

NUTSEDEGE

Integrated Pest Management for Home Gardeners and Landscape Professionals

Nutsedges are common weeds in landscapes and gardens in the coastal valleys, Central Valley, and southern areas of California. They thrive in waterlogged soil, and their presence often indicates drainage is poor, irrigation is too frequent, or sprinklers are leaky. Once established, however, they will tolerate normal irrigation conditions or drought.

The two most common species of nutsedge in California are yellow nutsedge, *Cyperus esculentus*, (Fig. 1) and purple nutsedge, *C. rotundus*, (Fig. 2). Yellow nutsedge grows throughout California, while purple nutsedge grows mostly in the southern portions of the state.

IDENTIFICATION

Although nutsedges resemble grasses and often are referred to as “nutgrass,” they aren’t grasses but are true sedges. Their leaves are thicker and stiffer than most grasses and are arranged in sets of three at their base (Fig. 3); grass leaves grow across from each other in sets of two. Nutsedge stems are solid, and in cross section they are triangular; grass stems are hollow and round, and in cross section they are almost flat or oval.

Nutsedge has three long, leaflike bracts at the base of each flower head. Yellow nutsedge has light brown flowers and seeds, while purple nutsedge flowers have a reddish tinge and the seeds are dark brown or black.

Yellow and purple nutsedges produce tubers, which are incorrectly called “nuts” or “nutlets,” thus the origin of their common name. The plants produce these tubers on rhizomes, or



Figure 1. Mature yellow nutsedge plant.



Figure 2. Mature purple nutsedge flower.

underground stems, that grow as deep as 8 to 14 inches below the soil surface. Buds on the tubers sprout and grow to form new plants and eventually form patches that can range up to 10 feet or more in diameter.

Yellow nutsedge produces round, smooth, brown or black tubers that can be up to 1/2 inch at maturity (Fig. 4). Only a single tuber forms at the end of a rhizome, and the tubers have a pleasant almond taste.

Red or red-brown scales cover purple nutsedge tubers. The tubers grow in chains with several of them on a single rhizome (Fig. 5), and they have a bitter taste. Purple nutsedge tubers can be up to 1 inch at maturity.

One weed often confused with yellow or purple nutsedge is tall umbrella

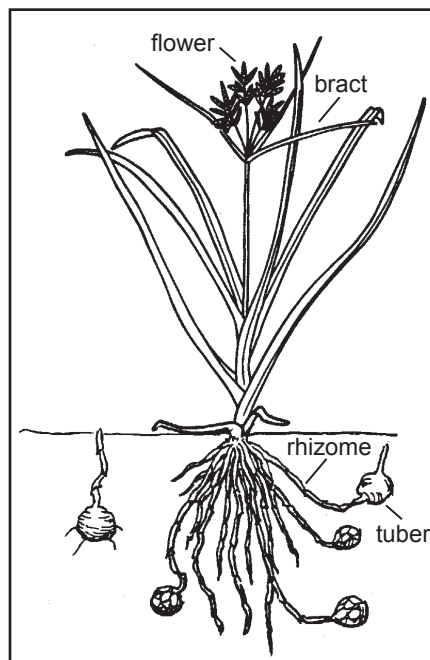


Figure 3. Yellow nutsedge leaves and bracts are arranged in sets of threes.



Figure 4. Yellow nutsedge roots, rhizomes, and tubers.



Figure 5. Purple nutsedge root system showing tubers linked in chains.

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sedge, *C. eragrostis*, (Fig. 6), another perennial sedge that grows in wet, soggy soils. Tall umbrella sedge is a large, light green sedge that doesn't produce tubers. It spreads by seed or by new plants that form on short, thick rhizomes around the base of the mother plant. If left unmowed, it grows taller than nutsedge, but in a mowed turf you can distinguish it from nutsedges by its tendency to grow in tight clumps that are less than 1 foot in diameter, its wider leaves and stems, and its short, thick rhizomes and lack of tubers.

Another weed often confused with nutsedges is green kyllinga, *Kyllinga brevifolia*, (Fig. 7), which also is a major problem in turf and ornamental plantings. (See *Pest Notes: Green Kyllinga* in References.) Green kyllinga flowers are visibly different from those of nutsedges, and the plant produces rhizomes but not tubers.

LIFE CYCLE

Yellow and purple nutsedges are perennial plants. Their leaves and flowering stalks generally die back in fall as temperatures decrease, but tubers and rhizomes survive in the soil and sprout the following spring once soil temperatures remain higher than 43°F for yellow nutsedge and higher than 59°F for purple nutsedge.

The majority of tubers occur in the top 6 inches of soil where they can survive for 1 to 3 years. In field crops, research indicates most nutsedges sprout from tubers, and seeds don't contribute much to the spread of the plant; however, no work has been done to examine the role of seed in the spread of nutsedge in the landscape.

DAMAGE

Nutsedges are a problem in lawns because they grow faster, have a more upright growth habit, and are a lighter green color than most grass species, resulting in a nonuniform turf. In gardens and landscapes, nutsedges will emerge through bark or rock mulches (Fig. 8) in shrub plantings and vegetable and flower beds throughout the growing season.

MANAGEMENT

The best approach for avoiding nutsedge problems is to prevent establishment of the weed in the first place. Once established, nutsedge plants are difficult to control.

Prevent establishment by removing small plants before they develop tubers, eliminating the wet conditions that favor nutsedge growth, using certain fabric mulches in landscape beds, and making sure nutsedge tubers aren't brought in with topsoil or other materials. In addition to consistently removing small plants, you can reduce nutsedge populations by drying, shading, and using properly timed applications of herbicides.

Cultural Control: Removing Plants and Tubers

Tubers are key to nutsedge survival. If you can limit production of tubers, you'll eventually control the nutsedge itself.

To limit tuber production, remove small nutsedge plants before they have 5 to 6 leaves; in summer this is about every 2 to 3 weeks. Up to this stage, the plant hasn't formed new tubers yet. Removing as much of the plant as possible will force the tuber to produce a new plant, drawing its energy reserves from tuber production to the production of new leaves.

Continually removing shoots eventually depletes the energy reserves in the tuber, because the nutsedge will have to use 60% of its reserves to develop the first plant and 20% for the second. However, mature tubers can resprout more than 3 times. Even though these newer sprouts start out weaker than the previous ones, plants can develop from them and produce new tubers unless you remove them.

The best way to remove small plants is to pull them up by hand or to hand hoe. If you hoe, be sure to dig down at least 8 to 14 inches to remove the entire plant. Using a tiller to destroy mature plants only will spread the infestation,



Figure 6. Flowers of tall umbrella sedge (shown here) are dense and headlike in contrast to the looser flowers of nutsedge. Plants also lack tubers and are taller and have wider leaves than the nutsedges.



Figure 7. Green kyllinga doesn't have tubers as do nutsedges but instead spreads by rhizomes.



Figure 8. Yellow nutsedge seedling emerging through bark mulch.

because it will move the tubers around in the soil. However, repeated tillings of small areas before the plants have 6 leaves will reduce populations. If you find nutsedge in small patches in your turf, dig out the patch down to at least 8 inches deep, refill, and then seed or sod the patch.

Drying. During the middle of summer, you can control purple nutsedge by cultivating the infested area and then withholding all moisture to allow the sun to dry the tubers. Repeated tilling and drying are required to give good control. This method is effective only

in areas where other plants don't need irrigation. Drying isn't effective for controlling yellow nutsedge.

Shading. Nutsedges don't grow well in shade, so changing landscape plantings might reduce their growth. For example, a highly infested, annually planted flower bed might be better off if you replant it with a tall, dense ground cover or shrub. Low-growing ground covers won't shade out nutsedge.

Mulching. The commonly used black polyethylene plastic mulches don't control yellow or purple nutsedge, because the sharp points at the ends of their leaves can penetrate them. Landscape fabrics made from polypropylene polymers are available that effectively suppress nutsedge growth and have the added benefit of being water and air permeable, unlike polyethylene. If the planting permits, mulching with a thick, nonwoven landscape fabric covered with a bark or gravel mulch will suppress nutsedge growth. For complete control, however, you still will need to remove any emerging nutsedge plants.

Chemical Control

Few herbicides are effective at controlling nutsedge, either because of a lack of selectivity to other plants or a lack of uptake. For herbicides that are suitable, apply them when they'll be most effective (Table 1). Most herbicides aren't effective against tubers.

Nonselective Postemergent Herbicides. The only nonselective postemergent herbicide currently available to help control nutsedge in the home landscape is glyphosate (e.g. Roundup) or glyphosate with nonaonic acid (Roundup Plus). This herbicide requires repeated applications, and its use will result only in limited suppression of these weeds.

Many people mistakenly use glyphosate on fully grown plants to try to kill the tubers. Unfortunately, when tubers are mature the herbicide usually doesn't move from the leaves to the tubers, leaving them unaffected. Instead, apply glyphosate when the plants are

Table 1.
Controlling Nutsedges with Chemicals.¹

Herbicide	Commercial Name	Apply Before Plants Emerge	Apply to Young Plants	Available to Home Gardeners
dichlobenil	Casoron	yes	no	yes
dimethenamid-P	Freehand	yes	no	no
glyphosate	Roundup	no	yes	yes
halosulfuron	Sedgehammer	no	yes	yes
metolachlor	Pennant	yes	no	no
penoxsulam	Green Light Wipe Out Tough Weed Killer for Lawns	no	yes	yes
sulfosulfuron	Certainty	no	yes	no
trifloxysulfuron-sodium	Monument	no	yes	no

¹ None of these products effectively controls mature plants.

young, actively growing, and haven't recently been mowed or cut.

Be sure to read the label to determine how much time after application must occur before irrigation can resume. Don't apply if rainfall is expected within 24 hours of application. Glyphosate works most quickly when the weather is warm and sunny; cool, cloudy weather following an application can delay activity. Don't spray any herbicide when it is windy to avoid injuring other plants with spray drift.

Selective Postemergent Herbicides. Postemergent herbicides that have some selectivity, particularly in turf, are halosulfuron (Sedgehammer) and MSMA. These herbicides move through the plant rapidly, but to be effective, you must apply them to nutsedges before the fifth-leaf stage, when the plant is still building energy reserves by drawing energy from its leaves to the newly forming tubers. After this stage, this translocation to the tubers slows down or ceases, and the herbicide will kill only the aboveground portion of the plant, leaving the tubers unaffected.

Halosulfuron is used in such minute amounts the manufacturer markets it in premeasured, water-soluble bags. Follow all label directions for optimal control of nutsedge, and be sure to add a nonionic surfactant to the spray solution. MSMA is more effective on

yellow than on purple nutsedge. Other herbicides available to professionals for use on turf include trifloxysulfuron-sodium (Monument) and sulfosulfuron (Certainty). Be sure to read the label carefully, as these products will injure some turf species.

Preemergent Herbicides. Although no preemergents control purple nutsedge, those that reduce yellow nutsedge include dichlobenil (Casoron), metolachlor (Pennant), and dimethenamid-P (a component of Freehand). Metolachlor and dimethenamid-P are safer around many ornamentals than dichlobenil, but they are available only to professional pesticide applicators.

No preemergent herbicides that effectively control nutsedge can be used on turfgrass, but you can use them on selected ornamental plants. Read the label directions to see which ornamentals will tolerate each herbicide, and follow all label instructions regarding how to apply the product. Preemergent herbicides reduce the number of emerging nutsedge plants, but for long-term control, retreatment is necessary.

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WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original, labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Pesticides applied in your home and landscape can move and contaminate creeks, rivers, and oceans. Confine chemicals to the property being treated. Avoid drift onto neighboring properties, especially gardens containing fruits or vegetables ready to be picked.

Do not place containers containing pesticide in the trash or pour pesticides down the sink or toilet. Either use the pesticide according to the label, or take unwanted pesticides to a Household Hazardous Waste Collection site. Contact your county agricultural commissioner for additional information on safe container disposal and for the location of the Household Hazardous Waste Collection site nearest you. Dispose of empty containers by following label directions. Never reuse or burn the containers or dispose of them in such a manner that they may contaminate water supplies or natural waterways.

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