

QUACKGRASS

(*Elytrigia repens*)

Description: Quackgrass, also referred to as couch grass, is a member of the Poaceae or grass family. Quack grass is a strongly rhizomatous, cool season, perennial grass that can range in height from 1 to 4 feet tall. Culms are round, glaucous, erect to decumbent, and hollow. Rhizomes are white to yellowish in color. Leaf blades are flat, smooth to somewhat finely pubescent, 3 to 12 inches long, and 1/16 to 3/4 of an inch wide. Leaf sheaths are round, open and smooth to minutely pubescent. Ligules are membranous, 1/64 of an inch long, obtuse, and sometimes ciliated. Auricles are well developed and similar to a claw. Inflorescence consists of a spike that can be 1 1/2 to 7 inches long. Spikelets contain three to five flowers. Glumes are sharply tipped, 1/8 to 1/2 of an inch long, and taper to an acute tip that may be awnless or tipped with an awn up to 1/8 of an inch long. Lemmas are awnless or awn-tipped with awns up to 1/4 of an inch long. Anthers are 1/8 to 1/4 of an inch long. Seeds are approximately 1/4 of an inch in length and are lance-shaped.



Quackgrass

Plant Images:



Infestation



Auricles



Spikelets

Distribution and Habitat: Quackgrass is native to Eurasia and is now considered naturalized in the United States and Canada. The plant can grow in a variety of soils, from dry sand to wet alluvium. Quackgrass prefers neutral to alkaline soils and can tolerate saline conditions. Agricultural fields, road sides, abandoned fields, gardens, yards, cropland, river banks, and ditches are places where the plant can typically be found. Quackgrass is primarily associated with open areas and can quickly establish on disturbed sites.

Life History/Ecology: Quackgrass is a cool-season perennial grass that reproduces through seed production and, more importantly, through a vigorous root system. Seedlings can germinate either in the spring or fall. Rhizome growth generally begins from April to May. Rhizomes grow below the soil surface during the spring and summer before becoming erect in the fall to form a primary aerial shoot. Rhizomes also develop apical buds that eventually become a new shoot. In the following year, the shoot develops into a mature plant and flowering occurs from June through August. Seeds mature from July to September and are released within a month of maturity. The amount of seed produced is highly variable. Seed production can range from 15 to 40 seeds per plant, but 25 to 40 seeds is more common. Seeds may remain dormant in the soil for two to three years but retain viability for no more than four years.

Quackgrass may produce allelopathic extracts that suppress growth or reproductive vigor of surrounding vegetation.

History of Introduction: Quackgrass is native to the Mediterranean region and was likely introduced into the New England region of North America by colonization during the 1600s. The plant may have quickly spread west by transportation of infested hay and straw. Quackgrass is now widely distributed across North America and is found in every state in the continental United States. In North Dakota, quackgrass is widely distributed throughout the state with occurrences reported in almost every county.

Effects of Invasion: Quackgrass is an aggressive species that invades old agricultural fields and natural areas that have been disturbed. The extensive root system of the plant competes strongly with desirable native species and cultivated crops for moisture and soil nutrients. As a result, crop yields and biodiversity in natural areas may be reduced. Quackgrass is also able to establish early in the growing season, thus suppressing species that have a later growing season.

Control:

Management objectives for quackgrass control should involve prevention and controlling the spread of the plants in natural communities. Eliminating or reducing seed production and vegetative spread of established populations is also important. Infestations should be monitored for several consecutive growing seasons to prevent germination of new plants. Control methods should be combined into an integrated management system for the best long-term control of the plant. Management techniques selected are dependent upon a specific site and will be determined by land use objectives, extent of quackgrass infestations, desired plant community, and effectiveness and limitations of available control measures. Management of quackgrass is a difficult proposition since control practices that will damage the plant may also be detrimental to native species that occupy the same area. An assessment of a particular area should be conducted prior to initiation of control measures to determine if a sufficient reserve of desirable species is available to replace quackgrass. If not, control measures may be of limited value or require additional effort to assure revegetation of desirable species and management goals are reached.

Mechanical - Repeated tilling can effectively control quackgrass if conducted from the beginning of August until the ground freezes. Although, tillage will cause a disturbance and may harm desirable, native species. Repeated mowing to a height of 5 cm or less may reduce plant vigor and seed production. Mowing is most effective when the plant is actively growing in the spring and fall and should be suspended when desirable plants begin to grow. Prescribed burning has had variable control on quackgrass. Prescribed burns may reduce quackgrass if conducted in late spring just prior to the emergence of inflorescences and before the emergence of warm-season grasses. In Wisconsin, prescribed burns conducted in May reduced quackgrass cover, biomass, and halted flowering. However, following five annual late prescribed burns in late April and early May in Minnesota, quackgrass decreased in height but increased in cover. In North Dakota, prescribed burns conducted in May and June reduced quackgrass during the first season following the burn, but quackgrass was able to recover to almost pre-burn levels by the second season. Therefore, prescribed burns may need to be repeated for several consecutive years.

Chemical - Several herbicides are available to control quackgrass. Nicosulfuron, rimsulfuron, fluazifop-P, quizalofop, sethoxydim, clethodim, foramsulfuron, and glyphosate have all been successful in controlling the plant. Herbicides may be applied in the spring or fall.

Contact your local county extension agent for recommended use rates, locations, and timing.

Biological - No insect biological control agents are currently available for control of quackgrass. The plant is palatable to livestock and provides a good spring and summer forage. Quackgrass starts to grow earlier in the spring than other grass species; therefore, grazing should be concentrated in the early spring to reduce plant vigor and quackgrass populations.

References:

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Quackgrass, infestation, and spikelets photographs courtesy of J. C. Schou/Biopix.dk.

Auricles photograph courtesy of University of Missouri Extension Center.