

Be on the Watch for Ergot this Fall

By Jesse Williams, Special Areas 2 Ag Fieldman

Ergot, or *Claviceps purpurea*, is one of the most important diseases of rye in Canada, but affects most grains and grasses including wheat, barley, triticale and native grasses. Rye is the most susceptible to this toxin containing sclerotia body because of the way the crop is open pollinated, giving easy access to the fungus.

Did You Know?

Ergot contains lysergic acid, a precursor for the synthesis of LSD. In the 1800's midwives used it to hasten childbirth, until it was deemed too dangerous and banned.

Special Areas Rangeland Agronomist Nicole Viste has seen an increase in ergot in native grasses over the summer during her routine inspections. This is likely due to the cooler, wetter than average season

we've been experiencing. The [Alberta Farmer Express](#) mirrored Nicole's concerns with their July 19th article and the [Beef Cattle Research Council wrote a blog](#) warning producers to be on the lookout in Saskatchewan. This should be concerning to both livestock producers and crop farmers, as the poisonous alkaloid producing fungus can cause major problems or even death in livestock, and a downgrading or rejection of crops at the elevator. Ergotism or "St. Anthony's Fire" was responsible for widespread suffering and death in Europe during the Middle Ages when bread made from contaminated rye was consumed.



Left: Ergot sclerotia bodies visible on native grasses from the Special Areas. Photo courtesy of Nicole Viste

Livestock Poisoning Symptoms

When livestock are fed contaminated feed, the poisonous ergot alkaloid causes vasoconstriction or reduced blood circulation. Depending on the amount of feed, species and age of the livestock (young calves are more greatly affected), symptoms can vary. In cattle fed low levels of ergot over a long period of time you may see unthriftiness, weak calves and loss of milk production in lactating cows. The unpalatability of the ergot may result in loss of appetite, reduced food intake, decreased growth rate and an increased feed-to-grain ratio. In severe cases of ergot poisoning cattle may experience lameness and loss of body parts from gangrene.



Above: Vasoconstriction in cattle from ergot poisoning. Image from: [Alberta Farmer Express](#)

While the levels of ergot that can be safely ingested varies, based on length of exposure, type and concentration of alkaloids, plant species affected, storage conditions, etc, there have been studies demonstrating that as little as 0.1% ergot by weight can have adverse effects on livestock. Therefore livestock producers should avoid feeding ergot contaminated sources at all costs.

Identifying Ergot

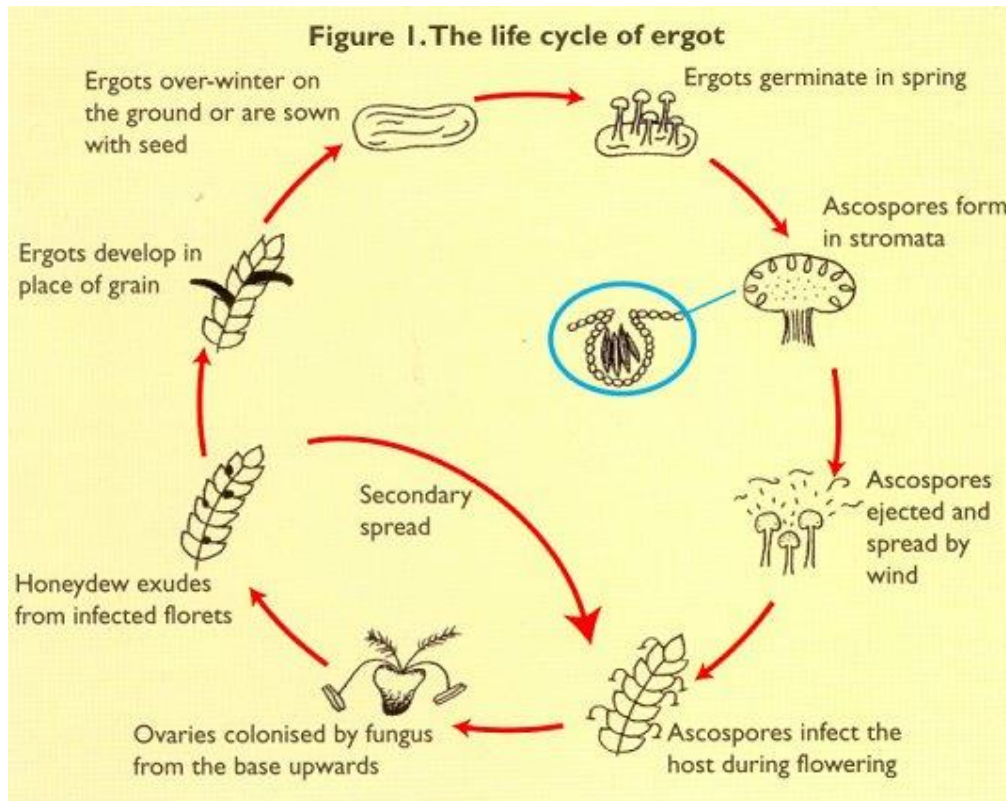
Dark purple ergot kernels called sclerotia replace grain kernel heads, which is easily identifiable in grains. In rye, the sclerotia grow particularly large and often protrude from the head, more so than in infected barley and wheat. In a sample of uncleaned grain these sclerotia bodies will be evident and easy to pick out. However, once ground up in feed (or flour) they are not distinguishable. It is therefore very important to know the source of your processed feed, or request a chemical ergot test to be sure.



Above: Ergot bodies in wheat grain sample. Image from: [Western Producer](#)

Ergot Lifecycle

The dark purple sclerotia are the resting or overwintering form of the disease. They easily detach from the florets of infected grass hosts, falling to the ground during harvest, picked up in swaths or are transferred to new sites through equipment. The next spring, if conditions are right, the sclerotia produce drumstick-like structures that release ascospores or sexual spores. These ascospores are blown by wind onto open florets of susceptible grass species, penetrate the ovary and start the process all over again. Ergot infected florets also produce a sticky liquid called 'honeydew' soon after flowering that contains conidia or asexual spores, that can cause secondary spreading through rain-splashing or insect transfer.



Above: Pictorial representation of the ergot lifecycle

Prevention & Control

There are currently no ergot resistant cereal cultivars available to growers, and fungicide treatment is not practical. Because of this, the most effective method of ergot control is prevention. When seeding cereals, be sure to use ergot-free seed with high germination rates, seeded at an even depth in a well prepared seedbed. By creating a uniform crop you can avoid extended periods of open florets that you would see when crops tiller and flower unevenly, limiting the opportunity for sclerotia to enter. Crop rotation and cultivating to bury sclerotia can help reduce the buildup of inoculum.

Cutting headlands and roadside grasses before they flower can reduce the formation of honeydew and may prevent spread into your crop land. If margin areas of the field are particularly high with ergot infection, those areas should be harvested separately.

Commercial grain cleaning removes most sclerotia but highly infected sources will require greater cleaning methods. If grain supplies cannot be cleaned adequately they should be disposed of by burying, so not to accidentally infect grasses or nearby crops.

More Questions? Ask Your Local Ag Fieldman

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