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Evaluation of effective weed-control method in blond psyllium (*Plantago ovata*) grown in Rajasthan

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Initial growth of blond psyllium (*Plantago ovata* Forsskål) is very slow, which allows the weeds to flourish well before initiation of grand growth phase of the crop. Since information on this crop is meagre, the present study was conducted to find out viable and effective means of weed management through physical and chemical methods of weed control.

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A field experiment was conducted during the winter seasons (*rabi*) of 1989–90 and 1990–91 on sandy-loam soil at Sumerpur. The soil had low available N (155 kg/ha), and medium phosphorus (14 kg/ha) and potassium (236 kg/ha). There were 10 treatments, viz T_1, weedy control; T_2, hand-weeding; T_3, isoproturon pre-plant incorporation @ 0.50 kg/ha; T_4, isoproturon pre-plant incorporation @ 0.75 kg/ha; T_5, isoproturon pre-emergence @ 0.50 kg/ha; T_6, isoproturon pre-emergence @ 0.75 kg/ha; T_7, isoproturon postemergence @ 0.50 kg/ha; T_8, isoproturon post-

Table 1 Effect of weed-control method on yield and yield attributes of blond psyllium and on weed index, weed population and dry matter of weeds (pooled data of 2 years)

Treatment	Spikes/ plant	Spike length (cm)	Grains/ spike	1 000-seed weight (g)	Seed yield (kg/ha)	Weed index (%)	Weed no./ m^2	Dry matter of weeds (kg/ha)
T_1	21.9	2.84	42.7	1.37	367		29.3	372
T_2	29.6	3.75	67.7	1.52	804	53.9	6.0	67
T_3	31.4	3.76	49.2	1.41	522	29.0	15.2	192
T_4	27.6	3.42	46.7	1.39	526	29.9	10.8	179
T_5	34.1	3.78	59.3	1.58	660	40.4	8.0	90
T_6	32.8	3.81	62.7	1.61	628	41.2	5.6	79
T_7	31.7	3.73	73.8	1.50	801	53.9	7.6	73
T_8	34.0	3.96	63.5	1.54	895	60.0	6.7	67
T_9	38.8	4.41	73.0	1.70	1 101	66.2	2.7	48
T_{10}	37.4	4.30	78.1	1.69	1 073	65.7	3.6	50
SEm ±	1.89	0.20	2.35	0.03	49		0.76	5.76
CD (P = 0.05)	5.64	0.59	7.04	0.09	146		2.30	17.3

Details of treatments are given in text

emergence @ 0.75 kg/ha; T_9, isoproturon pre-emergence @ 0.50 kg/ha + 1 weeding 20 days after sowing; and T_{10}, isoproturon pre-emergence @ 0.75 kg/ha + 1 weeding 20 days after sowing. Randomized block design was followed with 3 replications. 'GI 2' blond psyllium was sown on 10 November 1989 and 12 November 1990 with 30 cm row-to-row and 10 cm plant-to-plant spacings. The crop received 50 kg N/ha + 8.8 kg P/ha and 6 irrigations. The weed index was worked out by the formula of Rathore *et al.* (1990).

The predominant weed flora in the field was lamb's quarters (*Chenopodium album* L.), goose foot (*C. murale* L.), bermuda grass [*Cynodon dactylon* (L.) Pers.], nut-grass (*Cyperus rotundus* L.), *Melilotus* spp and *Asphodelus tenuifolius* Cav.

The highest spikes/plant, grains/spike, 1 000-seed weight and spike length were observed under T_9 (Table 1). Pre-plant incorporation of isoproturon was less effective than pre- or post-emergence application, though pre-plant incorporation @ 0.50 kg or 0.75 kg/ha increased the seed yield and spikes/plant significantly compared with the weedy control.

The seed yield was also maximum (1 101 kg/ha) with T_9. Higher seed yield and weed index were due to longer weed-free period that prevailed under T_9, which in turn increased the yield attributes and decreased the dry matter and population of weeds. Correlation coefficient (Table 2) of seed yield with yield attributes was positive and significant, but negative with weed population and dry matter of weeds. Patel and Mehta (1990) also reported similar results.

Table 2 Interrelationship of seed yield with yield attributes, weed population and dry matter of weeds in blond psyllium

Relation of yield with	Correlation coefficient 1989–90	1990–91
Spikes/plant	0.801*	0.847*
Spike length (cm)	0.853*	0.894*
Grains/spike	0.943*	0.923*
1 000-seed weight (g)	0.887*	0.903*
Weed no./m^2	—0.753*	—0.801*
Dry matter of weeds (kg/ha)	—0.783*	—0.812*

*P = 0.05

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