Nutsedge: An In-Depth Look

By Skip Richter, Horticulturist & Host of GardenLine Radio on KTRH 740

"Nutgrass" (nutsedge) is not grass, but rather a member of the sedge family. There are two common types of nutsedge, purple nutsedge (Cyperus rotundus) and yellow nutsedge (Cyperus esculentus). Because of their ability to thrive, persist, and spread, most gardeners would agree that to know nutsedge is to hate it!

Here is a comparison between the two primary types of nutsedge (purple and yellow):

Characteristic	**Purple Nutsedge**	**Yellow Nutsedge**
Leaf color	dark green	medium/light green
Leaf tip	abruptly tapers to sharp tip	gradually tapers to sharp tip
Rhizomes	wiry, scaly	weak, thread-like
Tubers	oblong, coarse hairs; produced in a chain along the rhizomes	spherical, smooth; produced at the ends of the rhizomes (not in a chain)
Tuber taste	bitter	slightly sweet
Seed head color	reddish to purplish-brown	yellow/tan

There is a form of yellow nutsedge known in various parts of the world as Chufa, Earth-Almond, and Tiger Nuts that's popular as a snack food or mashed to create a sweet, milk-like beverage known as "horchata de chufa". The tubers have even been found in Egyptian tombs dating to 3,000 BC. I think taking nutsedge with you to the grave is going a bit too far!

Tubers of our wild yellow nutsedge are also "edible", with a mild almond taste, although having tried them I don't consider them very palatable. My favorite culinary assessment of yellow nutsedge tubers comes from an NPR story in which a taste tester said of nutsedge tubers, "It doesn't taste terrible". High praise indeed!

Nutsedge often arrives in gardens, lawns and landscapes with plants, topsoil, and/or sod. New plants arise primarily from underground tubers rather than seeds. Most tubers are found in the top 8" of soil but depending on the soil type and the nutsedge species, some tubers will be deeper. Wet soil conditions wash a substance that inhibits sprouting from the skin of yellow nutsedge tuber allowing them to sprout. This is one reason why yellow nutsedge thrives in wet areas of the lawn or garden.

Nutsedge shoots emerge like a pointed missile from the ground and only unfurl their leaves when they reach sunlight. They can easily push up through a deep covering of soil or mulch, and even poke through plastic and most landscape fabrics, when these products are stretched tightly over the soil surface. Once the shoot reaches sunlight the leaves unfurl and it is no longer able to punch through surface coverings.

When a nutsedge shoot reaches sunlight, the plant forms a bulb at its base that produces horizontal underground stems (rhizomes) with new tubers. These tubers can form additional tubers as well. In one test, a single yellow nutsedge tuber produced 6,900 tubers by fall and 1,900 daughter plants the following spring! This is one reason it's so difficult to control. <u>Diligent efforts to limit new tuber production is key to controlling nutsedge infestations.</u>

Each tuber has approximately 7 or more viable buds. So, if an attempt at control, such as the ol' garden hoe, chops off one shoot, the tuber merely sends up another (after laughing hysterically at the gardener's efforts). However, tubers expend stored energy to send up new shoots, so prompt removal of new shoots multiple times will weaken tubers and significantly decrease development of additional tubers.

For hoeing/hand digging/tillage to be effective, one must remove all shoots before they have developed more than 3-5 leaves. If left longer, the plants will begin restoring the tuber's spent reserves. Tubers expend approximately 60% of their stored energy to develop their first plant. Therefore, I cannot overstate the importance of constant surveillance and prompt digging or spraying to prevent tubers from replenishing their reserves.

Diligent efforts at frequent cultivation can outlast a tuber's ability to regrow, but this type of diligent, prompt, continual effort is seldom maintained. Control is further complicated by the fact that some dormant tubers are usually around to sprout over time to extend the battle.

Now that the nutsedge beast sounds impossible to defeat, let me say that it is not! Difficult, yes but not impossible. You can manage nutsedge, if you use a combination of practices and are consistent with prompt follow up.

Non-chemical reduction of nutsedge in landscape and garden beds involves the following practices. While all are not always possible, the more you can do, the better your results will be.

1) Avoid overwatering/saturated soil conditions which stimulate yellow nutsedge proliferation.
2) Hand dig tubers, beginning when the shoots first emerge in spring. If you wait until mid-May to begin, you will likely have almost 10 times the number of nutsedge plants you began with! To be effective, repeat digging is required whenever new plants have developed 3-5 leaves. If you wait longer the plants will be producing new viable tubers.
3) Rototill the soil to sever rhizomes and bring tubers to the surface, exposing them to drying out. Rake and remove exposed tubers and rhizomes. Sun drying is more effective against purple nutsedge than yellow nutsedge. Tilling breaks up the underground chain of tubers on purple nutsedge rhizomes causing multiple dormant tubers in the chain to sprout. If you then dig or spray the new sprouts you can significantly reduce the infestation.
4) Cover future garden beds from spring to fall with water permeable landscape fabric to block out sunlight. Don't pull the fabric tight or new nutsedge shoots will puncture it. Keep soil moist to promote growth beneath the fabric, which depletes the tuber's stored reserves. In a study I conducted in Houston on purple nutsedge, shaded plots had a 24% decrease in tuber counts over the course of a summer season, while plots exposed to full sun had a 2,400% increase! While shading won't eradicate tubers, it significantly helps reduce the number of tubers and can be a helpful part of an organic regimen to manage nutsedge.
5) Solarizing the soil can destroy tubers in the surface few inches by heating the soil. Temperatures over 112 degrees F are lethal to tubers. Solarizing won't destroy tubers deeper into the soil, but if preceded by deep tillage the effectiveness can be increased.
6) Spray the plants with a labeled product beginning when the first shoots have 3-5 leaves. After the 5th leaf stage, movement of these products down into the tuber slows or ceases resulting in the effect being only a topkill with subsequent respouting of the tubers. Repeat sprays 3-4 weeks later and as needed until fall are generally required.

Organic “top kill” products containing pelargonic acid, ammoniated nonanoate, plant essential oils, and acetic acid (vinegar) will kill the weed’s top growth but do not do much to control nutsedge.

It has been my experience that sprays of glyphosate (Roundup and other examples) may kill back the above ground parts of nutsedge plants, but don’t provide significant effective control of tubers. Preemergence herbicides used stop weeds sprouting from seeds are of little benefit since nutsedge plants arise primarily from tubers, not from sprouting seeds.

Several products are available on the market to control nutsedge. Repeat applications will be required for effective control. The addition of a surfactant helps the spray stick to the waxy nutsedge leaves and penetrate into the nutsedge plant more effectively. Note that Sedgehammer Plus already contains a surfactant.

Avoid applications of post emergence products when turf is stressed by drought or other factors, making it more susceptible to herbicide damage. Drought stress also results in poor nutsedge control results.

Here are some examples of active ingredients and products labeled for nutsedge management in turf and around select ornamentals as noted below:

Active Ingredient	**Product Trade Names**	**Yellow Nutsedge Control**	**Purple Nutsedge Control**	**Comments**
halosulfuron-methyl	Sedgehammer Plus; Monterey Nutgrass Killer II; Hi-Yield Nutsedge & Horsetail Control; Martin’s Nutgrass Eliminator	Good to Excellent	Good to Excellent	Results may not be visible for 2 weeks. Labeled for use around woody ornamentals in landscape areas.
sulfentrazone	Ortho Nutsedge Killer for Lawns	Fair	Poor to Fair	Injury symptoms appear on yellow nutsedge within 2-3 days after application.
sulfentrazone + prodiamine	Bonide Sedge Ender; Ferti-lome Weed-Out Nutsedge Control	Fair	Poor to Fair	Injury symptoms appear on yellow nutsedge within 2-3 days after application.
imazaquin	Image for Nutsedge	Fair	Good	Absorbed through both roots and shoots. Apply ½” of irrigation 24 hours after spraying. Labeled for use around some (limited) landscape plants.

Carefully read and follow all directions on the herbicide label. **If label instructions are contrary to anything in this publication, follow the instructions on the label**. Remember, the label is the law!

When applying a herbicide product around desirable plants which may be adversely affected it is best to use a wiper type applicator to help avoid contact with desirable plants. I've included instructions for building your own applicator on my website: gardeningwithskip.com/weed-wiper

Nutsedge, although a tough, formidable foe, is not invincible. With diligent, determined, consistent efforts it can be managed in a home garden and landscape.