

## Annual Ryegrass and Cereal Rye As different as apples and oranges

Cover crops, an increasingly important part of farming in the Midwest, come in many forms: grains, legumes, brassicas and grasses, for example. Generally planted in the fall - drilled or broadcast just after harvest or aerially seeded shortly before harvest - cover crops build soil quality and reduce erosion and field runoff.

Among the most popular cover crops are annual ryegrass and cereal rye. But because they share the word "rye" in their names, many growers and seed dealers confuse the two cover crops.

Basically, annual ryegrass (*Lolium multiflorum*) is a cool season grass while cereal rye (*Secale cereale*) is a grain, with growth characteristics much like wheat. The seed of cereal rye is much larger (56 lb/bu) than annual ryegrass seed (26 lb/bu.). Each plant has characteristics that allow it to excel in certain circumstances. Knowing the differences between them – and best applications of each - will better facilitate success and profitability.



**Annual ryegrass**, like many cover crops, is good at building soil, reducing runoff and erosion, sequestering nitrogen, improving infiltration and boosting organic matter. It is easy to establish in the fall with adequate moisture. And for best results, it needs 45 – 60 days of growth before freezing temperatures. Annual ryegrass is

more susceptible to winterkill, where no snow, combined with very low wind chill, and multiple freeze/thaw conditions are culprits.

Many farmers look for a cover crop capable of breaking through various layers of soil compaction. Annual ryegrass is markedly better than cereal rye, especially below 24 inches, because row crops will follow the annual ryegrass roots deeper for nutrients and moisture that otherwise would not be available. "In a dry year on a fraigpan soil, I've seen a 50 bu/ac boost in corn yield, where one part of the field is no-till and the other has had six years of annual ryegrass as a cover crop," said Dan Towery, a crop advisor with Ag Conservation Solutions, in W. Lafayette, IN. Mike Plumer, an agronomist and Extension educator with the University of IL, said he would never recommend cereal rye for a compaction problem.

**Cereal rye** is one of the most common cover crops. "You can plant it later than many other cover crops and don't have to worry about winter kill," Towery said.

While cereal rye will survive alright in low rainfall, it doesn't do well in excessive moisture. Annual ryegrass, on the other hand does fine in a wet climate. Cereal rye grows fine in low soil fertility and sandy soil, while ARG prefers fertile soil but does well on poor, rocky soils, and will outperform cereal rye in denser, clay soils. (Sustainable Agriculture Network - [www.sare.org/](http://www.sare.org/) )

**Management of cover crops.** Cereal rye can 'get away' from growers in the spring during a wet period, producing plants more than six feet in height. That mat of residue on the surface can become a spring problem for getting the soil to dry out and warm up. According to a Purdue University paper, that excess of biomass can be difficult to plant into. Also, cereal rye has the potential to dry out the topsoil during a dry spring, if burndown is not timely.

Annual ryegrass, on the other hand, is generally burned down when it reaches 8 – 16 inches in height. With far less biomass than cereal rye, annual ryegrass has more flexibility as it doesn't zap as much soil moisture.

When used as cover crops, both cereal rye and annual ryegrass are controlled with glyphosate in the spring, in advance of planting row crops. Care must be taken with both cover crops that they are sufficiently eliminated in the spring, as both can become problems if not properly managed. Annual ryegrass is more of a challenge to burndown under cool conditions, as the glyphosate doesn't translocate as well.

**Other differences.** While both annual ryegrass and cereal rye sequester nitrogen, cereal rye has more biomass (above ground) in the spring, especially if allowed to grow. Its growth can tie up nitrogen. It is advisable to eliminate the cereal rye while less than 16 inches in height. In Midwest trials on annual ryegrass, it appears that (depending on field history) about 70 – 80 lb/N/ac is available to the following row crop from the residue after burndown. That residue breaks down more quickly than cereal rye.

While higher biomass is a plus for cereal rye during the fall, winter and early spring (good weed control), it can also slow the warming and drying of the field. Annual ryegrass, while effective with weed control, has also been shown to reduce field population of Soybean Cyst Nematode.

Finally...since economics often dictates the choice in these matters... annual ryegrass costs marginally less than cereal rye. Its performance in wet conditions, deep rooting, pest control potential and biomass benefits exceed those of cereal rye. Where compaction is an issue, annual ryegrass also holds an edge. The caveat, however, is that annual ryegrass takes a bit of added attention to have it as a preferred cover crop. The planting window in the fall is shorter and the risk of loss to winterkill is higher. But in either case, Towery and others recommend that growers introduce cover crops in a small way, "to get their feet wet in the proper management of them" before committing to large scale coverage of fields with a crop with which you're unfamiliar.

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