

CULTURAL PRACTICES AND HERBICIDE EFFECTIVENESS

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Turf management practices prior to and following herbicide applications can influence control. Practices which encourage a healthy, vigorous turf are a critical part of a weed control program. However, a few temporary adjustments in a turf management schedule can increase the effectiveness of herbicides during application.

1. Mowing should be avoided three days prior to application of postemergence herbicides, as well as three to five days after application. Most postemergence herbicides work through the foliage. Insufficient surface exposure of the weed to the herbicide can result in poor control. Also, if the turf foliage is removed before the herbicide has time to enter the weed's system, control is also reduced.

Preemergence herbicides act through the soil, so mowing should not affect control.

Mow frequently to the recommended height. Under most conditions mow as high as your clientele will tolerate. Try not to mow more than one third of the height of the turf at one time. Keep mower blades sharp for a neat, clean cut without tearing or pulling the turfgrass plant.

2. Cultivation and Aerification should be done before applying preemergence herbicides to control weed seed brought to the surface in the process. Do not aerify following the preemergence application. Once soil is disturbed by aerification, the effectiveness of the preemergence is reduced.

3. Withhold Irrigation for two days after applying postemergence herbicides. Irrigation following preemergence herbicide or soil insecticide applications, however, is often recommended to "water in"

the herbicide into the thatch and soil.

Normally irrigation should be deep and infrequent to encourage deep rooting. Excess moisture can lead to turf disease, shallow root systems, *Poa annua*, and algae.

4. Test Soil for minerals, pH, and bulk density. Pesticide and fertilizer effectiveness and turfgrass vigor can be reduced by poor soil. Without correction, time and money are wasted. Contact the local Extension Agent for recommended soil conditions for your area and for testing facilities. Periodically check the pH of tank mixes since the effectiveness of certain pesticides depends upon pH. Guard against compaction by traffic control or frequent aerification.

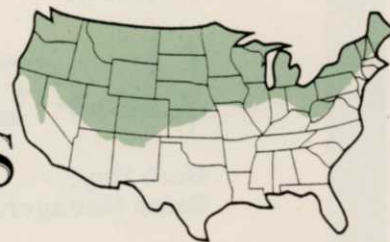
5. Apply Proper Fertilizers, but do not overfertilize. Maintain a dense turf but avoid thatch buildup with lush turf growth. Soil tests will tell you if you really need a complete fertilizer each time.

6. Control Insects and Diseases to prevent weed invasion.

7. Select Competitive Turfgrass Varieties. In the Sunbelt, Tifway for fairways and Tifgreen (328) for greens would be ideal for bermudagrass. Dwarf bermudagrasses do not afford the same competition to weeds. Tall turf-type fescues and zoysia are aggressive for the transition zone. Kentucky bluegrasses vary in aggressiveness for the North. Select one that is aggressive to prevent weed competition.

8. Control Weeds. Choose herbicides which are recommended and safe to use on your type of turfgrass. Be careful to apply them at the rates and in the manner specified on the label.

TIMING PREEMERGENTS IN COOL SEASON GRASSES



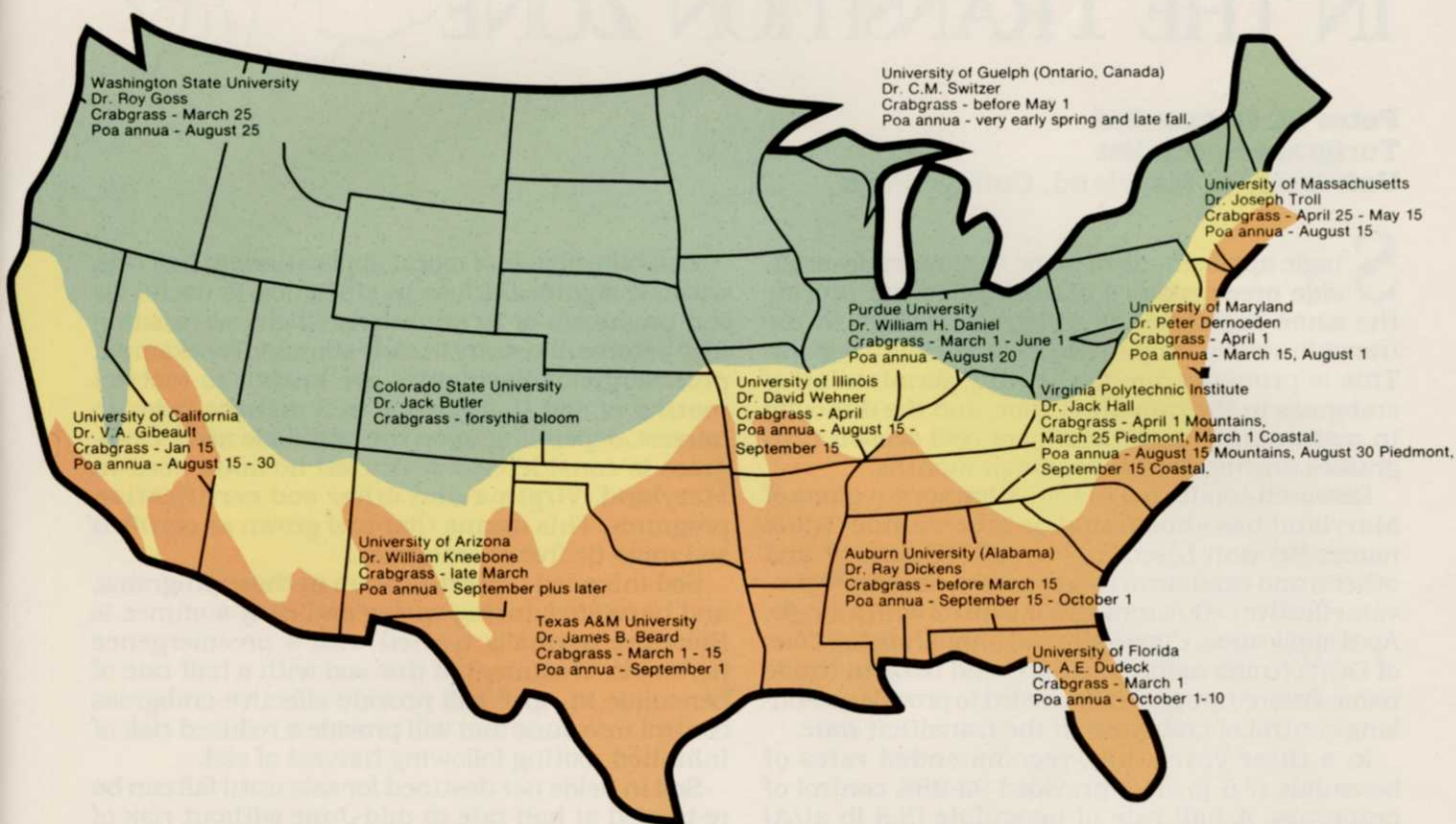
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It has long been recognized that effective control of summer annual grassy weeds can best be accomplished by using preemergence herbicides.

Proper application procedures and timing insure excellent control of a number of species (foxtails, smooth crabgrass, goosegrass, barnyardgrass) from several herbicide choices. However, many variables exist that can affect control; grass vigor, species, maturity, soil physical conditions, weather, and infestation level.

Suggested Timing for Preemergence Herbicides To Control Crabgrass and Annual Bluegrass



Application Timing

The most important aspect of successful preemergence control is correct timing of herbicide application. The chemical, such as Betasan®, must be present during the germination process to be effective. Therefore, application must be made seven to ten days prior to expected germination.

Regardless of the formulation used, rainfall is needed after application to disperse the active ingredient into the upper portion of the soil-thatch complex. If rainfall does not occur between application and germination, control may be substantially reduced. In some cases, irrigation may be required if rainfall does not follow within a few days of herbicide application.

Choosing an application date that is seven to ten days prior to germination should be based upon local experience. (See map for timing). Many use the biological index of petal drop of forsythia. While petal drop is usually indicative of approximately the correct timing, weather peculiarities during any given Spring may cause blossoms to be retained abnormally long or fall prematurely.

In situations where smooth crabgrass is expected

to germinate over a three month period, application of materials labeled for repeat applications should be made seven to eight weeks after the initial treatment. Repeat applications are unnecessary with Betasan.

If goosegrass is the target species, application of preemergence herbicides labeled for goosegrass control should be made approximately three weeks following the timing cited above for smooth crabgrass.

If annual bluegrass is the target species, preemergence applications should be made in mid-August for Pennsylvania. Check map above for timing in other areas. Annual bluegrass is a winter annual rather than a summer annual. Germination is predominately in the fall.

Combinations of fertilizer and preemergence materials in the liquid form are a common practice in professional lawn care. Soluble nitrogen sources can alter the solution pH and precautions should be taken to insure that the fertilizer-herbicide combination is compatible prior to preparation of large quantities. The activity of the herbicide may be affected through chemical alteration and/or precipitation in the tank.