

TURFGRASS TRENDS

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WEED CONTROL

Nutsedge by any other name is still a sedge

By Tim R. Murphy

You know you can call a weed any name you wish. As long as the management strategy controls the weed, there is no problem. Sometimes an improper common name, however, can lead to a control failure.

Consider this — the Cyperaceae, the sedge family, has about 4,000 species around the world (Correll and Johnston, 1979). Numerous members of this family are found in turfgrass, and many of these species look like grass. After repeated attempts to control these grass “look-alikes,” however, with the postemergent turfgrass graminicides such as sethoxydim (Vantage), fenoxaprop (Acclaim Extra) and fenoxaprop (Fusilade II), some of us may realize that maybe this isn't grass after all.

The essential factor to sedge control is persistence. We do not have a herbicide that can be applied one time to eradicate nutsedge.

Sedges are not grasses and respond differently to most herbicides. In general, sedges are yellow-green to dark-green, with triangular stems and three-ranked leaves, unlike the two-ranked leaves of the grass family (Table 1). The leaf sheath of sedges is closed and encircles the stem.

Several sedges (*Cyperus* spp.) are major problem weeds in turfgrass. Of these species, only two — purple (*C. rotundus*) and yellow nutsedge (*C. esculentus*) — form tubers.

Other problem species of the Cyperaceae family include annual or water sedge (*C. compressus*), green (*Kyllinga brevifolia*) and fragrant *kyllinga* (*Kyllinga sesquiflorus*), globe sedge (*C. croceus*), Texas sedge (*C. polystachyos*) and cylindrical sedge (*C. retrorsus*).

Yellow and purple nutsedge are low-growing perennials that, at first glance, resemble a grass. In fact, some people call these species “nut-grass.” Seedhead color is often used to distinguish between the two major nutsedges.

Yellow nutsedge has a yellowish- to straw-colored inflorescence, while purple nutsedge has a reddish to purplish inflorescence. Leaf tip shape is another distinguishing characteristic, but that difference is difficult to see in regularly mowed turfgrasses. Leaf tips of purple nutsedge are generally wider and gradually taper to a sharp point.

Conversely, yellow nutsedge leaves become constricted near the narrow, needle-like tip. Yellow and purple nutsedge are not believed to produce viable seed, but due to their underground tubers and rhizomes, these species have tremendous reproductive capacity. Excellent color photographs and descriptions of these and other sedges may be found in *Weeds of Southern Turfgrasses* (Murphy et al. 1992), *Color Atlas of Turfgrass Weeds* (McCarty et al. 2001), and at the University of Georgia Turfgrass

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TABLE 1

Distinguishing characteristics of grasses and sedges.

CHARACTERISTIC	GRASSES	SEDGES
Stem	hollow, round or flattened	usually triangular, pithy, rarely hollow
Nodes	easily seen	indistinct
Leaf arrangement	two-ranked	three-ranked
Leaf sheath	usually split	usually closed
Leaf blade	flat, often folded, hairy or smooth	flat, usually smooth
Leaf margin	smooth, hairy or sharp to touch	usually rough
Collar	distinct	indistinct
Auricles	present or absent	absent
Ligule	present, rarely absent	absent, or only weakly developed

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Most sedges thrive in soils that remain wet for extended periods. The first step to controlling them is to dry up the soils. Do not overirrigate an area, and if necessary, provide surface and subsurface drainage.

The overwhelming majority of turfgrass pre-emergent herbicides do not control sedges. Triazine herbicides (e.g., atrazine, simazine) provide fair pre-emergent control of some annual sedges, but generally are ineffective on perennial species.

Metolachlor (Pennant) provides pre-emergent control of most annual sedges and yellow nutsedge. However, purple nutsedge is not controlled by metolachlor. Pre-emergence control of purple nutsedge is currently unavailable.

Historically, postemergent chemical control of most sedges was attempted with repeat applications of 2,4-D, the organic arsenicals (MSMA, DSMA) or a combination of the two.

Although organic arsenicals were effective, numerous applications over a period of years generally were necessary. Extensive damage also resulted with certain turf species, such as centipedegrass and St. Augustinegrass.

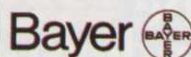
In the past 10 to 15 years, several post-emergent herbicides have been registered for sedge control in turfgrasses (Table 2). Benta-

zon (Basagran T/O) will control yellow nutsedges and several annual sedges in all species of turfgrass. Two applications, at an interval of 10 to 14 days, are necessary for control with bentazon.

Purple and yellow nutsedge, annual sedges and kyllinga species can be controlled with imazaquin (Image). Tank-mixing recommended rates of MSMA with imazaquin in MSMA-tolerant turfgrasses generally increases sedge control. For optimum results with imazaquin, apply two treatments during the late spring and summer months. The first application should be made after full spring green-up of warm-season turfgrasses and when sedges are visible in the turfgrass canopy. Apply the second treatment six to eight weeks later when sedges re-emerge. Image is not labeled for use in cool-season turfgrasses.

Another excellent herbicide for sedge control is halosulfuron (Manage). This herbicide provides good to excellent control of both purple and yellow nutsedge, annual sedges and fair control of the kyllinga species. Similar to imazaquin, a repeat application six to eight weeks after the initial application will be necessary for season-long sedge control. The various turfgrass species have excellent tolerance to halosulfuron.

The essential factor to sedge control is persistence. We do not have an herbicide that can



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TABLE 2

Sedge control ratings for selected turfgrass herbicides¹

Herbicide ²	Annual Sedge	Purple Nutsedge	Yellow Nutsedge	Annual Kyllinga	Perennial Kyllinga
Metolachlor	G	P	G	F-G	P
Oxadiazon	G	P	P	F	P
Bentazon	G	P	G	F-G	F-G
Imazaquin	G	G	F	G	G
Halosulfuron	G	G-E	G-E	G	F-G
MSMA/DSMA	G	P-F	F	G	G
Imazaquin + MSMA/DSMA	G	G-E	G	G	G

¹ FROM MCCARTY, L. B. 2000 PEST CONTROL RECOMMENDATIONS FOR PROFESSIONAL TURFGRASS MANAGERS. CLEMSON UNIVERSITY EC 699.

² FOLLOW DIRECTIONS ON HERBICIDE LABEL FOR REPEAT APPLICATIONS.

be applied one time to eradicate nutsedge. Repeat applications at prescribed intervals that are shown on the herbicide label will be required for acceptable control within a given year. It will also be necessary to think of nutsedge control as a multi-year project.

Research conducted in Georgia showed that imazaquin + MSMA applied for three consecutive years eliminated purple nutsedge from a turfgrass site (Johnson and Murphy 1992).

A South Carolina study investigated the effect of multiyear herbicide applications on yellow nutsedge control and tuber populations (Lowe et al. 2000). Control was more than 90% and tuber populations were reduced 92% for the best herbicide combination at the end of this four-year study. However, 200,000 tubers per acre were present after four years of 90% yellow nutsedge control.

Nutsedge is indeed a formidable weed in turfgrasses. While new chemistry has been registered to control nutsedge, control programs still need to be annual events.

Another factor in getting good control with nutsedge herbicides is to treat when nutsedge is active and there is good soil moisture.

Nutsedge, annual sedges and kyllinga species are aggravating turfgrass weeds. We have made progress in controlling them, however, and we can effectively manage nutsedge and related sedge species if we maintain turfgrasses with a proper control program for several years.

Tim R. Murphy is an extension weed scientist in the Crop and Soils Sciences department at The Griffin Campus of the University of Georgia.

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