

Weed control in cool season turfgrass

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■ Turfgrass management programs vary widely and depend, to a large extent, on the area or its use (see chart below). Weed management strategies begin with developing a total management program.

High quality turfgrass needs a greater maintenance intensity to provide a dense cover. In an established cool-season turfgrass, several agronomic practices are very important in the strategies against weeds:

- mowing height for Kentucky bluegrass may be 2½ inches to obtain the best defense against weed encroachment;

- mowing frequency is based on growth rate and is often enough so that only one-third of the turfgrass foliage is removed each time;

- irrigation to supplement natural rainfall when turfgrass begins to show signs of silt is particularly important, and may require an average of two to five times during the summer; and

- proper timing of fertilizer practices are programmed to encourage root development and foliar density. Even then, herbicides are an important part in weed management strategies.

Pre-emergence herbicides—These herbicides are used extensively for crabgrass control; are applied prior to weed seed germination; are relatively

insoluble in water; require some irrigation or rain to be most efficacious; are adsorbed to organic matter and clay in the soil surface; and prevent establishment of annual grasses by inhibiting the root growing out of the seed.

The commonly used pre-emergence herbicides in cool-season turfgrasses are listed in Table 1 and rated for effectiveness in crabgrass and goosegrass control as well as tolerances of bluegrass, tall fescue and perennial ryegrass.

For pre-emergence herbicides, it is important to identify the annual grassy weed growing in prior years. Check the label or tables for herbicide effectiveness and turfgrass tolerance before applications are made at least two weeks prior to expected germination.

Crabgrass germination occurs first, then goosegrass three or more weeks later. Crabgrass and goosegrass germinate in open, thin stands of turfgrass and emergence is

delayed and restricted in dense stands. Some herbicides provide less residual time than others and may require sequential applications. In cases of both crabgrass and goosegrass problems, split applications should be made to have enough herbicide present at the peak germination period of each grassy weed.

Post-emergence herbicides—In many cases, several different broadleaf weeds grow together and often require a combination of two or three herbicides. Commonly used formulations containing one active ingredient include 2,4-D, mecoprop, dicamba and triclopyr. (See Table 2.)

Approximately 120 weeds are important to turfgrass management programs. Each herbicide's active ingredient provides control of a portion of these weeds. For example:

2,4-D + dicamba control about 90 percent of weed species;

2,4-D + diclorprop + dicamba = 85 percent;
dicamba alone = 75 percent;

2,4-D + diclorprop = 70 percent;

2,4-D + mecoprop + dicamba = 70 percent;

2,4-D + dichlorprop + mecoprop = 70 percent;

2,4-D + mecoprop = 65 percent;

2,4-D alone = 50 percent;

triclopyr alone = 40 percent; and

mecoprop alone = 25 percent.

Each label will indicate the most commonly controlled list of weed species
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COOL-SEASON WEED CONTROL STRATEGIES

- ❖ Follow good management practices to grow quality turfgrass.
- ❖ Prevent turfgrass from becoming thin or containing voids for weed encroachment.
- ❖ Select herbicides for turfgrass tolerance for weeds involved.
- ❖ Apply uniformly with calibrated applicator using label directions and precautions.
- ❖ Select the best time for each application.
- ❖ Employ a reliable applicator who will follow instructions and wear protective clothing.

—S.W.B.

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and the turfgrasses that are tolerant for effective use. Therefore, it is imperative to identify the problem weeds and select a formulation appropriate for selective control.

The newest—Isoxaben (Gallery) is an

exceptional broadleaf herbicide which gives pre-emergence control. It appears quite effective for summer annual weeds such as knotweed, spotted spurge, yellow woodsorrel and purslane. With post-emergence herbicides for control of emergent weeds, isoxaben provides some control of perennial

weeds such as white clover, dandelion and plantain. It is for pre-emergence and has little post-emergence activity on weeds.

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Table 1. **TURFGRASS TOLERANCE AND WEED CONTROL RATINGS TO PRE-EMERGENCE HERBICIDES**

Herbicide	Ky. bluegrass ¹	Tall fescue	Perennial ryegrass	Large crabgrass ²	Goosegrass
Benfenin	T	T	T	S	I
Bensulide	T	T	T	S	R
DCPA	T	T	T	S	I
Dithiopyr	T	T	T	S	I
Oxadiazon	T	T	T	S	S
Pendimethalin	T	T	I	S	I
Prodiamine	T	T	I-T	S	I
Siduron	T	T	I	S	R
Benfenin + trifluralin	T	T	I-T	S	I
Bensulide + oxadiazon	T	T	T	S	S

¹Relative tolerance of turfgrass species: T=tolerant; I= intermediate, use with caution at low rates, may cause temporary injury and thinning; S= turfgrass is not sufficiently tolerant or not registered for use.

²S= weed is susceptible; I= intermediate control, good control at times with high rates, may require more than one treatment annually; R= resistant, less than 70 percent control.

Source: Dr. Bingham

Table 2. **EFFECTIVENESS OF BROADLEAF HERBICIDES; RESPONSE TO HERBICIDES AND MIXTURES**

Control product ↓ Broadleaf	Control product ↓							triclopyr+ clopyralid
	2,4-D	dicamba	2,4-D + mecoprop	2,4-D + mecoprop+ dicamba	2,4-D+ dicamba	2,4-D+ diclorprop	2,4-D + triclopyr	
Black medic	R	S	I	S	S	S	S	S
Va. buttonweed	R	R	R	I-R	I	I	I	I
C. chickweed	R	S	S	S	S	S	S	S
M. chickweed	R	S	S-I	S	S	S	S	S-I
W. clover	I	S	S	S	S	S	S	S
C. dandelion	S	S	S	S	S	S	S	S
Dock	I	S	I	I	S	I	I	S-I
Wild garlic	I	I	I	I	S-I	I	I	I
Ground ivy	I-R	S-I	I	I	S-I	I	S	S-I
Henbit	I	S	I	S-I	S	S	S	S
Knotweed	R	S	I	I	S	I	I	I
B. plantain	S	I-R	S	S	S	S	S	S
S. spurge	I-R	S-I	S-I	S-I	S-I	S-I	S-I	S-I
Corn speedwell	R	R	R	R	R	I	I	I
Red sorrel	R	S	I	I	S	I	S-I	S-I
Violets	I-R	I	I-R	I-R	I	I	I	I
Wild carrot	S	S	S	S	S	S	S	S
Yarrow	I	S	I	I	S	I	I	I
Yellow wood-sorrel	I	R	I-R	I	I	S	I	I

R = Resistant weed, usually less than 70 percent control; I = intermediate level of control, with high ratio or repeat applications; S = susceptible weed, usually controlled at recommended rates.

Source: Dr. Bingham