Quackgrass (Agropyron repens)

A rough looking cool weather perennial, quackgrass is a native of Europe, Asia and northwest Africa that was introduced into the United States for forage or as a contaminant in grain or hay and is widespread throughout most of the country except the Deep South. It prefers sunny sites and moist to slightly dry conditions in a wide variety of soils and can be found in gardens, lawns, croplands, pastures, abandoned fields, and waste areas. Quackgrass is aggressive and considered a noxious weed in many states although it is good for controlling erosion.

New plants emerge from early spring to mid summer and send up multiple somewhat erect stems 1 to 3 feet tall each bearing 3-6 leaves, that are dull to bluish-green and 8 inches long by 1/3 inch across. The compact flowerheads are borne at the tips of the stems in 2-8 inch spikes (raceme) each with two rows of spiklets bearing 3-7 florets. A single plant produced about 25 small tan colored seeds that can remain viable in the soil for 3 to 5 years. The root system consists of fibrous roots and rhizomes. The straw-colored rhizomes grow very long and have nodes spaced about an inch apart with each node producing fibrous roots and a whole new plant. The rhizomes are very tough and can grow through or around almost anything they encounter in the soil.

The creeping rhizomes are the primary means of spread and effort should be made to eliminate them Unfortunately small fragments left in the soil will sprout and form new plants so when removing the plants take a lot of soil with the plant and sift through it carefully before returning the soil to the garden bed. Clean all tools used in the digging carefully and plan to return to the dug site to dig out a batch of young plants that will inevitably sprout from undetected fragments. This procedure will have to be repeated for at least two seasons for any sort of quackgrass control. For large infestations mowing regularly will weaken the grass and tilling in the fall will bring roots to the surface that may be frozen in cold climates. Mowing will also spread of the plant by seeds. Planting a cover crop or a thick layer of mulch will slow down the growth of quackgrass but the grass will grow through the mulch. If chemical control seems necessary, herbicides like glyphosate are somewhat effective if applied while the quackgrass is vigorously growing. To encourage fast growth apply a high nitrogen fertilizer several days before using the herbicide and water well.

Other names include **twitch**, **quick grass**, **quitch grass** (also just **quitch**), **dog grass**, **quackgrass**, **scutch grass**, and **witchgrass**.

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| **Weed Description:  A perennial grass weed from rhizomes that may reach 3 1/2 feet in height.  Quackgrass is a common weed of agronomic crops, turfgrass, lawns, nurseries, and landscapes that may be found in the northern United States from North Carolina to California.** |
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| **Seedling:  First leaf is very long and wide and may have hairs or be hairless (glabrous) on the upper surface but are without hairs on the lower surface.  Leaves are rolled in the bud and have membranous ligules that are very short (0.4 mm long).  Seedlings have auricles but are often difficult to see on very young seedlings.**

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| **Stems:  Leaf sheaths are rounded and may have short hairs but hairs typically can be found only near the base of the plant.   Stems often bend out and up from the base of the plant.** |

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| **Leaves:  Leaves are rolled in the bud and are approximately 1 1/2 to 12 inches long and usually 2 to 3 mm wide but may reach 12 mm in width.  Leaves may or may not have hairs on the upper surfaces, but lower leaf surfaces are without hairs.  Leaves have membranous ligules that are less than 1 mm long and also have narrow auricles that clasp the sheath.****Roots:  Rhizomes and a fibrous root system.****Flowers:  Seedhead a long, narrow spike consisting of many individual spikelets arranged in 2 rows along the stem.  Spikes range from 2 to 8 inches in length while individual spikelets are approximately 11 to 18 mm long with awns.** |

**Identifying Characteristics:  A perennial grass weed with auricles that clasp the stem, rhizomes, and a long, narrow spike for a seedhead.  The auricles of this weed helps to immediately distinguish it from most other grass weeds, however tall fescue (Festuca arundinacea),**[**Annual Ryegrass**](http://www.ppws.vt.edu/scott/weed_id/lolmu.htm)**(Lolium multiflorum), and perennial ryegrass (Lolium perenne) are similar grass weeds that also have auricles.  However, none of these grass weeds have rhizomes like quackgrass.**This introduced grass is about 2-3' tall and unbranched, although it may tiller at the base and send up multiple culms. The culms are green, terete, and hairless. Along each culm are 3-6 alternate leaves. Each leaf blade is up to 8" long and 1/3" (10 mm.) across, or a little larger in size; it is dull green or greyish blue, ascending at the base near the culm, and curving outward or downward toward its tip. The upper surface of the leaf blade is hairless to sparsely short-pubescent and rough, while the lower surface is hairless and more smooth-textured. At the base of each leaf blade, there is a pair of slender auricles (ear-like lobes) that wrap around the culm. Each leaf sheath is dull green or greyish blue, and either hairless or pubescent. The culm terminates in a spike-like raceme up to 8" long that is stiff and erect. Along this raceme are spikelets up to 2/3" (20 mm.) long that alternate along each side of its central axis on short peduncles. These spikelets are appressed to slightly spreading and dull green to greyish blue; with maturity, they become light brown or straw-colored. Each spikelet consists of a pair of glumes at the bottom and 3-7 florets with their pairs of lemmas above. In each spikelet, the pairs of lemmas are densely crowded together. Each glume is about 1/3" (10 mm.) long and linear-lanceolate in shape; there are several fine longitudinal veins along its outer surface. The tip of each glume is acute or short-awned. Each lemma is about 1/3" long and linear to linear-lanceolate in shape. The typical form of Quack Grass has awnless lemmas (or with short insignificant ones), while*f. aristata* has lemmas with awns up to 1/3" (10 mm.) long. The short blooming period occurs during the summer; the florets are wind-pollinated. Upon maturity, each spikelet easily detaches from its base and falls in its entirety to the ground; the individual glumes and lemmas do not separate as readily from each other. The individual grains are pale yellow to light tan, oblongoid, and somewhat flattened. The root system is fibrous and produces long rhizomes. Vegetative colonies are often formed.**Cultivation:** This adaptable grass is typically found in sunny areas that are moist to slightly dry in various kinds of soil, including those containing loam, clay-loam, gravel, and sand. Quack Grass produces a chemical that can suppress the growth of other plants; it is weedy and aggressive, particularly in the northern areas of the state.**Range & Habitat:** Quack Grass is common in central and northern Illinois, while in the southern part of the state it is uncommon (see [Distribution Map](http://www.illinoiswildflowers.info/grasses/maps/mp_qk_grass.htm)). The distribution map applies to the typical unawned form of Quack Grass, *Elytrigia repens repens*, which is far more common than the awned form, *Elytrigia repens aristata*, within the state. According to official records, the awned form has been collected in Cook County only. However, the webmaster found a colony of the awned form of Quack Grass growing in Champaignhttp://www.illinoiswildflowers.info/grasses/photos/quack_grass2.jpg County, Illinois; it probably occurs in other counties as well. This grass was introduced from Europe, probably as a contaminant of imported grain or hay. It also occurs in parts of Asia. Habitats include scrubby barrens, pastures, abandoned fields, weedy meadows, edges of yards and gardens, areas along roadsides and railroads, mined land, and waste areas. This species prefers areas with a history of disturbance. Sometimes it is deliberately planted in pastures and along slopes for erosion control.**Faunal Associations:** The caterpillars of the moth *Leucania multilinea* (Many-Lined Wainscot) and the skipper *Polites mystic* (Long-Dash) feed on the foliage of Quack Grass. Other insects feeding on Quack Grass include various plant bugs, *Commellus comma* (Leafhopper sp.), and*Melanoplus bivittatus* (Two-Striped Grasshopper). The seeds are eaten to a limited extent by some birds (e.g., Ring-Necked Pheasant, Snow Bunting), while the foliage is palatable to hoofed mammalian herbivores (e.g., cattle & horses). White-Tailed Deer and the Cottontail Rabbit eat Quack Grass to a limited extent.**Photographic Location:** Along a railroad in Champaign, Illinois. **Comments:** This grass has a rather coarse appearance. It is still referred to as *Agropyron repens*(Quack Grass) by many authors, which is a scientific synonym for this species. Quack Grass usually has leaf blades that are 1/4" to 1/3" across, while other *Agropyron spp.* (Wheat Grasses) in Illinois have more slender leaf blades (up to 1/5" across). This genus of grasses occurs primarily in dry sunny areas of the plains and western states. Recently, some species in this genus have been reassigned to either the *Elytrigia* or *Elymus* genus. Most of these species have spikelets in which the individual glumes and lemmas are easily separated from each other; individual spikelets do not detach in their entirety from their peduncles. Exceptions are Quack Grass and *Elytrigia smithii* (Western Wheat Grass, formerly known as *Agropyron smithii*), which have glumes and lemmas that are more difficult to separate from each other. This latter species has more narrow leaf blades than Quack Grass, as described above. Another species, *Elymus pauciflorus subsecundus* (Bearded Wheat Grass, formerly known as *Agropyron subsecundum*), resembles the awned form of Quack Grass somewhat. However, the lemmas of Bearded Wheat Grass have awns that are longer than 1/3" in length, while the lemmas of Quack Grass have shorter awns than this. |

Quackgrass--*Agropyron repens*--is a perennial weed in Minnesota, and a troublesome weed to eliminate from the home landscape. The Latin name means a 'sudden field of fire', and attests to its ability to take over lawns, fields and gardens. The plant is hardy to zone 3 and is actually native to Europe. It has been growing in the U.S. for over 200 years in all states except Hawaii, Arizona and Florida.

In older books quackgrass may be referred to as couch, quitch, devils, wheat, scutch, twitch, witch, dog or durfa grass. This plant is listed in 41 states as a noxious weed because of the detrimental effects it has on agricultural crops, though it does help control erosion.

In the home garden, quackgrass can invade gardens containing perennial flowers or vegetables, making it extremely difficult to eradicate. This sheet will discuss both chemical and non-chemical methods to control this weed in gardens.

An understanding of how the quackgrass grows will help avoid common errors in battling this plant. Quackgrass grows from underground rhizomes to an unmowed height of 1 to 4 feet. It has thin, flat, bright ashy green leaf blades. The seed spike grows from 3 to 8 inches long and appears in July. Quackgrass seed is often found in rye straw, so you may want to avoid using this as mulch in your garden. Each quackgrass plant produces about 25 seeds; they remain viable 3 to 5 years in the soil. It takes 2 to 3 months for a newly germinated plant to develop rhizomes. It is very important to eliminate the plants before they reach this stage.

Rhizomes (underground stems) are yellow to white, 1/8" in diameter, with distinct joints or nodes every inch or so. Each node is capable of producing fibrous roots, and sending a new blade of grass through the soil. The creeping rhizomes are so tough they can grow through a potato tuber, or push up through asphalt pavement. If left to grow, they will form a dense mat 4" thick in the upper part of the soil. One plant can produce 300 feet of rhizomes each year. **Never use a rototiller where quackgrass is growing**, because it amounts to propagating thousands of new plants from the chopped up rhizomes.

**Chemical Control**
The most effective way to eradicate quackgrass is by using a herbicide that contains glyphosate (Monsanto Roundup). It should be applied when there is no wind and when there will be no rain for 48 hours. The plant must be green and actively growing for best results. Glyphosate is a non-selective herbicide that will kill almost any green plant it contacts, and also can injure or kill woody plants. It is important to apply glyphosate only to the plants you want to eradicate.

One problem with using glyphosate on quackgrass is that up to 95% of the lateral buds on the rhizomes are dormant even though the plant is actively growing. Since herbicides are translocated from the leaves to actively growing plant tissue, after about 7 days the glyphosate degrades and the dormant lateral buds will start to grow new shoots. It may take more than one application to completely eradicate quackgrass.

One way to overcome lateral bud dormancy is to apply nitrogen fertilizer. This will break lateral bud dormancy, and the herbicide will be translocated to the now actively growing plant tissue and kill the entire plant. Repeat the application of glyphosate every 30 to 45 days; avoid cultivation for 2 weeks after each application.

In daylily beds or other perennial flower beds quackgrass can be very difficult to control. You will need to use a small applicator like a child's paint brush or small sponge, then be extremely careful to apply the herbicide only to the quackgrass leaves. If you contact the daylily leaves with glyphosate, it can kill them, too.

In perennial gardens, a selective systemic herbicide containing fluazifop (fusilade) (Ortho-Grass-B-Gon) can also be used successfully. It is important to apply this only to the quackgrass leaves as it may damage or kill all monocots (daylilies, iris, gladiolus, lilies) once it contacts the leaves. This product can also be used with asparagus (non-bearing plants only; you cannot harvest for 12 months after application), rhubarb, spinach, garlic, peppers, onions and non- bearing trees and vines. Grass-B-Gon is best applied to young quackgrass plants with 2 to 4 leaves; two applications are sometimes required to completely eradicate quackgrass. Apply this herbicide when no rainfall is expected for 24 to 48 hours.

Annuals are a different story. To avoid problems during the growing season, eradicate quackgrass before planting vegetables or annual flower gardens. It is important to wear rubber gloves and eye protection to avoid personal contact with the liquid.

Eliminate quackgrass before putting in any garden, annual or perennial, roses or raspberries. It will never be as easy as **prior** to planting.

**Non-Chemical Control**
In vegetable gardens or flowering annual beds there are other successful methods for controlling quackgrass. Several spring cultivations should sprout and kill any weed seeds before they develop rhizomes. Extremely shallow cultivation works best where there is existing quackgrass as any cutting of the rhizomes means rapid multiplication of plants.

Mulch should be used as much as possible to smother plants, but you can be assured that the rhizomes will creep along until there is an area in which it can send up a shoot. Rhizomes will have to be hand dug as much as possible without breaking them off in the soil, then dried and disposed of. The main thing is to repeatedly eliminate the blades by slicing them off with a hoe. Without photosynthesis the plant will not be able to store food reserves in the rhizomes and will eventually die. Any newly germinated plants can be easily hoed out and they will dry up and die rapidly on a sunny day.

Another way to kill this plant is to smother it by planting a cover crop. A rotation of winter rye and crown vetch followed by buckwheat is a good way to clear an area of quackgrass. This could take a few months to grow and till the cover crops in, but you will add valuable organic matter to the soil in the process.

Mowing the perimeter of the garden is very important to prevent quackgrass seeds from blowing into the garden and germinating. Grass clippings should not be used to mulch the garden if there is quackgrass seed in them. It would be better to compost the clippings. If you are mowing without a mulcher, always blow the clippings away from your garden area.

Quackgrass is a tough weed to eliminate, but by using the proper methods it can be eradicated successfully.

***Elymus repens***, commonly known as **couch grass**, is a very common [perennial](http://en.wikipedia.org/wiki/Perennial) species of [grass](http://en.wikipedia.org/wiki/Poaceae) native to most of [Europe](http://en.wikipedia.org/wiki/Europe), [Asia](http://en.wikipedia.org/wiki/Asia), the Arctic biome, and northwest [Africa](http://en.wikipedia.org/wiki/Africa). It has been brought into other mild northern climates for forage or erosion control.