UT Extension
W267

TURFGRASS SCIENCE
at the University of Tennessee

White Clover (*Trifolium repens*)

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Introduction

White clover (*Trifolium repens*) is a perennial broadleaf weed found in both warm- and cool-season turf. There are numerous clover species, but white clover is the most common species found in turfgrass. White clover can persist at most mowing heights and in both areas of full sun to partial shade. A leguminous weed, white clover is commonly found in areas of low nitrogen fertility. Legumes are plants that have the ability to fix (i.e., obtain) nitrogen from the atmosphere; thus, white clover can persist in areas that have not been fertilized enough to sustain dense, vigorous turf growth. While not one of the more difficult-to-control broadleaf weeds in Tennessee, it is often perceived as one of the most persistent.



Figure 1. White clover (Trifolium repens) in turf

White Clover Identification

White clover is a prostrate, spreading, perennial legume that spreads from stems and stolons that root at the nodes (Figure 1). It can found in clusters or mats throughout the year, but grows most vigorously in spring and fall. White clover leaves are arranged in a trifoliate structure; three oval to elliptical-shaped leaflets comprise a single trifoliate leaf (Figure 2). Leaves often have a white watermark that partially encircles the base of each leaflet. Leaves are also slightly toothed along the margins. White clover produces circular white flowers (sometimes with a pink hue) on long stems that appear during the spring and fall (Figure 3).



Figure 2. White clover (Trifolium repens) leaves



Figure 3. White clover (Trifolium repens) flowers

White Clover Control Options

Cultural Practices

The best defense against any weed infestation is maintaining a dense, vigorous stand of turfgrass. Growing conditions that favor turf often discourage the growth of white clover. Increasing nitrogen fertility and reducing soil moisture will help create an environment better-suited for turfgrass growth and less conducive for white clover. Additionally, soil test regularly and apply nutrients according to soil test recommendations. While cultural practices can be used to help discourage white clover infestations, they will not provide complete control. Herbicide applications will be required for complete eradication.

Herbicide Options

There are no preemergence herbicide options for control of white clover. Numerous herbicide options exist for postemergence control of white clover. Herbicides that contain three or more phenoxy (or phenoxy-type) herbicides can be used to control white clover in established turf. Herbicides containing the active ingredients fluroxypyr, triclopyr or quinclorac have performed well in research at the University of Tennessee. Fluroxypyr can be found in herbicides such as Spotlight® (fluroxypyr) and Escalade II® (fluroxypyr, 2,4-D and MCPP), while quinclorac can be found in herbicides such as Drive XLR8® (quinclorac) and Solitare® (quinclorac and sulfentrazone). Most of these herbicides can be used on both warm- and cool-season turfgrasses grown throughout Tennessee.

Table 1. Postemergence herbicides for white clover (*Trifolium repens*) control

Product Name	Active Ingredients	Rate/ac	Turf Species
Blindside	metsulfuron + sulfentrazone	3.25-10 oz.	Kentucky Bluegrass, Tall Fescue, Bermudagrass, Zoysiagrass, Centipedegrass
Celsius	thiencarbazone + iodosulfuron + dicamba	2.5-3.75 oz.	Bermudagrass, Zoysiagrass, Centipedegrass
Confront	triclopyr + clopyralid	1-2 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass, Centipedegrass
Corsair	chlorsulfuron	1-5.33 oz.	Kentucky Bluegrass, Fine Fescue, Bermudagrass, Zoysiagrass, Centipedegrass
Drive XLR8	quinclorac	2 qts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass
Escalade II	2,4-D + fluroxypyr + dicamba	2-3 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass
Katana	flazasulfuron	0.5-3 oz.	Bermudagrass, Zoysiagrass, Centipedegrass
Manor	metsulfuron	0.125-1 oz.	Kentucky Bluegrass, Fine Fescue, Bermudagrass, Zoysiagrass, Centipedegrass
Millennium Ultra 2	2,4-D + clopyralid + dicamba	2-3 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass
Momentum fx2	2,4-D + triclopyr + fluroxypyr	3-4 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass, Centipedegrass

Many of the sulfonylurea herbicides also control white clover in warm-season turf, including chlorsulfuron (Corsair®), flazasulfuron (Katana®) and trifloxysulfuron (Monument®). Metsulfuron can also be used for white clover control. Metsulfuron can be applied alone (Manor®) and in combination with other herbicides such as sulfentrazone (Blindside®). See Table 1 for a complete list of herbicides active against white clover. Regardless of the herbicide option chosen, follow-up applications may be needed for complete control.

Final Thoughts

Incorporating improved cultural practices with timely herbicide applications will provide long-term white clover control. Multiple herbicides options exist for effective control of white clover in turf.

Always refer to the product label for specific information on proper product use, tank-mix compatibility and turfgrass tolerance. Mention of trade names or commercial products in this publication is solely for the purpose of providing specific information and does not imply recommendation or endorsement by the University of Tennessee Institute of Agriculture. For more information on turfgrass weed control, visit the University of Tennessee's turfgrass weed science website, http://tennesseeturfgrassweeds.org.

Table 1. Postemergence herbicides for white clover (*Trifolium repens*) control (continued)

Product Name	Active Ingredients	Rate/ac	Turf Species
Monument	trifloxysulfuron	0.53 oz.	Bermudagrass, Zoysiagrass
Onetime	quinclorac + MCPP + dicamba	64 oz.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass
Powerzone	carfentrazone + MCPA + MCPP + dicamba	2-4 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass
Q-4	quinclorac + sulfentrazone + 2,4-D + dicamba	7-8 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass (Dormant)
Solitare	quinclorac + sulfentrazone	16-32 oz.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass, Centipedegrass
Speedzone	carfentrazone + 2,4-D + MCPP + dicamba	3-5 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass
Spotlight	fluroxypyr	0.67-2.5 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass, Centipedegrass
SquareOne	carfentrazone + quinclorac	8-18 oz.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass, Centipedegrass
Surge	sulfentrazone + 2,4-D + MCPP + dicamba	3-4 pts.	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass
Three-way Selective, Trimec Classic, Trimec Southern, Triplet, Others	2,4-D + MCPP + dicamba	Product-Dependent	Product-Dependent
Turflon Ester	triclopyr	0.5-1 qt.	Kentucky Bluegrass, Tall Fescue, Perennial Ryegrass

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