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# Sulfometuron for leafy spurge control<sup>1</sup>

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Sulfometuron is an analog of chlorsulfuron but with less soil residual and a different weed control spectrum. Sulfometuron currently is used for grass suppression along roadsides and also has shown broadleaf weed control of some species including leafy spurge. The purpose of this experiment was to evaluate sulfometuron alone and in combination with auxin herbicides for leafy spurge control.

The experiment was established in cropland near Hunter, ND that was severely infested with leafy spurge. Spring and fall treatments were applied on June 17 and September 4, 1985, respectively. Leafy spurge was 26 to 36 inches tall and beginning seed set in June while fall regrowth following summer dormancy had begun when treatments were applied in September. The herbicides were applied with a tractor-mounted sprayer delivering 8.5 gpa at 35 psi. All plots were 10 by 30 feet in a randomized complete block design with four replications. Evaluations were based on percent stand reduction as compared to the control.

Treatment	Rate (oz/A)	Application and evaluation dates				
		June 27, 1985			September 4, 1985	
		August 21, 1985	May 29, 1986	August 18, 1986	May 29, 1986	August 18, 1986
		(% control)				
Sulfometuron	0.5	---	---	---	16	0
Sulfometuron	1	0	6	0	95	7
Sulfometuron	1.5	0	63	25	---	---
Sulfometuron	2	0	36	6	---	---
Sulfometuron + 2,4-D	1+16	95	76	26	99	17
Sulfometuron + dicamba	1+32	96	85	40	97	23
Sulfometuron + picloram	1+8	70	96	59	99	74
Sulfometuron + 2,4-D	0.5 + 16	---	---	---	95	24
Sulfometuron + dicamba	0.5 + 32	---	---	---	97	51
Sulfometuron + picloram	0.5 + 8	---	---	---	99	40
Sulfometuron + metsulfuron	2 + 0.5	0	60	24	88	13
DPX-L5300	1	---	---	---	44	6
LSD (0.05)		25	22	26	26	30

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Leafy spurge growth stopped following application of sulfometuron alone regardless of date. Plants treated with sulfometuron in June had chlorotic leaves when evaluated in August and root bud elongation was inhibited. Leafy spurge top growth was killed when treated with sulfometuron plus an auxin herbicide and root bud growth was inhibited. Leafy spurge root buds were white and short on plants treated with sulfometuron, compared to pink elongated buds found on control plants. Sulfometuron plus an auxin herbicide provided better leafy spurge control than sulfometuron alone, and long-term control was better when sulfometuron was mixed with picloram than with 2,4-D or dicamba. Leafy spurge control declined rapidly between the June and August 1986 evaluations. The optimum herbicide application rates and date and the effectiveness of various re-treatments will be evaluated to determine if sulfometuron plus an auxin herbicide can provide cost-effective leafy spurge control.