



Ergot of cereals

Occurrence:

- Found across the Prairies, favoured by moist conditions prior to and during heading
- More of a consistent issue in rye and triticale due to their more open flowering habit versus other cereals
 - Increasing susceptibility: rye/triticale > wheat > barley > oat
- Factors that reduce pollen viability can increase ergot risk, e.g. nutrient deficiencies, late herbicide applications, severe weather during head emergence

Symptoms Occur On:

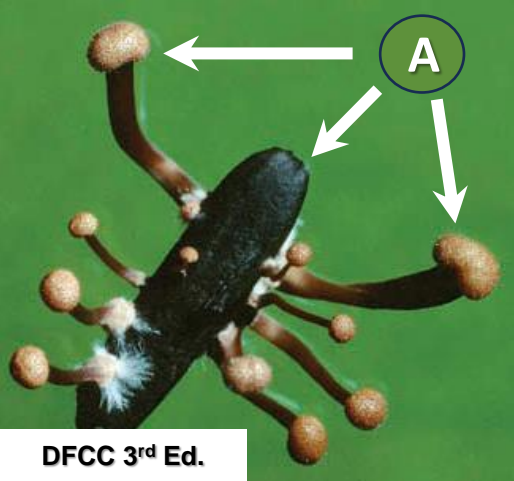
- Ergot bodies at or just below the soil surface germinate to produce fruiting structures (“drumsticks”) and ascospores (A)
- Ergot bodies, aka sclerotia replace cereal kernels (A-D)

Initial symptoms:

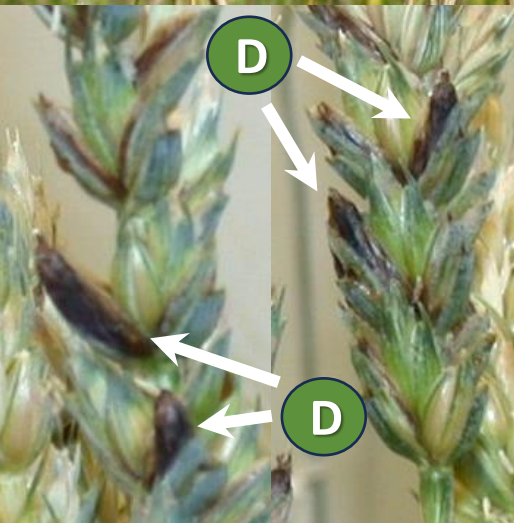
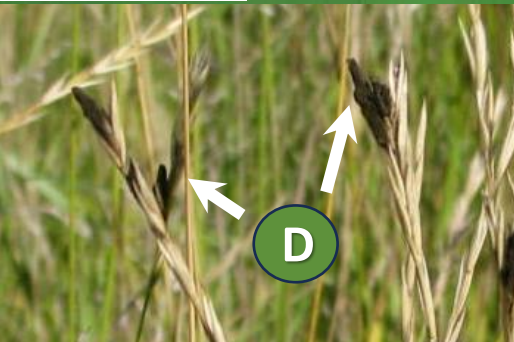
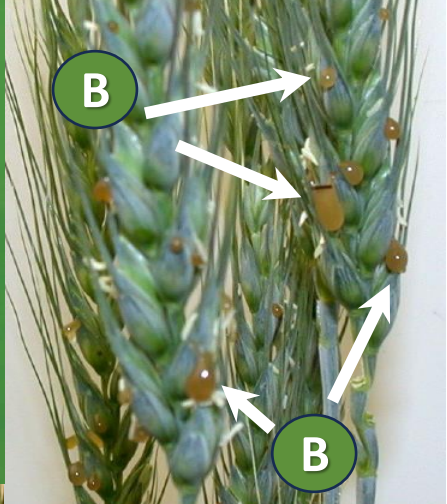
- Initial infections of cereal ovary tissue lead to the “honey-dew” stage, which are masses of ergot pathogen conidia (spores) exuded from infected florets (B)
 - The “honey dew” phase may be more important than we think as insects are attracted to these sweet spore masses and then spread the conidia into adjacent cereal crops

Mature Symptoms:

- As the ergot pathogen transitions from the “honey-dew” stage, it differentiates to form hard dark purple-black sclerotia aka ergot bodies that replace seed within individual florets
- Larger ergot bodies are produced in rye and triticale (C), while bodies tend to be smaller in wheat, barley, oat and grasses (D)
 - Ergot bodies contain mycotoxins (alkaloids) with detrimental effects on humans & livestock



DFCC 3rd Ed.





Management Strategies

Rotation to non-host for => 2 years

Cereals

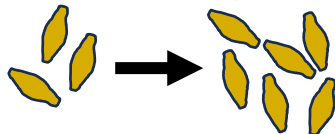
Canola

Field peas

“Resistant varieties”*

*Resistance is not complete, and varieties may still experience ergot damage when the risk is high, although the impact is less versus more susceptible varieties

Increase seeding rate to limit tiller development

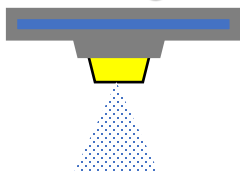


Volunteer and grass control**



**Grasses in field margins maybe important sources of ergot spores. If possible, cut/swath grassy areas before “honey dew” and/or ergot bodies form

Foliar fungicide



Heads

(Suppression at best. Timing is critical & needs to coincide with flowering. ↓ed suppression likely with more variable crops due to lower seeding rates or stand establishment issues)



Fertilizer***

***Maintain copper and boron levels. Deficiencies lead to pollen viability issues that lead to increased cereal flower opening and ↑ed ergot risk. Other factors such as late herbicide apps. and severe weather at head emergence can also ↓ pollen viability



In heavily infected fields, if possible, harvest headlands separately, while post-harvest grain cleaning can remove ergot bodies. Early silaging may reduce levels of ergot, but if done at soft dough the ergot pathogen may have already formed mycotoxin containing sclerotia



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Thank you to the PCDMN Phase 2 Funders



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