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Spotlight on Weeds: Yellow nutsedge (*Cyperus esculentus*)

(Aaron Patton), (Leslie Beck) & (Kyle Daniel, daniel38@purdue.edu)

Biology: Yellow nutsedge (*Cyperus esculentus*), also known as chufa (chufa is a non-weedy variety that is used for wildlife food plots and is not a cold hardy weed like yellow nutsedge), nutgrass, or watergrass, is a troublesome, difficult-to-control perennial weed found throughout the United States. It is important to understand that yellow nutsedge is not a grass or a broadleaf weed, but a sedge; which is crucial when determining effective control strategies. It establishes by rhizomes, which form tubers (called nutlets) that are capable of surviving in the soil for periods of up to ten years. These nutlets, as well as viable seed, sprout and establish from May until the end of July. Reproduction by tubers can be very prolific. A trial in Minnesota found that one nutsedge tuber produced 1,900 shoots and 6,900 tubers within one year (Tumbelson and Kommedahl, 1961)!



Figure 1. Yellow nutsedge has a brown seed head. Photo by Aaron Patton.



Figure 2. Yellow nutsedge has triangular stems. Photo by Kyle Daniel



Figure 3. Infestation of yellow nutsedge. Photo by Aaron Patton.

Identification: Yellow nutsedge can be identified by solid, triangular-shaped stems which are easily determined by rolling the stem back and forth between fingertips. Yellow nutsedge leaves have a prominent mid-rib and are arranged in threes which also help to distinguish it from grasses. Leaves are a light green to yellowish in color, have a shiny/waxy appearance, and have a long leaf-tip tapered to a sharp point. While many grasses have hairs on the leaf blades, such as crabgrass or bermudagrass, yellow nutsedge leaves and stems are completely smooth, which accentuates the shininess of the leaves. Though it seldom forms in areas of mowed turf, yellow nutsedge produces golden to brown colored seedheads (short spikelets) from July to September. It is often mistaken for purple nutsedge; however, purple nutsedge has dark green leaves that quickly taper to a blunter tip, and produces reddish brown to purple seedheads (spikelets). Additionally, purple nutsedge develops tubers along

the entire length of rhizomes where yellow nutsedge only produces tubers at rhizome tips.

Cultural control: The best method of cultural control is prevention by inspecting new soil prior to bringing into the landscape. For sites that have existing nutsedge, improving drainage and reducing compaction can aide in reducing populations.



Figure 4. Triangular stems of yellow nutsedge. Photo by Aaron Patton.



Figure 5. Rhizomes beneath the soil surface of yellow nutsedge. Photo by Aaron Patton.



Figure 6. Purple nutsedge has a more rounded tip (left) than yellow nutsedge (right). Photo by Aaron Patton.

Biological control: None known for specific use in yellow nutsedge.

Chemical control: Yellow nutsedge is a difficult-to-control weed that may require multiple herbicide applications. The most effective time to kill and prevent tuber production is while plants are small in the late spring and early summer. The most effective postemergence herbicides on yellow nutsedge include halosulfuron-methyl (Sedgehammer), clopyralid (Lontrel), metsulfuron (Manor, Ally, others), bentazon (Basagran T/O), and sulfentrazone (Dismiss).



Figure 7. The growth habit of yellow nutsedge is a three leaf arrangement. Photo by Aaron Patton.

Purdue Bulletin on yellow Nutsedge:

<https://www.extension.purdue.edu/extmedia/ay/ay-19-w.pdf>

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Oak Wilt in Indiana

(Tom Creswell, creswell@purdue.edu)

Oak wilt has been found in most counties in Indiana and is one of the most serious threats to the health of oak trees in the Midwest, especially those in the red oak / black oak group. The disease is caused by the fungus *Ceratocystis fagacearum* and is spread from tree to tree by sap feeding beetles and by natural root grafts between trees. Beetles carry spores of the fungus from infected trees to fresh wounds leading to infections in the canopy. Root of oaks of the same species nearby normally join as grafts when they grow together, providing the other means of spread from one infected tree to other nearby oaks.

Trees in the red oak and black oak group are highly susceptible. When infected early in the summer red oaks usually wilt rapidly, show extensive summer leaf drop and may die by fall, or spring of the year following infection (Fig. 1). Initial symptoms include leaf browning from the tips or along one side (Fig. 2), but the key symptom to look for is discoloration of the vascular tissues, resulting in dark streaks in the sapwood (Fig. 3).



Fig 1: Red oak canopy showing leaf loss and rapid decline.



Fig. 2: Red oak leaves showing necrosis at tips and along side.



Fig. 3: Red oak branch showing dark streaks in vascular tissue of sapwood.

Bur oak is intermediate in susceptibility and may survive 3-5 years after infection. White oaks are more tolerant and have a slower decline over many years, with individual branches dying (Fig. 4).

Symptoms summary

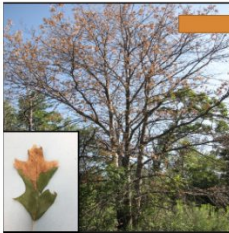
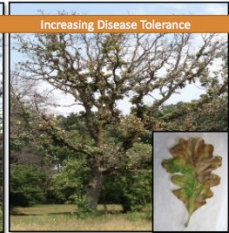

Increasing Disease Tolerance →		
		
Red Oak	Bur Oak	White Oak
<ul style="list-style-type: none"> • Rapid wilt, full wilt in one season • May die same year or next 	<ul style="list-style-type: none"> • Scattered wilt • May survive 3 to 5 years 	<ul style="list-style-type: none"> • Slow wilt • Survives several to many years
Photos: Anna Yang, UMN		

Fig. 4: Disease severity comparing three types of oaks.

Prevention is key with this disease because so little can be done for red oaks after the infection is discovered.

Prevent infection by beetles:

- Don't prune, wound or remove oaks in known oak wilt areas from March-August.
- Apply wound dressing paint to unavoidable wounds during this period.
- Remove bark from red oaks that have died from oak wilt to prevent formation of fungal mats
- November through February: Save period to prune because the fungus and insects are inactive.

Prevent infection by root grafts:

- If oak wilt has been confirmed then cutting root grafts is recommended where practical between trees oaks of the same species.

- If planting new trees consider planting a variety of tree species
Additional recommendations and more detail on this disease are provided in our publication:

<https://www.extension.purdue.edu/extmedia/BP/BP-28-w.pdf>

Confirmation of a suspected oak wilt infection requires laboratory testing of the branches showing dark streaks in the sapwood. If you suspect oak wilt, the [Purdue Plant and Pest Diagnostic Lab](#) (PPDL) can test samples for the presence of the fungus. You may want to consult a certified arborist to help you collect wilting branches from the crown of the tree. You can find an arborist at www.treesaregood.org/findanarborist.

See our guidelines on how to collect and ship a sample for oak wilt testing:

[Collecting Samples for Oak Wilt Testing](#)

Sweet Revenge: How to Safely Manage A Stinging Wasp Problem

(Cliff Sadof, csadof@purdue.edu)



Eastern yellowjacket wasps are important predators that feed on caterpillars.
(Photo by T. Murray, MA)

What are yellowjackets? The term yellowjacket is commonly used to describe ground nesting social wasps. Two common wasps with similar behavior are the native Eastern yellowjacket wasp, *Vespula maculifrons* and the exotic German yellowjacket wasp, *Vespula germanica*. Both species are important predators in their native ecosystems where they prey on a variety of plant eating caterpillars. The Eastern yellowjacket is common in Indiana.

If yellowjackets are beneficial insects, why are they considered pests? When yellowjacket wasps locate their nests away from people, they help protect trees from caterpillar pests,

and eat the flesh of dead animals. When nests are located near people, they can sting. Unlike honeybee workers who die after their barbed stinger gets stuck in your flesh, yellowjacket wasps can sting multiple times. I actually counted 9 stings when from a single unfortunate wasp that flew up my pant leg when I mowed over the nest in my back yard in my shorts just two weeks ago in late August.

<https://www.purduelandscapereport.org/wp-content/uploads/2018/09/Video1-Wasps-Near-People.mp4>

Yellowjacket wasps are very active in late summer. This nest, located near a highly trafficked area poses a stinging threat.

Yellowjacket wasp life cycle. Yellowjacket wasps spend their winters as mated queens. In spring the queen makes a new nest to produce workers that she guards. After workers mature they help the queen expand her nest and make more female workers, queens and males. At the peak of their activity in late summer and early fall, each nest can contain well over 1000 cells. For this reason, running over a nest with a lawnmower can be a rather unpleasant experience. If nests are made in structures, such as the wall void of a home, the nests can be quite dangerous.

How to control yellowjacket wasp nests. When yellowjacket wasps are in structures it is best to call a trained professional to minimize stinging risks. While stings can be painful to most people, some people can have an allergic reaction that can be lethal if not treated quickly. Ground nesting yellowjacket wasps can be treated with minimal risk by applying the insecticide at night when all the wasps are tucked into their nests. But don't even think about doing this if you know you have an allergy to wasps.

<https://www.purduelandscapereport.org/wp-content/uploads/2018/09/Video2Control-Wasps-at-Night.mp4>

Spraying yellowjacket wasps at night with a foaming aerosol spray in accordance with the label directions is an effective and safe way to control this pests. Yes, that is me spraying the same nest that was home to the wasp that flew up my shorts. Sometimes, revenge can be sweet.

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