GAU Res. J. 1999. 24 (2) : 91-93

Integrated Weed Management in Fenugreek (*Trigonella foenum-graecum* L.)

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In Fenugreek (*Trigonella foenum-graecum* L.) weed menace is one of the important factors responsible for decreased in yield (Mali and Suwalka, 1987). No systematic research work has so far been done to evaluate integrated weed management approach in fenugreek for the south Saurashtra region of Gujarat. Therefore, the present investigation was initiated to evolve a suitable cultural-cum-chemical approach to manage weeds in fenugreek.

The field experiment was conducted at the Instructional Farm, Gujarat Agricultural University, Junagadh during the winter (*rabi*) season of 1994-95. The soil of the experimental field was clayey in texture and slightly alkaline in reaction (pH 7.7) with normal E.C. (0.31 dS/m), low in available nitrogen (225 kg/ha), medium in available phosphorus (29 kg/ha) and high in available potassium (254 kg/ha). There were 12 treatments comprised of hand weeding and interculturing in combunation of herbicides (Table 1) arranged in randomised block design with 4 replications. Pre-planting incorporation (PPi) of herbicides was done one day before sowing, pre-emergence (Preem) application was done two days after sowing (DAS) and herbigation was done immediately after sowing through irrigation. The fenugreek variety IC-9955 fertillized with 30 kg N + 60 kg P_2O_5/ha was sown on November 10, 1994, keeping 30 cm row spacing. The crop was thinned 15 DAS to maintain plant-to-plant distance of 10 cm.

The weed flora of the experimental site included monocots, viz., *Cynodon dactylon*, *Brachiaria* spp., *Echinochloa crushalli* and *Dactyloctenium aegyptium*, sedge viz., *Cyperus rotundus* and dicots, viz., *Indigofera glandulosa, Digera arvensis, Acanthospermum hispidum, Portulaca oleracea, Phaseolus terrestris, Tridax procumbens, Chenopodium album, Amaranthus viridis, Leucas aspera, Launea mudicaulis, Celosia argentia, Euphorbia hirta* and *Asphodelous tenuifolius*. Maximum dry weight of weeds (62.0 q/ha) at harvest was recorded in weedy plot (T_1). Application of fluchloralin @ 0.90 kg/ha coupled with 1 hand weeding 30 DAS (T_5) was 98.87% efficient in reducing the dry weight of weeds, whereas application of pendimethalin @ 0.60 kg/ha + 1 hand weeding 30 DAS (T_6) and 2 hand weedings 20 and 40 DAS (T_7) were respectively 98.55 and 96.94% efficient in this regard. This might be due to effective control of weeds under herbicidal treatments and subsequent

TABLE 1

Dry weight of weeds, weed control efficiency, seed and straw yields and weed index as influenced by integrated weed management treatments.

Treatments		Rate (kg a.i./ha)	Time of application	Dry weight of weeds (q/ha)	Weed control efficiency (%)	Yield (q/ha)		Increase in seed yield over control
						Seed	Straw	
T1	Unweeded control	—	—	62.0	—	9.80	20.06	—
T2	2 hand weedings	—	20, 40 DAS	1.90	96.94	16.50	30.20	68.36
T3	1 hand weeding + 1 interculturing	—	20 DAS	3.90	93.71	13.40	27.00	36.73
T4	Fluchloralin	0.90	PPI	2.50	95.97	14.20	26.80	44.90
T5	Fluchloralin + 1 hand weeding	0.90	PPI + 30 DAS	0.70	98.87	16.15	26.78	64.79
T6	Fluchloralin	0.90	PE-HRG	7.00	88.71	12.20	24.40	24.49
T7	Pendimethalin	0.90	PE	3.00	95.16	13.80	26.25	40.82
T8	Pendimethalin + 1 hand weeding	0.60	PE + 30 DAS	0.90	98.55	15.95	27.10	62.96
T9	Pendimethalin	0.90	PE-HRG	8.20	86.77	11.70	24.18	19.39
T10	Oxyfluorfen	0.12	PE	2.70	95.48	12.90	24.70	31.63
T11	Oxyfluorfen + 1 hand weeding	0.06	PE + 30 DAS	2.40	96.29	14.15	25.10	44.38
T12	Oxyfluorfen	0.12	PE + HRG	9.50	84.67	11.30	22.93	15.31
	C. D. (P = 0.05)			1.94	2.50	1.91	3.69	5.82

DAS = days after sowing, PPI = Pre-plant incroporation, PE-Pre emergence, HRG-Herbigation

removal of weeds by manual weeding. These treatments (T_2, T_5 and T_6) proved superior to weedy control in respect of seed and straw yields with 68.36, 64.79 and 62.96%, respectively, higher seed yield over control. The lowest yields in unweeded control (T_1) was due to severe crop-weed competition. These results are in confirmity with those reported by Mali and Suwalka (1987) in fenugreek, Patel and Mehta (1989) in cumin and Kothari *et al.* (1989) in coriander crop.

(Received on 9th July, 1998)

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