

JOINTED GOATGRASS: Options for control

Jointed goatgrass (*Aegilops cylindrica*), a member of the Grass family, is a **class-C complaint basis only**, noxious weed in Lincoln County, Washington. Jointed goatgrass is a winter annual grass weed that was introduced into the United States in the late 1800s. It is found throughout the continental United States and is most common in the winter wheat production areas of the Pacific Northwest and central Great Plains. Jointed goatgrass is most commonly observed growing between wheat rows. It also is found in pastures and along roadsides, fencerows, field access roads, and other disturbed areas.

Because the annual grass looks so much like wheat plants, identification can be difficult. Jointed goatgrass seedlings can be identified by pulling the plant out of the ground. If the plant is jointed goatgrass, a cylindrical spike will come with the plant in most cases. Once it gets larger, jointed goatgrass will have hairs coming off the base of the leaf, right on the leaf margin. Wheat will generally not have any hairs on the leaf. The hulls of jointed goatgrass do not separate from the seed as they do in wheat. The jointed goatgrass coleoptile is extremely narrow and often crimson or purple. Wheat coleoptiles are wider and green. Jointed goatgrass seedling leaves are narrower than wheat leaves and a darker shade of green, and they have evenly spaced hairs at 90-degree angles to the leaf margins and stems.

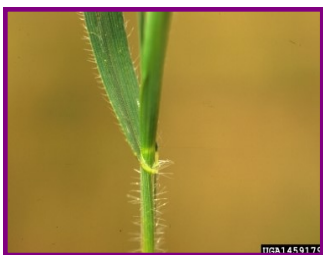
The challenge of eliminating jointed goatgrass is its similarity to wheat in genetic makeup, visual characteristics and life cycle. Because it is so similar to wheat, there haven't been any conventional herbicides developed.

The weed is estimated to affect 5 million acres of wheat fields in the United States, costing \$145 million annually in reduced yields. The most effective strategy to eliminate it is through normal crop rotation. However, integrating multiple cultural practices into a management program is more effective than using crop rotation by itself. Other practices include increased wheat seeding rates, narrow row spacing and in-furrow fertilizer application.

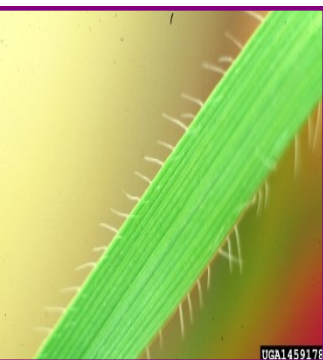
Occasionally, wheat and jointed goatgrass will cross and produce a hybrid plant. When mature, this hybrid will share the appearance of both the parents. Seeds from these hybrid plants are almost always sterile.



Jointed goatgrass seedling and attached spikelet.



Leaves are alternately arranged, with auricles at their base and occasional hairs extending along margins.



A good close-up of the hairs on the leaf margins.

Key identifying traits

- Short lived, erect grass with one to many stems or tillers
- Leaves are alternate 1/8 to 1/84 in. wide, with **hairs** on the leaf margins and at the stem juncture
- The seed spike or head is long and narrow having the appearance of half inch cylinders **stacked** on top of each other.
- Each of the 2 to 12, half inch sections of the spike has 1 to 3 **viable seeds**.
- At maturity the spike separates into segments with part of the central stem attached.



Jointed goatgrass seedheads



Seed heads break into individual segments at maturity.

Biology and ecology

- **Winter annual** grass, growing 15 to 30 inches tall
- Usually spreads as a seed contaminant of winter wheat or by harvesting equipment
- **Difficult to commercially separate** segments from wheat seed due to similar size or to spray or cultivate goatgrass effectively in winter wheat due to common characteristics and ancestry
- Found primarily in wheat fields, but can also survive along roadsides, waste areas and pastures
- Seeds remain viable up to 5 years



Stems are up to 30" tall, branched at base to give tufted appearance.

CONTROL MEASURES:

Prevention:

- Beware of contaminated fill dirt, hay and particularly contaminated seed or equipment.
- **Early detection** is vital to prevent invasion.

Biological:

- None available.

Cultural:

- Changing to different crops and rotations is very effective.
- Optimize tillage timing and technique.

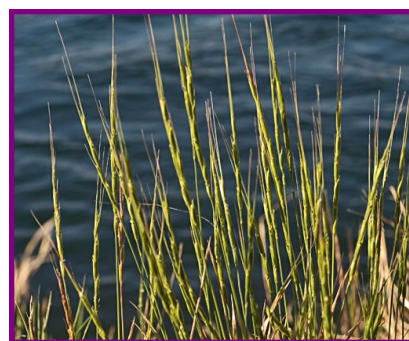
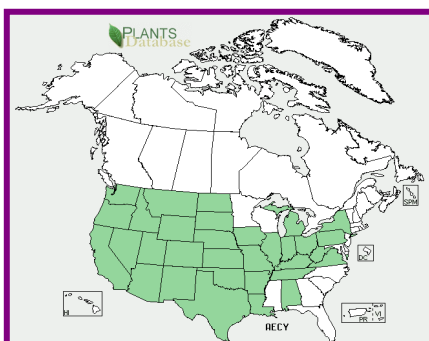
Mechanical:

- Will not stand spring tillage-small infestations

may be removed by hand.

Chemical:

- Selective jointed goatgrass control in winter wheat can be achieved using herbicide-tolerant Clearfield wheat technology.
- Jointed goatgrass escapes, can be controlled with Round-up.
- Establish goatgrass-free buffer areas around fields planted with Clearfield wheat to further reduce the risk of resistance development.
- For best results, use a surfactant.
- **Read the label** instructions before applying.



From L to R: wheat, wheat x jointed goatgrass hybrids (3 hybrid spikelets shown) and pure jointed goatgrass.

Ten jointed goatgrass plants per square yard can reduce cereal crop yields by 30 to 50%. Jointed goatgrass seed is a contaminant in cereal grain seed crops where it alters their milling characteristics and reduces the value of the grain.



Wheat and jointed goatgrass in competition with each other.



Jointed goatgrass on the left, winter wheat on the right, note the hairs.



Jointed goatgrass can increase dockage when a crop is taken to market.



Wheat hybrids shown with Jointed goatgrass on the far right.