

Understanding Weed Life Cycles

The key to better management

Weeds compete with vegetables for water, nutrients, and light. They also harbor insects and diseases, which may then spread to vegetables. Controlling weeds early, before they get too big, will reduce the time required for hand-weeding later in the season.

It is helpful to differentiate weeds by their life cycle, as this will tell you when they are problematic, and help you learn how to control them more effectively.

Most problem weeds in the vegetable field or garden are **summer annuals, winter annuals** and **perennials**. There are a few biennial weeds (those that take two years to complete one generation) like wild carrot and some thistles, but they are usually easy to control in an annual vegetable system so are not discussed here.



WINTER ANNUALS

These plants germinate in the fall but don't flower until spring, so they are present on the ground at planting time in spring. Because they grow at cool temperatures, they can be problematic in winter growing environments.

Weeding (tilling or cultivating) in the spring will kill existing stands and they will not return until another flush of seeds germinate next fall, when temperatures cool back down and daylength is shorter.

Some examples...



SUMMER ANNUALS

Seeds germinate in late-spring and summer and the plants flower, set seed, and die within one season. They are quick growing and quick to set seed, and seeds in the soil can germinate throughout much of the summer, so may be present all season and may have many generations per season.

Tillage and cultivation can kill them but they may come back, as more seeds can germinate throughout the summer. They survive the winter as seeds in the soil. Seeds may last many years or decades in the soil and contribute to the “weed seedbank” in your field or plot, **so preventing them from producing and dropping seeds is an important long-term strategy.**

Some examples...



PERENNIALS

Plants that live for more than two years. They reproduce by seed, but they also survive the winter through underground structures like rhizomes, stolons, or tubers.

Some weeding activities can spread these weeds through the garden plot by fragmenting and moving root pieces which can then resprout, but **repeated tillage over years can wear them down.**

Some examples...



CONTROL STRATEGIES

- Kill any winter annuals present before planting using early tillage, with a plow, disc, hoe or other cultivating tool
- Delay planting until early-June to allow most seeds to germinate and be killed in preparing seedbed
- Cultivate the top 1-2 inches of soil 2 to 4 times within the first month of planting to eliminate most summer annuals. Cultivating is most effective on hot sunny days since the disturbed weeds will be cooked in the sun. Going more deeply will bring more weed seeds up from the seedbank. Once the crop is big enough it will shade out later germinated weeds.
- Use mulches (paper, black fabric, straw, or plastic)—reduce weed density by hoeing or shallow cultivation before placing the mulch
- Using transplants instead of direct seeding gives your crops a head start over the weeds
- Hand weed to remove any weeds that have escaped, especially if they are about to make seeds—prevent new seeds from entering the soil seedbank.
- For perennials, frequent mowing or cutting is effective as it will exhaust underground storage organs like rhizomes or tubers