

## Managing Weeds in Warm Season Lawns

Bermudagrass, centipedegrass, zoysiagrass, and St. Augustinegrass are the most popular warm season turfgrasses grown in South Carolina. Warm season refers to the fact that they prefer warm temperatures of spring and summer. In the winter months, they do not actively grow, but become dormant.

### Disadvantages of Weeds

The main reason homeowners want to rid their lawn of weeds is that they are aesthetically disruptive. In other words, weeds are ugly and interrupt an otherwise uniform appearing lawn. Weeds are also fierce competitors and will rob the turf of sunlight, nutrients and moisture. Lastly, weeds have a tendency to spread rapidly. A few left uncontrolled can quickly become a problem.



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Annual trampweed (*Ficaria verna*) is a winter annual weed becomes established in lawns that are mowed very low and not irrigated or fertilized adequately. The fluffy seeds will blow in the wind.

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For more information, see: [HGIC 2319, Annual Trampweed](#).

### Types of Weeds

**Grassy vs. Broadleaf:** Grassy weeds emerge from seed as a single leaf. The leaf blades are longer than they are wide and have parallel veins. Examples are crabgrass, dallisgrass, and annual bluegrass.



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Annual bluegrass (*Poa annua*) is a winter annual weed. Here it is producing white seed heads during late spring. Also mixed in here is white clover.

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For more information, see: [HGIC 2325, Annual Bluegrass Control](#).

Broadleaf weeds emerge from seed with two leaves. Leaves have netlike veins and many, like dandelion or white clover, have showy flowers.

**Annual vs. Perennial:** Annuals germinate, grow, and die within a twelve month period. Summer annuals, such as goosegrass or crabgrass, germinate in the spring, grow through the summer, set seed, and die at the onset of cold weather. Winter annuals, such as chickweed, henbit, purple deadnettle, or annual bluegrass, germinate in the fall, grow through the winter, set seed and die as temperatures rise in early summer.



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Purple deadnettle (*Lamium purpureum*), like its close relative, henbit (*Lamium amplexicaule*), is a winter annual weed, and appears in dormant lawns in early spring.

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For more information, see: [HGIC 2321 Henbit](#).

Perennials grow for two or more years. They reproduce from vegetative parts such as tubers, bulbs, rhizomes, or stolons, though some also produce seed. Perennials tend to be the most difficult to control. Examples are dallisgrass, wild garlic, nutsedge, white clover, and plantains.



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Dandelion (*Taraxacum officinale*) is a perennial lawn weed that spreads by wind-blown seeds.

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## Proper Management

Weed control begins with proper management practices, which encourage a dense, healthy turf. A

healthy turf shades the soil so that less sunlight reaches the ready-to-germinate weed seeds. A thick turf minimizes the space available for weeds to become established.

Best management practices include proper:

- mowing height & frequency,
- watering rate & frequency,
- fertilizer analysis, rate, & timing,
- liming as recommended by a soil test,
- core aeration to reduce soil compaction,
- and de-thatching as needed.

Depending on the type, each warm season grass should be mowed at its recommended mowing height and frequently enough so that no more than  $\frac{1}{3}$  of the blade is removed. For turfgrass in partial shade, the mowing heights may be raised slightly. Mowing at the proper heights for the particular turfgrass will encourage a dense, healthy lawn. For more information on proper lawn mowing, please see: [HGIC 1205, Mowing Lawns](#).

When lawns show signs of drought stress, apply enough irrigation to deeply wet the entire root zone. Typically, water lawns with 1 inch of irrigation water per week if there is inadequate rainfall. One inch of irrigation water will wet the soil to 6 inches deep, and encourage a healthy, extensive root system. During hot dry periods and on sandy soil, irrigation may be required every three to five days. Watering more frequently (three or more times per week) will keep the soil surface moist and will promote weed seed germination. For more information on proper watering of lawns, please see: [HGIC 1207, Watering Lawns](#).

Fertilize and lime at the proper time and according to a soil test. Proper lime application will help to maintain a soil pH where nutrients are optimally available to the turf. For more information on proper lawn fertilization, please see: [HGIC 1201, Fertilizing Lawns](#).

Core aeration helps relieve the soil compaction that prevents optimum root growth and favors many weeds. Core aeration is superior to spike aeration, and is best performed during May after the lawn has fully greened and is actively growing. For more information about lawn aeration, please see: [HGIC 1200, Aerating Lawns](#).



De-thatching removes the layers of dead roots and stolons between the soil surface and the living, growing grass. Improper fertilization and irrigation practices may increase the thatch layer, which if greater than ½-inch thick, needs to be removed for best turfgrass growth. De-thatching is best performed in May once the turfgrass is actively growing. For more information about de-thatching a lawn, please see: [HGIC 2360, Controlling Thatch in Lawns](#).

### **Control with Herbicides**

Even when cultural practices are heeded, weeds may appear. If the number of weeds reaches an unacceptable level and pulling by hand is out of the question, you may want to turn to herbicides. At this point, it is important to know what weed you are trying to control. Local Extension offices, the Clemson Home & Garden Information Center, the Clemson Plant Problem Clinic, and publications can aid in identification.

### **Preemergence Herbicides**

Preemergence herbicides are applied to the soil prior to weed seed germination. They provide good control of many annual grassy weeds and are the best weapon against crabgrass. They also control some annual broadleaf weeds. Most are in a granular formulation; however, you may also find them as a liquid.

Most granular preemergence herbicides should be watered in with about ½ inch of irrigation immediately following application. This activates the herbicide which is absorbed by the young roots and shoots of weeds as they begin to grow.

In the spring, preemergence herbicides should be applied when air temperatures reach 65-70° F for four consecutive days. On average, this is March 1 for the coastal and central regions and March 15-30 for the piedmont and mountains. In the fall, to control winter annuals, apply preemergence herbicides when nighttime lows reach 55-60° F for four consecutive days. On average, this is September 15 thru October 1 for the coastal and central regions, and September 1-15 for the piedmont and mountains.

Preemergence herbicides are generally effective for six to 12 weeks, depending on the product. For season-long control, make a second application nine weeks after the first. See Table 1 for examples of herbicides and products.

### **Postemergence Herbicides**

Postemergence herbicides target visible weeds. They are used primarily against broadleaf weeds, perennial grasses, and sedges. The chemicals 2,4-D, dicamba, mecoprop (MCP), carfentrazone, and sulfentrazone are very common broadleaf herbicides for use in warm season turfgrass lawns. They have been combined in many products that control most broadleaf weeds. Often products will contain one or more of these broadleaf herbicides mixed with additional herbicides for control of grass weeds and/or sedges.

Bentazon, imazaquin and halosulfuron are sedge killers. Sethoxydim, quinclorac, fluazifop and fenoxaprop are selective grass weed killers. Sulfentrazone and carfentrazone kill broadleaf weeds and sedges. MCPA controls a wide range of broadleaf weeds, but is less commonly found in lawn herbicide mixes. Atrazine is both a broadleaf weed and grass weed killer.

Most of these postemergence herbicides can only be used on certain species of turfgrass. Read the product label to be sure it can be used safely on your type of lawn. See Table 2 for examples of herbicides and products.

### **Guidelines for Using Postemergence Herbicides**

When choosing an herbicide, be sure that it will control the targeted weed and that it is recommended for your turf. Before using, read the entire label and follow it precisely for rate and timing. The following tips will help you achieve optimum control.

- Most broadleaf weeds are best treated in the spring or fall when air temperatures are between 65 and 85° F. During hotter temperatures, turf damage is more likely to occur.
- At the time of treatment, soil moisture should be adequate. When stressed by drought, weed control is poor and turf damage may occur.

- Do not mow immediately prior to or after application. Mowing lessens the amount of herbicide that contacts weed leaf surface area.
- Treat weeds when no rain is expected for at least 24 hours with spray applications.
- Avoid treating on windy days because herbicide drift can injure ornamental plants.
- Best results occur when weeds are young.
- For acceptable control, repeat applications 10 to 14 days apart may be required.

## Precautions for New Lawns

It is best to not apply any herbicides during the first year after seeding or sodding a lawn. Besides, during this first year there may be no weeds that need controlling. Simply mow and bag the clippings for any minor weed problems.

However, if weeds have become significant, postemergence herbicides can be applied to newly seeded lawns at ½ the rate, but only after it's been mowed four times. If the lawn is to be over-seeded after a postemergence herbicide treatment, wait three to four weeks to reduce injury to the new seedlings, depending on the product. If seeding after applying a preemergence herbicide, wait at least nine weeks, but read the product label for the exact amount of time to wait after application before seeding.

In recently sodded areas, preemergence herbicides can be applied following signs of new growth, at ½ the rate recommended for established grasses. Postemergence herbicides should not be applied until the grass is visibly growing and spreading. Use ½ the recommended rate until after the turf has been mowed three times.

## Calendar

### February – March:

**Preemergence:** Apply a preemergence herbicide (see Table 1) according to the previously mentioned dates. If rain is not expected within 48 hours, apply ½-inch of irrigation. Many preemergence herbicides do not last more than 8 or 9 weeks, so a second application may be required 60 days later.

**Postemergence:** Before turfgrasses begin to green up for summer growth, apply a postemergence herbicide (see Table 2) to control winter broadleaf

weeds or summer broadleaf weeds that have emerged. Turf damage may occur following some broadleaf herbicide applications if used during turfgrass green-up, especially in more sensitive turfgrasses, such as centipedegrass and St Augustinegrass. If the lawn has begun to come out of dormancy, then wait until the turfgrass is totally greened up before applying a postemergence weed killer. As with any pesticide, read the label to make sure that it is appropriate for your situation, and that it is being applied at the correct rate.

### May – July:

**Preemergence:** If making two spring applications, apply again 60 days following the first application

**Postemergence:** If annual grasses such as crabgrass, or perennial grasses such as dallisgrass have emerged, apply a postemergence grass herbicide. Two to three applications, 14 to 21 days apart may be necessary for control. For broadleaf weeds, apply a three-way mixture, such as containing 2,4-D, dicamba and mecoprop. See Table 2 for examples.

### August – October:

**Preemergence:** Make applications according to the previously mentioned schedule, to control annual winter weeds. Most crabgrass preventers will stop most annual grass weeds from coming up in the lawn, including annual blue grass (*Poa annua*). However, these preemergence herbicides may need to be reapplied twice in the fall for season long control, so check the product label (see Table 1).

**Postemergence:** Continue to treat grassy weeds. Best control is achieved when treating young plants.

### November – January:

**Postemergence:** Treat winter broadleaf weeds with a postemergence herbicide on mild days. Wild onions and garlic are best treated during November and again during February using a three-way herbicide. If necessary, repeat spray application during the following November (see Table 2).

Non-selective herbicides, such as Roundup or Eraser, can be used safely on bermudagrass that is completely dormant. However, in SC, turfgrasses may not go completely dormant due to the mild winter, and glyphosate application may delay total green-up in the spots where sprayed.

**Table 1. Preemergence Herbicides for Lawns.**

<b>Turfgrass</b>	<b>Weeds Prevented</b>	<b>Active Ingredients</b>	<b>Examples of Brands &amp; Products</b>
Bahigrass Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	Annual grass weeds including crabgrass & annual bluegrass; also some broadleaf weeds	benefin	Pennington Crabgrass Preventer
	Same as for benefin, plus goosegrass	oryzalin	Southern Ag Surflan A.S.
	Same as above	benefin + oryzalin	XL2G
	Summer annual grasses, annual bluegrass, some selected annual broadleaf weeds	benefin + trifluralin	Anderson Turf Products Crabgrass Preventer with 2% Team Herbicide Hi-Yield Crabgrass Control
	Same as for benefin, plus oxalis & speedwell	pendimethalin	Scotts Halts Crabgrass Preventer
	Same as for benefin, plus oxalis	dithiopyr	Bonide Crabgrass & Weed Preventer for Lawns & Ornamental Beds Green Light Crabgrass Preventer 2 with Dimension Hi Yield Turf & Ornamental Weed & Grass Stopper Containing Dimension StaGreen CrabEx Crabgrass Preventer
	broadleaf weeds, such as chickweed, clover, henbit, bittercress, spurge, plantain, & others	isoxaben	Ferti-lome Broadleaf Weed Control with Gallery Green Light Portrait Broadleaf Weed Preventer
Bahigrass Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	summer annual grasses, annual bluegrass, some selected weeds such as chickweed, spurge, goosegrass	prodiamine	Helena Pro-Mate Barracade & Fertilizer 0-0-7 Howard Johnson Crabgrass Control with Prodiamine & 0-0-7 Lebanon Pro Fertilizer (0-0-7) with Prodiamine Lesco Barricade Plus Fertilizer 0-0-7 Lesco Stonewall Plus Fertilizer (0-0-7) Pro-Mate Barracade Plus Fertilizer (0-0-7) Scotts Halts Pro 0-0-7 & Halts Pro

Notes: These preemergence herbicides should only be applied to well-established turfgrass lawns. Typically, the optimum time for lawn fertilizer applications and pre-emergence herbicide applications do not coincide. However, the small amount of potash in the 0-0-7 blends is normally not a problem, & may be useful on sandy soils with fall applications to improve cold weather hardiness of the lawn.

**Table 2. Postemergence Herbicides for Lawns.**

<b>Turfgrass</b>	<b>Weeds Controlled</b>	<b>Active Ingredients</b>	<b>Examples of Brands &amp; Products</b>
Centipedegrass	crabgrass, goosegrass & other annual grasses & bermudagrass; bahiagrass and dallisgrass suppression	sethoxydim	Arrest (Whitehall Institute) Segment (BASF)
Centipedegrass St. Augustinegrass	clover, lespedeza, spurge, oxalis, dollarweed, Florida betony & other broadleaf weeds and crabgrass & annual grasses	atrazine	Hi Yield Atrazine Weed Killer Image for St. Augustinegrass & Centipedegrass with Atrazine Southern AG Atrazine St. Augustine Weed Killer Spectracide Weed Stop for Lawns Concentrate for St. Augustine & Centipede Lawns
Zoysiagrass <sup>1</sup>	annual & perennial grasses, such as crabgrass, foxtails, goosegrass, sandbur; bermudagrass suppression	fluazifop	Syngenta Fusilade II Turf & Ornamental <sup>2</sup>
		fenoxaprop	Aventis Acclaim Extra 0.57EC <sup>2</sup>
Bahiagrass Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	wild garlic, wild onion, dandelion, clover, plantains, and most other broadleaf weeds	2, 4-D + dicamba + mecoprop (MCP)	Bayer Advanced Southern Weed Killer For Lawns Bonide Weed Beater Lawn Weed Killer with Trimec Bonide Lawn Weed Killer Granules Ferti-lome Weed Out Lawn Weed Killer With Trimec Lilly Miller Lawn Weed Killer Southern Ag Lawn Weed Killer with Trimec Conc.
Bahiagrass Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	wild garlic, wild onion, dandelion, clover, plantains, and most other broadleaf weeds, plus sedges	2,4-D + dicamba + mecoprop (MCP) + sulfentrazone	Spectracide Weed Stop Weed Killer For Lawns
Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	wild garlic, wild onion, dandelion, clover, plantains, and most other broadleaf weeds; & moss suppression	2,4-D + dicamba + mecoprop + (MCP) + carfentrazone	Bonide Weed Beater Ultra Concentrate Ortho Weed B Gon Max for Southern Lawns
Bermudagrass <sup>3</sup> Zoysiagrass	crabgrass, foxtails, signalgrass; most broadleaf weeds, such as dollarweed, black medic, wild onion & garlic, speedwells, plantains, dandelion, white clover, violets, henbit, chickweed, star of Bethlehem	2,4-D + dicamba + quinclorac	Bayer Advanced All-in-One Lawn Weed & Crabgrass Killer Concentrate Ferti-lome Weed Out with Q Concentrate Green Light Wipe Out Crabgrass Killer Plus Concentrate Monterey Crab-E-Rad Plus Concentrate Ortho Weed B Gon Max Plus Crabgrass Control Concentrate

Bermudagrass <sup>3</sup> Zoysiagrass	crabgrass, foxtails, signalgrass; most broadleaf weeds, such as dollarweed, black medic, speedwells, plantains, dandelion, white clover, violets, henbit, chickweed, star of Bethlehem, & nutsedges.	2,4-D + dicamba + quinclorac + sulfentrazone	Spectracide Weed Stop for Lawns Plus Crabgrass Killer Concentrate
Bermudagrass <sup>3</sup> Zoysiagrass	crabgrass, foxtails, signalgrass; some broadleaf weeds, such as dollarweed, black medic, speedwells, dandelion, white clover, violets, henbit, chickweed, star of Bethlehem, & nutsedges.	sulfentrazone + quinclorac	Image Kills Crabgrass Concentrate
Bahiagrass Bermudagrass Zoysiagrass	many broadleaf weeds; partial bermudagrass suppression	MCPA + dicamba + triclopyr	Monterey Spurge Power Concentrate Bonide Chickweed, Clover & Oxalis Killer Concentrate
Bahiagrass Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	yellow nutsedge, globe sedge, annual sedge, and many broadleaf weeds	bentazon	BASF Basagran T & O 4L Lesco LescoGran Postemergence Herbicide Southern Ag Basagran Sedge Control
Bahiagrass Bermudagrass Centipedegrass St. Augustinegrass Zoysiagrass	yellow & purple nutsedge, annual sedges, common purslane, groundsel	halosulfuron	Gowen SedgeHammer <sup>2</sup> Monterey Nutgrass Killer <sup>2</sup> Hi-Yield Nutsedge Control <sup>2</sup>
Bermudagrass <sup>1</sup> Centipedegrass <sup>1</sup> St. Augustinegrass <sup>1</sup> Zoysiagrass	purple nutsedge, annual sedges, sandspur, wild garlic, and some broadleaf weeds	imazaquin	Image Nutsedge Killer

Do not apply postemergence herbicides to lawns during the spring green up of turfgrass.

<sup>1</sup>Intermediate safety; use at reduced rates.

<sup>2</sup>These products require the addition of 2 teaspoons of a non-ionic surfactant (that is, a wetter-sticker agent to aid in weed control at 0.25% by volume) per gallon of water, such as Hi-Yield Spreader Sticker.

<sup>3</sup>For use on common bermudagrass. Intermediate safety on hybrid bermudagrass.

**Table 3. Preemergence & Postemergence Herbicide Combination Products for Lawns.**

Turfgrass	Weeds Controlled	Active Ingredients	Examples of Brands & Products
Bahia grass Bermudagrass Centipedegrass St. Augustine grass Zoysiagrass	Preemergence: summer annual grasses (such as crabgrass & goosegrass), annual bluegrass, & some broadleaf weeds, such as chickweed & spurge. Postemergence: most perennial & annual sedges, many broadleaf weeds & some annual bluegrass control.	prodiamine (pre) + sulfentrazone (post)	Bonide Weed Beater Complete Granules Bonide Sedge Ender Concentrate
Bahia grass Bermudagrass, Centipedegrass, St. Augustine grass, Zoysiagrass	Preemergence: broadleaf weeds, such as chickweed, clover, henbit, bittercress, spurge, plantain & others. Postemergence: most broadleaf weeds.	isoxaben (pre) + (post) 2,4-D + dicamba + mecoprop (MCP)	Bayer Advanced Season Long Weed Control for Lawns, or Bayer Advanced Southern Season Long Weed Control for Lawns

Note: These preemergence herbicides should only be applied to well-established turfgrass lawns.

Pesticides update by Joey Williamson, HGIC Horticulture Extension Agent, Clemson University, 08/16. Revised by Joey Williamson, HGIC Horticulture Extension Agent, Clemson University, 06/15. Originally prepared by Chuck Burgess, HGIC Horticulture Extension Agent, Clemson University. New 06/04.

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