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NUTSEDGE

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Nutsedges are very aggressive and persistent weeds that commonly infest lawns, vegetable and flower gardens, and home landscapes. They can be very difficult to eradicate, and their control is likely to be a long process. Successful control involves both cultural and chemical management methods.

Once a nutsedge infestation has been controlled, sanitation to prevent new introductions is critical. Any new infestations should be managed right away to prevent the spread of these aggressive and difficult-to-control weeds.

Yellow nutsedge. (*Cyperus esculentus*) has a greenish-yellow seedhead.
Photo by Joseph LaForest, University of Georgia, Bugwood.org

Life Cycle & Description

Nutsedges are often called "nutgrass" because they closely resemble grasses. Correct identification is very important, as most herbicides for grass control are not effective on sedges. Nutsedges can be distinguished from grasses by their stems, which are triangular or V-shaped in cross-section, while grass stems are hollow and round. Their leaves are thicker and stiffer than most grasses and are arranged in groups of three at the base. Nutsedge leaves appear creased with prominent mid-veins.

Purple nutsedge (*Cyperus rotundus*) has a purple seedhead.
Photo by Joseph LaForest, University of Georgia, Bugwood.org

Most nutsedges are perennials whose leaves die back in the fall when temperatures decrease. Tubers (often called "nutlets") and rhizomes (underground stems) survive in the soil and sprout the following spring. The tubers and rhizomes can grow eight to 14 inches below the soil surface.

Nutsedges thrive in almost any kind of soil. While they prefer moist soil, established nutsedge plants will thrive even in dry soil. They spread by small tubers, by creeping rhizomes, or by seed. New tubers begin forming four to six weeks after a new shoot emerges. Individual nutsedge plants may eventually form patches 10 feet or more in diameter.

Identifying Nutsedges

Purple nutsedge (*Cyperus rotundus*) and yellow nutsedge (*Cyperus esculentus*) are the most common nutsedges in South Carolina. Yellow nutsedge is more widespread than purple nutsedge due to its greater cold tolerance. However, where purple nutsedge is adapted, it can be even more vigorous than yellow nutsedge. The two species often grow together. Because purple and yellow nutsedges differ in herbicide susceptibility, correct identification is critical to successful control.

Identifying Characteristics of Nutsedges.

Yellow Nutsedge	Purple Nutsedge
Long Tapered leaf tip	Leaves taper abruptly to a blunt point
Seedhead yellow	Seedhead purple
Tubers single at tips of rhizomes	Tubers connected in chains on rhizomes
Emerges early	Emerges later
Leaves light green	Leaves darker green
12 to 16 inches tall when mature	Usually under 6 inches when mature

Control in the Lawn

A combination of cultural, mechanical, and chemical control methods has the best chance of effectively managing nutsedge.

Cultural Control: Nutsedges thrive in moist areas, and their presence often indicates that drainage is poor, irrigation is too frequent, or sprinklers are leaky. However, once established, they will tolerate normal moisture levels or even drought.

Nutsedge tubers are spread by cultivation and introduced in topsoil and nursery stock. They can persist in the soil for years. Learn to recognize nutsedge to avoid accidentally bringing it in on newly purchased sod, topsoil, or plants. Be sure to thoroughly clean tools and equipment such as tillers that have been used in an infested area to avoid spreading tubers and rhizome pieces.

Give turfgrasses a competitive advantage by following all recommended practices for the lawn species, including mowing at the ideal height, applying fertilizer at the proper rate and time, and maintaining the ideal **soil pH**. Proper irrigation rate and timing are especially important since excessively moist soil will encourage the growth of nutsedge. It is best to water established lawns deeply but infrequently, which allows the surface soil to become dry between water applications. Monitor and manage insect and disease infestations to avoid thin, bare areas that may be overtaken by nutsedge.

Mechanical Control: It is possible to eliminate very small patches of nutsedge by digging. Dig at least 10 inches deep and at least eight to ten inches beyond the diameter of the aboveground leafy portion of the plant. This will ensure the removal of the spreading tubers. This is best done early in the spring before more tubers are produced.

Chemical Control: Nutsedges can be controlled chemically with postemergence herbicides. Because different herbicides are effective against different species, it is important to correctly identify the nutsedge to be controlled. Herbicides also vary regarding the desirable plants they can be safely used around without causing damage. Always check the label to make sure the pesticide you choose will not damage desired plants.

Apply herbicides when nutsedge is actively growing in warm conditions with adequate soil moisture. Water the lawn the day before spraying to help protect the turfgrass and to assure that the weeds are actively growing (so they will better take up the herbicide). Applications during droughty conditions or when the nutsedge is not actively growing may result in poor control. Avoid applications during hot or dry weather (> 90 °F) to minimize the chances of injury to the turfgrass. Follow the instructions on the product label for the most effective application rate and procedure.

Avoid mowing before a postemergence herbicide application to allow for adequate foliage to absorb the herbicide spray. Also, avoid mowing for two days after application to allow enough time for the plant to absorb and move the herbicide down to the tubers. The length of time to allow before and after mowing varies with the product. Always read the label for specific instructions.

Bentazon: Bentazon (the active ingredient in Southern Ag Basagran Sedge Control, Basagran T/O, and Lesco LescoGran) is labelled for use on tall fescue, bermudagrass, zoysiagrass, centipedegrass, St. Augustinegrass, and other turfgrasses. It should not be applied to any newly seeded or newly sprigged turf until after it is well established. Rainfall or sprinkler irrigation within eight hours of application may reduce the effectiveness. Make a second application 7 to 10 days later. These basagran products may require the use of an oil concentrate (such as Southern Ag Herbi-Oil 83-17 Spray Adjuvant) added to the sprayer at 5 teaspoons per gallon for best control.

Imazaquin: Imazaquin (the active ingredient in Image Nutsedge Killer) is recommended for use on centipedegrass, zoysiagrass, St. Augustinegrass, and bermudagrass lawns. For best weed control, the application must be followed by one-half inch of irrigation to wash the active ingredient into the shoot/root zone. Repeat application may be necessary in 3 to 5 weeks for complete control. Do not apply Image Nutsedge Killer to newly seeded or newly sprigged turf, and do not apply during periods of slow growth. Furthermore, due to its preemergence activity, treated areas cannot be seeded or over-seeded for six weeks.

Halosulfuron: Halosulfuron (the active ingredient in SedgeHammer Plus, Hi-Yield Nutsedge Control, Martin's Nutgrass Eliminator, and Monterey Nutgrass Killer II) is effective against both yellow and purple nutsedges. These products require the use of a nonionic surfactant (such as Southern Ag Surfactant for Herbicides, Bonide Turbo Spreader Sticker, or Hi-Yield Spreader Sticker) at 2 teaspoons per gallon of water, and spray treatment may need to be repeated in 6 to 10 weeks for complete control. Halosulfuron is labeled for use on tall fescue, bermudagrass, centipedegrass, zoysiagrass, and St. Augustinegrass lawns.

Sulfentrazone: Sulfentrazone (one of the active ingredients in Gordon's Trimec Nutsedge Plus Lawn Weed Killer, Ortho Nutsedge Killer for Lawns RTS, and Blindside Herbicide is faster acting on nutsedges, but may require a second application 30 days later. Check product labels for which turfgrasses are compatible with the herbicide use.

Herbicides for Nutsedge Control in Home Lawns

	Sedge Control	Turf Tolerance

Herbicide	Yellow Nutsedge	Purple Nutsedge	Bermuda	Centipede	Tall Fescue	St. Augustine	Zoysia
Basagran T/O Lesco LescoGran Southern Ag Basagran Sedge Control (**bentazon**)	G	P	S	S	S	S	S
Image Nutsedge Killer (**imazaquin**)	F	G	S	S	NR	S	S
SedgeHammer Plus Monterey Nutgrass Killer Concentrate Hi-Yield Nutsedge Control Concentrate Martin's Nutgrass Eliminator (**halosulfuron**)	G-E	G-E	S	S	S	S	S
Ortho Nutsedge Killer for Lawns Ready to Spray (**sulfentrazone**)	F	P-F	S	S	S	S	S
Bonide Sedge Ender Concentrate (**sulfentrazone plus pre-emergence weed control**)	F	P-F	S	S	S	S	S
Spectracide Weed Stop for Lawns Plus Crabgrass Killer Conc.; & Ready to Spray (**sulfentrazone plus 2,4-D, dicamba, & quinclorac**)	F	P-F	I	NR	S	NR	S
Gordon's Trimec Nutsedge Plus Lawn Weed Killer Concentrate Spectracide Weed Stop for Lawns Concentrate II (**sulfentrazone plus 2,4-D, dicamba, and mecoprop**)	F	P-F	S	S	S	S	S

E=Excellent; G=Good; F=Fair; P=Poor

S = Safe when used according to the label.

I = Intermediate tolerance, use with caution, use at reduced label rates, or minimum label rates.

NR = Not registered for use on this turf species.

Read product labels for all restrictions, mixing rates, and use.

Control in the Landscape

Cultural Control: Prevent nutsedge in the home landscape by avoiding its introduction, which is often from trucked-in soil. Be certain before purchasing bulk soil that it is not infested with tubers. Another source is from nursery plants that are infested with nutsedge. Reject plants that contain any visible nutsedge.

Maintain proper moisture levels in the landscape. Excessive irrigation will encourage the growth of nutsedge. If the area is poorly drained, improve drainage by installing drains or grading soil so that water flows away from planting beds. Raised landscape beds will have better internal drainage.

Nutsedges do not grow well in the shade. By changing landscape plantings, you may be able to reduce their growth this way. For example, a highly infested, annually planted flower bed may be better off replanted with a tall, dense ground cover or shrub that would shade out the nutsedge. Low-growing ground covers will not shade out yellow nutsedge.

Mechanical Control: Nutsedge reproduces primarily from tubers that can lie dormant and remain viable for several years. Unfortunately, these tubers do not break dormancy and begin to grow at the same time. Thus, their removal should be viewed as a long-term process.

Small patches can be dug out, making sure that all tubers are removed by digging deep and wide. Also, landscape fabrics can be used around shrubs and trees to shade out and retard the growth of nutsedge.

Chemical Control:

Bentazon: Bentazon (such as in Southern Ag Basagran Sedge Control, Basagran T/O,, and Lescogran) can be used as a spot treatment for yellow nutsedge near ornamental trees and shrubs. It will injure the roots of rhododendron and sycamore but can be applied over the top of some ornamental plants as listed on the label.

Halosulfuron: Products containing halosulfuron (such as SedgeHammer Plus) can be used as a spot treatment for purple nutsedge near ornamental trees and shrubs. Unlike Basagran T/O, contact of SedgeHammer with the foliage of any ornamental plant should be avoided.

Imazaquin: Image Nutsedge Killer damages many popular landscape plants such as viburnum, pieris, azalea, birch, abelia, ligustrum, and many hollies through root and foliar contact. Use Image Nutsedge Killer with caution in most landscapes. However, it can be applied over the top of some ornamentals and groundcovers, such as liriope and mondo grass. See the product label for the list of plants that are compatible with imazaquin.

Efficacy of Herbicides for Nutsedge Control in Landscapes.

Herbicide	Yellow Nutsedge	Purple Nutsedge	Over the top application
bentazon (Basagran T/O & other brands)	G	P	Limited species, check label
halosulfuron (SedgeHammer Plus & other brands)	G-E	G-E	Spot sprays only
imazaquin (Image Nutsedge Killer)	F	G	Limited species, check label
E=Excellent; G=Good; F=Fair; P=Poor			

Control in the Vegetable Garden

Cultural Control: Nutsedges thrive in moist areas, and their presence often indicates that drainage is poor, irrigation is too frequent, or sprinklers are leaky. However, once established, they will tolerate normal moisture levels or even drought.

Yellow nutsedge (Cyperus esculentus) growing among sweet potato vines.
Joey Williamson, ©2016 HGIC, Clemson Extension

Nutsedge tubers are spread by cultivation and introduced in topsoil, where they can persist for years. Learn to recognize nutsedge to avoid accidentally bringing it in on newly purchased topsoil. Be sure to thoroughly clean tools and equipment such as tillers that have been used in an infested area to avoid spreading tubers and rhizome pieces.

Since nutsedges do not grow well in the shade, areas of the vegetable garden can be rotated into a solidly planted, dense, relatively tall crop such as beans or southern peas for a season. This will reduce the amount of nutsedge in the garden over several seasons.

Mechanical Control: Control of nutsedge should be viewed as a long-term process. Pulling the plants out by hand is relatively ineffective because tubers deep in the ground usually break off the pulled shoots. Very young plants can be controlled by hand weeding or hoeing if they are consistently weeded out before they have five to six leaves. In summer, this will require weeding at least every two to three weeks, but doing so will cause a depletion of energy reserves, and re-sprouting will soon stop. Once nutsedge plants have more than five or six leaves, they begin to form tubers, usually in May or June. Mature tubers can re-sprout as many as 10 to 12 times.

Using a tiller to destroy mature plants will only spread the infestation as it moves the tubers around in the soil. However, repeated, frequent tilling of small areas before the plants have six leaves can gradually reduce populations. Tilling for nutsedge suppression should be limited to times when the soil is dry. Tilling when soil is wet is more likely to move tubers into new areas as they adhere to equipment.

It is possible to eliminate very small patches of nutsedge by digging. Dig at least 10 inches deep and at least eight to 10 inches beyond the diameter of the aboveground leafy portion of the plant. This will ensure the removal of the spreading tubers. Removal by digging is best done early in the spring before more tubers are produced.

Chemical Control:

Pelargonic Acid: Pelargonic acid is a naturally occurring fatty acid found in many plants. Herbicides containing pelargonic acid

are labeled for postemergence, non-selective, weed control. As such, non-target plants, such as tomatoes, must be shielded to prevent spray contact and potential injury. Pelargonic acid is a severe eye irritant. Examples of herbicides containing pelargonic acid include:

- Scythe Herbicide (57% pelargonic acid)
- BioSafe AXXE Broad Spectrum Herbicide (40% ammoniated nonanoate) OMRI
- BioSafe Weed Control RTU (premixed) (5% ammoniated nonanoate) available in 32 fl oz., "Caution"
- Mirimichi Green Pro Concentrate (40% ammoniated nonanoate) OMRI
- Mirimichi Green Pro RTU (premixed) (5% ammoniated nonanoate) OMRI

Note: Pelargonic acid is a **fatty acid** that occurs naturally as esters in the oil of **pelargonium** plants. It is often called nonanoic acid. The **ammonium salt** of nonanoic acid, **ammoniated nonanoate**, is an **herbicide**. These products have "warning" as the safety signal word on the label.

Plant Essential Oil-based Herbicides: **These are made from naturally occurring plant sources. However, vegetable plants must be shielded to prevent damage from these herbicides. Examples** include:

- SafeGro Weed Zap (contains 45% cinnamon oil & 45% clove oil) (OMRI)

This cinnamon and clove oil product has "caution" as the safety signal word.

Orange Oil (*d*-limonene) -based Herbicides: **These are made from naturally-occurring sources, such as citrus fruits. However, vegetable plants must be shielded to prevent damage. These** include:

- Avenger Weed Killer Concentrate (70% d-limonene) Concentrate; and RTU (OMRI)
- Avenger AG Burndown Herbicide (55% d-limonene) (OMRI)
- Worry Free Weed and Grass Killer (70% d-limonene) (OMRI)

This orange oil product has "caution" as the safety signal word.

Acetic Acid-based Herbicides: **These are made from naturally occurring sources, including vinegar. However, vegetable plants must be shielded to prevent damage. Examples** include:

- Summerset Brand All Down Concentrate (23% acetic acid & 14% citric acid); also RTU (8% acetic acid & 6% citric acid)

These acetic acid products have "danger" as the safety signal word. Acetic acid can cause eye damage, so also wear eye protection (goggles).

Bentazon: Certain formulations of bentazon (such as in Arysta Basagran) are labeled for use around a very few vegetable crops – beans, corn, peas, and peanuts only. Always read the pesticide label for specific instructions.

Glyphosate: Glyphosate can be used pre-plant to control nutsedge in vegetable gardens. Examples of products containing in homeowner sizes are:

- Roundup Original Concentrate,
- Roundup Pro Herbicide,
- Martin's Eraser Systemic Weed & Grass Killer,
- Quick Kill Grass & Weed Killer,
- Bonide Kleenup Weed & Grass Killer 41% Super Concentrate,
- Hi-Yield Super Concentrate,
- Maxide Super Concentrate 41% Weed & Grass Killer,
- Super Concentrate Killzall Weed & Grass Killer,
- Tiger Brand Quick Kill Concentrate,
- Ultra Kill Weed & Grass Killer Concentrate,

- Gordon's Groundwork Concentrate 50% Super Weed & Grass Killer,
- Zep Enforcer Weed Defeat III,
- Eliminator Weed & Grass Killer Super Concentrate,
- Monterey Remuda Full Strength 41% Glyphosate,
- Knock Out Weed & Grass Killer Super Concentrate,
- Southern States Grass & Weed Killer Concentrate II,
- Total Kill Pro Weed & Grass Killer Herbicide,
- Ace Concentrate Weed & Grass Killer.

Glyphosate will damage or kill crop plants if it touches their foliage. For post-planting sprays, care must be taken to avoid damaging plants with glyphosate spray drift. Repeat applications as new plants emerge. After planting, avoid using Glyphosate near tomatoes.

Pesticide Safety

Always read the pesticide label and follow its directions exactly. You may ***only*** use the pesticide on sites or crops listed on the label. Be sure to observe all special precautions that are listed on the label. Wear protective clothing or equipment as listed on the label when mixing or applying pesticides. Mix pesticides at the rate recommended for the target site as listed on the label. Never use more than the label says. Follow all label directions for safe pesticide storage and disposal. Always remember to read and heed the six most important words on the label: "**KEEP OUT OF REACH OF CHILDREN.**"

Pesticides are updated annually. Last updates were done on 6/21 Joey Williamson.

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If this document didn't answer your questions, please contact HGIC at **hgic@clemson.edu** or 1-888-656-9988.

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