



Garlic mustard can thrive on a golf course in the partial-shade environment where roughs end and woods begin.

DO YOU CUT THE MUSTARD?

BY BOB VAVREK | REGIONAL DIRECTOR, CENTRAL REGION

Golf is an outdoor game, and one of the fringe benefits of spring play is the chance to encounter native wildflowers that bloom for only a short time during April and May. Wildflowers can be found along the woodland perimeters of many courses. A glimpse of trilliums or Virginia bluebells during a search for an errant shot can take the sting out of losing one of the brand-new golf balls you were so happy to find beneath the Christmas tree.

Unfortunately, invasive weeds can reduce the valuable diversity of plant species in an ecosystem and can crowd out wildflower species. Garlic mustard is particularly troublesome. It is one of the few plants that can completely dominate the shaded environment beneath a dense stand of trees. Garlic mustard has become well-established throughout the Northeast and Midwest since its introduction into Long Island, New York, 150 years ago. Many golf courses that had one or two small, isolated patches of garlic mustard just a few years ago may now find that this pesky weed has completely taken over where deep roughs transition into adjacent woodlands.

Garlic mustard is a biennial weed, meaning it takes two years to complete a life cycle. Seed germinates during early spring and develops into an inconspicuous, low-growing rosette by midsummer that tends

to remain green throughout winter. The rosette produces a 2- to 3-foot stalk and white flowers during early spring of its second season. Seed pods develop during May and the plant dies shortly afterwards. A healthy plant can produce about 600 seeds that stay viable for up to 10 years. To make matters worse, its allelopathic properties inhibit other plants from growing nearby.

Early detection and action are critical for successful weed control, as is proper timing and persistence. The first-year rosette can easily be overlooked or mistaken for other common weeds, such as violets or ground ivy, though the strong garlic smell from crushed foliage is a dead giveaway. The fact that the rosette remains green during winter and develops a stalk with white flowers very early in spring provides a small window of opportunity for control. Here are a few management techniques that can be successful:



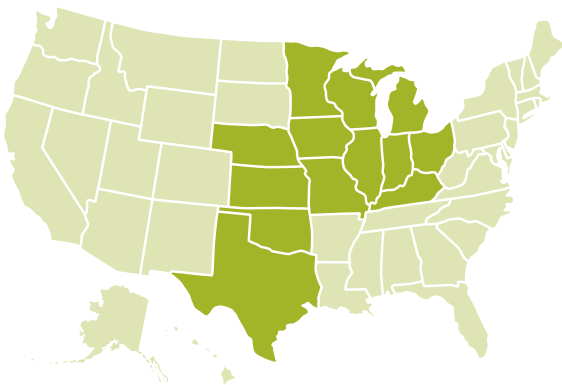
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- One option is to physically remove the plants during spring before seeds develop. Extraction is easier from soft, damp soils than dry soil and there is a better chance of removing most of the root system. Garlic mustard thrives in disturbed sites, so be sure to tamp down the soil after uprooting the plants or you may encourage seeds already in the ground to germinate. Once flowers develop, garlic mustard debris must be collected and removed because seeds can still develop and ripen even when their connection to roots has been severed.
- Stalks that have not flowered can be cut within a few inches of ground level. Some plants may send out another flower stem after cutting, so the site will need to be frequently monitored and managed during spring. Plants that are cut after flowering will need to be removed.
- A non-selective herbicide, such as glyphosate, can be used during late fall or early spring when desirable, native plants are dormant. Keep in mind that the first-year foliage of garlic mustard remains green and grows anytime there is no snow and temperatures are above freezing. Therefore, winter provides a more flexible window for herbicide control.

Garlic mustard will need to be intensively managed for at least five years, and up to 10 years for a severe infestation, due to the long life of seeds in soil. In fact, research in Canada indicates that just one attempt to control garlic mustard with no follow up resulted in greater weed infestation the following year compared to doing nothing at all.

The bottom line is that a half-hearted effort won't cut the mustard if you want to control this very aggressive weed.



CENTRAL REGION AGRONOMISTS:

Bob Vavrek, Regional Director, bvavrek@usga.org

John Daniels, Agronomist, jdaniels@usga.org

Zach Nicoludis, Agronomist, znicoludis@usga.org

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