction.

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