

Quackgrass



Elymus repens (L.) Gould

Alternate Names

Couchgrass, dog grass, quickgrass, scotch, quitch, twitch

Synonyms

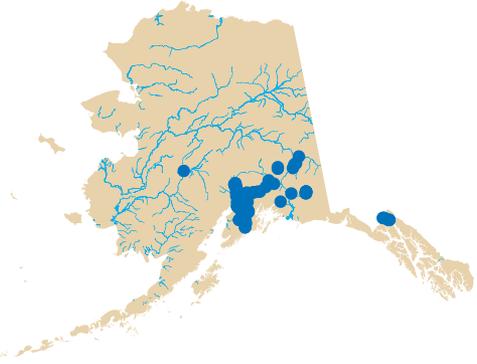
Agropyron repens (L.) Beauv.,
Elytrigia repens (L.) Desv.
 ex B.D. Jackson,
Elytrigia vaillantiana
 (Wulfen & Schreb.) Beetle, *Triticum repens* L.,
Triticum vaillantianum Wulfen & Schreb.

Description

Quackgrass is a strongly rhizomatous perennial plant. The rhizomes are long, highly branched, yellowish-white, sharp-pointed, and somewhat fleshy. Stems are erect and usually 1–3 feet tall. Leaf blades are $\frac{1}{4}$ – $\frac{1}{2}$ of an inch wide, flat, and pointed and have small auricles at the junction of blade and sheath. Leaf blades often have a diagnostic slight constriction near the tip and are sparsely hairy above and hairless below. Spikelets are arranged in two long rows and borne flatwise to the stem. The florets are awnless to short-awned. Seeds are elliptical and pale yellow to brown.

Similar Species

A number of *Lolium*, *Agropyron*, and *Elymus* grasses can be confused with quackgrass, but quackgrass can be distinguished by light-colored rhizomes that end in a sharp point. Other identifying characteristics include leaves that are broad, flat, and slightly constricted at the tip and solitary spikelets.



National Park Service photo by Penny Bauder

Ecological Impact

Quackgrass is a strong competitor with cultivated crops, native grasses and forbs in fields and grasslands. It can prevent regeneration of native woody species and also hinder the restoration of cropland, rangeland, pasture (in dense stands), and native grasslands. Additionally, it reduces the availability of soil moisture and limiting nutrients. Quackgrass can photosynthesize and grow during early spring, which may suppress species that photosynthesize and grow during the later, warmer part of the growing season. This grass is allelopathic, producing ethylacetate extracts, cyclic hydroxamic acids, and several other chemicals that may be exuded from its shoots and roots and can suppress the growth or reproductive vigor of competing plants (Whitson et al. 2000, Royer and Dickinson 1999, FEIS 1996). Quackgrass may also alter secondary succession following fires, when its cover can dramatically increase (FEIS 1996).



National Park Service photo by Penny Bauder

Roots and rhizome of quackgrass.

Biology and Invasive Potential

Quackgrass is an aggressive perennial grass that reproduces by seed and spreads by a shallow mass of rhizomes. Each stem can produce up to 400 seeds, although 20–40 is common. Seeds may remain dormant in the soil for 2–3

years (Batcher 2002). An individual plant may spread up to 10 feet and give rise to more than 200 new shoots each year (Royer and Dickinson 1999, Whitson et. al. 2000). Quackgrass is unable to resprout (GRIN 2004). It readily colonizes disturbed bare ground but can also invade undisturbed grassy habitats. Seed dispersal mechanisms are unknown, although seeds remain viable after passing through the digestive systems of many domestic animals (Batcher 2002). Many palatable hybrid crosses of quackgrass and other species have been developed and planted for livestock. Seeds germinate either in the fall or spring. Alternating temperatures are required for germination (59° to 77°F daily fluctuations) (Batcher 2002). Quackgrass is adapted to coarse, medium, and fine textured soils with pH levels ranging from 5.2–7.8. It is shade-intolerant, does not require cold-stratification for germination, withstands temperatures to -43°F, and requires only 90 frost-free days per year. Optimum temperatures for growth are between 65° and 80°F. Rhizome growth seems to be favored by low temperatures (<50°F) and long days (>18 hours). Quackgrass is listed as a noxious weed in 5 Canadian provinces and 27 states, including Alaska (Alaska Administrative Code 1987).



UAF Cooperative Extension Service photo by Jamie Snyder

Distribution and Abundance

Introduced from Europe as a contaminant in hay or straw, quackgrass has now been reported from every state in the United States and throughout Canada. This invasive grass is found in both natural grassland communities and agricultural fields. It invades gardens, lawns, roadsides, ditches, and other disturbed, moist areas. Quackgrass can

also colonize mixed-grass prairies and open woodlands. It is native from temperate Europe to Central Asia and is now found in North Africa, South America, Australia, New Zealand, and Indonesia (Batcher 2002, Hultén 1968). In Alaska, this plant was first documented in Seward and Haines in 1939 (ALA 2004). More recent records suggest an expanding range, particularly in southcentral Alaska, and it has become a significant agricultural weed in the state. It has been collected from all regions of Alaska (ALA 2004, Densmore et al. 2001, Hultén 1968).

Management

Effective control measures include applying herbicides, burning, tilling, and combinations of these 3 methods. Monitoring for 2 years after treatment is recommended (Batcher 2002).

Notes

Quackgrass rhizomes have been used medicinally since ancient times, possibly for their rich mucilage content. Before World War I, the United States annually imported a quarter-million pounds from Europe for use in products requiring mucilage. A fluid extracted from quackgrass rhizomes was sold as a remedy for kidney and bladder troubles early in the 20th century. The rhizomes, when dried and ground, can also serve as a source of bread flour for human consumption.