



# COOPERATIVE EXTENSION

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Fact Sheet 02-05

## IDENTIFYING AND CONTROLLING NUTSEDGE IN NEVADA LANDSCAPES

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### INTRODUCTION

Nutsedge (a.k.a. nutgrass) is one of Nevada's most troublesome landscape weeds for several reasons: it closely resembles grasses (Figure 1), it regenerates via persistent underground tubers (incorrectly called nuts or nutlets), it adapts to both wet and dry locations, and adequate eradication techniques are lacking. Its usual method of invasion appears to be through the transportation and spread of tubers in contaminated soil. Research in field crops indicates that seeds do not contribute much to its spread. No work has examined the role of seed in the spread of nutsedge in the landscape, however.

The tubers permit the plant to be moved to new areas even though there is no sign of the aboveground part of the plant. The tubers may be imported into the landscape in "weed free" topsoil or infested soils surrounding container or boxed nursery stock.

Early nutsedge invasions can go unnoticed because it closely resembles bunchgrasses like tall fescue and



Figure 1. Young nutsedge plant. © Regents of the University of California. Used with permission.

ryegrass. Both have stems, leaves, a fibrous root system and flowers that arise from the stem (Figure 2). The rapid and upright growth habit, coarse texture, and resistance to many herbicides give nutsedge away as a serious weed. Once established, it is often too late for eradication and the landscape manager turns to costly measures to contain the infestation or simply learns to "live with it".

### IDENTIFICATION

Nutsedge belongs to a large group of perennial plants called sedges. Distinguishing between grasses and sedges is very important to landscape managers, as many herbicides used for grass control are not effective on sedges. Likewise, determining which species is present is essential, since control measures may differ.

Two species of nutsedge are weeds in Nevada: yellow (*Cyperus esculentus* L.) and purple (*C. rotundus* L.). Yellow nutsedge is more common in cooler climates and the purple is more common in warm climates. In transition zones such as Southern Nevada, both are present.

These two types differ in leaf color and leaf tip shape, rhizome development and position of the tubers, tuber shape and color, flower and seed color and relative size of the bracts and stem supporting the floral parts (Figure 2 a-c).

## Leaf Color, Size and Leaf Tip

Near the base of its triangular stem, a cluster of 3-ranked, grasslike leaves arises in both species. Yellow nutsedge leaf tips have a long, tapered point, while purple nutsedge leaf tips are more rounded (Figure 2c). The stems have a triangular cross-section (Figure 3).

The leaves of yellow nutsedge are light green to yellowish in color and are very slick or waxy to the touch. Purple nutsedge leaves are generally deep green in color. However, unless plants are growing side-by-side, they may be difficult to differentiate based on color.

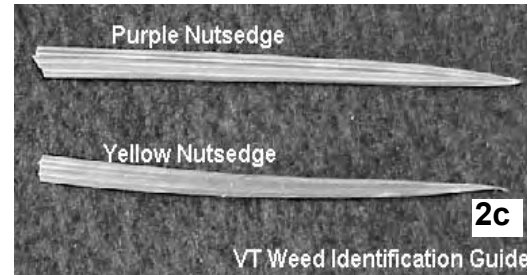


Figure 2a Yellow Nutsedge; 2b Purple Nutsedge 2c: Comparison of leaf shapes  
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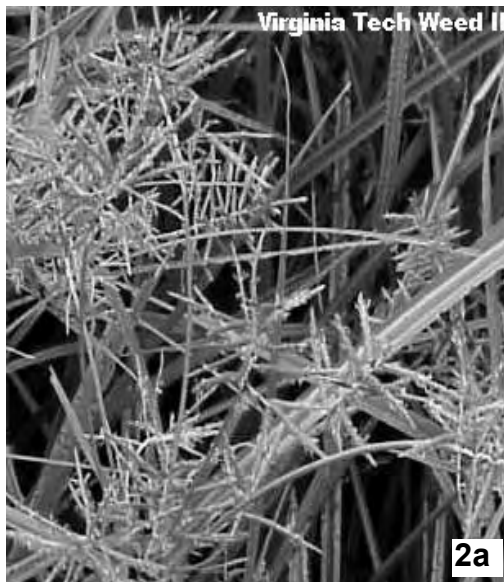


Figure 3. Cross section of nutsedge stem.

## Flowers and Bracts

A more reliable way to distinguish these two species is from the flower heads, which differ in both color and form. Yellow nutsedge flowers are yellow-green to tan, while purple nutsedge flowers are deep purple to black, with more slender "branches". The leaves, or bracts, beneath the flowering tops in yellow nutsedge may be 2 to 10 inches or more long, with some much longer than the flowering stems. Purple nutgrass bracts below the flower heads are seldom more than five inches long, usually no longer than the supporting stem.

Purple nutsedge flower stalks are taller than the foliage, while in yellow nutsedge the foliage extends beyond the inflorescence.

## Rhizome Development and Tubers

Nutsedge spreads mainly by rhizome or underground stems that produce a tuber. Individual nutsedge plants eventually form patches up to 10 feet or more in diameter. The tubers are food storage and reproductive organs. Tubers begin forming as days shorten. They grow as deep as 8 to 14 inches below the soil surface. Their development, presence and survival are key to resistance to drought, heat, cold and herbicides. They can remain dormant up to ten years.

Yellow nutsedge produces more rhizomes

and these are fleshier than purple nutsedge. Its round, smooth, brown or black tubers are about 1/2 inch at maturity and

have a pleasant almond taste. One tuber is formed at the end of a rhizome.

Purple nutsedge has fewer rhizomes but they are woodier and thicker. Its tubers are unevenly globe shaped, 3/8" to 3/4" inch long and formed in chains on the rhizomes. Tubers of purple nutsedge are covered with red or red-brown scales and taste bitter.

## ECOLOGY

Yellow and purple nutsedges are perennials. Leaves and flower stalks generally die back at the first hard freeze. Tubers and rhizomes sprout the following spring, when soil temperatures remain above 43°F (yellow) or 59°F (purple). Emergence continues through midsummer. Both species grow rapidly during the hot months of summer, growing 2 to 4 inches above the turf canopy between mowings. During spring and fall, when temperatures are cooler and growth is slower, nutsedge is less noticeable.

The presence of nutsedge often indicates poor drainage. They grow on all soil types, and proliferate on wet or moist sites receiving moisture from heavy irrigation and accumulation from

drainage water. Yellow nutsedge will tolerate dry sites once it is established and tubers have formed. Neither tolerates shade well.

## NONCHEMICAL CONTROL

Nonchemical control focuses on: (1) use of clean soil and plants free of tubers, (2) encouraging competition, (3) reducing the number of emerging nutsedge plants by physically removing leaves before the four leaf stage (tubers begin formation), and (4) changing the site's environment to discourage its growth.

## Removal of Top Growth

Weekly removal of emerging leaves before the four leaf stage "starves" the tubers over time, and reduces their numbers.

## Competition and Shade

Maintain a competitive stand of turfgrass by fertilizing adequately, mow at appropriate heights and provide adequate irrigation. Nutsedges do not tolerate shade, so substituting taller, denser bedding plants or using high-density plantings combined with mulches reduces the number of emerging plantlets and stresses the existing nutsedges.

## Mulch

Mulching helps block emerging nutsedge plants. Mulch depths should be two to three inches combined with a woven polypropylene landscape fabric with a woven proven history of reducing nutsedge infestation. Plastic mulches are not effective and should not be used.

## Solar Drying and Sterilization

Purple nutsedge can be controlled by "solar drying". Deep cultivate and dry the soil for several weeks in midsummer. Good control requires repeated deep tilling and drying. Yellow nutsedge may be controlled by solar sterilization of infested soils. Moisten the infested soil, deep till and cover the soil with clear plastic (4-6 mil) for three to four weeks. This raises the soil temperature and kills the tuber.



Figure 4. "Chain" of tuber, rhizome and roots of purple nutsedge.  
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## **Improve Drainage and Reduce Irrigation**

Wet soils encourage the spread of nutsedge. Some measure of suppression will be accomplished by installing drain tiles, aerating, improving a soil's drainage characteristics and reducing irrigation needs of the area.

## **Biological Control Methods**

Such as use of rust fungi, are currently under investigation.

## **CHEMICAL CONTROL**

May be used before or after plants emerge. Read the label prior to purchase and application and follow label directions.

## **Preemergence Control**

Emphasis on the use of preemergence herbicides for controlling nutsedge is questionable since most infestations are due to tubers introduced into the landscape, not seed. Several universities still recommend preemergence herbicides, however. Preemergence herbicides must be applied two weeks prior to seed germination. Generally that is just prior to bud break of ornamentals, sometime in February at lower elevations in southern Nevada. New chemicals are introduced periodically, so check with your supplier or your County Extension office for suggested products. Some of the newer products include Pennant™ (metalochlor), Eptam™ (EPTC), and Casoron™ (dichlobenil).

## **Postemergence Control**

Most commonly used, postemergence chemical control is aimed at killing the above ground portions of the plant. This requires repeated applications to thus starve the tuber (chemical hoeing) or, with newer products, one application kills the tubers by using herbicides that translocate to them.

Chemicals used for controlling nutsedge by chemical hoeing include Basagran™ (bentazon) (yellow nutsedge only), Image™ (imazaquin), Finale™ (glufosinate-ammonium), Reward™ (diquat), RoundUp™ (glyphosate), and Scythe™ (pelargonic acid). Control has been variable with many of these products and some have caused damage to desirable plants.

Manage™ (halosulfuron) is the only product currently available that is effective on both yellow and purple nutsedge and kills tubers (systemic). When nutsedge is killed, dormant tubers sprout, resulting in a flush of new nutsedge plants that must be killed. A second application is usually necessary, four to eight weeks later, depending on nutgrass development. It is important to apply the second application no later than the development of the four leaf stage development which coincides with tuber development. Manage™ is selective and can be used as an "over the top" application for nutsedge control in many turfgrasses and ornamentals. Manage™ gives good control but repeat applications are necessary.

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