



## CONTROLLING NUTSEDGES IN LANDSCAPE PLANTINGS

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### About the Weeds

Of the more than 40 sedge species found in North Carolina landscapes, we are most concerned about the two perennial nutsedges: yellow nutsedge (*Cyperus esculentus*) and purple nutsedge (*Cyperus rotundus*). Both nutsedges are sometimes called nutgrass. Although grass-like in many ways, they are not grasses; they are sedges, and require different control measures than grasses. Both yellow and purple nutsedge are perennials that produce *rhizomes* and *tubers*. They are found in nearly all crops and plantings, on nearly all soil types, and are very difficult to control in most situations. Yellow nutsedge is more widely distributed and (thankfully)

more easily controlled than purple nutsedge. Purple nutsedge is distributed throughout the coastal plain but is much less common in piedmont and mountain regions of North Carolina.

Sedges are easily distinguished from grasses by their leafy shoots that are triangular in cross section. In contrast, shoots of grasses are flat or round in cross section. Distinguishing between grasses and sedges is very important to landscape managers, as most herbicides for grass control are not effective on sedges. Furthermore, because purple and yellow nutsedge differ in herbicide susceptibility, distinguishing between them is critical to management decisions.



Figure 1. Yellow Nutsedge



Figure 2. Purple Nutsedge

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Figure 3. Leaf tips (left: yellow, right: purple)

Vegetatively, they differ in overall size and vigor, leaf color, leaf tips, and position of the tubers. Yellow nutsedge tends to be light-green to yellow-green; purple nutsedge generally is deep green in color. However, unless plants are growing side-by-side, the species will be difficult to differentiate based on color. Leaf tips are an excellent diagnostic characteristic. Yellow nutsedge leaf tips have a long, tapered point, whereas purple nutsedge leaf tips are bluntly pointed. Yellow nutsedge forms tubers at the tips of the rhizomes but purple nutsedge tubers are formed in chains on the rhizomes. But, the most reliable way to tell them apart is from the flower heads that differ in color and form. Yellow nutsedge flowers are yellow-green to tan, while purple nutsedge flowers are deep purple to black, with more slender “branches.”

Plants begin to emerge in the spring; emergence may continue through midsummer. Plants produce leafy clumps of grass-like foliage. During the season, plants spread by fleshy *rhizomes* (underground stems) which produce “daughter plants.” Starting in early to midsummer, yellow nutsedge begins forming *tubers* at the tips of the rhizomes. Tubers mature in late July to mid-August. Under optimum conditions, a single yellow nutsedge plant can produce as many as 7000 tubers! Purple nutsedge begins forming



Figure 4. Yellow nutsedge with rhizomes and tubers.

tubers earlier than yellow nutsedge, within a few weeks of emergence, and continues to produce tubers in “chains” on the rhizomes until frost. Yellow and purple nutsedge plants flower in mid to late-summer and die with the first hard frost.



Figure 5. Yellow nutsedge flowers.



Figure 6. Purple nutsedge flowers.

While both species can produce viable seed (nutlets), the principle means of spread and reproduction is by creeping underground stems (rhizomes) and tubers. Most tubers sprout the following spring. Some, however, may remain dormant in the soil for up to 10 years, waiting for an opportunity to germinate. Consequently, nutsedge management strategies must include a long-term commitment to preventing new tuber formation.

### Management Guidelines

Tubers of both species are spread by cultivation, introduced in top soil and nursery stock, and persist in the soil for

years. Therefore, any management plan should start with *sanitation*—prevent introduction of tubers by purchasing only “clean” nursery stock and soil amendments. After nutsedge has infested a site, management programs must focus on preventing establishment, spread and new tuber formation.

**Preemergence control**—Preemergence control of yellow nutsedge is possible in woody landscape beds with Pennant (metolachlor). Apply Pennant at the rate of 4 lb ai/A before ornamentals break bud, or some foliar injury to ornamentals is likely. Reapply about 8 to 10 weeks later, avoiding contact with tender new foliage. Image (imazaquin) will control purple nutsedge preemergently, but because it can injure many of our most common landscape plants (including azaleas, abelia, ligustrum and viburnums), it is unsuitable for many landscapes.

**Postemergence control**—After nutsedge have emerged, postemergence herbicides such as Basagran TO and Manage are used to control yellow nutsedge and annual sedges. Manage is also effective on purple nutsedge. Image controls purple nutsedge (see comments above under preemergence control) but is weak on yellow nutsedge. Each herbicide is best used as a directed application—avoiding contact with landscape plants. Regardless which product is used, treat early in the season to prevent nutsedge spread and tuber formation.

*Basagran TO* (a 4 lb per gallon formulation of bentazon) should be applied at 2 lb ai/A (2 qt per acre), with 1 qt per acre of non-phytotoxic crop oil concentrate. The first treatment should be applied in early summer when yellow nutsedge is 6 to 8 inches tall and vigorously growing. If regrowth is observed or new sprouts emerge, repeat the application 7 to 10 days later. A third application is sometimes necessary. Nutsedge control with Basagran TO has been variable—some seasons providing excellent control, other seasons providing fair control. Hot, dry weather tends to reduce weed control. Basagran TO also controls certain seedling broadleaf weeds if applied when annual broadleaves are about 4 to 6 inches tall. Larger weeds will be burned but not controlled. Susceptible weeds include wild buckwheat, dayflower, smartweed, ragweed, common cocklebur and others. Only a few ornamental species tolerate over the top applications of Basagran TO; however, most woody ornamentals are not injured by directed applications. However, do not use

around sycamore, taxus or rhododendron as injury from root-uptake has been reported. Also, do not use on herbaceous perennials or bedding plants (except impatiens, marigold, petunia and snapdragon).

*Manage* (75% ai dry, flowable formulation of halosulfuron) is a relatively new postemergence herbicide, primarily used for yellow and purple nutsedge control in turf. However, it is also labeled for use as a directed application around established woody ornamentals. It is used in very low doses—0.67 to 1.3 oz. of product per acre. It is available in convenient, water soluble packets. Just add one water soluble bag to 1 gal of water in a backpack or hand-held sprayer; shake well; add 2 tsp of non-ionic surfactant; shake it again; and you are ready to spray about 1000 ft<sup>2</sup>. Apply the first treatment in late May or early June to young nutsedge sprouts when plants have 3 to 8 leaves (delaying this first application tends to result in less control). Re-apply 6 weeks later for season-long control. Two applications at 0.67 oz. have provided more consistent control than a single, 1.3 oz applications. Always add 0.5% (by volume) non-ionic surfactant with Manage applications. Do not exceed two applications per year. Contact with the foliage of ornamental plants should be avoided, as Manage can injure certain species including (but not limited to) arborvitae and taxus. Do not use Manage around herbaceous perennials or annual flowers.

*Image* is a preemergence and postemergence herbicide for controlling certain broadleaf weeds, purple nutsedge and wild garlic. Image is applied at a rate of 0.75 to 1 oz. per 1000 sq. ft. with 0.25% (by volume) non-ionic surfactant. Apply only around ornamental species listed on the herbicide label. Injury has been reported on a number of ornamental species including azaleas, birch and hollies. Even labeled species may be stunted by Image. Do not apply where bedding plants may be planted. Make the first application when nutsedge emergence first occurs. A second application may be necessary for season-long control.

Of course, directed and spot applications of postemergence herbicides such as Finale, Roundup-Pro, Reward, or Scythe may be used to kill existing yellow nutsedge plants. Whichever herbicide is selected, avoid all contact with desirable vegetation. A full discussion of postemergence, non-selective herbicides is available in Horticulture Information Leaflet No. 648.

Nutsedges are persistent weeds that will return year after year; therefore, any nutsedge management plan will require several years of sustained effort to rid the landscape of these pesky weeds. Once clean, sanitation to prevent new introductions is critical. Any new infestations should be controlled right away to prevent spread of these aggressive and difficult-to-control pests.

For more information, consult herbicide labels, Extension publication AG-427, *Weed Control Suggestions in Christmas Trees, Woody Ornamentals and Flowers*, and your local Extension office. For control guidelines in turfgrass check out the on-line guidelines located at <http://www.ces.ncsu.edu/TurfFiles/pubs/weeds/sedgecon.html>.