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W170-Goosegrass

The University of Tennessee Agricultural Extension Service

UT Extension
W170

TURFGRASS SCIENCE
at the University of Tennessee

Goosegrass *(Eleusine indica)*

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Introduction

Goosegrass *(Eleusine indica)*, also referred to as "silver crabgrass" or "wiregrass," is a problematic annual grassy weed found in many turfgrass areas throughout Tennessee. Goosegrass thrives in compacted, poorly drained soils; consequently, it is commonly found in the high-traffic areas of sports fields, golf courses, and residential and commercial lawns. Goosegrass is not often found in healthy, growing turf. Controlling traffic or improving turfgrass vigor can reduce goosegrass populations, but herbicide applications will usually be required for complete control.

Goosegrass Identification

Goosegrass grows in clumps from a central tap root that has a fibrous root system. Leaves are a distinct white or silver color at the base, (Figure 1) folded or flattened in shape, and smooth to the touch; very few hairs are present on the foliage (Figure 2). Goosegrass also has a membranous ligule with jagged edges. The prostrate growing nature of goosegrass gives it the ability to tolerate mowing heights as low as 0.125 inch. Seed-heads emerge from a common point (Figure 3) in late summer. Each seed-head contains 3-7 spikes (racemes) at the tip of the stem. Seeds are arranged in a distinctive herringbone pattern along each spike (Figure 4). A single plant can produce up to 50,000 seeds. As a result, failure to control goosegrass can increase the quantity of goosegrass seed in the soil seedbank.

Goosegrass Life Cycle

Goosegrass is a summer annual grassy weed that germinates in late spring and grows throughout the summer. Although its life cycle is similar to that of crabgrass, goosegrass seed germination usually occurs four to six weeks later than crabgrass and is more difficult to tame. Germination of goosegrass seed will generally start sometime in late April in Tennessee and will continue throughout the summer.

Figure 1. Mature goosegrass (Eleusine indica) plant

Figure 2. Goosegrass (Eleusine indica) seedling

Figure 3. Goosegrass (Eleusine indica) closed seed head

Goosegrass Control Options

Cultural Control: Goosegrass thrives in compacted, poorly drained soils and is consequently found in the high-traffic areas of sports fields, golf courses, and residential and commercial lawns. Implementing cultural practices to maximize turfgrass quality (proper mowing, fertility and pest management, etc.) will help prevent goosegrass infestation. Improving soil conditions in these high-traffic areas will also help make the turf more competitive against goosegrass. Core aeration and altering traffic patterns can relieve compaction, improving both soil aeration and drainage.

Mechanical Control: Goosegrass has a centralized root system that makes mechanical removal easier than for many other weeds. Small plants can be removed by hand, but once the plants grow to 2-3 inches in diameter, a knife or gardening tool (Figure 5) is useful. Tools like the WEED HOUND™ work well to remove plants with a central taproot like goosegrass. If one has the time and there are a limited number of weeds in a given area, hand or mechanical removal can be effective. However, mechanical removal is a very labor-intensive process.

Herbicidal Control: Preemergence herbicides provide effective goosegrass control. Several herbicide options for preemergence goosegrass control are listed in Table 1. Many of the materials applied for preemergence crabgrass *(Digitaria spp.)* control will also control goosegrass. Data from the University of Tennessee have shown that sequential applications of preemergence herbicides will provide an increased level of goosegrass control, as well as extend the length of crabgrass control provided by these materials. The fact that goosegrass germinates later in the season than crabgrass makes a sequential application strategy essential. Target the initial application for February to early March in West Tennessee or mid-March to early April in East Tennessee (note that these are the recommended timings for crabgrass control) (Figure 6), and the sequential application 6-8 weeks later. It is important to remember that preemergence herbicides evaluated at the University of Tennessee all provided similar goosegrass control when used according to label recommendations.

Figure 4. Goosegrass (Eleusine indica) opened seed head

Figure 5. Useful tools for mechanical removal

Numerous postemergence herbicides are also available for goosegrass control (Table 1). Caution should be exercised when applying these materials, as they can potentially injure turf if applied imprecisely. When choosing a postemergence herbicide for

Table 1. Preemergence and postemergence herbicides for goosegrass control

Active Ingredient (Trade Name Ex.)	Formulations	Rate ai/a	Labeled Use Areas	Labeled Turfgrasses	Goosegrass Susceptibility**
Preemergence Herbicides					
benefin + oryzalin (XL 2G)	2G	2-3 lb	Established turfgrass	Tall Fescue, Bermudagrass, Centipedegrass, Zoysiagrass	Good
benefin + trifluralin (Team 2G)	2G	1.5-3 lb	Lawns and golf courses	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Centipedegrass, Zoysiagrass	Good
dithiopyr (Dimension, Dimension Ultra)	1EC, 40WP, 2EW, others	0.38-0.5 lb	Golf courses (except putting greens), athletic fields, sod farms, residential and non-residential areas	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Centipedegrass Zoysiagrass	Excellent
oryzalin (Surflan)	4AS	1.5-2 lb	Turfgrass	Tall Fescue, Bermudagrass, Centipedegrass, Zoysiagrass	Excellent
oxadiazon (Ronstar)	2G, (50WSP Dormant Turf Only)	1-4 lb	Golf course (Except tees and putting greens), athletic fields, sod farms, and non-residential areas [Not labeled for residential lawn use]	Kentucky Bluegrass, Tall Fescue, Perennial Ryegrass, Bermudagrass, Zoysiagrass	Good
oxadiazon + prodiamine (Regalstar II)	1.2G	2.4 lb	Turf and golf courses (Except putting greens)	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Centipedegrass, Zoysiagrass	Good
pendimethalin (Pendulum Aquacap, others)	3.8L, others	1.5-3 lb	Golf course (except tees and greens), athletic fields, sod farms, residential and non-residential areas	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Centipedegrass Zoysiagrass	Excellent
prodiamine (Barricade, others)	65WG, 4FL, others	0.38-1 lb	Golf course, athletic fields, sod farms, residential and non-residential areas	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Centipedegrass Zoysiagrass	Good
prodiamine + sulfentrazone (Echelon)	4SC	0.25-1.125 lb	Golf courses (fairways and roughs), athletic fields, sod farms, residential and non-residential areas	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Bermudagrass, Centipedegrass, Zoysiagrass	Excellent
Numerous combination products (not listed) combining multiple active ingredients can also provide good to excellent preemergence control of goosegrass.					
Postemergence Herbicides					
diclofop-methyl (Illoxan)	3EC	0.75-1 lb	Golf course only	Bermudagrass	Good
fenoxaprop (Acclaim Extra)	0.57EC	0.089 lb	Sod farm, commercial and residential turf	Bentgrass, Kentucky Bluegrass, Fine Fescue, Tall Fescue, Zoysiagrass	Fair
fluazifop (Fusilade II)	2L	0.03-0.09 lb	Parks, sports fields, golf courses, commercial areas. Not for use in home lawns.	Tall Fescue, Zoysiagrass	Good
foramsulfuron (Revolver)	0.19SC	0.013-0.038 lb	Golf courses, athletic fields, residential and non-residential areas	Bermudagrass, Zoysiagrass	Fair
mesotrione (Tenacity)	4FL	0.156-0.25 lb	Golf courses, sod farms	Kentucky Bluegrass, Fine Fescue, Tall Fescue, Perennial Ryegrass, Centipedgrass	Good
metribuzin (Sencor)	75DF	0.33-0.66 lb	Parks, sports fields, golf courses (fairways)	Bermudagrass*	Good
MSMA	Product Dependent	2-3 lb	Golf courses, turfgrasses, grass seed crops	Kentucky Bluegrass*, Fine Fescue*, Tall Fescue*, Bermudagrass, Zoysiagrass	Fair
* Severe injury can occur					
** Key to control codes: Excellent (90 to 100%); Good (80 to 90%); Fair (70 to 80%); Poor (Less than 70%)					

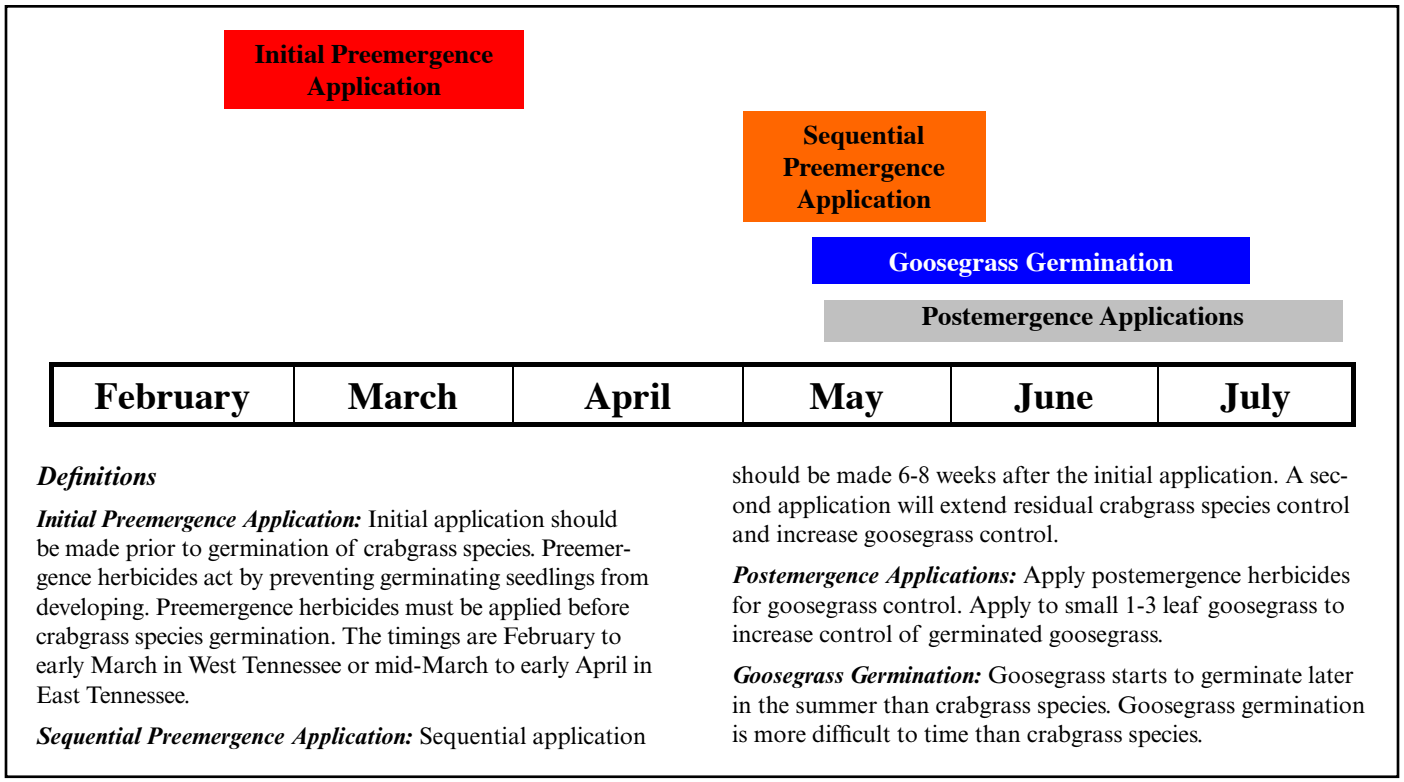
goosegrass control, make sure it is labeled for the turf and use area where it is to be applied. Unlike the preemergence options for goosegrass control, many of the postemergence options may only be labeled on one or two turf species. Postemergence herbicides for goosegrass control should be applied after goosegrass seed has germinated; any time from late May through early August is appropriate in Tennessee. Sequential applications of these herbicides are usually required to provide complete control.

Final Thoughts

There are numerous options that can be used to control goosegrass in turf. Implementing cultural practices to maximize turfgrass quality (proper mowing, fertility and pest management, etc.) will help prevent goosegrass infestation, as will improving the soil conditions in high-traffic areas. Although mechanical control is an option, multiple pre- and postemergence herbicides provide effective control of goosegrass in established turf. In fact, many preemergence herbicides can be used to control both goosegrass and crabgrass. Sequential applications of preemergence herbicides will provide effective goosegrass control and increase the longevity of crabgrass control throughout the summer.

Always refer to the product label for specific information on proper product use, tank-mix compatibility and turfgrass tolerance.

For more information on turfgrass weed control, visit the University of Tennessee's turfgrass weed science Web site, http://tennesseeturfgrassweeds.org



Definitions

Initial Preemergence Application: Initial application should be made prior to germination of crabgrass species. Preemergence herbicides act by preventing germinating seedlings from developing. Preemergence herbicides must be applied before crabgrass species germination. The timings are February to early March in West Tennessee or mid-March to early April in East Tennessee.

Sequential Preemergence Application: Sequential application should be made 6-8 weeks after the initial application. A second application will extend residual crabgrass species control and increase goosegrass control.

Postemergence Applications: Apply postemergence herbicides for goosegrass control. Apply to small 1-3 leaf goosegrass to increase control of germinated goosegrass.

Goosegrass Germination: Goosegrass starts to germinate later in the summer than crabgrass species. Goosegrass germination is more difficult to time than crabgrass species.

Figure 6. Time-line for goosegrass species control

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