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Control of Common purslane (*Trianthema portulacastrum L.*) and Purple Nutsedge (*Cyperus rotundus* L.) in Sesamum field.*

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Soil applied pre-emergence herbicides were tested for the control of common pursalane (*Trianthema portulacastrum* L.) and purple nutsedge (*Cyperus rotundus* L.) in direct line shown sesamum (*Sesamum indicum* L.) in two seasons. Alachlor at 1.75kg/ha controlled these weeds effectively. The dry weight of weeds and nutrient removal by them were reduced by 70 to 80% by alchlor.

Common purslane (*Trianthema portulacastrum* L.) a herbaceous annual and purple nutsedge (*Cyperus rotundus* L.), a perennial bulbous sedge, are distributed throughout the cultivated lands in tropical countries (Krishnarajan and Sankaran, 1974; Holm and Herberger, 1970). Nutsedge reduced the bulb and root dry weight of onion by 37% (Frick and Quimby, 1977). Nutsedge, generally competes for light in slow growing crops and for nutrients in all crops (William and Warren, 1975). Weeds, mainly common purslane, removed 7–10 times more nutrients than the crop within 30 days of sowing of main crop (Rajan and Sankaran, 1974). In order to measure the nutrient losses due to these weeds and to find out the effect of pre-emergence herbicides on the control of common purslane and nutsedge in sesamum field, this investigation was taken up.

MATERIAL AND METHODS

The experiment conducted in a sandy loam soil, at Tamil Nadu Agricultural University, Coimbatore, with sesamum as the test crop in summer and monsoon seasons of 1975. Two herbicides (alachlor and fluometuron) were applied at three rates, with a weeded and unweeded control plot to make a total of 8 treatments (Table) in summer and two herbicides (alchlor and dichlormate) at two rates, making a total of 6 treatments during monsoon season. The treatments were replicated thrice. The herbicides were applied as pre-emergence spray on the 3rd day after sowing. Since sesamum covers the soil surface on 30th day completely, the weed count was taken on 25th day. Dry matter production and nutrient uptake by the weeds were assessed. Individual weed count was recorded and was found co..... purslane occupying 91 per cent and nutsedge 5 per cent of total weed population. These two weeds were pooled and analysed for dry matter production and total nutrient uptake.

RESULTS AND DISCUSSION:

Unweeded check plots recorded the highest purslane and nutsedge population because of the undisturped environment during their growth period in

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summer. So the highest dry matter production of weeds (1642 kg/ha) and depletion of nutrients (40.2 kg N, 6.2 kg P_2O_5 and 15.3 kg K_2O/ha) were observed in these plots. Among the herbicides tried, alachlor at 1.75 kg/ha controlled these weeds to an extent of 53% and as a result, dry matter production and the nutrients removal by these weeds were also greatly reduced. Even though the control in population was only 53%, growth of weeds was much reduced. Sankaran *et al.* (1974). observed similar efficiency of alachlor in reducing weed dry matter production. The efficiency of alachlor in the reduction of nutrient removal by weeds has also been reported by Kulandaivelu *et al.* (1974). Fluometuron, (0.75 kg/ha) was not as efficient in controlling weeds. Control of weeds was only 30% Removal of nutrients in this treatment was 27 3 kg. N, 2.3 kg P_2O_5 and 3.7 kg K_2O/ha.

As in summer in the unweeded check plots, there was good establishment and growth of weeds. This resulted in high dry matter production (1054 kg/ha) and nutrient removal (44.1 kg N, 1.1 kg P_2O_5 and 13.2 kg K_2O/ha) by weeds. Poor establishment and restricted growth of purslane were noticed in alachlor treated plots. Alachlor helped in saving the nutrient loss to the extent of 77% N, 60% P, and 60% K/ha. The dose of 1.75 kg/ha was efficient for controlling the weeds without any phytotoxicity to the crop. But dichlormate was not efficient in controlling the weeds even under high dose of application. The poor efficiency of this herbicide leads to the heavy loss of nutrients removed by weeds. Rathinam *et al.* (1974) observed a similar poor efficiency of dichlormate in controlling purslane.

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TABLE. Effect of herbicides on weed on 25th day in sesam field.

Herbicide treatment	Dose (kg/ha)	Percent of weed control				Dry matter of weeds (kg/ha)		Nutrient removal by weeds (kg/ha)					
		Trianthema portulacastrum		*Cyperus rotundus*				Summer			Monsoon		
		Summer	Monsoon	Summer	Monsoon	Summar	Monsoon	N	P_2O_5	K_2O	N	P_2O_5	K_2O
Fluometuron	0.25	13	–	40	–	1592 (5.0)	–	27.3	2.3	13.7	–	–	–
Fluometuron	0.50	30	–	42	–	1273 (22)	–	20.3	1.9	13.1	–	–	–
Fluometuron	0.75	35	–	32	–	1178 (28)	–	20.2	0.9	12.8	–	–	–
Alachlor	1.25	34	–	65	–	871 (47)	–	19.6	1.3	8.9	–	–	–
Alachlor	1.50	42	37	68	46	820 (50)	431 (60)	18.1	1.3	8.7	19.3	0.5	3.9
Alachlor	1.75	52	50	81	45	429 (74)	316 (70)	7.9	0.7	5.0	10.5	0.5	5.4
Dichlormate	1.25	–	18	–	48	–	658 (38)				40.6	0.9	10.3
Dichlormate	1.50	–	19	–	50	–	800 (24)				34.0	0.6	7.7
Hand weeding (twice)		60	32	40	58	288 (82)	101 (90)	6.9	0.4	3.4	6.0	0.1	1.2
Unweeded (check)		0	0	0	0	1642 (100)	1054 (100)	40.2	6.2	15.3	44.1	1.1	13.2
S.E.						92	61	2.0	0.23	0.64	3.35	0 20	0.72
C.D. (P=0.05)						260	174	5.7	0.7	1.8	9.6	0.6	2.1

Figures in parenthesis represent percentage of control.