

Rutgers Corner - Broadleaf Weed Control in Cool Season Turfgrass

Dr. Steve Hart*

Editor's Note: This article, along with information related to the effectiveness of herbicide active ingredients on specific broadleaf weeds, can be accessed as a Rutgers Cooperative Research and Extension Fact Sheet (FS385) at www.rcrc.rutgers.edu/pubs

The presence of broadleaf weeds not only reduces the aesthetic quality of the turf, but more importantly they compete with the desired turfgrass for water, nutrients, and light. Failure to control these weeds often results in a deterioration of the turfgrass stand over time. Broadleaf weed infestations are often symptomatic of a more basic cultural or soil problem in many cases. If these problems persist, weeds also will be a continuous problem. Thus, a sound weed management strategy not only includes removal of existing weeds, but also using corrective management measures for the factors causing poor quality turfgrass.

Cultural Control of Broadleaf Weeds

The numbers and types of broadleaf weeds found in turfgrass are greatly influenced by management and cultural practices. For example, close mowing and too little nitrogen favor white clover. Close mowing also favors weeds such as carpetweed, spurge, plantains, and dandelion. Poorly drained areas favor weeds such as ground ivy, while compacted sites favor knotweed and plantains.

Correcting improper management practices to maintain a dense, vigorous turf is the best and most lasting method for broadleaf weed control.

Of particular importance are proper fertilization, mowing, and watering. Several broadleaf weed species cannot be satisfactorily controlled with proper use of herbicides, further increasing the importance of proper cultural management to reduce the opportunity for their establishment and spread.

Herbicides should be considered an aid, but not a cure, for broadleaf weed problems in landscaped turf.

Chemical Control of Broadleaf Weeds

In turf where broadleaf weeds have become a problem, application of an effective herbicide may be necessary for their removal so that the turf can be improved through better management and cultural practices. Several herbicides are available for broadleaf weed control, but weeds vary in response to different products. Thus, proper identification of the weeds is essential before the most economical and effective herbicide is selected. Suggested resources for weed identification include "Weeds of the Northeast" by Richard H. Uva, Joseph C. Neal, and Joseph M. Ditomaso available through Comstock Publishing Associates (a division of Cornell University Press). Also, two web sites can be accessed at www.rcrc.rutgers.edu/weeds and www.cook.rutgers.edu/~turf, then click on turfgrass weeds.

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Two or more different herbicides are frequently sold as prepackaged mixtures. Most of the materials discussed are sold by several manufacturers, often under different trade names differing in formulation and concentration. Therefore, no rates are presented here. READ and FOLLOW carefully the label directions on the herbicide container. Applying rates too low may result in inadequate control, while applying rates too high may cause turfgrass injury. The following herbicides are available for the selective removal of broadleaf weeds from cool season turfgrasses.

2,4-D is the oldest and most widely used herbicide and provides broad spectrum weed control in turfgrass. This chemical is particularly effective for control of weeds with taproots such as dandelion, broadleaf plantain, mustards, and shepherd's purse. Amine formulations are most commonly used. However, the low volatile ester form of 2,4-D is often recommended for control of wild garlic and wild onion. Some weeds not controlled well by 2,4-D are white clover, chickweed, purslane, and ground ivy.

MCPA is chemically-related to 2,4-D and may be used as a substitute for 2,4-D in prepackaged mixtures. MCPA is not a broad spectrum herbicide as is 2,4-D and its use alone (i.e., not mixed with another herbicide) is not usually recommended.

MCPP is most effective in the control of several perennial or winter annual weeds such as chickweed and clovers.

Dicamba controls many different weeds, several of them are not easily controlled by 2,4-D or MCPP. Of particular importance are the summer annual weeds that have a prostrate growth habit, including knotweed, purslane, and spurge. Dicamba however, does not control plantains.

Dichlorprop (2,4-DP) and Triclopyr are sold in prepackaged mixtures with 2,4-D and provide broad spectrum weed control.

Triclopyr + Clopyralid is a non-phenoxy, prepackaged mixture sold only under the trade name of Confront. This mix also provides broad spectrum control of many common broadleaf weeds including oxalis. Clopyralid is now available alone under the trade name of Lontrel. Recently, several companies have started to sell herbicide combinations containing triclopyr and/or clopyralid.

Isoxaben is sold only under the trade name of Gallery, and is used primarily in the early fall for preemergence control of numerous winter annuals (especially henbit and common chickweed) and some perennial broadleaf weeds. It has no postemergence activity on emerged broadleaf weeds. Delay over-seeding for at least 60 days following application.

Quinclorac is sold only under the trade name of Drive. It effectively controls a few broadleaf weed species including white clover and corn speedwell, but the primary use of quinclorac will be for postemergence crabgrass control.

Chlorsulfuron and Metsulfuron are sold under the trade names of Corsair and Manor, respectively. Both herbicides are labeled for use (in some cases as a spot treatment only) on a limited number of cool season turf species (primarily Kentucky bluegrass). Both herbicides will kill perennial ryegrass and chlorsulfuron will kill tall fescue.

Carfentrazone is a quick acting herbicide that will cause rapid desiccation of the foliage of many broadleaf weed species. It will only be sold in combination with other herbicides such as 2,4-D, MCPP and dicamba.

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Herbicide Mixtures

The use of mixtures of the above-mentioned herbicides is very common. Combination products result in the control of a broader range of weeds than single herbicides. Some herbicide mixtures may effectively control certain weeds that cannot be easily controlled by the individual herbicides used alone. Some commonly used herbicide mixtures are: 2,4-D + MCPP; 2,4-D + dicamba; 2,4-D (or MCPA) + MCPP + dicamba; 2,4-D + dichlorprop; 2,4-D + triclopyr and clopyralid + triclopyr. These herbicides will successfully control many broadleaf weeds found in cool season turf. The best times of year to control most broadleaf weeds are fall (especially late September) or spring (especially May).

To use these herbicides effectively for broadleaf weed control in turf, remember several points:

1. **READ** and **FOLLOW** the label directions **CAREFULLY**.
2. Spray when the temperature is above 70°F and the weeds are actively growing. Do not spray when the temperature is over 85°F because turfgrass injury may result and some of these products (i.e., low volatile esters) are prone to volatilization causing injury to nearby ornamental plants.
3. Treat only when soil is moist and plants are growing vigorously. Do not apply herbicides during drought periods or when soil is dry.
4. Do not mow one day prior to and after spraying.
5. Spray formulations (i.e. liquids) are generally more effective than granular forms of broadleaf herbicides, but granular products are easier to handle and apply, especially for homeowners.
6. Apply granular formulations when the foliage is moist, during early morning hours when there is a heavy dew.

Precautions for Using Broadleaf Herbicides

1. Ornamental plants, trees, shrubs, and vegetables can be susceptible to these chemicals. Do not spray around homes and gardens when there

is a wind. Even a slight breeze is likely to carry spray droplets to susceptible ornamental and garden plants. Ester formulations (even low-volatile types) are volatile and are therefore more likely to injure nearby ornamentals and vegetables when sprayed at high temperatures.

2. Dicamba is included in many herbicide combination products and also in some weed and feed (fertilizer-herbicide) combinations. This chemical and other broadleaf herbicides move readily in some soil types and can be absorbed by plant roots. Therefore, products containing dicamba in particular should not be used near the drip-line of trees or near ornamentals where it can be absorbed by roots.
3. Do not use any of these herbicides on newly-seeded turf. Wait until the new lawn has been mowed at least three times before treating (usually about 6 to 8 weeks after seedling emergence).
4. The herbicides listed in this publication are safe to use on established tall fescue, Kentucky bluegrass, perennial ryegrass, and fine-leaf fescues (i.e., strong creeping red, hard, Chewings, blue and sheep). All herbicides have the potential to cause some foliar yellowing. Do not use 2,4-D on turf where bentgrasses or roughstalk bluegrass are considered desirable species.
5. Thoroughly clean the sprayer tank, hose, and boom after using herbicides. One sprayer should be used for turf and another for spraying ornamentals. Do not allow spray mixtures to spill or leak onto areas where they can be taken up by foliage, roots of trees, or ornamentals.
6. Keep herbicide containers closed, properly labeled, and safely stored.
7. Always store a pesticide in its original container.

* Dr. Steve Hart is Extension Specialist in Weed Science, Rutgers University



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