The Andhra Agric. J 57(3):290-291, 2010

Evaluation of Post-emergence Herbicides for *Cuscuta* Control in Balckgram [*Vigna mungo* (L.) Hepper]

Key words : Blackgram, *Cuscuta*, Post-emergence Herbicides.

Cuscuta, commonly known as Dodder is a parasitic weed in blackgram grown in rice fallows of Krishna Zone. After emergence *Cuscuta* seedlings twine around stem of blackgram and through haustoria draw nutrients and water from host plants causing drastic reduction in growth and yield of blackgram (Rao *et al.,* 1985). As normal method of pre-emrgence application of herbicides and inter-cultivation are not possible in rice fallow backgram, chmical control of *Cuscuta* by using selective post-emregence herbicides is the only option. The information available on selective post-emergence control of *Cuscuta* in blackgram is very much meagre. Keeping this in view, the present investigation was conducted to find out the efficiacy of available post-emergence herbicides on control of *Cuscuta* in blackgram.

A field experiment was conducted during rabi 2002-03 as Weed Science Division, Agricultural College, Bapatla. The Soil of the experiment field was sandy loam in texture with pH of 8.0 and medium in fertility status. The experiment consisting of seven treatments (Table 1) was laid out in a randomized block design with three replications. The backgram variety LBG 685 was sown on 16th November, 2002 by adopting a spacing of 30 x 10 cm. All the package of practices except weed control was followed for raising the crop. The *Cuscuta* seeds collected from farmers' field were treated with concentrated sulphuric acid for four minutes before broadcasting them in the field in order to break seed dormancy and to facilitate proper germination. All other weeds except *Cuscuta* were removed from the plots manually as and when germinated / noticed. The post-emergence herbicides were applied as per the treatments using a using a spray volume of 500 l/ ha^{-1}. At 20 and 40 DAT (days after treatment) per cent control of *Cuscuta* was assessed visually using the rating scale of 0-10(Rao, 2000) as it was not possible to count the *Cuscuta* plants at later stages. The data on per cent control were transformed to arcsine and analysed statistically.

All the post-emergence herbicides except imazethapyr failed to control *Cuscuta* in blackgram (Table 1). Observations recorded at 20 DAT indicated that post-emergence application of imazethapyr 63 g ha^{-1} applied at 15 DAS (Days after sowing) recorded significantly higher control of *Cuscuta* (75 per cent) over its application at 25 DAS (53 per cent). Whereas, observations recorded at 40 DAT indicated that imazethapyr 63 g ha^{-1} applied at 15 and 25 DAS were on par in controlling *Cuscuta* (90 per cent). The other post-emergence herbicides like fenoxaprop ethyl, quizalofop ethyl, clodinafop propargyl totally failed to control *Cuscuta* and severely effected blackgram growth (plant height and number of branches plant^{-1}) and yield. The seed yields were very low in these treatments due to severe infestation of *Cuscuta* and were on par with untreated control. The post emergence application of imazethapyr 63 g ha^{-1} applied at 15 DAS recorded higher yield (720 kg ha^{-1}) and was on par with its late application at 25 DAS (680 kg ha^{-1}). Post emergence application of imazethapyr 63 g ha^{-1} at 15 and 25 DAS caused slight injury to blackgram crop but the crop recovered well within two weeks. The uncontrolled Cuscuta infestation caused 79 per cent reduction in seed yield of blackgram compared to imazethapyr 63 g ha^{-1} at 15 DAS.

LITERATURE CITED

Rao K N, A S Rao and S Rami Reddy 1985. Effect of different herbicides on control of *Cuscuta* in legumes. Pesticides. 19(6):61-62.

Rao V S 2000. Principles of Weed Science. Oxford and IBH PUblishing Co., New Delhi 110 001, pp 497.

Table 1. Effect of different treatments on *Cuscuta* control, growth and yield of blackgram.

Treatments	Dose (g ai ha^{-1})	Time of application (DAS)	*Cuscuta* control (%) at		Blackgram		
			20 DAT	40 DAT	Plant Height (60 DAS)	No. of branches $plant^{-1}$ (60 DAS)	Seed yield (kg ha^{-1})
T_1 - Imazethapyr	63	15	79.55 (95.0)	75.0 (90.0)	33.1	2.56	720
T_2 - Fenoxaprop ethyl	56	15	0.57 (0.0)	0.57 (0.0)	19.3	0.96	160
T_3 - Cyhalofop buty	100	15	0.57 (0.0)	0.57 (0.0)	18.4	0.43	160
T_4 - Clodinafop propargyl	52	15	0.57 (0.0)	0.57 (0.0)	21.3	0.43	180
T_5 - Quizalofop ethyl	50	15	0.57 (0.0)	0.57 (0.0)	19.7	0.96	170
T_6 - Imazethapyrr	63	25	46.99 (53.3)	71.95 (90.0)	32.0	2.33	680
T_7 - Control	-	-	0.57 (0.0)	0.57 (0.0)	21.0	0.60	150
CD (p=0.05)			6.97	10.1	4.1	0.94	80

Note: Data transformed to arcsine values incase of *Cuscuta* control.
Figures in parentheses are original values, DAS Days after sowing, DAT: Days after treatment

Agriculture Research Institute,
Lam Farm,
Guntur
Andhra Pradesh

A S Rao

(Received on 17.09.2008 and revised on 28.06.2010)