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Crop Production Guide Series

Successful Weed Management Systems Include the Use of Dinitroaniline Herbicides

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The use of Prowl (pendimethalin) or Treflan (trifluralin) is the first step towards successful weed management programs in cotton while Prowl, Treflan, and Sonalan are the backbone for successful weed management in peanuts. The strength of these dinitroaniline (DNA) herbicides is annual grass control (barnyardgrass, crabgrass, foxtails, panicums, etc.) and control of small-seeded broadleaf weeds such as Palmer amaranth (carelessweed and other pigweed species), Russian thistle (tumbleweed), and kochia (ironweed). Most larger-seeded broadleaf weeds, like annual morningglories, cocklebur, and sunflowers, and perennial weeds are not controlled by these herbicides.

The rate of each DNA herbicide is dependent on soil type. The sandier the soil, the lower the recommended rate. High rates in sandy soil may injure crops. If soil conditions are dry and large clods are present during mechanical incorporation, herbicide performance will be less effective. Keep in mind that when Treflan was first used over 30 years ago, farmers were diligent with two-pass incorporation prior to bedding and planting. This resulted in thorough mixing of the herbicide and excellent weed control. In recent years many farmers have cut back on incorporation to save time and money. Some have still achieved adequate weed control while others have observed that poor incorporation caused herbicide failures.

With the good rains so far in 2004, conditions have been ideal to apply preplant incorporated herbicides. In cotton, Prowl EC rates range from 1.2 to 3.6 pints per acre. Rates for Treflan and other trifluralin products (formulated at 4 pounds per gallon) range from 1/2 to 1 pint per acre for sandy soils, and up to 2 pints per acre on other soils. In peanuts, Prowl may be used at 1.2 to 2.4 pints, Treflan at 1/2 to 1 pint, and Solanan HFP at 1 1/2 to 2 pints on coarse soils and 2 to 2 1/2 pints on medium soils.

The DNA herbicides may be incorporated by mechanical means or by irrigation. Incorporation methods vary widely across the High Plains and state. A double-pass method of incorporation is recommended on



most labels with the second incorporation made at an angle to the first incorporation, but a single-pass is most commonly used. Mechanical implements used to incorporate these herbicides include a springtooth harrow, a disk, a double or single stalkcutter, and a rolling cultivator to name a few. The better the implement mixes and uniformly distributes the herbicide in the upper 1- to 2-inches of soil, the better the weed control. Treflan should be incorporated within 24 hours after application. Sonalan and Prowl must be incorporated 48 hours and 7 days after application, respectively, but the sooner the better.

Prowl and Sonalan may be surface applied and then incorporated by rainfall or irrigation. Three-quarters to one-inch of irrigation is necessary to incorporate (activate) these herbicides. Both Prowl and Treflan may be chemigated into the soil. These applications may not be the best way to incorporate Prowl, Sonalan, or Treflan, but may be the only way to use these herbicides in a reduced tillage or no-tillage crop production system. When surface applications followed by irrigation or chemigation methods are used, herbicide rates are generally higher when compared to mechanically incorporated methods. Research conducted at the AG-CARES farm north of Lamesa by researchers with the Texas Agricultural Experiment Station suggested that Prowl provided more consistent weed control when compared to Treflan when surface applied and watered in, but Treflan performed better than Prowl when chemigated. Always carefully read and follow label recommendations.

Prowl H₂O will be available in 2004. One gallon of Prowl H₂O contains 3.8 pounds of pendimethalin formulated as an aqueous capsule suspension. Since it formulated at a higher concentration than Prowl 3.3 EC, less product is needed on a per acre basis in general. In cotton, Prowl H₂O may be applied in conventional, minimum, stale seedbed, or no-till systems as a preplant surface, preplant incorporated, pre-emergence, or layby application. Use rates vary from 2 to 4 pints per acre depending on soil texture and tillage system. In peanuts, Prowl H₂O may be applied at 2.0 pints per acre preplant incorporated or pre-emergence under overhead irrigation. Prowl H₂O can be chemigated in both cotton and peanuts.

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