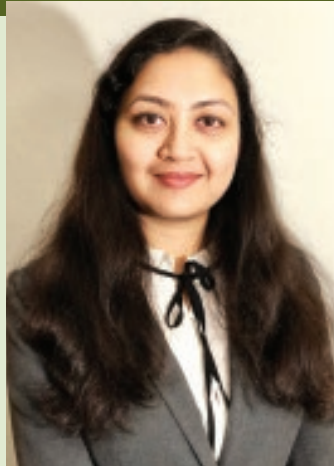


Weed Biology & Management

Biology and Management of Large Crabgrass (*Digitaria sanguinalis*) in Christmas Tree Production



DEBALINA SAHA, PH.D.
Assistant Professor
Ornamentals and Christmas tree
weed management
Department of Horticulture
Michigan State University

Large crabgrass (*Digitaria sanguinalis*), also known as hairy crabgrass, is a problematic weed species in Christmas tree production. It is a summer annual, and a member of the grass family, *Poaceae*. It has a prolific tillering or branching habit. These are very adaptive to mowing heights as they can produce seeds at mowing heights as low as 1/2-inch. Once established, large crabgrass can tolerate both high temperatures and dry weather conditions because of its physiological makeup (C4 plant).

Biology of Large Crabgrass

Large crabgrass is found in wide range of habitats such as Christmas tree production fields, pastures, turf, roadsides, and disturbed areas like row crops and gardens. It is a common weed of most agronomic and horticultural crops as well as turf and landscapes. It can tolerate poor, dry conditions but is found in nearly every soil type and crop. Large crabgrass is common throughout the United States and other temperate and tropical regions of the world.

A single plant can produce 150 to 700 tillers and 150,000 seeds. Seeds remain dormant for a short period of time after they are shed from plants. Germination of large crabgrass seeds depends on soil temperature. When soil temperatures at the surface reach 55°F for four to five consecutive days, large crabgrass begins to germinate. Seeds germinate best from early spring to late summer and the large crabgrass continues to grow until midsummer when days become shorter. Plants that emerge early in the season and have a long period of vegetative growth are much larger and more competitive than plants that germinate late in the season.

Series for Christmas Tree Production



Figure 1. Large crabgrass stems with terminal seed heads..

Stems of large crabgrass are prostrate to ascending and may reach 3 feet tall (Fig 1). The stems are capable of rooting at the nodes. Mature stems are often compressed in cross-section. Leaf surfaces and sheath are densely hairy on both the upper and lower surfaces. Leaves are rolled in bud and more numerous at the base. Leaves are generally shorter, wider, and more tapered than those of most other grasses. Ligule is of membranous type. Older sheaths and leaves may turn dark red or maroon with aging of the plant (Uva et al., 1997).

According to Uva et al. (1997), large crabgrass flowers occur in mid to late summer. The seedhead is a terminal panicle that consists of 3-5 (-13) spikes which are slender, fingerlike branches arranged in whorl. Spikelets are elliptic and in 2 rows along the spike. Each spikelet contains a single shiny, yellow-brown seed.

Similar species

Smooth crabgrass (*Digitaria ischaemum*) is a similar species to large crabgrass. Smooth crabgrass differs from large crabgrass by having a smaller stature, hairless to sparsely hairy leaves and sheath, and a tuft of long hairs at the collar region and stems. The stems of smooth crabgrass do not root at the nodes.

Southern crabgrass (*Digitaria ciliaris*) is another similar species to large crabgrass. Southern crabgrass has hairs on the sheaths but lacks hairs on the leaf blades (Uva et al., 1997). This species is more common in the southeastern than the northeastern United States.

Management of Large Crabgrass

Non-chemical Control:

Prevention practices must be undertaken by Christmas tree growers which can include removal of any seedlings before they become mature and established and prevent any plants from producing seeds. If topsoil is introduced to a site, it should be cleaned and free of roots, rhizomes, seeds, and other propagules. Regular scouting for this weed needs to be done by the growers in their fields, and immediate hand removal is encouraged as later mowing in between the Christmas tree rows can spread the seeds easily.

Chemical Control:

Controlling large crabgrass can be difficult by following non-chemical methods only, so growers often need to apply chemical control as well. It is important to select the right herbicides, right application rate and timing to maximize control and ensure crop safety for the Christmas tree production. Some of the recommended pre and postemergent herbicides for controlling large crabgrass in Christmas tree production are:

Preemergent herbicides. Tower 6 EC and Pennant magnum 7.62 EC provide excellent control over crabgrass. Westar 75 DG, Surflan 4 AS, Sureguard 51 WDG, Marengo 0.622 SC, and Pendulum aqua Cap 3.8 CS have also shown good results in controlling crabgrass.

Postemergent herbicides. Roundup ultra 4 L is an excellent option for postemergence control. Also, Envoy plus 0.97 EC and Fusilade DX 2 L can provide good control. ▲

REFERENCE:

Uva, R.H., J.C. Neal, and J.M. DiTomaso. 1997. *Weeds of the Northeast*. Comstock, Cornell University Press.