
A GUIDE TO WEED LIFE CYCLES

Annual Weeds

An annual is a plant which germinates, flowers, sets seed, and dies within a single year. All annuals spread only by seed. There are two types of annuals:

- *summer annuals* - Summer annual weeds generally emerge as soon as soil temperatures warm in the spring or early summer. Many species continue to germinate throughout the summer under adequate conditions. Summer annual weeds grow, flower, produce seed, and are killed by frost during the fall season. Summer annual weeds are often difficult to manage, as many species are better suited to summer conditions than desirable cool-season turfgrass species. Examples are crabgrass, knotweed, and prostrate spurge.
- *winter annuals* - Winter annuals germinate from seed in the late summer or early fall. Young winter annual plants live through the winter then flower, set seed and die out the following summer. Winter annuals generally cannot survive the hot summer months. Occasionally, winter annuals will germinate in the spring, but even spring-germinating weeds die out the following summer. Some examples of winter annuals are shepherd's purse, common chickweed, yellow rocket, and annual bluegrass.

Biennial Weeds

Biennial weeds usually live for two years. In the first year seeds germinate and grow without flowering, forming what is called a rosette. A rosette is a plant form with no central stalk. All leaves in a rosette arise from close to the soil surface, as in thistle.

In the second year of growth, biennials send up a flowering stalk. After flowering and seed production, biennials die. Many familiar weeds and wildflowers are biennials. Queen Anne's lace (wild carrot), evening primrose, burdock, common mullein, and moth mullein are examples of biennials found in our area. Biennials can have large taproots, which sometimes causes people to confuse them with perennials.

Perennial Weeds

A perennial is a plant which lives for many years, and does not die after flowering. All perennials have underground parts that store food over the winter and allow them to reemerge in the spring. One way to tell if a weed is a perennial is to dig it up and look for these underground parts. There are two different types of perennials. The two types are very different in their importance as weeds.

- *simple perennials* - Simple perennials are also called solitary perennials because these plants grow singly. Even though you may sometimes see several plants close to each other, the plants have separate root systems and are not joined underground. Simple perennials spread only by seed. A plant which grows from a seedling may live for many years, getting larger through the years. Most simple perennials have taproots - large roots that grow vertically down through the soil. Taproots can grow to be quite large. Curly dock, plantains, and dandelion are some familiar simple perennials.
- *spreading perennials* - Spreading perennials begin life as a seed but are also able to spread by vegetative reproduction. In vegetative reproduction, plants send out runners known as rhizomes or stolons. These runners are actually horizontal stems. Rhizomes grow under the ground. Stolons grow above the soil surface.

Both rhizomes and stolons give rise to new plants. A plant which spreads by vegetative reproduction can give rise to dozens of new plants. Spreading perennials can take over landscape plantings and large areas of lawn within a few years.

Yellow nutsedge, ground ivy, Canada thistle, hedge bindweed, and quackgrass are some common spreading perennials that spread by rhizomes. Zoysiagrass and bermudagrass are examples of aggressive grasses that spread by stolons. White clover is a broadleaf (non-grass) plant that spreads by stolons.

LIFE CYCLES AND WEED MANAGEMENT

Why is it important to identify weeds and know their life cycles? Because management tactics are different for each type of weed. Prevention and management of weeds is different for annuals, biennials, and for simple and spreading perennials.

- *annuals* - Annual weeds tend to germinate after soil is disturbed. For this reason, they can be a serious problem in new turf or landscape plantings and in established plantings if the soil has been cultivated. Annuals can be controlled by hand pulling, cultivating, burial under mulches, and with herbicides. Annuals are considerably easier to control and to prevent than perennials. Growth of most weeds in new lawns can be controlled with herbicides, mowing, or a combination of the two. In established lawns, growth of annual weeds such as crabgrass can be reduced by reseeding bare patches and improving grass growth so that lawns thicken. In landscapes, annual weeds can be prevented with mulches. Killing annuals by hand pulling is fairly easy. Destruction of the part of the root system just below the soil surface is all that is needed to control annuals, while in perennials the entire root system must be removed.

The timing of preemergence herbicides is different for winter and summer annuals. Applications of herbicides intended to control summer annuals are made in the spring before weed seedlings emerge. Fall applications of herbicides are sometimes used to control winter annuals. Because of the long emergence period of winter annuals, however, these applications are rarely 100% successful. Preemergence herbicides often disappear from the soil before winter annual weeds have finished emerging.

Control of annuals may be achieved with postemergence herbicides or contact herbicides. Control of both annuals and perennials can be obtained with systemic (translocated) herbicides such as glyphosate.

- *biennials* - Burdock and Queen Anne's lace (wild carrot) are biennials commonly found in New England landscapes. There are few turf weeds which are biennial. Biennials have taproots that must be killed or removed for lasting control. This can be done by hand or with a translocated postemergence herbicide. Growth of these weeds can be prevented with mulches. Biennials spread only by seed and are less likely to be serious problems than many perennials.
- *perennials* - Most weeds in established lawns and landscape plantings are perennials. Plantains, dandelion, and ground ivy are examples of perennial turf weeds. Perennial landscape weeds include hedge bindweed, yellow nutsedge, quackgrass (witchgrass) and red sorrel. Both simple and spreading perennials can be controlled most easily within the first year of growth. All portions of the root system must be removed or plants will regrow. For hand control, dig carefully in the ground around the base of the weed, exposing and removing all of the root and rhizomes

In turf, the growth of many perennial weeds can be controlled with herbicides. Preemergence herbicides kill some weeds as they emerge through soil. Other weeds must be controlled with postemergence materials. Occurrence of turf weeds can be reduced dramatically by maintaining thick, healthy turf. Mowing high (three inches) can help turfgrasses out-compete weeds such as dandelion and plantains.

In landscape beds, both solitary and spreading perennials may also be controlled by directed sprays of glyphosate. Shield desired plants from sprays as described on the label.

Simple and spreading perennials differ in their importance as weed problems in both landscapes and lawns. Because simple perennials spread only by seed, they can be prevented fairly easily with mulches in landscapes. In lawns, they can be prevented by keeping turf vigorous or by using preemergence herbicides. Spreading perennials are more difficult to control. In landscapes, landscape fabrics will provide partial control of spreading perennials, but well established stands of these weeds tend to come up in gaps around shrubs. Most of the serious weed problems in landscapes are spreading perennials. In lawns, spreading perennials such as yellow nutsedge and quackgrass can form patches in lawns. Because these weeds spread so quickly and are so hard to control, it makes sense to eliminate them before planting begins. When a spreading perennial weed appears in an established planting, control by digging or spot herbicide applications.

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