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Plant growth regulators and herbicides for leafy spurge control

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An experiment was established near Walcott, ND to evaluate picloram plus chlorflurenol and bentazon plus mefluidide for leafy spurge control. The treatments were applied on 24 June 1981 and the leafy spurge was 12 to 15 inches tall and beginning seed set. The sky was overcast, 77° F, 70% relative humidity and the soil was 69° F at 1 and 2 inches. The herbicide and plant growth regulators (PGR) were applied as a tank mix using a tractor mounted sprayer that delivered 8.5 gpa at 35 psi. The plots were 10 by 35 feet, and treatments were replicated four times in a randomized complete block. Evaluations were based on percent stand reduction as compared to the control and results are shown in the table.

Herbicide	Plant growth regulator	Rate (lb/A)	Control	
			22 May 1981	19 Aug. 1981
			%	
Picloram		0.375	77	14
Picloram	----	0.75	94	73
Picloram	chlorflurenol	0.375 + 1.0	83	18
Picloram	chlorflurenol	0.75 + 1.0	93	47
Bentazon	----	0.75	2	0
Bentazon	----		5	0
Bentazon	mefluidide	0.75 + 0.375	14	0
Bentazon	mefluidide	1.5 + 0.75	15	0
LSD (0.05)			15	21

Picloram plus chlorflurenol controlled leafy spurge similar to picloram alone. Picloram at 0.375 lb/A alone and with chlorflurenol at 1.0 lb/A provided 77 and 83% control, respectively, when evaluated in May, but the control had decreased to 14 and 18%, respectively, by August. Picloram at 0.75 lb/A alone and in combination with chlorflurenol at 1.0 lb/A provided similar control of 94 and 93%, respectively, when evaluated in May 1981. However, by August 1981 the control ratings for picloram plus chlorflurenol had decreased to 47% which was significantly less than the 73% control with picloram alone. Neither bentazon alone nor in combination with mefluidide provided significant leafy spurge control. The herbicide plus PGR's combinations did not improve the leafy spurge control over herbicides applied alone. The PGR's may have made the plants more responsive to herbicide treatment if they had been applied several days before the herbicide rather than as a tank mix.