PRE-EMERGENCE WEED CONTROL OF COOL-SEASON TURF

Correcting weed problems is a five-step process, one of which is selecting the right herbicide. Pre-emergence materials are what the cool-season turf manager should be applying early in the spring.

by Dr. Robert Shearman, University of Nebraska

A complete weed control program includes both pre- and post-emergence herbicides, as well as cultural practices. Correcting weed problems requires:

- proper weed identification;
- knowledge of the weed's life cycle (i.e. annual vs. perennial);
- understanding how the weed obtained its competitive advantage;
- use of proper cultural practices; and
- selection of the right herbicide, when needed.

Primary partners

The primary pre-emergence herbicides for grassy and broadleaf weeds in cool-season turf are benefin, bensulide, DCPA, pendimethalin, oxadiazon and siduron.

Siduron is the only pre-emergence herbicide that can be applied near time of seeding. Bensulide and DCPA can be applied in the spring following a fall seeding.

Pre-emergence herbicides should be watered in so the chemical can form a barrier in the soil prior to weed seed germination.

The resulting chemical barrier should not be disturbed during key weed germination periods.

The herbicides should be applied two weeks prior to the expected weed seed germination period. Second applications may be necessary to provide control over the entire germination period. Second applica-

Pre-emergence herbicides can give effective annual grass control (right) when the appropriate herbicide is selected and applied according tolabel directions.

tions may be necessary to provide control over the entire germination period. Contact your local university or industry turf specialist for germination times of primary weeds.

The differences

Turfgrass pre-emergence herbicides differ in soil longevity, weed control efficacy, and potential turfgrass injury. Benefin is generally considered to be shorter-lived in soils than bensulide or pendimethalin; while DCPA is considered to be intermediate. Concentration of the initial application is important in terms of maintaining pre-emergence herbicide soil concentrations.

Pre-emergence herbicides must maintain a critical soil residual level (threshold value) during the growing season that is conducive for germination of the target weed (i.e., annual bluegrass, crabgrass, foxtail, goosegrass or spurge). Applications made too early in the season may break down in the soil to levels below the threshold value. If this occurs and conditions remain favorable for weed germination, less than desirable control will be obtained.

Maintaining levels

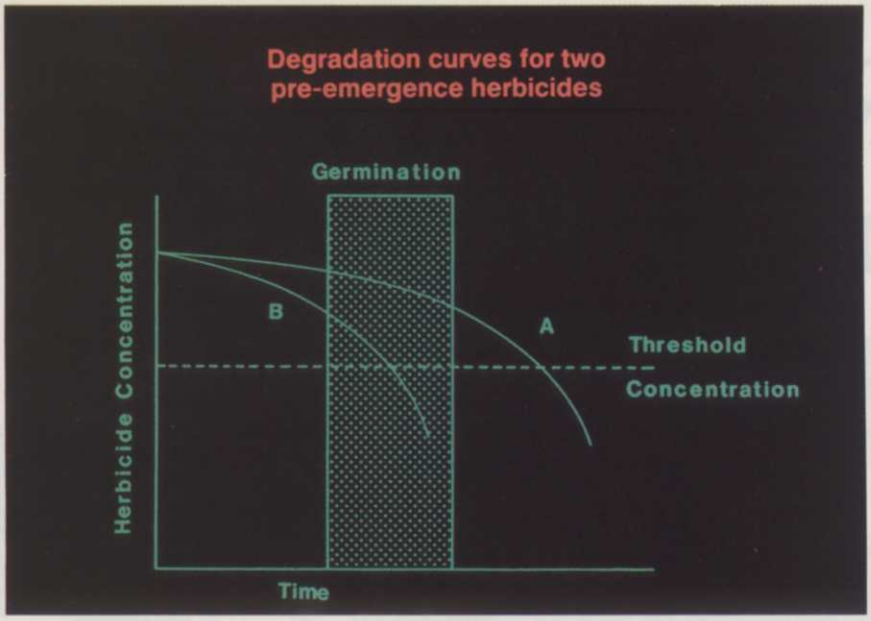
To obtain critical threshold values for the pre-emergence herbicide, adequate application rates must be made or repeat applications must be applied to maintain the threshold level. Initial applications will be dictated by label directions, turfgrass safety, efficacy and economics. In cases where potential turfgrass injury is a concern, light, frequent or split applications may be used to obtain control and minimize potential turfgrass injury.

Consult your local turfgrass specialist for specific information regarding the need for split applications of pre-emergence herbicides in your area. This information should increase its effectiveness and safety of your pre-emergence herbicide program.

Most turfgrass pre-emergence herbicides are effective in controlling crabgrass. These herbicides may differ somewhat in percent of control. It is wise to check with turf specialists in your region for the most efficacious materials.

Other annuals

Pre-emergence herbicides differ in their ability to control other annual weed problems. For example, DCPA and pendimethalin effectively control prostrate spurge; while benefin and bensulide are ineffective in controlling this troublesome weed. Bensulide, at concentrations normally applied for crabgrass control, is not as effective in controlling foxtail as is DCPA or pendimethalin. Oxadiazon is more effective for goosegrass control than DCPA. Pendimethalin has good to excellent efficacy for all the annual warm-season species.



Pre-emergence herbicides differ in their ability to maintain effective soil residual concentrations (i.e., Herbicide A vs. Herbicide B). When values drop below the "threshold" level, effective weed control is lost. In this case, Herbicide B requires a second application to maintain effective weed control.

It is essential to apply pre-emergence herbicides uniformly to the area. These herbicides are bound in the soil by clay and organic matter and have limited lateral movement. Skips in application allow the target weed to escape, germinate and produce additional seed, thus disrupting turf quality. Careful application is important, making sure to follow label directions and to calibrate application equipment prior to treatment. This will give the safest, most efficacious control from the herbicide selected at the most economic rate.

Turfgrass managers should keep in mind that successful pre-emergence herbicide programs result from selecting the appropriate herbicide, and applying it uniformly at the appropriate rate and time. **WT&T**

PRE-EMERGENCE HERBICIDES FOR WARM-SEASON TURF

by Tim R. Murphy

Successful weed control programs in warm-season turf depend on the development of a two-phase control strategy by the professional turf manager.

The first phase involves the use of cultural practices and insect and disease control programs that promote a dense, vigorous turf cover. Adequately maintained turf is less susceptible to a high level of a weed infestation than poorly maintained turf.

Prior to the use of any herbicide, cultural practices—adequate fertilization, irrigation, cultivation and correct mowing height and interval—should be matched to the needs of a particular turfgrass species. Addition-

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