

Weed Biology & Management

Biology and Management of Yellow Nutsedge (*Cyperus esculentus*) in Christmas Tree Production



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Yellow nutsedge is one of the most problematic perennial weed species in the Christmas tree production systems. It belongs to Cyperaceae (Sedge) family and is monocotyledonous plant. Other common names for this species are nut grass, chufa sedge, tiger nutsedge, and earth almond. Yellow nutsedge is prevalent in Christmas tree plantations, lawns, cultivated areas, turf areas, landscape beds, garden, pastures, roadsides, edges of forests, grasslands, riverbanks, irrigation canal banks, and disturbed areas. This weed species is very persistent once established. It is found worldwide in warm and temperate zones. In the western hemisphere, it grows from southern Canada to northern Argentina. This plant is common throughout most of the United States and is native to North America. It has an upright growth habit and can reach up to 36 inches in height. Seedlings are very rare and the plant spreads almost exclusively via rhizomes and tubers.

Biology of Yellow Nutsedge: Yellow nutsedge has deep fibrous roots, rhizomes, and distinct tubers. Tubers are produced on rhizomes, or underground stems. Buds on the tubers sprout and grow to form new plants and eventually form patches up to 10 feet or more in diameter. Yellow nutsedge tubers grow at the ends of rhizomes, are mostly round, hard, smooth, have scales when immature, are 0.1 to 0.6 inches diameter, and brown to black. The shoots of yellow nutsedge are triangular in cross-section and are borne individually from a tuber or basal bulb. Leaves arise from a central triangular stem and are three-ranked, or arranged in sets of three from the base, as well as V-shaped in the cross-section. The leaves are thicker and stiffer than most grasses. Yellow nutsedge leaves are 0.5 inches wide and 12 to 35 inches long. Leaves are yellow-green, smooth, and shiny or waxy on the upper surface with long attenuated tips. The inflorescence (Fig 1) of yellow nutsedge consists of an umbel (a



Figure 1. Yellow nutsedge inflorescence.
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cluster of flowers originating from a central point) of spikes distributed throughout stalks of unequal length (1–3 inches), are yellow-brown, golden, or straw colored, and are supported by leaf-like bracts as long or longer than the spikes (Bryson and DeFelice 2009). Yellow nutsedge has tiny, single-seeded fruit (achenes) that are triangular in cross-section, blunt-headed, and yellowish-brown in color.

Similar Species: Yellow and purple nutsedge (*Cyperus rotundus*) are very similar in appearance when young. The easiest way to identify which species is present is by examining the leaf tips, tubers, and root structures, and by examining the inflorescence if it is present. Leaf blades of purple nutsedge are green, 0.2 to 0.5 inches wide, have a prominent midvein, and abruptly taper to a tip. Other sedge species such as globe sedge (*Cyperus croceus*) and kyllinga (*Kyllinga* spp.) can be distinguished from yellow and purple nutsedge by examining the inflorescence.

Management of Yellow Nutsedge

Non-chemical control: Hand weeding will remove shoots, but they will rapidly regrow if tubers are not removed. Often, several annual sedges that reproduce via seed are misidentified as yellow nutsedge. Prevention by cleaning equipment and using weed-free and fresh, uncon-taminated potting soil is the best course of action. Regular scouting in the field is always suggested to identify the weed species at an early stage. Use of organic mulch materials such as pinebark, pinestraw,

or wood chips at typical 2–3-inch depths are not effective, as the species spreads largely via tubers.

Chemical control: Chemical control includes application of preemergence and postemergence herbicides. Preemergence herbicides needs to be applied either before germination of the weed seeds or just after the germination, when the seedlings are very small. Following are some of the preemergence herbicides that are labeled for use in Christmas tree production and have shown good control of yellow nutsedge: flazasulfuron (Mission 25WG), dimethenamid-P (Tower 6EC), and hexazinone + sulfometuronmethyl (Westar 75DG). Postemergence herbicides are applied at later stages, and they are most effective when applied to young actively growing weeds that have not reached their reproductive stages. Roundup ultra 4L (glyphosate) has shown fair control of yellow nutsedge. For postemergence control repeated applications may be needed depending upon nutsedge growth stage and density. It is highly recommended to read the manufacturer's label of the herbicides before application and make sure the application timing is right and the herbicide is safe for the Christmas tree varieties.

REFERENCE:

Bryson, C. T., and M. S. DeFelice. 2009. *Weeds of the South*. University of Georgia Press. 467 p. ▲



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