



Evaluation of post-emergence herbicides in soybean

A.S. Jadhav and G.D. Gadade

Department of Agronomy, Marathwada Krishi Vidyapeeth, Parbhani, Maharashtra 431 402

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Soybean (*Glycine max* L.) is one of the important oilseed crop grown all over India. In Maharashtra crop is grown during *kharif* season on an area of 30.65 lakh ha with production of 18.40 tones. As crop is grown during *Kharif* season faces heavy competition of weeds particularly during early crop growth period, poor weed management during this period is one of the most important yield limiting factor. Soybean productivity is adversely affected up to 35-80% depending on the weed infestation (Gupta *et al.* 2006). The weed control in soybean was generally done through weeding and hoeing but with unavailability of labour and increased labour cost, timely inter culture becomes a very difficult task in soybean. Recently some of the post-emergence herbicides have been found effective in controlling weeds in soybean (Khope *et al.* 2011). Hence, present investigation has been carried out to find out the performance of post emergence herbicides for weed control in soybean.

A field experiment was carried out at weed science research center, MKV, Parbhani during 2011 and 2012 to evaluate the performance of post emergence herbicides for weed control in soybean. The soil of experimental plot was black cotton soil with alkaline in reaction (pH 7.8), low in N, medium in P₂O₅ and high in K₂O.

The experiment was land out in randomized block design comprising of 6 treatments, viz. T₁ - Imazethapyr 0.1 kg/ha as PoE, T₂ - Fusilade 0.125 kg/ha as PoE, T₃ - Chlorimuron 12.8/ha as PoE, T₄ - Imazethapyr (50%) +

imazimox 50% 30 g/ha as PoE, T₅ - 2 HW at 20 and 40 DAS and T₆ - weedy check and replicated thrice. soybean JS-335 was sown on 26 June 2012 by drilling seeds 60 kg/ha seed rate at 45 cm row spacing. Fertilizer was applied as 25 kg N + 50 kg P/ha at the time of sowing. The density and dry weed weight were recorded at 30 and 60 DAS and yield at harvest.

The dominant weed species in grassy weeds were *Cynadon dactalon*, *Dinebra retriflexa*, *Bracheria eruciformis* and *Eragotis minor*; whereas the dominant broad-leaved weed species were: *Euphorbia hirta*, *Abutilon indicum*, *Parthenium hysterophorus*, *Acalypha indica* and *Alternethera sessilis*.

Two Hand weeding at 20 and 40 DAS significantly reduced weed density and dry weed weight at 30 DAS and 60 DAS respectively over weedy check, except imazethapyr + imazimox 30 g/ha and imazethapyr 0.1 kg/ha as PoE at 20 DAS. Weed control efficiency was maximum with 2 HW and hoeing at both 30 DAS and 60 DAS among all the treatments. Application of imazethapyr + imazimox 30 g/ha recorded the maximum WCE during both the years of experiment at 30 DAS as well as 60 DAS. Similar reports were also reported by Singh (2007).

Soybean grain and straw yield was significantly influenced with different treatments (Table 1). Grain yield as well as straw yield was highest with 2 hand weeding treatments, which and was on par with T₄ and T₁ and significantly higher than rest of the treatments during both

Table 1. Weed count (no./m²) as influenced by various treatments

Treatment	30 DAS				60 DAS			
	Monocot		Dicot		Monocot		Dicot	
	2011	2012	2011	2012	2011	2012	2011	2012
Imazethapyr 0.1 kg/ha PoE	24.1	30.0	32.7	41.6	48.5	61.3	42.3	48.0
Fusilade 0.125 kg/ha	23.2	16.0	28.1	30.0	28.4	34.0	45.4	50.6
Chlorimuron 12 g/ha	28.6	44.6	26.2	21.3	32.3	57.3	25.3	10.6
Imazethapyr (50%) + imazimox (50%) 30 g/ha	14.1	18.6	20.8	26.0	36.3	40.0	32.3	36.0
2 HW at 20 and 40 DAS	27.6	46.0	18.3	16.0	22.4	16.0	21.8	16.0
Weedy check	25.0	68.0	60.3	86.0	65.3	118.0	94.3	184.

*Corresponding author: asjadhav31@rediffmail.com

Table 2. Dry weed weight, weed control efficiency, weed yield and straw yield as influenced by various treatments

Treatment	Dry weed weight (g/m ²) 30 DAS				Dry weed weight (g/m ²) 60 DAS				WCE (%)				Seed yield (t/ha)		Straw yield (t/ha)	
	Monocot		Dicot		Monocot		Dicot		30 DAS		60 DAS					
	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
	T ₁	5.1	4.6	6.4	6.7	5.1	14.1	9.16	24.1	65.0	71.8	67.0	54.2	2.44	2.19	2.54
T ₂	9.7	4.6	10.6	6.5	9.9	16.6	15.2	26.4	54.0	72.3	64.2	64.1	2.11	1.67	2.41	2.34
T ₃	3.9	9.6	9.3	6.6	10.2	29.3	17.3	18.4	60.0	59.6	41.0	72.0	1.21	1.56	1.98	2.11
T ₄	2.8	4.3	4.3	6.3	4.3	12.6	8.6	13.2	64.3	73.5	67.8	71.7	3.02	2.36	2.86	2.97
T ₅	2.5	0.9	4.5	2.2	5.1	03.7	8.4	06.5	66.6	92.2	69.7	90.5	3.24	2.46	2.71	3.00
T ₆	16.4	11.9	19.6	28.2	24.2	34.6	22.4	84.5	-	-	-	-	1.05	1.26	2.04	2.27
LSD (P=0.05)	3.5	3.4	4.7	3.3	4.1	3.7	4.7	5.2	-	-	-	-	0.90	0.39	0.24	0.33

the years of experimentation. Similar results were also reported by Meena *et al.* (2009).

SUMMARY

A field experiment was carried out at weed science research center, MKV, Parbhani during 2011 and 2012 to evaluate the performance of post emergence herbicides for weed control in soybean showed that Grain yield as well as straw yield was highest with 2 Hand weeding and hoeing treatments, which was on par with T₄ and T₁ and significantly higher than rest of the treatments during both the years of experimentation. Two hand weedings at 20 and 40 DAS significantly reduced weed density and dry weed weight at 30 DAS and 60 DAS respectively over weedy check, and was at par with imazethapyr + imazimox 30 g/ha and imazethapyr 0.1 kg/ha as PoE at 20 DAS.

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