Waging War on Crabgrass

There are many effective herbicides available for the control of crabgrass and other summer annual grasses in cool season turfgrasses. Crabgrass, however, continue to plague turfgrass managers and homeowners. With proper turfgrass management and herbicide use, crabgrass can be effectively controlled.

Crabgrass is a summer-annual weed, meaning that seeds germinate in the spring as the soil temperature rises. The plants grow, flower, and seed during the summer then die in the autumn with the first frost.

Control

The first line of defense against weeds is to maintain a healthy, dense sod. Demonstrations conducted by Cornell around the state showed that a dense sod, with a history of good management, prevented crabgrass germination without herbicides. This test, however, also showed that medium to low quality turf was very likely to need annual herbicide treatments for crabgrass control. Unfortunately, most turfgrass areas fall into the second category.

The most commonly used herbicides for crabgrass control are preemergent compounds. These are soil residual herbicides which, when applied in the spring before weeds germinate, will prevent the establishment of the young weed seedlings. If applied too early, some herbicides will dissipate before weeds germinate, resulting in poor control. If applied after weeds emerge, these products do not provide control. As a general rule-of-thumb, make preemergent herbicide applications when the Forsythia (yellow bells) is in full bloom. Table 1 provides a comparison of the herbicides labeled for crabgrass control.

How does one choose the correct herbicide? Several factors must be considered including: length of control, efficacy on other weeds, formulations available (granular or spray), turfgrass species, and, of course, price. You will note that all of these products, except Tupersan, provide excellent crabgrass control for 4 to 6 weeks. However, if evaluated 12 to 15 weeks after treatment, some herbicides are better than others. Dacthal has a short residual and will not provide full season control from one application. Balan and Betasan provide fair control 12 to 15 weeks after treatment. Team, Ronstar and pendimethalin have long residual activity and can provide full season control from one application. Tupersan has a very short residual but is safe in newly seeded (or newly overseeded) turf.

Several annual broadleaf weeds are best controlled using preemergent herbicides; including prostrate spurge, yellow woodsorrel (Oxalis), and chickweed. Table 1 also ranks the performance of preemergent herbicides on these common turf weeds.

Another criteria is the equipment you will use to apply the herbicide: a sprayer or a granular spreader. Balan, Team, Betasan, Dacthal, Ronstar, and pendimethalin are available in granular formulations. Several of these are also available on fertilizer granules. Betasan, Dacthal, pendimethalin, and Tupersan are available in sprayable formulations. Some formulations may be more readily available in your area than others; so, check with your suppliers for availability and price.

The next criteria is turfgrass safety. All of these herbicides are safe on established bluegrass, perennial ryegrass and tall fescue, but they differ in their safety on bentgrass and fine fes-

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The first line of defense against weeds is to maintain a healthy, dense sod.

As a general rule-of-thumb, make preemergent herbicide applications when the Forsythia (yellow bells) is in full bloom.

When conditions warrant the use of a preemergent herbicide, compare the efficacy, longevity, weed control spectrum, formulation, turfgrass safety, and cost, so you can choose the best herbicide for your situation.

Comparison of Preemergence Herbicides

Herbicide	Trade Name	Crabgrass Control		Broadleaf Weed Control		
		4-6 wks	12-15 wks	Spurge	Oxalis	Chickweed
Benefin+trifluralin	Balan	E	F	P	P	F
Benefin	Team	E	G	P	P	F
Bensulide	Betasan and others	E	F	P	P	F
DCPA	Dacthal	E	P	E	P	G
Oxadizaon	Ronstar	E	G	F	E	P
Pendimethalin	Pre-M, Scotts Weedgrass Ctrl.	E	G	G	E	G
Siduron	Tupersan	F	N	N	N	N

Weed Control: E excellent G good F fair P poor N essentially no control

The Cornell University IPM Program

IPM Corner

The development of a sound IPM program for turfgrass managers responsible for producing sod, maintaining turfgrass on golf courses, in residential or commercial landscapes, athletic fields and school grounds is based on research developed at Cornell and throughout the United States.

Nineteen eighty-nine marked the fourth year of the New York State Statewide Integrated Pest Management (IPM) Program at Cornell University. In 1985, legislation for a Statewide Integrated Pest Management (IPM) Program was signed into law. The New York State Department of Agriculture and Markets contracted with the College of Agriculture and Life Sciences at Cornell University to address pest management in ornamentals, vegetables, fruits, and dairy and field crops. This legislation authorized funds from the State of New York through the Department of Agriculture and Markets to Cornell University for the Statewide IPM Program.

Ag and Market funds provide the resources necessary to develop, demonstrate, and implement IPM concepts with pest managers throughout the state. Specifically, state funding is used for, but not limited to, research and development grants; implementation grants; and support for Regional IPM Specialists. For Annual reports contact the IPM House, New York State Agricultural Experiment Station, Geneva, NY 14456 (315/787-2353).

The program has made great progress towards its goal: reducing the level of chemical pesticides to the minimum level necessary to produce food and agricultural products that will be competitive in the marketplace, while protecting human health and the environment.

Ornamentals IPM Program

Ornamental horticulture in New York State is a vigorous and diverse industry that comprises a variety of commodities and services. In each commodity area there is an enormous list of plant species and varieties grown under all types of conditions. The complex of arthropods (insects and mites), plant diseases, and weeds attacking these crops is staggering. The Ornamental Program is divided into three commodity areas; turf, floriculture, and nursery.

The development of a sound IPM program for turfgrass managers responsible for producing sod, maintaining turfgrass on golf courses, in residential or commercial landscapes, athletic fields and school grounds is based on research developed at Cornell and throughout the United States. The Turfgrass IPM program is lead by the Cornell Faculty including Drs. Norm Hummel [Floriculture and Ornamental Horticulture (F&OH)], Marty Petrovic (F&OH), Eric Nelson (Plant Pathology), Michael Villani (Entomology), Joe Neal (Weed Science, F&OH, and Rod Ferrentino (IPM Support Group). This group of researchers is a model interdisciplinary approach to developing basic pest management information. The information is then transfered to turfgrass mangers via the normal Cornell Cooperative Extension system.

Future IPM Articles

Future articles in the IPM Corner will focus on the basic IPM methods and techniques for all aspect of turfgrass production and maintenance. Special emphasis will be placed on practical field information, applicable to real turfgrass situations.

Gerard W. Ferrentino, Ornamentals IPM Coordinator
Cornell University

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cues. Balan, Team and Ronstar may injure fine fescues if applied at the higher labeled rates. Pendimethalin is safe on fine fescues but may injure bentgrass. Team is labeled for bentgrass fairways but not on tees and greens. Betasan and Tupersan are safe on all cool season turfgrass species including closely cut bentgrass. Check the herbicide label carefully for species, variety, and overseeding restrictions.

The last criteria for selecting the appropriate herbicide is cost. Granular formulations of herbicides will generally cost more than sprayable formulations; but, prices will vary, so check with your distributors for the best price available.

Remember that the first line of defense against weeds is a well maintained, dense sod. But when conditions warrant the use of a preemergent herbicide, compare the efficacy, longevity, weed control spectrum, formulation, turfgrass safety, and cost, so you can choose the best herbicide for your situation. Also remember that no herbicide controls all weeds, and that sometimes weather conditions are unfavorable for weed control. Where escapes occur, postemergent herbicides are available for "clean-up" operations.

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