



Plant Chat

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Rye: Which is Which

Rye has been a popular cover crop choice in the Midwest for many years. Annual ryegrass and cereal rye are two different species that are commonly confused with one another when referencing their use as a cover crop. There is also perennial ryegrass that is often used in perennial lawn mixtures. It's important to be aware of the different species that exist so the right one can be selected for the specific goal in mind.

Annual or Italian Ryegrass-(*Lolium perenne* ssp. *multiflorum*)

Name confusion occurs between annual ryegrass and Italian ryegrass. Both are used to refer to the same species (*Lolium perenne* L. ssp. *multiflorum*) but different cultivars have been developed that exhibit different growth characteristics.

Italian ryegrasses are not true annuals. Under mild conditions especially with sufficient snow cover, Italian ryegrass can over-winter and behave like a biennial or a short-lived perennial. Timing of planting, planting method, and soil fertility also influences winter hardiness. They produce mostly high-quality leaves while growing vigorously throughout summer and fall if moisture is available. They frequently survive mild winters and produce seed heads the following spring.

There are certain annual ryegrass cultivars that act more like a true annual. If allowed to grow to maturity, these cultivars can set seed in the year of sowing and produce volunteer plants in subsequent crops.

Winter or Cereal Rye-(*Secale cereale*)

As the scientific name denotes, cereal rye is vastly different from both annual and perennial ryegrasses. Cereal rye refers to the widely grown grain crop, cover crop, and forage crop. Different varieties have been developed with these different goals in mind. When planted in the fall it provides quick winter cover and continues growth the following spring. It can be grown as feed for livestock or harvested for grain.

Perennial Ryegrass-(*Lolium perenne* ssp. *perenne*)

Perennial ryegrass is a commonly used lawn and turf grass mixes in our region. It tillers more profusely but is lower growing than Italian ryegrass and will not form a seed head in the seeding year. It is more persistent than Italian ryegrass but less persistent than other perennial cool-season grass species native to our area. Turf type varieties typically are infected with a fungal endophyte which produces a toxin that reduces performance of grazing animals. Forage varieties are available, though there are other alternatives for perennial forage species better suited for our region. Perennial ryegrass is not related to the rye plant that produces cereal grain.

Cover Crop Considerations

Annual ryegrass and cereal rye are commonly used cool-season grass cover crop species. Both are excellent at building soil, reducing runoff and erosion, scavenging nitrogen, improving infiltration, and boosting organic matter. Annual ryegrass is less robust and produces less above-ground biomass than cereal rye. Below ground, annual ryegrass is known to produce a massive root system and aid in breaking through deep compaction layers. Annual ryegrass residue typically breaks down more quickly than that of cereal rye. Both species have the potential to over-winter and accumulate excessive residue and may require a chemical burndown the following spring. Available moisture and subsequent crop planting regime will aid in determining when to terminate the cover crop.

Annual ryegrass is easy to establish in the fall with adequate moisture. The seed is much smaller than cereal rye and weighs 26 pounds per bushel. The recommended seeding rate varies by region and ranges from 5-15 lb/acre when drilled. It has a shorter seeding window and is more susceptible to winterkill than cereal rye. It is better suited for early summer inter-seeding into corn than cereal rye. The severity of winterkill is dependent on many factors including planting date, variety, precipitation, freeze/thaw events, and snow cover.

Cereal rye has excellent winter hardiness and has one of the latest seeding windows which allows for more flexibility for post-harvest establishment. The seed is much larger than annual ryegrass and weighs 56 lb/bushel. It is one of the first crops to break dormancy in the spring and provides superb weed control if successfully established the previous fall. The recommended seeding rate varies by region and ranges from 40-60 lb/acre when drilled.



Annual ryegrass (left) is smaller and produces less biomass than cereal rye(right).
(photo courtesy of Rice County SWCD, MN)