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Leafy spurge control in North Dakota - 1990

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Evaluation of spray additives with picloram, various glyphosate plus 2,4-D combinations, and screening of new herbicides for leafy spurge control have been the primary emphases of the research program in 1990. Also, fluroxypyr amine formulations, BAS-514, and various auxin herbicides applied with insecticides are being evaluated for leafy spurge control.

Many of the commonly used spray additives were phytotoxic to leafy spurge when evaluated in the greenhouse and apparently decreased rather than increased absorption. Compounds that appeared to increase picloram absorption in greenhouse experiments were field tested in 1989. The additives Emulphor ON-877, GAFAC RA-600, MAPEG 400 MO, X-77, L-77, and LI-700 increased leafy spurge control when applied with picloram and all except LI-700 when applied with picloram plus 2,4-D all at 0.5% (v/v), compared to the herbicides applied alone. Triton CS7 also increased leafy spurge control when applied with picloram plus 2,4-D. More additives were evaluated in the greenhouse in the winter 1989-90. The best additives will be field tested in 1990 including several Triton formulations, Surftac, Pluronic L64, Tetronic 50R4, and a combination of X-77 plus L-77.

A GPC-14 regional screening trial of various glyphosate plus 2,4-D combinations was planned by six cooperators following the 1989 meeting in Bozeman. Glyphosate plus 2,4-D or dicamba were applied as commercial formulations on August 15 and September 15, 1989. Glyphosate was applied at 0.38 or 0.76 lb/A while the auxin herbicides ranged from 0.34 to 1.3 lb/A. Leafy spurge control in June 1990 by glyphosate at 0.38 lb/A applied in August and September averaged 29 and 52%, respectively, at the North Dakota location. Control averaged 60% when glyphosate was applied with 2,4-D or dicamba regardless of application date. Picloram at 0.5 lb/A and picloram plus glyphosate plus 2,4-D provided similar control averaging 87% when applied in August and 99% when applied in September. Grass injury averaged over all glyphosate treatments was 28 and 84% when applied in August and September, respectively. Grass was drought stressed when treated in August but was actively growing after a good rain when treated in September, which probably accounts for some of the difference in injury between dates.

Many labeled and unlabeled herbicides were evaluated for leafy spurge control in greenhouse experiments. Compounds that reduced or eliminated regrowth from leafy spurge roots are being field tested in 1990. These compounds include CGA-136,872

(Beacon), DPX-V9360 (Accent), EPTC, imazethapyr (Pursuit), imazaquin (Scepter), and quizalofop (Assure).

Fluroxypyr ester has shown limited phytotoxicity on leafy spurge. The ester formulation may cause too rapid leaf kill for optimum herbicide absorption. Two fluroxypyr amine formulations XRM-5196 (diisopropylamine) and XRM-5195 (triisopropylamine) at 0.25 to 1 lb/A were evaluated for leafy spurge control. The amine formulations provided 70 to 80% less leaf phytotoxicity than the ester formulation but did not control leafy spurge. Control across rates averaged 23 and 63% 3 months after application and 0 and 10% 12 months after application with the amine and ester formulations, respectively.

BAS-514 (Facet) is an amine-like herbicide with soil residual activity. BAS-514 applied at 1 lb/A in June or July averaged 41 and 17% control 12 months after treatment which was similar to picloram plus 2,4-D at 0.25 plus 1 lb/A. The herbicides imazethapyr, imazaquin, sulfometuron, 2,4-D, picloram, and dicamba applied with various insecticides may provide better leafy spurge control than the herbicides applied alone. These combination treatments are being field evaluated in 1990.