



### Weed Common Name

Quackgrass

### Weed Botanical Name

*Elytrigia repens*

### Points to Consider

- **Rhizomatous:** Small rhizome (underground stem) fragments grow into new plants.
- **Strong competitor:** Aggressively competes for light, water, and nutrients, significantly reducing crop yields.
- **Difficult to control:** Mechanical control is not effective and herbicide control options are limited.
- **Allelopathic toxins:** It has been known to release allelopathic toxins into the soil that inhibit the growth of other plants.

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# Integrated Pest Management of Quackgrass

## Importance

Quackgrass is an aggressive cool-season perennial weed that offers significant challenges. It forms extensive underground rhizome systems, allowing it to spread and regenerate from small fragments, which makes it very difficult to control.

## Description, Biology, and Ecology

Quackgrass is a cool-season, rhizomatous perennial grass native to Europe. It was originally introduced into North America in the 1600s, most likely as a contaminant in hay, straw, or grass seed. Since its introduction it has spread across the temperate regions of North America.

It readily invades lawns, gardens, rights-of-way, ditches, and other moist, disturbed areas. Its rapid spread allows it to stabilize eroding soils, but it often does so at the expense of more desirable vegetation. Additionally, quackgrass releases allelopathic compounds into the soil, which inhibit the germination and growth of neighboring plants, further enhancing its competitive advantage.

Quackgrass typically grows 1–3 feet tall and features thin stems with swollen nodes (Figure 1). Its leaves are about ½-inch wide, rolled, and blue green in color. They



**Figure 1.** Quackgrass growing along a stream. Courtesy of Steve Dewey, Utah State University, Bugwood.org.

have a hairy upper surface and a waxy lower surface and, near the tip, have a band-like constriction. Quackgrass has very short membranous ligules and small clasping auricles (Figure 2). They have a dense fibrous root system with large rhizomes that allow for rapid spread (Figure 3). The seedhead is composed of flattened seeds arranged alternately up the spike inflorescence (Figure 4). While its seeds are usually awnless, they may have very short awns (Figure 5).

## Management

### Primary Management Tactics

Having a healthy stand of competitive beneficial plants is the best weed preventer. First, use cultural management practices that maintain a healthy landscape. Limit areas of bare soil by maintaining a healthy lawn, covering areas between landscape plants with mulch, gravel, or other soil-covering products, and utilizing efficient irrigation. Second, use chemical



**Figure 2.** Quackgrass leaves clasping the stem. Courtesy of Steve Dewey, Utah State University, Bugwood.org.



**Figure 3.** Quackgrass rhizomes. Courtesy of Steve Dewey, Utah State University, Bugwood.org.



**Figure 4.** Quackgrass inflorescence. Courtesy of the Ohio State Weed Lab, The Ohio State University, Bugwood.org.



**Figure 5.** Quackgrass seed. Courtesy of Lynn Clark and Anna Gardner, Iowa State University, Bugwood.org.

methods to control weeds before they produce seed or spread by rhizomes. The best weed management programs consistently use multiple methods of control.

## Prevention

- Establish a healthy stand of beneficial plants that compete with weeds.
- Apply mulch (3"–4" deep) or landscape fabric to landscaping to control seedlings.
- Limit the introduction of quackgrass by not transporting unknown plant material.

## Mechanical

- Effective control must target both aboveground and belowground plant structures.
- Tillage of any kind often makes the infestation worse, because broken rhizomes can establish, creating new plants.
- Hand pulling can be effective to a small degree. It is extremely difficult to remove all rhizomes from the soil, however, making hand pulling less than effective.

## Cultural

- In lawns, apply 0.5 lb of nitrogen per 1000 sq ft for each month of active grass growth. Distribute applications throughout the growing season.
- Deep, infrequent irrigation events encourage grass roots to grow deeper, providing access to an increased volume of soil, water, and nutrients, giving them a competitive advantage over white clover.
- Aerate compacted soil once a year (spring or fall). Turfgrass struggles to grow in compacted soil.
- Adjust sprinklers to prevent watering areas not intended for plant growth.

## Chemical

- Quackgrass is extremely difficult to control in lawns because herbicides effective against it also harm desirable grass species.
- Wick or wiper applications of nonselective herbicides can be an effective method for

controlling small infestations of quackgrass in lawns. These tools are designed to apply herbicide directly to the leaves of the target weed, minimizing contact with desirable plants. Although a nonselective herbicide is being used, the method itself is selective, for it allows the applicator to treat only the quackgrass while avoiding surrounding vegetation.

- In many cases, spot applications of nonselective herbicides, followed by reseeding, may be the most practical approach for control.
- For specific herbicide recommendations, visit [PNW Pest Management Handbook](#) (quackgrass).

## Further Reading

Burley, N. 2024. "Quackgrass." University of Minnesota Extension. <https://extension.umn.edu/weeds/quackgrass>.

## Caution: Read Pesticide Labels

Pesticide labels override other recommendations.

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI webpage do not substitute for instructions on the label. Pesticide laws and labels change frequently and may have changed since this publication was written. Some pesticides may have been withdrawn or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless the specific plant, animal, or other application site is specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

**Trade Names** — To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

**Groundwater** — To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.