



Research Note

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Participatory verification of weed management technology in okra (*Abelmoschus esculentus* L.)

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Okra grown as rainfed Monsoon crop escapes the shortage of irrigation water owing to periodic rainfall. However, this crop is prone to a number of biotic stresses viz., heavy weed infestation, viral disease incidence and insect infestation. In view of comparatively low diseases and insect stresses in summer okra, farmers use most costly water resource for growing this crop during summer. A huge population of small and marginal farmers grow summer okra but weed stress stands as hard problem because hoeing and weeding is a highly labour-intensive during hot sun. In spite of enough technologies in mechanization of agriculture, farmers still practice hand weeding to keep weeds down in the field. For avoiding drudgery and expenses on labour, manual, mechanical and chemical weed management practices should be tested at a time in terms of input and outcome for recommendation to the farmers. With this view a set of four weed management technologies have been tested in Chatra district of Jharkhand in participatory mode. On the basis of results it was found that the mechanical weed control by using Grubber Weeder was a prominent technology of weed control in okra in terms of fruit yield, weed control efficiency and B:C ratio as compared to chemical weedicides and traditional

weeding.

The experiments were conducted in participatory mode in farmers' field in Chatra district of Jharkhand. The details of technological options are mentioned hereunder:

TO₁ – Farmer practice i.e. hand weeding at 15-30 days interval

TO₂ – Application of alachlor 1.5kg/ha + one hand weeding at 45 days after sowing.

TO₃ – Application of alachlor 1.5kg/ha at 2-3 days after sowing.

TO₄ – Hand weeding at 15, 30, 45, days after sowing.

TO₅ – Weeding through grubber weeder at 15, 30 days after sowing.

All the treatments were tested in randomised block design with 10 replications in the plots of 200 m² area during summer 2011 and 2012. The soils of experimental fields were sandy loam in texture, having pH 5.5 to 6.0 with available N 220 kg/ha, P₂O₅ 12 kg/ha and K₂O 216 kg/ha. The okra cultivar Arka Anamika was selected for the experiments. The crops were raised by applying a basal dose of 50 kg N, 75 kg P₂O₅ and 50 kg K₂O/ha and seed rate was 18 kg/ha. The remaining 50 kg N was applied through urea as top dressing in two split doses.

Table 1 : Effect of weed control treatments on yield and economics of okra

Technology assesses	Technical parameter			Economic parameters			
	Weed population No/m ²	Mondays required/ha	W.C.E. (%)	Green yield (q/ha)	Gross income (Rs./ha)	Net income (Rs./ha)	BC ratio
TO ₁ – Farmer practice (hand weeding at 15, 30 days)	62	82	80.7	63	138600	84600	1:2.56
TO ₂ – Alachlor 1.5kg/ha + one hand weeding 45 days.	22	39	91.2	67	147000	95300	1:2.84
TO ₃ – Alachlor 1.5kg/ha (2-3 days after sowing.	35	1	88.3	59	129800	83950	1:2.83
TO ₄ – Hand weeding at 15, 30, 45, days.	11	117	96.1	71	156000	97350	1:2.65
TO ₅ – Grubber weeder at (15, 30 days	25	21	89.2	66	145200	100950	1:3.28
C.D. (P=0.05)	5.2	9.4	2.8	6.3	-	-	-

The effectiveness of the technologies were assessed on the basis of weed population (number/m²), mandays required per hectare, weed control efficiency (WCE) (%) as per Angrias *et al.* (1991) and green pod yield (q/ha).

Statistical analysis of data revealed significant differences among the treatments for all the parameters recorded. Results indicated that hand weeding at 15, 30, 45, days after sowing gave maximum fruit yield (71.0 q/ha) followed by application of alachlor @ 1.5 kg/ha + one hand weeding at 45 days after sowing (67.0 q/ha) and use of grubber weeder at 15 and 30 days after sowing (66.0 q/ha) with at par values. Significantly higher weed control efficiency was recorded in hand weeding at 15, 30, 45, days after sowing (96.1%) although man days requirement for weeding in this treatment was maximum (117) which reduced the cost benefit ratio (2.65). However, weeding through grubber weeder exhibited at par fruit yield to that with three hand weeding (66.0 q/ha) and maximum BC ratio (3.28) because of less number of mandays required in a hectare of weeding (21). As far as chemical weeding concerned, application of alachlor @ 1.5 kg/ha after 2-3 days of sowing required lowest number of man days per hectare (1.0) but considerable low fruit yield (59.0 q/ha) lead to poor profitability (2.83 BC ratio). Although, application of alachlor @ 1.5 kg/ha along with one hand weeding proved to be promising treatment for reduction of weed population and raising fruit yield (67.0 q/ha) (Leela, 1989; Bhoopati *et al.*, 1992; Sharma *et al.*, 1992; Singh, *et al.*, 1992, Gupta *et al.*,

1999) but did not show potential profit over any other treatment.

On the basis of results it was concluded that mechanical weed control by using grubber weeder was a prominent technology of weed control in okra in terms of fruit yield, weed control efficiency and B:C ratio as compared to chemical weedicides and traditional hand weeding.

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