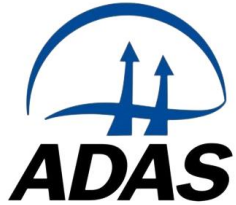


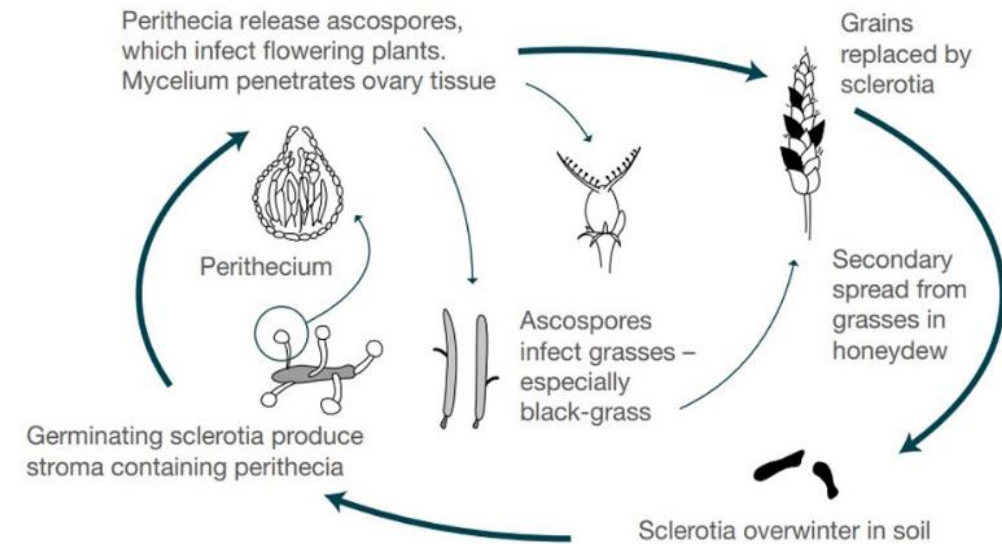
Updating UK management guidelines for ergot



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Review existing guidance and research

- Key stages of the ergot life cycle
- Current regulations
- Crop management practices farmers can use to manage ergot
- Harvesting techniques for managing ergot
- Best sampling practices and removal of ergot from grain
- Opportunities for plant breeding
- Conclusions and recommendations



Updating UK management guidelines for ergot



- **Update AHDB ergot management guidelines**

Practical recommendations for the management of ergot tailored to UK conditions

- **Identify knowledge gaps in UK ergot research**

Propose areas for further investigation where there is insufficient current information

- **Develop an ergot identification guide**

To assist growers and processors to identify ergot sclerotia in various settings



Management of ergot in cereal crops

Although the disease has relatively little effect on yield, ergots are associated with large amounts of toxic alkaloids (mycotoxins). With no varietal resistance or approved fungicides, control relies heavily on non-chemical methods.

[Cereal disease management homepage](#)

[An introduction to ergot and its management in cereals](#)

Management of ergot in cereal crops

Variety

There are no current cereal varieties that have resistance to ergot infection. Varieties that have a longer or more open flowering habit will be more susceptible to infection, due to easier access of spores able to infect the florets. Florets that remain closed during pollination and for a few days afterwards provide a mechanical barrier to the entrance of spores and are more likely to escape infection. Susceptibility to ergot infection persists for only a few days after fertilisation, after which point, the ear becomes resistant to further infection.

While it has been previously investigated, there is no system within the AHDB Recommended Lists to reliably score the openness of flowering and link this positively to reduced infection risk. The development of true tissue resistance continues to be an area for further research by the plant breeding community.

Fungicides

There are currently no fungicide sprays approved for use on cereals to control ergot infection. Previous AHDB funded work, using radio labelled fungicides, detected negligible movement of foliar-applied fungicides to the joint source of infection, the ovary. This is not surprising, as it would be undesirable to have products that could migrate into the grain.

Some wheat based seed treatments are recommended for ergot control and act by reducing fungal growth and development of the ergot. They do not provide complete control of germinating ergots and should be used in conjunction with other management options to reduce the risk of infection.

Grass weeds and margins

Controlling grassweeds is important to minimise the risk of fungal spores available for secondary spread. Black grass control is especially important as it flowers earlier than the main cereal crop, allowing a build up of inoculum (honeydew phase) that can be readily transferred during the cereal flowering period.

While it was thought that the increase in field margins could lead to an increase in inoculum build-up and subsequent infection of cereal crops, AHDB research found no significant impact. However, grass margins do still pose a small risk by providing a reservoir of secondary inoculum that could infect wheat, particularly late tillers around the edge of the crop. This risk can be minimised by sowing later flowering grass species. Some grass species such as, cocksfoot, couch grass, timothy, tall fescue and tall oat grass pose a greater threat to cereal crops due to their ease of infection and flowering time.

Husbandry

Good crop husbandry continues to be the most reliable method of reducing the risk of ergot infection. In heavily infested crops, harvesting the field headlands, and traminers (where later tillers prevail) separately from the bulk of the crop will reduce contamination of the main crop.

As ergots only remain viable for one year in soil, sowing a non-cereal crop or ploughing (to at least 5 cm) to bury the ergot will reduce the amount of inoculum available in the next cereal crop. Any susceptible grass weeds should also be controlled to get the full benefit of these practices.

Keeping an accurate record of where ergot infection has been most prevalent on farm will help assist in future decisions on rotations. Sowing clean seed will prevent planting inoculum in the new crop.

Cleaning procedures

In severe years and where there has been a poor level of control, the harvested grain can be cleaned. This can either be by a mobile cleaner on the farm or by the trader/processor, by prior agreement after delivery. The latter may result in a reduction of the price paid.

Several 'cleaning' methods may be used, including gravity separation (with or without an air screen cleaner) and mechanical sieves that remove foreign bodies on the basis of size. Sieves may be less effective where whole ergots or ergot fragments are the same size as the grain. More recently, effective grain colour sorting systems have become available but are used mainly by processors and within central stores.

Top ergot management tips

- Pay closer attention to fields with higher grassweed pressure (especially black-grass) and cereal crops associated with more ergot, such as rye and triticale
- Inspect crops (and grass margins) for ergot symptoms prior to harvest
- Harvest higher risk field headlands and traminers separately from the bulk of the crop (plants with more susceptible late and secondary tillers are most likely to occur in these areas)
- Check loads carefully before tipping onto a wider heap
- Consider ploughing to bury ergots to at least 5 cm depth
- Consider planting a non-cereal crop
- Avoid open flowering varieties and varieties with a long flowering period
- Avoid sowing contaminated seed - clean farm-saved seed thoroughly to remove ergot
- Check any crops destined for home-use animal feed for ergot
- Some seed treatments may have a small effect by preventing ergot germination (there are no fungicide sprays approved for use on cereals to control ergot infection)
- Sow later-flowering grass species in grass margins



The causal fungus only attacks the ear at flowering, replacing the grain on a few spikelets by a hard, purple-black sclerotium, known as an ergot.



Cereal disease management
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