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Fluroxypyr for leafy spurge control¹

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Fluroxypyr is a picolinic acid herbicide similar to picloram but with less soil residual and a different weed control spectrum. The purpose of this experiment was to evaluate fluroxypyr for leafy spurge control as a single application treatment, applied with auxin herbicides, and in a repetitive treatment program.

The experiment was established on a dense stand of leafy spurge near Dickinson, ND, on July 14, 1986. Previous research had indicated the optimum application time for leafy spurge control with fluroxypyr was post seed-set. The herbicides were applied using a tractor-mounted sprayer delivery 8.5 gpa at 35 psi. The retreatments were applied as a split-block treatment. The original whole plots were 15 x 56 ft and the retreatment subplots were 10 x 15 feet with three replications. Evaluations were based on percent stand reduction as compared to the control.

Fluroxypyr at 0.5 and 1 lb/A provided an average of 90 and 41% leafy spurge control 2 and 11 months after treatment (MAT), respectively (Table). Control was similar when fluroxypyr at 0.25 or 0.5 lb/A was applied alone or with dicamba, picloram, or 2,4-D. Picloram at 1 lb/A provided 73% leafy spurge control 11 MAT which was the expected level of control from this treatment based on long-term evaluations at North Dakota State University. No single treatment provided satisfactory control 14 MAT.

Leafy spurge control, when averaged over retreatments, increased to an average of 73% regardless of the original fluroxypyr treatment and was similar to the picloram treatments (Table). The best retreatments were picloram alone at 0.5 lb/A, picloram + fluroxypyr at 0.25 + 0.25 lb/A, and + picloram + 2,4-D at 0.25 + 1 lb/A which averaged 94, 89, and 86% control, respectively. In comparison, fluroxypyr at 0.5 lb/A applied as a retreatment averaged only 69% control.

In general, fluroxypyr alone and applied with dicamba, picloram, and 2,4-D provided similar control to picloram + 2,4-D at 0.25 + 1 lb/A both in the year of treatment and following various retreatments (Table). For example, fluroxypyr at 0.5 lb/A applied twice provided 83% leafy spurge control compared to 89% with picloram + 2,4-D at 0.25 + 1 lb/A applied twice. The picloram + 2,4-D treatment was the most cost-effective treatment in a long-term leafy spurge research program conducted in North Dakota. Thus flu-

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roxyppy applied once provided less leafy spurge control than picloram at similar rates, but fluroxyppy may be useful in a retreatment program especially in areas where picloram cannot be used.

Table. Leafy spurge control with fluroxyppy alone and in combination with auxin herbicides (Lym and Messersmith).

| Treatment | Rate (lb/A) | Evaluation date | | Retreatment/rate (lb/A)/evaluated Sept 87 | | | | | | | Control | Mean |
|-----------------------|----------------|-------------------------|---------|--|-----------|----------|--------------------------|------------------------|--------------------|----|---------|------|
| | | Sept 86 | June 87 | Fluro. 0.5 | Pic. 0.25 | Pic. 0.5 | Fluro.+ Pic. 0.25 + 0.25 | Fluro.+ Pic. 0.5 + .25 | Pic.+ 2.4-D 0.25+1 | | | |
| | | ----- (% control) ----- | | | | | | | | | | |
| Fluroxyppy | 0.5 | 88 | 34 | 83 | 78 | 98 | 96 | 85 | 89 | 0 | 75 | |
| Fluroxyppy | 1 | 92 | 47 | 70 | 88 | 89 | 87 | 78 | 86 | 13 | 73 | |
| Fluroxyppy + picloram | 0.2W.25 | 95 | 27 | 64 | 84 | 96 | 91 | 78 | 93 | 10 | 74 | |
| Fluroxyppy + picloram | 0.5+0.25 | 98 | 40 | 63 | 71 | 98 | 23 | 87 | 94 | 16 | 74 | |
| Fluroxyppy + 2,4-D | 0.5+1 | 94 | 27 | 72 | 72 | 93 | 80 | 77 | 84 | 5 | 69 | |
| Fluroxyppy + dicamba | 0.25+0.25 | 96 | 13 | 64 | 88 | 94 | 86 | 88 | 70 | 8 | 71 | |
| Picloram + 2,4-D | 0.25+1 | 99 | 25 | 79 | 91 | 97 | 85 | 77 | 89 | 3 | 75 | |
| Picloram | 1 | 81 | 73 | 74 | 76 | 87 | 89 | 60 | 81 | 17 | 69 | |
| Control | | 0 | 0 | 51 | 68 | 96 | 90 | 56 | 86 | 0 | 64 | |
| Mean | | | | 69 | 80 | 94 | 89 | 76 | 86 | 8 | | |
| LSD (0.05) | | 13 | 28 | Whole plot = NS; subplots = 8; whole plot × subplot = 32 | | | | | | | | |