

Home Lawn Weed Control

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Good cultural practices account for 60 to 70 percent of turfgrass weed control. Maintaining a dense, vigorous lawn is essential to prevent lawn weeds. Herbicides should be considered a supplement, not a stand-alone weed control practice. If herbicide use is not accompanied by proper cultural practices, the weed problem will return because the deficiency, which led to weed invasion, has not been corrected. When herbicides alone are used, the symptoms – not the cause – of a weedy lawn are being treated.

Weeds are often indicators of specific problems. Conditions such as low fertility and saturated or compacted soil favor weeds over turfgrass. Soil compaction may lead to encroachment of prostrate knotweed, annual bluegrass, path rush and goosegrass. Poor drainage encourages invasion by sedges, rushes and Virginia buttonweed. The presence of legumes such as white clover and lespedeza is often an indication of low nitrogen levels. Cultural and environmental problems should be corrected before embarking on a program of herbicide use.

Aerifying to relieve compaction may be necessary for lawns that receive heavy traffic. A machine that removes a plug of soil from the lawn is superior to those that only create a hole. Aerifying is not an easy job. For do-it-yourself enthusiasts, it requires renting and operating an aerifier, which is a cumbersome piece of equipment. The easiest solution is hiring a lawn care company to do the job.

Correcting drainage problems may require grading or the installation of drain tiles. Recently, several companies have introduced innovative drain tile designs that may be installed with a minimum of equipment. The primary requirement is a walk-behind trencher available at rental stores.

Water deeply and infrequently. Light, frequent irrigation encourages shallow rooting. Early morning is a good time to water because evapotranspiration potential is low, the wind is usually calm and early watering allows the grass foliage to dry during the day.

Patch bare areas as soon as they appear to prevent invasion by weeds. Stoloniferous grasses such as bermudagrass and St. Augustinegrass will readily fill in bare spots if a few plugs or sprigs of healthy grass are planted in these areas. Reseeding is an option with common bermudagrass, centipedegrass and tall fescue. Slow-growing grasses such as zoysiagrass and centipedegrass may be sprigged or plugged, but it is much faster to sod the bare areas.

Soil test and add lime, if necessary, to bring pH within soil test recommendations. Fertilize according to soil test recommendations to encourage vigorous turf. Do not add additional phosphorus if soil test levels exceed 65 pounds per acre. Additional potash is not needed if potash levels are at 250 pounds per acre or more.

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See Table 1 for nitrogen recommendations for various turfgrasses.

Table 1. Nitrogen Requirements of Common Arkansas Turfgrasses	
Turfgrass	Lb/Nitrogen/1,000 Sq Ft Per Growing Season
Bermudagrass	2 to 4
Centipedegrass	0.5 to 1
St. Augustinegrass	2 to 3
Tall Fescue	2 to 3
Zoysiagrass	1 to 2

Mechanical control methods such as digging and pulling can be useful when dealing with a small number of weeds. Hand pull or dig new or exotic weeds to prevent their spread. Mowing is another method of mechanical weed control. Follow recommended mowing guidelines for the various types of grasses. Keep the mower blades sharp and avoid excessively low mowing. Do not remove more than one-third of the grass height at any one mowing. Scalping puts the grass under stress. See Table 2 for recommended mowing heights.

Table 2. Recommended Mowing Heights	
Turfgrass	Mowing Height in Inches
Bermudagrass	1.0 to 1.5
Centipedegrass	1.5
St. Augustinegrass	3
Tall Fescue	3
Zoysiagrass	1.0 to 1.5

Another point to consider is how weed-free does your lawn have to be? Weeds bother some people more than others. Look at the lawn from the street. If its appearance is acceptable, do not waste your time going after those last few weeds. Excessive herbicide use intended to eliminate a few stubborn weeds usually does more harm than good. A 100 percent weed-free lawn is not a practical goal.

Preemergence Herbicides

Preemergence herbicides are the foundation of a turfgrass weed management program. Preemergence herbicides are applied to the site before weed seed germination. After being activated by rainfall or irrigation, these herbicides form a herbicide barrier at or just below the soil surface. When the roots or shoots

of germinating seeds come in contact with the herbicide barrier, their growth is inhibited. Most preemergence herbicides are cell division inhibitors affecting the emerging roots or shoots that are sites of rapid cell division. Weeds that have already emerged (visible) are not consistently controlled because their growing point has escaped contact with the herbicide. The primary targets of preemergence herbicides are annual grasses, such as large crabgrass, but some small-seeded annual broadleaf weeds will be controlled.

A variety of factors affect the performance of preemergence herbicides. These include timing of application in relation to weed seed germination, soil type, environmental conditions (primarily temperature and rainfall), target weed species and biotype.

Preemergence herbicides must be in place and activated before weed seed germination begins. Activation of preemergence herbicides requires 0.5 inch of rainfall or irrigation. For optimum performance, rainfall or irrigation should occur within 24 hours of application to move the herbicides into the upper layer of the soil. The critical period between application and activation by rainfall or irrigation varies with herbicide, rate and environmental conditions. Ideally, preemergence herbicides should be applied just before weed seed germination begins. However, time of weed germination varies from year to year in response to changing weather conditions. Because the number one reason for preemergence herbicide failure is applying after weeds have germinated, it is better to err on the side of earliness. Research shows that preemergence crabgrass herbicide applications made in January or February are just as effective as a March treatment. This early timing works because the degradation rate of herbicides is much slower in cold weather versus warm weather.

Crabgrass germinates in the spring (late March-April) when soil temperature at the 4-inch depth reaches 53 to 58 degrees F. Alternating wet and dry conditions at the soil surface as well as light encourage crabgrass germination.

Sequential or Repeat Applications

In warm weather, herbicides begin to degrade soon after application, eventually reaching a level at which weed seed germination can occur. Preemergence herbicides will degrade to the point of ineffectiveness from 6 to 16 weeks after application. For this reason, repeat or sequential applications are needed for full season control. Make sequential applications 60 days after the initial treatment.

Weed Control Calendar for Home Lawns

Time of Application	Weeds	Herbicides	Turfgrasses	Comments
Late February to mid-March	crabgrass	Table 3	bermudagrass, centipedegrass, St. Augustinegrass, tall fescue, zoysiagrass	Apply a preemergence herbicide. To be effective, preemergence herbicides must be applied before weeds emerge. These herbicides require 0.25 to 0.5 inch of rainfall or irrigation for activation. To be effective, they must be applied before weed seed germination.
April to July	annual and perennial broadleaf weeds (ground ivy, Virginia, buttonweed, wild violet)	Table 4	bermudagrass, zoysiagrass, tall fescue (check label for St. Augustinegrass and centipedegrass)	Apply three-way (2,4-D + dicamba + MCPP) or Trimec® type herbicides to actively growing broadleaf weeds. Apply these products while the turfgrass is dormant or actively growing. Using these products during the green-up period results in unacceptable turfgrass injury.
May to July	crabgrass, goosegrass, sandbur, dallisgrass, bahiagrass	Table 5	bermudagrass, zoysiagrass	Apply MSMA or CAMA to control escaped grass weeds in bermudagrass and zoysiagrass. Do not apply MSMA, DSMA or CAMA to centipedegrass or St. Augustinegrass. MSMA is more effective when temperatures are warm. When using MSMA during the early part of the season, apply at midday to take advantage of higher temperatures.
May to July	nutsedge or "nutgrass"	Table 7	bermudagrass, zoysiagrass	Manage is safe on all turfgrasses. Image may be used on bermudagrass, centipedegrass, St. Augustinegrass and zoysiagrass. Do not apply MSMA to centipedegrass or St. Augustinegrass.
September 1	annual bluegrass, henbit, chickweed	Table 3	bermudagrass, centipedegrass, St. Augustinegrass, tall fescue, zoysiagrass	Choose and apply a preemergence herbicide. Do not apply to lawns that will be overseeded. Do not apply preemergence herbicides to newly established lawns until after three to four mowings.
November to March	wild garlic or "onion"	Table 4	bermudagrass, zoysiagrass, tall fescue (check label for St. Augustinegrass and centipedegrass)	Apply three-way (2,4-D + dicamba + MCPP) herbicides in late November or December when temperatures are above 50 degrees F. Add 1/2 oz surfactant per gallon of spray mix. Repeat treatment in early March and again the following December for complete garlic control.
November to March	winter annual broadleaf weeds	Table 4	bermudagrass, zoysiagrass, tall fescue (check label for St. Augustinegrass and centipedegrass)	Apply three-way (2,4-D + dicamba + MCPP) herbicides in late November through March when warm-season grasses are dormant and temperatures are above 50 degrees F.

Table 3. Preemergence Crabgrass Control

Trade Name	Active Ingredients
Green Light First Down Crabgrass Control	benefin + trifluralin
Hi-Yield Crabgrass Preventer	benefin + trifluralin
Green Light Amaze Grass and Weed Preventer	benefin + oryzalin
Pennington Crabgrass Preventer	benefin
Green Light Betasan Crabgrass Preventer	bensulide
Halts Crabgrass Preventer	pendimethalin

Table 4. Postemergence Broadleaf Control	
Trade Name	Active Ingredients
Hi-Yield Lawn Weed Killer	2,4-D + MCPP + dicamba
Dragon Lawn Weed Killer	2,4-D + MCPP + dicamba
Green Light Wipe Out	2,4-D + MCPP + dicamba
Martin's DeWeed Lawn Weed Killer for Southern Grasses	2,4-D + MCPP + dicamba
Rigo Super Lawn Weed Killer	2,4-D + MCPP + dicamba
Spectrum Lawn Weed Killer 33 Plus	2,4-D + MCPP + dicamba
Trimec Classic	2,4-D + MCPP + dicamba
Trimec Southern	2,4-D + MCPP + dicamba
Fertilome Weed Out Lawn Weed Killer	2,4-D + MCPP + dicamba
Fertilome Weed Free Zone	2,4-D + MCPP + dicamba + carfentrazone
Ortho Weed-B-Gon Lawn Weed Killer	2,4-D + MCPP + dicamba
Ortho Weed-B-Gon Chickweed, Oxalis, Clover Killer	triclopyr
Hi-Yield Atrazine (winter annual weed control)	atrazine

Table 5. Postemergence Selective Control of Grass Weeds in Turf	
Trade Name	Active Ingredient
Fertilome Bermudagrass Weeder	MSMA
Fertilome Crabgrass, Nutgrass and Dallisgrass Killer	MSMA
Green Light MSMA Crabgrass Killer	MSMA
Hi-Yield 529 MSMA	MSMA
Weed-B-Gon Crabgrass Killer for Lawns	CAMA
Green Light DSMA Crabgrass Killer	DSMA
Vantage T/O (centipedegrass only)	sethoxydim
Hi-Yield Poast (centipedegrass only)	sethoxydim

Table 6. Postemergence Selective Control of Broadleaf Weeds and Grasses	
Trade Name	Active Ingredients
Fertilome Weed Out Plus	2,4-D + MCPP + dicamba + MSMA
Bayer Advanced All in One Weed Killer	2,4-D + MCPP + dicamba + MSMA
Trimec Plus	2,4-D + MCPP + dicamba + MSMA

Table 7. Postemergence Selective Control of Sedges		
Trade Name	Active Ingredient	Weeds Controlled
Hi-Yield Basagran	bentazon	Yellow nutsedge, annual sedge
Manage	halosulfuron	Yellow and purple nutsedge, kyllinga
Image	imazaquin	Yellow and purple nutsedge, kyllinga
MSMA several brands	MSMA	Annual sedges, kyllinga

Use of brand names in this publication does not imply endorsement of the products named or criticism of similar ones not mentioned. Before selecting a product, check on the safety to the turfgrass and whether or not it will control the weeds present in the turf.

Advantages of Preemergence Herbicides

- Susceptible weeds are never seen.
- Most trees, shrubs and flowers are tolerant of preemergence herbicides. Many of these products are approved for use in selected ornamentals. **Atrazine is an exception.**
- Postemergence herbicides often cause temporary injury, whereas preemergence herbicides will not injure established turfgrasses.
- Preemergence herbicides are typically available as granules. Granules are easier to spread and not susceptible to vapor drift.

Postemergence Herbicides

Postemergence herbicides are intended for use on weeds that have germinated and are visible. They are applied directly to emerged weeds. Established perennial weeds, both grasses and broadleaf weeds, must be controlled with postemergence herbicides.

General guidelines for postemergence applications are small weeds, good soil moisture and air temperature between 60 and 80 degrees F. Weeds that are small (two- to four-leaf stage) and actively growing are much easier to control with postemergence herbicides. Control is improved at this stage because young weeds readily absorb and translocate herbicides. Early weed control also provides an opportunity for turfgrasses to fill in the bare areas left by dying weeds.

Do not apply postemergence herbicides during the green-up (transition from winter dormancy to active growth) process of warm-season turfgrasses. The risk of injury from postemergence herbicides is greater during green-up than when the turfgrass is completely dormant or actively growing.

Weeds that are stressed due to dry weather, heat or other environmental factors are more difficult to control with postemergence herbicides. Applying herbicides such as MSMA, DSMA, 2,4-D, mecoprop, dichlorprop and dicamba at temperatures above 90 degrees F increases the risk of turfgrass injury.

The resistance of postemergence herbicides to wash-off by rainfall or irrigation varies among products. Typically, a rain-free period of 6 to 24 hours is sufficient to avoid a reduction in effectiveness. Even if rain falls soon after application, some degree of reduced control will be achieved.

Mowing can affect performance of postemergence herbicides. Avoid mowing three to four days before application for greater leaf area to intercept the spray. Delay mowing three to four days after spraying to allow the herbicide to be absorbed and translocated.

Rather than a single rate, a range of postemergence herbicide rates for a product is usually given. Repeat applications of the low rate are generally more effective than a single application of the higher rate. The follow-up application is timed to be 7 to 14 days after the first or when regrowth appears.

Fertilizer + Herbicide Mixtures

There is a drawback associated with using a weed and feed product for preemergence crabgrass control in warm-season grasses. At the time preemergence crabgrass herbicides should be applied, warm-season grasses in Arkansas are dormant. This creates a timing conflict because warm-season grasses (bermudagrass, zoysiagrass, centipedegrass, St. Augustinegrass) do not need nitrogen applications until active growth begins.

Another weed and feed issue is the relative effectiveness of Trimec® type (Table 4) herbicides applied on dry fertilizer compared to mixing an herbicide only product with water and applying it as a spray. Weed control results have been consistently superior with postemergence herbicides applied as a spray compared to those applied on a dry fertilizer carrier. In this case, it is up to the individual to choose convenience or improved performance. The difference may be minor if the weeds present are types that are easily controlled.

Application

When using herbicides, accurate distribution is essential. If too little herbicide is used, poor weed control will result, and if too much is applied, desirable plants may be damaged.

Granular Herbicides

The commonly used granular applicators are drop spreaders and centrifugal spreaders that are carried or pushed. Many granular herbicides may also be hand applied using a shaker can.

Apply granular herbicides in two directions to increase the chances of uniform distribution. Determine the total amount of herbicide to be applied, divide it into two equal portions and apply one-half in one direction and the other half perpendicular to the first application.

Centrifugal spreaders cover a wider area faster with fewer missed areas than drop spreaders. But a centrifugal spreader may not apply the herbicide evenly across the swath. The outer edges of the pattern will probably receive less herbicide.

An advantage of drop spreaders is that they are less likely to have their distribution pattern disrupted by wind. Another advantage is avoiding application of herbicides to walks and driveways. When using a drop spreader, make the swaths meet without overlaps or skips. Skips will allow patches of weeds to survive, and overlaps may injure desirable plants due to a double rate of herbicide. An overlap of one wheel width is a good rule of thumb. Remember to close the spreader when pulling out from under trees and shrubs to avoid double applications. Operating the spreader across the long dimension of the lawn is preferred to reduce the number of turns required.

Liquid Herbicides

Two of the most readily available devices for applying small amounts of liquid herbicides are the hand sprayer and the hose end sprayer. To accurately apply herbicides, determine the area to be treated. The most common unit of area in lawn care is 1,000 square feet. Length times width gives you square feet (for example: 20 ft x 50 ft = 1,000 sq ft).

Example: A home lawn contains 8,000 square feet of turfgrass. The recommended amount of Fertilome Bermudagrass Weeder® is 2 ounces per 1,000 square feet. How much Fertilome Bermudagrass Weeder® is needed to treat the lawn?

8,000 sq ft x 2 oz per 1,000 sq ft = 16 oz
(1 pint of Fertilome Bermudagrass Weeder®)

Liquid formulations should be applied in approximately one gallon of water per 1,000 square feet. Before mixing the herbicide, practice applying one gallon of water to 1,000 square feet.

Herbicide Safety Precautions

- Always read the herbicide label to determine recommended handling precautions.
- Avoid inhaling sprays or dusts.
- If herbicides are spilled on the skin, wash the contaminated skin thoroughly with soap and water.
- Do not spray with equipment that has loose hoses or connections.
- Mix and use only the amount of herbicide necessary to treat the lawn.
- Always store herbicides in the original container.
- Herbicides should be placed in dry areas protected from freezing temperatures.
- Herbicides should be out of reach of children, pets and livestock.