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Quinclorac applied with additives and other herbicides for leafy spurge control

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Preliminary research has shown that quinclorac (3,7-dichloro-8-quinolinecarboxylic acid) will control leafy spurge. Quinclorac (trade name Facet) is a systemic herbicide registered for use in rice to control annual grass and broadleaf weeds. Quinclorac moves both upward and downward in plants, and weed control is thought to come from a combination of both traits. Injury to grass plants in turfgrass, rangeland, and small grain experiments has been minimal.

The objective of this research was to determine the most cost-effective quinclorac treatment to control leafy spurge. Field and greenhouse research was begun to evaluate the most effective application time and whether quinclorac plus surfactant, oil, or nitrogen adjuvants, or other herbicides will improve leafy spurge control compared to quinclorac applied alone.

Adjuvants sometimes have enhanced leafy spurge control with quinclorac. Quinclorac at 0.56 to 1.7 kg ae/ha applied with Scoil (methylated seed oil) or Dash adjuvants, evaluated 9 months after treatment (MAT), provided 91% leafy spurge control compared to 86% with quinclorac applied alone. The adjuvants Scoil and Dash increased leafy spurge control with quinclorac more than X-77 (nonionic surfactant), L-77 (copolymer wetting agent), or Triton CS7 (blend of alkyl aryl polyethoxylate and sodium salt of alkylsulfonated alkylate).

Quinclorac provided better leafy spurge control when applied in the fall than spring. Quinclorac at 1.14 and 1.7 kg/ha plus Scoil applied on September 1 or 15, 1992 averaged 97% control 9 MAT, but only averaged 71% control when applied on October 1 or 15, 1992.

Nitrogen applied to leafy spurge stimulates growth of dormant buds. Activating dormant buds in leafy spurge has the effect of creating metabolic sinks which can increase translocation of herbicides throughout the plant. A nitrogen adjuvant added to quinclorac has increased leafy spurge control in greenhouse experiments, but the increase was less than that with seed oil adjuvants.

Herbicide combination studies have been conducted in both the field and greenhouse. Quinclorac plus another herbicide increased both leafy spurge control and reduced the

amount of quinclorac required for 80% or higher control. Quinclorac at 1.14 kg/ha plus picloram at 0.56 kg/ha provided 85% control 9 MAT compared to 49% control when quinclorac was applied alone.

Quinclorac has potential to become a widely used leafy spurge control herbicide. However, BASF has been reluctant to pursue a label for this product in rangeland.