THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
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# Bermudagrass Control in Southern Lawns

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Bermudagrass is a warm-season perennial widely used for lawns in the southeastern United States. Although improved common (*Cynodon dactylon* (L.) Pers.) and hybrid bermudagrasses (*Cynodon dactylon* x *C. transvaalensis* Burtt-Davy) have desirable qualities as turfgrasses for heat, drought and wear tolerance, bermudagrass is a problematic weed when grown in mixed stands with other turf species. Centipedegrass (*Eremochloa ophiuroides* (Munro) Hack), St. Augustinegrass (*Stenotaphrum secundatum* (Walt.) Kuntze), tall fescue (*Festuca arundinacea* Shreb.) and zoysiagrass (*Zoysia* spp.) lawns are often unable to compete with bermudagrass populations during summer months. Selective control of bermudagrass is difficult but often warranted in order to maintain acceptable quality of the desired turfgrass species (Figure 1).

**Figure 1.** Bermudagrass in a tall fescue lawn.
(Photo: P. McCullough.)

## Bermudagrass Identification

Bermudagrass has prolific rhizomatous and stoloniferous growth during summer months that contributes to persistence and competition with turfgrasses. Bermudagrass leaves are folded in the bud with strongly compressed, sparsely hairy sheaths. Leaf blades are generally short (0.125 to 0.25 inches wide), rough along the edges and sharply pointed at the tips. Bermudagrass ligules have a fringe of hairs with a narrow collar covered with long hairs (Figure 2). Seedheads have three to five slender spikes that join at the top of the main stem (Figure 3).

**Figure 2.** Hairy ligules of bermudagrass.
(Photo: P. McCullough.)

**Figure 3.** Bermudagrass plants.
(Photo: P. McCullough.)

## Preemergence Herbicide Control

Preemergence herbicide use is generally not a practical approach to controlling bermudagrass in mature turfgrasses. **Siduron** (Tupersan) is a preemergence herbicide for use during cool-season turf establishment for control of crabgrass and grassy weeds. Siduron has the potential to slow the encroachment of bermudagrass in cool-season turfgrasses but often requires repeat applications for consistent control (Johnson and Carrow, 1989). Other preemergence herbicides have the potential to injure bermudagrass runners bordering

a lawn (i.e., dinitroanilines) but turf managers should not rely on the efficacy of these herbicides to prevent bermudagrass encroachment.

## Postemergence Herbicide Control

Postemergence herbicides may be applied to suppress bermudagrass populations and reduce competition with desirable turfgrasses. Repeat applications of selective herbicides are needed for best results but may be injurious to the desirable species. Furthermore, tolerance to herbicides may vary by turfgrass cultivar and end-users should consult with local Extension specialists for application rates and recommendations.

### Bermudagrass Control in Centipedegrass

Centipedegrass is a popular low-maintenance lawn species in Georgia. Centipedegrass generally has slower growth than bermudagrass with less potential for competition during the summer. **Clethodim** (Envoy, others) and **sethoxydim** (Segment, others) are cyclohexenadione herbicides that inhibit lipid synthesis in grassy weeds. Sensitive species exhibit leaf injury with reddish discoloration before significant necrosis.

Bermudagrass is sensitive to both clethodim and sethoxydim and repeat applications may suppress populations in centipedegrass (Cox et al., 1999). Turf managers should schedule applications approximately every three weeks during active growth. For best results, add a nonionic surfactant at 0.25% v/v with clethodim to enhance spray retention and apply no sooner than three weeks after spring greenup. Certain sethoxydim products (e.g., Segment) may have a built-in adjuvant already mixed in the formulation and the addition of a surfactant is not required. For both herbicides, turf managers should avoid mowing one week before or after treatment.

### Bermudagrass Control in St. Augustinegrass

St. Augustinegrass is a major warm-season turfgrass used for lawns in southern Georgia. St. Augustinegrass has desirable heat and drought tolerance but is sensitive to many herbicides. Selective herbicides for controlling grassy weeds, such as crabgrass and goosegrass, are limited in St. Augustinegrass lawns. Bermudagrass infestations are also difficult to manage.

St. Augustinegrass has good tolerance to **ethofumesate** (PoaConstrictor, Prograss), which may be used in combination with **atrazine** to control bermudagrass (Table 1). Ethofumesate is an unclassified herbicide that has postemergence activity for grassy and broadleaf weed control in nonresidential St. Augustinegrass and cool-season grasses. Ethofumesate has several toxic effects in susceptible species, such as bermudagrass, but arrested cell division appears to be the primary mechanism of selectivity (Senseman, 2007).

Atrazine inhibits photosynthesis in susceptible weeds and is in the triazine herbicide family. Triazines interfere with electron transport during photosynthesis and eventually leads to cell membrane destruction and cellular leakage. Susceptible weeds initially exhibit chlorosis on leaf margins. Actively growing bermudagrass is sensitive to atrazine applications and its addition to ethofumesate treatments provides postemergence and some residual control of bermudagrass. Atazine alone may provide some bermudagrass suppression but does not provide long-term control.

Applications of ethofumesate with atrazine should be initiated during bermudagrass spring greenup (McCarty, 1996). Herbicide regimens that begin on actively growing bermudagrass in summer will likely be ineffective. St. Augustinegrass often responds to applications with stunted growth and discoloration. Repeat applications should be made after 30 days or once turf has recovered from any potential injury. See the current edition of the *Georgia Pest Management Handbook* for rates and further information about applications for bermudagrass control.

### Bermudagrass Control in Tall Fescue and Zoysiagrass

**Fenoxaprop** and **fluazifop** are aryloxyphenoxy-propionate herbicides used for postemergence grassy weed control in tall fescue and zoysiagrass. These herbicides inhibit lipid synthesis in susceptible grassy weeds similar to cyclohexenadiones. Sensitive weeds exhibit injured leaf tissue with reddish discoloration while plant nodes become necrotic and die. Aryloxyphenoxy-propionate herbicides have no activity on broadleaf weeds but provide excellent grassy weed control.

Fenoxaprop (Acclaim Extra) and fluazifop (Fusilade) may be used alone in tall fescue and zoysigrass lawns (Table 1). Fenoxaprop may also be used in residential and nonresidential Kentucky bluegrass (*Poa pratensis* L.), perennial ryegrass (*Lolium perenne* L.) and

other cool-season turfgrasses. Fluazifop may be used in commercial and nonresidential turf. Generally, tall fescue has good tolerance to these herbicides. There is greater potential for injury on zoysiagrass than on tall fescue from fenoxaprop or fluazifop treatments, especially fine-textured varieties. **Triclopyr** (Turflon Ester, Turflon Ester Ulta) at high rates (0.75 to 1 lb ai/acre) is injurious to bermudagrass, and tank mixtures with fluazifop or fenoxaprop have been shown to reduce tall fescue and zoysiagrass injury without compromising control (McElroy and Breeden, 2006). The addition of an adjuvant to tank mixtures of fluazifop with new triclopyr formulations (e.g., Turflon Ester Ultra) is unnecessary and may increase turf injury.

In Georgia, initial applications of fenoxaprop or fluazifop should be scheduled around June 1 and repeated every 20 to 30 days. Fluazifop alone should be applied with a non-ionic surfactant at 0.25% v/v of spray solution. Acclaim Extra (fenoxaprop) does not require the addition of an adjuvant. See the current edition of the *Georgia Pest Management Handbook* for rates and application comments for fluazifop and fenoxaprop treatments for bermudagrass control in tall fescue.

### Nonselective Bermudagrass Control

Spot treatments of nonselective herbicides are the most effective method for controlling bermudagrass. **Glyphosate** is a nonselective herbicide that is widely used for spot treatments of perennial weeds in turfgrasses. Glyphosate is a foliar-absorbed herbicide that is systemically translocated with no preemergence activity for weed control (Senseman, 2007). Glyphosate inhibits 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) in the shikimic acid pathway, blocking the production of aromatic amino acids: phenylalanine, tyrosine and tryptophan. Depletion of these amino acids reduces plant protein production necessary for growth and development.

Spot treatments of glyphosate should be made to bermudagrass patches and surrounding areas to control any runners that may be intermingled with desirable turfgrasses. Broadcast applications can effectively renovate or kill existing vegetation but high rates and multiple applications are required to control bermudagrass. Glyphosate should be applied to actively growing bermudagrass. Repeat treatments will be required for complete control. Cultural practices that disrupt plant growth, such as vertical mowing and aerification, should be delayed for seven days after treatment.

Glyphosate requires optimum translocation in order to control bermudagrass rhizomes and plants emerging form lateral stems. Perennial grasses generally have greater translocation of photosynthate from leaves to stems in fall than spring, which increases glyphosate movement to rhizomes. Fall glyphosate applications generally control bermudagrass more effectively than summer treatments. Numerous glyphosate products are available under a wide variety of trade names. Table 2 presents examples of glyphosate products, trade names and distributors. See product labels for rates and mixing instructions for spot treatments of glyphosate for postemergence bermudagrass control.

## Literature Cited


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**Table 1. Postemergence herbicides for bermudagrass suppression in lawns.**

| | Herbicides for Bermudagrass Suppression in Lawns | | | |
|---|---|---|---|---|
| | Centipedegrass | St. Augustinegrass | Tall Fescue | Zoysiagrass |
| clethodim | S† | NR†† | NR | NR |
| ethofumeste + atrazine | NR† | S | NR | NR |
| fenoxaprop | NR | NR | S | S |
| fenoxaprop + triclopyr | NR | NR | S | S |
| fluazifop | NR | NR | S | S |
| fluazifop + triclopyr | NR | NR | S | S |
| sethoxydim | S | NR | NR | NR |

†S = Safe for use at labeled rates.
††NR = Not registered for use.

**Table 2. Glyphosate product examples listed by distributors.**

| Company | Glyphosate Product Examples |
|---|---|
| Cheminova | Glyfos, GlyfosPro |
| Dow Agro | Glypro, Glypro Plus |
| Helena | Showdown |
| Lesco | Prosecutor, Prosecutor Pro |
| Loveland | Kleenup, Kleenup Pro |
| Monsanto | Roundup Original, Roundup Pro Max, Roundup Weather Max |
| QualiPro | Glyphosate T & O |
| Riverdale | Razor, Razor Pro |
| Syngenta | Departure, Refuge, Touchdown |

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