SHORT COMMUNICATION

ASSESSMENT OF WEED MANAGEMENT IN SOYBEAN (*GLYCINE MAX*. L.)

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Abstract: Soybean is known as 'golden bean" due to its various uses .It is two-dimensional crop as it contains 40-42 per cent high quality protein and 20-22 per cent oil. There are several constraints in the soybean one of them is weeds which often poses serious problem. Labour saving and eco-friendly weed management technology in soybean, which includes herbicides, can prove more economical and beneficial. Weed management by Imazethapyr 35% + Imazamox 35% WG 70g a.i./ha at 15 DAS found superior for Yield, Weed control efficiency, Gross return ,Net return and benefit :cost ratio over No use of herbicide with Delayed manual weeding and weed management by Emazethapvr 10%S.L@ 75 g a.i./ha at 15 DAS. In the *vertisol* of Chhattisgarh.

Keywords: Soybean, Weed management, Imazethapyr, Imazamox

INTRODUCTION

Oilseed crops have been the backbone of agricultural economy of India from time immemorial. Soybean is a wonder crop of the twentieth century. It is an excellent source of protein and oil. Soybean is mainly grown during *kharif* season in sandy loam to clay loam soils in Chhattisgarh. In Chhattisgarh Soybean is cultivated in 153000 ha area with average productivity of 1250kg/ha. Soybean occupies 49750 ha in *kharif* season with the average productivity of 1356 kg/ha In the Kabirdham district of Chhattisgarh. Weed management is essential for any current system of agricultural production. Weed competes with crop plants for moisture, nutrients, light and space. In addition, they are also serve as an alternate host for several insect pests and pathogens. Meanwhile, weeds are considered the number one problem in all major soybeans producing area. Even with advanced technologies, producers note high losses due to interference by weeds. Weed infestation during early stages in soybean is one the major factors for loss in yield. The yield loss due to weed infestation in soybean was to the tune of 20-77 per cent(*Kurchania et al.*,2001).Disregarding the high cost, weed might be controlled in soybean crop using good management practices of all available methods, combining them in an integrated weed management (IWM).

MATERIAL AND METHOD

The experiment was conducted during *kharif* season of 2013&2014 in four replication with three treatments. The experiment was conducted on *Vertisols*. *Vertisol* is fine and belongs to the sub-group *chromustert*. Experimental soil, locally known as *kanhar*, was clayey. It is dark in colour, heavy clay (50-55%) whose colour ranges from light to dark brown in the surface layer and brown to brownish black in the deeper layer. Lime concretions are usually present. Soil is neutral in reaction.Treatment first (T_1) was farmers practice i.e. delayed manual weeding, treatment second (T_2) was Spray of Imazethapyr 10%S.L. (Pursuit) @75 g a.i. /ha, at 15 DAS and treatment third (T_3) was spray of Imazethapyr 35% + Imazamox 35% WG (Odyssey) @ 70 g a. i. / ha at 15 DAS. The weed counting was done at randomly selected spots by using the quadrate. The crop from each plot was harvested separately. The seeds were separated from straw by threshing. The weight of seeds was recorded and expressed in q $ha^{-1.}$. Cost of production for all treatments was worked out on the basis of the prevailing input and market price of the produce. The net return ha^{-1} was calculated by deducting the cost of production $ha^{-1}$from the gross return ha^{-1}. Ultimately, net return per rupees (cost: benefit ratio) invested was calculated treatment wise to assess the economic impact of the treatments by dividing the net return $ha^{-1}$by the cost of production.

RESULT AND DISCUSSION

The recorded data are presented in table-1. The maximum seed yield (10.87q/ha^{-1}) was obtained under treatment weed management by Imazethapyr 35% + Imazamox 35% WG @ 70g a.i./ha. The lowest seed yield was recorded under treatment no use of herbicide with delayed manual weeding. The increase in yield under Imazethapyr 35% + Imazamox 35% WG Imazethapyr 35% @ 70g a.i./ha was due to better weed management which resulted in greater translocation of food materials to the reproductive parts and reflected in superiority of

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yield attributing characters and ultimately to higher yield. Similar results were also noted by Kushwah and Vyas (2005) & Girithia and Thakur (2006).The lower seed yield (8.66q/ha^{-1}) with No use of herbicide with Delayed manual weeding might be also due to higher weed interference. The lower weed population and higher weed control efficiency also resulted in higher grain yield. Similar findings were reported by Chandel and Saxena(2001).

Echinochloa colonum, Echinochloa crusgalli, Cyperus rotundus, commelina benghalensis, cynotis axillaris. Euphorbia spp. ,cynodon dacctylon were major weeds in the experimental field. Maximum weed density of these weeds was observed throughout the period of investigation under No use of herbicide with Delayed manual weed. Imazethapyr 35% + Imazamox 35% WG @ 70 g a.i./ha was found more effective in reducing weed density of weeds than other treatments.

Economics of soybean production in terms of net return and benefit cost ratio was calculated for as presented in table-1.The data reveals that the maximum net return(Rs.21011.5ha^{-1}) and benefit: cost ratio(1.81) was obtained under Imazethapyr 35% + Imazamox 35% WG@70g a.i/ha.

CONCLUSION

The treatment Use of Imazethapyr 35% + Imazamox 35% WG @70 g a.i./ ha at 15 DAS for weed management in soybean showed promising effect on minimum weed density, highest weed control efficiency, highest yield, economical return in terms of net return and benefit: cost ratio.

Table 1.

Treatment	Yield (q ha^{-1})			% change in Yield			Parameter* (No. of Weed/m^{2})			% change in Parameter			Net Income Rs/ha			B:C Ratio		
No use of herbicide, Delayed manual weeding	12.52	4.80	8.66	-	-	-	47	96	119.5	-	-	-	29020	860.00	14940	1.85	1.06	1.46
Emazethapvr 10%S.L.	15.46	5.65	10.56	23.48	17.70	21.94	11	16	13.5	76.59	83.3	88.70	37110	3080.00	20095	2.33	1.21	1.77
Imazethapyr 35% + Imazamox 35% WG	15.85	5.89	10.87	26.60	22.70	25.52	07	12	9.5	85.10	87.5	92.05	38475	3548.00	21011.50	2.39	1.23	1.81

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