

CEREAL RYE: Options for control

Cereal rye (*Secale cereale*), a member of the Grass family, is a **class-C by complaint only** noxious weed in Lincoln County, Washington. Rye probably originated from the mountains of North Africa and the Near and Middle East, evolving as a food crop about 3,000 BC. It is able to withstand colder climates than wheat and by the 16th century was used for bread making in Russia and Northern Europe as well as in Britain..

With only a low gluten content, rye flour must be mixed with wheat flour to produce a good quality bread. However, the flour can be used for baking rye-crisp breads, or the flaked grain used in health foods. Rye is also commonly used in Canada for whiskey.

Cereal rye, also known as volunteer rye, common rye, or feral rye, is a winter annual grass that is

classified as a weed because its seeds shatter and also possess varying degrees of dormancy, which allow plants to volunteer freely.

Cereal rye poses a serious economic threat

to the state's winter wheat producers. The presence of cereal rye in harvested grain results in loss of wheat quality and grade reduction.

Cereal rye is an erect annual grass, with greenish-blue flat leaf blades and dense flower spikes. Each large spike consists of many 2-flowered spikelets with long awns. The grain is relatively large, typically around 1/2 inch long. It has an extensive fibrous root system. It resembles wheat, but usually is taller (3-5 ft) and tillers less. Flowering is induced by 14 hours of light in spring. Vegetative growth stops when reproduction begins. There are 18,000 seeds per pound.

The critical aspect of cereal rye management is to prevent seed entry into fields and to isolate minor infestations within a field when they occur.

Managing cereal rye in winter wheat requires a systems approach that integrates multiple control strategies into a comprehensive management plan during a period of several years.



Cereal rye has greenish-blue flat leaf blades.



Cereal rye in flower.



A mature cereal rye plant.

Key identifying traits

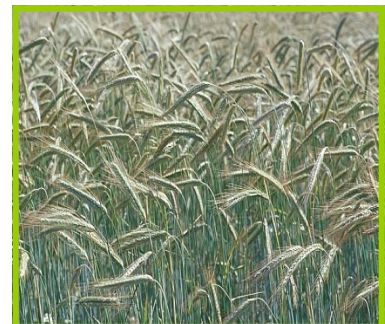
- Grows from 24 to 40 inches tall, double the height of most wheat cultivars.
- Leaf blades are flat, 1/16 to 3/8 inch wide and rough with open sheaths.
- Blades are covered with short hairs and have prominent veins above and a midrib below.
- The leaves of rye are coarser and more blue in color than wheat.
- Roots can grow 5 to 6 feet deep.
- Inflorescence is a slender 4 to 6 inch-long spike, with a somewhat nodding appearance and short awns.
- Each spikelet contains three florets

Biology and ecology

- Annual grass grows in infertile soils where others fail.
- Flowers April to June
- Tolerates drought better than other grains, in part because of its extensive root system.
- Does not tolerate flooding.
- Seeds can remain viable for up to 4 years or more in soil
- Foraging may impart an off-flavor to milk.



Dense flower spikes and awns.



There are 18,000 seeds per pound of cereal rye.



The inflorescence of rye is slender, 4 to 6 in. long spike with a somewhat nodding appearance.

CONTROL MEASURES:

For this and other publications, see our website at: www.co.lincoln.wa.us/weedboard

Prevention:

- Plant clean seed. Cereal rye is often found in winter wheat seed.
- Cover truck beds with tarps. Wheat seed is heavier than rye migrates downward, resulting in more rye on top.
- Thoroughly clean combines before moving between infested fields and un-infested fields.
- **Early detection** is vital to prevent invasion.

Biological:

- None available.

Cultural:

- Cultural practices are an ineffective approach towards managing cereal rye. Multiple practices

must be combined in an integrated management program and sustained over years to be effective against cereal rye.

Mechanical:

- Cereal rye cannot be killed by mowing except when **nearly** mature.

Chemical:

- Post-emergence, non-selective herbicides such as glyphosate can control Cereal rye. Glyphosate does not provide residual weed control, so any rye plants that emerge after treatment will not be controlled.
- **Read the label** instructions before applying.



The presence of Cereal rye in harvested grain can result in dockage, grade reduction, and loss of wheat quality. Grain purchasers are increasingly concerned about cereal rye in wheat, and recent federal grain standards have reduced the tolerable levels allowed in W.W. No. 1-2, and 3 grade wheat.



Distribution of Cereal rye across the United States.



Eduardo Zubiri

Photos and references courtesy of: Oregon State University; Oregon State University Extension Service; University of Wyoming; Rich Old, XID services; Steve Dewey, Utah State University; Eduardo Zubiri; Plants Database.

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