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Fluroxypyr formulations for leafy spurge control¹

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Fluroxypyr is a pyridine carboxylic acid herbicide similar to picloram but with less soil residual. Previous research conducted at North Dakota State University has shown fluroxypyr provides short-term leafy spurge control. The methyl heptyl ester evaluated in that study may have caused a rapid kill of the leafy spurge topgrowth resulting in poor herbicide translocation to the roots. The purpose of this study was to evaluate the triisopropyl and diisopropyl amine formulations of fluroxypyr for leafy spurge control.

The experiment was established on June 13 near Dickinson and June 15, 1989 near Hunter, ND. Leafy spurge was dense at both locations and in the late-flower to seed set growth stages at treatment. The herbicides were applied using a tractor-mounted sprayer delivering 8.5 gpa at 35 psi. The plots were 10 by 30 feet in a randomized complete block design at both locations. The sky was clear at Dickinson with 62° F air temperature and 50% relative humidity while it was partly cloudy at Hunter, 80° F and 28% relative humidity. Evaluations were based on visible percent stand reduction as compared to the control.

The fluroxypyr ester formulation provided better leafy spurge control than either amine formulation (Table). Fluroxypyr ester provided an average of 63% leafy spurge control 2 to 3 months after application compared to only 22% when fluroxypyr amine was applied, averaged over all application rates and both locations. Leafy spurge control was similar when picloram was applied alone or with fluroxypyr amine or ester. The commonly used annual treatment picloram plus 2,4-D at 0.25 plus 1 lb./A provided similar control to the best fluroxypyr and fluroxypyr plus picloram treatments at both locations. No treatment provided satisfactory control 12 months after treatment.

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Treatment	Rate	Location/evaluation date			
		Hunter		Dickinson	
		29 Aug 89	20 Sept 89	29 May 90	16 June 90
	lb./A	— % control —			
Fluroxypyr triisopropyl amine	0.25	9	0	13	3
Fluroxypyr triisopropyl amine	0.5	15	4	32	4
Fluroxypyr triisopropyl amine	1	20	3	52	0
Fluroxypyr diisopropyl amine	0.25	6	0	9	1
Fluroxypyr diisopropyl amine	0.5	19	0	21	1
Fluroxypyr diisopropyl amine	1	17	0	61	0
Fluroxypyr methyl heptyl ester	0.5	59	3	70	7
Fluroxypyr methyl heptyl ester	1	59	8	64	3
Fluroxypyr triisopropyl amine + picloram	0.25 + 0.25	57	18	73	8
Fluroxypyr triisopropyl amine + picloram	0.5 + 0.25	53	3	69	21
Fluroxypyr methyl heptyl ester + picloram	0.5 + 0.25	64	23	88	12
Picloram	0.25	42	2	59	14
Picloram	0.5	53	13	72	45
Picloram + 2,4-0	0.25 + 1	51	13	71	3
LSD (0.05)		20	11	23	16