

# WEEDS

Weeds are described as plants growing where they are not wanted. They can disrupt the appearance and use of lawns, recreational areas, and other turfs. In addition, they compete with desired turfgrasses for space, water, nutrients, and light. Turf weeds may be grasses, grass-like plants (rushes or sedges), or broadleaf plants with annual, biennial, and/or perennial life cycles.



Turf professionals should become familiar with weed characteristics, growth habits, and life cycles. These factors play an important role in weed identification and control. A weed management program is based upon identifying the desired turfgrasses and existing weeds, including knowledge of other weeds that may potentially germinate. However, an effective program begins with a vigorous turf; one that has been correctly fertilized, watered, and mowed. Weeds can quickly invade thin turf. Cultural and management practices that enhance turfgrass growth generally reduce weed competition and encroachment. When selecting a herbicide, consider the weeds present, those that will potentially germinate, and the tolerance of the turfgrass.

## GROWTH HABITS

Weeds are classified as summer annuals, winter annuals, biennials, and perennials. **Annuals** complete their life cycles in one season by flowering, maturing seed, and dying. Summer annuals germinate from late March through July, depending on the location. They flower in the summer and die in the fall. Winter annuals germinate in the fall and early winter and usually die with warm weather in the spring or summer; however, they may continue to grow into early summer in cool seasons. **Biennial** weeds have a two-year life cycle. They create vegetative structures (leaves, stems, and roots) during the first year, and reproductive structures (flowers and seeds) the second. **Perennials** live more than two years and may produce seed each season.

## WEED IDENTIFICATION

The first step in the identification process is to decide whether the plant is a broadleaf, rush, sedge, or grass. Both rushes and sedges are similar to grasses in several respects, so first make sure that the plant you are attempting to identify is indeed a grass. This can be determined by stem and leaf shape, and type of root system. The following summarizes the characteristics of each family:

### **Rush Family** [Juncaceae]



among the most recognized rushes common to wetland areas.

Leaves are arranged in groups of three, are either alternate or basal, parallel veined, and are much longer than they are wide. Leaves are usually round and wiry. Auricles tend to be absent. Ligules are very small or absent. Rushes have round, solid stems, not hollow (like those of grasses). Rushes are upright plants with fibrous roots. Rush flowers are solitary and arranged in heads, making them distinctly different from both grasses and sedges. Rushes are considered semi-aquatic, and like sedges, will be found where there is an abundance of water. Rushes, more so than sedges, prefer year-round wetland conditions. Cattails are

### **Sedge Family** [Cyperaceae]

Sedges can be easily distinguished from grasses by comparing the shape of the stem. The stem shape can be observed by removing the plant from the soil and cutting the stem in cross section at or slightly above the soil line. Sedges generally have solid triangular stems with leaves in groups of three, while grasses have round or flattened stems with leaves in groups of two. Leaf edges are usually rough; leaf sheaths are tubular, not split; the collar is usually indistinct; auricles are absent; and ligules are small or absent. Sedges are also considered semiaquatic, and will be found where there is an abundance of water.



Sedges thrive in wet or poorly drained soils but can survive in areas that are not wet. Because of frequent irrigation in highly maintained turf, sedges thrive in turfgrass. Sedges often become established in wet areas and spread to other areas that are not properly drained. Many sedge species can be problematic in turf. As a general rule, sedges are more of a problem in warmer climates than cooler climates. Proper identification and an understanding of the biology of sedges are necessary for effective management.



It is important to properly distinguish sedges from grasses because management practices are vastly different. In North Carolina, about 10 species of sedges can be found in turfgrasses. Most of these species are perennials and represent some of the more difficult weeds to control. However, a few species (particularly annual sedges) can be easily controlled. In addition, there are several new species of sedges (*Kyllinga* species) that represent new weed problems in turf situations, and are spreading rapidly in many areas. Because many sedges can only be identified by their respective seedheads and because repeated mowing often prevents seedhead development, it may be necessary to remove a sedge from the

managed turfgrass area and place it in a pot to allow seedheads to develop.

### **Grass Families** [Poaceae and Gramineae]

Grasses are upright bunching plants with fibrous roots. Some have rhizomes or stolons. Grasses have hollow stems that are either round or flattened. Their leaves are borne in groups of two, have parallel veins, and are much longer than they are wide. Leaves can be basal, as well as alternate or oppositely arranged along the stem. Stems of grasses are almost always distinct because of their nodes. Most grass leaves have a ligule where the leaf blade and stem meet. Grasses usually have flowers characterized by spikelets, panicles or racemes.



The two most common summer annual grass weeds in North Carolina are the crabgrass species (usually smooth) and goosegrass. These weeds invade thin turf quite easily, so a year-round turf management program is important to help prevent these weeds from becoming major problems. Winter weed control is especially important because when these weeds begin to die out in the spring, thin turf occurs where the weeds were located. As the turfgrass begins to grow in the spring, so do crabgrass and goosegrass seedlings. These weed seedlings usually will fill in the bare or thin turf areas before the turfgrass can recover in the spring.

The most common and troublesome winter annual grassy weed in North Carolina is annual bluegrass. This weed is found in every sector of the turfgrass industry. Annual bluegrass thrives in moist, cool environments and can become quickly established in thin turf stands, particularly thin warm-season turf stands. Some subspecies exist which are classified as short-lived perennials. These perennial types are particularly evident in bentgrass golf greens. One reason annual bluegrass is so unsightly is its light colored seedhead, which grows even at very low mowing heights.



Desirable turfgrasses may be classified as perennial weedy grasses. Tall fescue in a bermudagrass lawn is considered a weed. Most turfgrasses are difficult to control within another turfgrass, so select clean seed free of “crop” seed or vegetative sources for establishment, use an adapted turfgrass species and cultivar for your location, and use proper mowing and fertilization techniques to maintain a dense, actively growing, desired turf. Digging, removal by hand or mechanical equipment (for example, a sod cutter), is one way to control undesired perennial turfgrasses. You may spot treat an infested area with an appropriate non-selective herbicide, realizing it will also kill the desired turfgrass.

### **Broadleaf Families** [various]



Broadleaf weeds belong to several different taxonomic families, and plant characteristics are widely varied. Leaves are generally wide, but can also be oblong. Broadleaves almost always have net-like veins, whereas sedges and grasses have parallel venation. Broadleaf plants have round or square stems and leaf shapes vary (round, heart, oval or linear arrangements). Most notably, the leaves are typically found in clusters or bunches with one or more leaflets. Leaf edges can be smooth, wavy, serrated, or deeply lobed. Leaves can be simple, pinnately, or palmately compound. Root systems include tap root, bulbous root, and fibrous root systems. Growth habits include upright, vining, rosette, and prostrate (or spreading). Generally broadleaf weeds have showy flowers. Most broadleaf weeds are dicots. Categorization depends upon several factors including: geographic location, plant species, subspecies, and climate.

The most common broadleaf weeds in North Carolina are chickweed, clover, cudweed, dandelion, and henbit. Virginia buttonweed and violets are also considered to be among the most troublesome. Chickweed will survive under close mowing, forming dense patches that crowd out desirable turfgrass. This weed quickly invades thin turf areas especially where there is good soil moisture. Shade and frequent watering encourage chickweed growth. Clovers may also be found under close mowing conditions. Maintaining soil phosphorus at medium levels and nitrogen at the proper level for the desired turfgrass reduces the competitive ability of white clover in turf. Dandelion is a perennial weed with a thick taproot. Henbit is a winter annual or biennial weed which is difficult to control. Wild violets are shade-loving winter annual or perennial weeds that often grow in clumps and are also difficult to control.



For help in identifying specific weeds, consult the *Turfgrass Pest Management Manual: A Guide to Major Turfgrass Pests & Turfgrasses* or visit the [Turf & Weed Identification Decision Aid](#) on the TurfFiles web site.

## MANAGEMENT PRACTICES

Selection of adapted turfgrass species and cultivars and the use of cultural practices are important in minimizing weed encroachment and competition. Management practices include:

- (1) mowing at the recommended height for the selected turfgrass species and removing clippings when seedheads of grassy weeds are present;
- (2) applying the proper amount of nitrogen at the correct time according to the turfgrass present;
- (3) using soil tests to determine needed nutrients and lime; and
- (4) properly identifying the weed species, then applying appropriate herbicides either before weeds germinate (preemergence) or when weeds are small and actively growing (postemergence).

For more information on control of specific weeds, see *Turfgrass Pest Management Manual: A Guide to Major Turfgrass Pests & Turfgrasses*; *Pest Control for Professional Turfgrass Managers*; or the [Decision Aid for Weed Management](#), on the TurfFiles Web site.

### ***Links Included in this publication:***

Decision Aid for Weed Management: <http://www.turffiles.ncsu.edu/turfweedmgmt/>

Turf & Weed Identification Decision Aid: <http://www.turffiles.ncsu.edu/turfid/>

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