

Ergot Management in Hybrid Fall Rye

Ergot is a fungus that occurs on over 400 species of grass, including most types of cultivated grain and the mycotoxin that the fungus produces are highly toxic to humans and livestock. There are no resistant varieties, seed treatments or pesticides that will control ergot; high pollen producing varieties (such as PollenPlus) and correct management of the crop is the only method to control this disease.



The susceptibility of common grains in descending order is:

- Rye
- Triticale
- Durum and corn
- Wheat and barley
- Oats

Infection Factors: Weather, Management, Agronomy

Weather/Irrigation

Cold, rainy weather or irrigation during flowering hinders pollination and promotes ergot infection. While there is nothing to be done about the weather, irrigation can and must be controlled.

Irrigation should only be done in 3 stages - at first and second elongation of the stem is the most important. Under very dry conditions it will also be recommended to irrigate at grain filling approximately 2 weeks after finished flowering. Hybrid rye only need 250-300 mm (10-12 in) water for the whole growing season.

Agronomy

One of the most important factors to prevent ergot is correct stand establishment. This means ensuring an even seeding depth, even distribution of seeds and the correct seeding rate. If these are done properly it will lead to even plant development and thereby even and quick flowering. The most pollen is available when all plants flower at the same time. Ergot cannot infect pollinated flowers; pollen will always prevail over ergot.

Seeding rate: We recommend a seeding rate of 0.8 unit per acre (= 800,000 viable seeds per acre). The seed distributor will provide the weight per unit – use this weight to set your planter. One unit equals one million viable seeds. To ensure the correct emergence rate you have to take into account the seedbed conditions and adjust your seeding rate accordingly.

Seeding time: The window for seeding is a bit wider than winter wheat due to much better winter hardiness. If the soil conditions are very dry then it is recommended to wait for moisture to ensure even emergence (remember at low seeding rate you must ensure that all seeds emerge!!)

Seeding depth: We recommend a seeding depth of no deeper than 1 inch (25mm), however 0.8 inch (20 mm) should be the goal. Be careful with your planting speed as most planters are not good with the even distribution of seeds at high speed and low seeding rates. Planting too deep will mean not getting the tillers in autumn that we want - tillers developed in autumn bring the main and strong stems with the nice big heads and large kernels. This also ensures even development in spring.

Weed control: It is recommended to clean the field well before planting. If an in-crop spring application is necessary, it should be done as early as possible and best before the first elongation takes place when hybrid rye is less susceptible to damage from herbicides. The use of MCPA is not recommended for weed control as it can affect the flowering and pollen setting which may lead to ergot development.

Fertility: Ensure all nutrients are available as soon as the regrowth starts in spring. Nitrogen fertilization is normally applied depending on expected yield but can usually be set to about 20% less than what is required by winter wheat.

Tramlines: Always use tramlines if you plan to drive in the crop after the first elongation. Damage from tractor and equipment tires where there are no tramlines will damage plants – these plants will be delayed in development and flowering which very often means lots of ergot along the wheel tracks.

Fungicides: Fungicide application will usually not be needed during the growing season. If it is needed – **we recommend that it is not applied around flowering time.** Rye is an open pollinating crop and is more susceptible to fungicide sprays than wheat. Rye is more resistant to Fusarium Head Blight than wheat thus reducing the need for fungicide at this stage.

Further Management: As mentioned before, all grasses can and do multiply the ergot fungi and therefore ergot can be found in all soils. In no-till systems ergot concentration on the soil surface and upper layer of soil is higher than where tillage is used, therefore it is even more important that good establishment and correct management is followed to ensure even development and flowering. Wherever it is possible keep nearby grasses controlled to prevent them from multiplying ergot – mow them or spray to control them. Good rotation will also keep the grasses down.

Harvest: Keep an eye on the field during the last 3 weeks before the harvest to observe if, despite careful management, any areas of the field have more ergot than others. If so, leave the more heavily infected areas and harvest them separately so as not to infect the whole grain lot.

On whole it may look very complicated, but it is actually very simple.

It does not require special equipment – just good management.

Remember all KWS hybrid ryes are PollenPlus hybrids – the best security for good pollination