Our Vision:
To excel as a science-based regulator, trusted and respected by Canadians and the international community.

Our Mission:
Dedicated to safeguarding food, animals and plants, which enhances the health and well-being of Canada’s people, environment and economy.

Identification of Disease Bodies:
Ergot and Sclerotia

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Grade Tables and Disease Bodies

Table 1. Ergot and/or Sclerotia as a grading factor in the Grade Tables

<table>
<thead>
<tr>
<th>Grade Table Number</th>
<th>Crop Kind</th>
<th>Ergot or Sclerotia</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Wheat, Drum wheat</td>
<td>Ergot</td>
</tr>
<tr>
<td>II</td>
<td>Barley, oats, triticale, rye</td>
<td>Ergot</td>
</tr>
<tr>
<td>III</td>
<td>Cereal mixtures</td>
<td>Ergot</td>
</tr>
<tr>
<td>V</td>
<td>Sunflower (Op)</td>
<td>Sclerotia</td>
</tr>
<tr>
<td>VI</td>
<td>Sunflower (Hy)</td>
<td>Sclerotia</td>
</tr>
<tr>
<td>VII</td>
<td>All crop in Table VII (Brassica crops)</td>
<td>Sclerotia</td>
</tr>
<tr>
<td>IX</td>
<td>All crop in Table IX (clover)</td>
<td>Ergot or Sclerotia</td>
</tr>
<tr>
<td>XI</td>
<td>All crop in Table XI</td>
<td>Ergot</td>
</tr>
<tr>
<td>XII</td>
<td>All crop in Table XII</td>
<td>Ergot</td>
</tr>
<tr>
<td>XIII</td>
<td>All crop in Table XIII</td>
<td>Ergot</td>
</tr>
<tr>
<td>XIV</td>
<td>All crop in Table XIV</td>
<td>Ergot</td>
</tr>
</tbody>
</table>
**Background: Ergot**

- Ergot is a fungal (*Claviceps purpurea*) disease body and infects flowers of many *Poaceae* species
  - Cereals: rye, triticale, common wheat, durum wheat and barley
  - Grasses: 200 species in the subfamily Pooideae, i.e. *Agrostis, Avena, Dactylis, Festuca, Hordeum, Lolium, Poa, Secale, Triticum*
  - Open pollinated grass species are more susceptible
- Contaminated seed will potentially spread disease
- Ergot bodies contain toxic alkaloids, they should never be consumed by human or fed to animals
- Distributed worldwide in temperate climatic zones.

Note: Photos from the websites of the Government of Saskatchewan and Herbdeta, New Zealand
Identify Ergot Disease Bodies

• Purity analysis of cereal and grass species
  – Magnification 10X or greater to search for the disease bodies and their fragments
  – Reported by number or percentage by weight
  – Proficiency Test: always reported by number
Background: Ergot as a contaminant

Ergot is a general term for fungus (*Claviceps purpurea*)

- Ergot overwinters a black, grain-sized fungal structures
- The size varies with species that ergot infects
Ergot body features

- Elongated, generally 1-4 times longer than the host seed.
- Cylindrical with rounded ends, straight to curved and tapered at the distal end.
- Black to purplish black in colour on the outside.
- Surface may appear longitudinally wrinkled and rugose near the end.

Note: Photo, rye ergot from: www.botany.hawaii.edu
Ergot body features

- Greyish-white on the inside with purplish staining.
- Fungal tissue encased in a darkly pigmented rind.
- Rind is hard but will break if pressed firmly with forceps.
Other debris similar to ergot

Seed sample may contain inert materials that look similar:

- Ergot infected stems or plant materials
- Infected seeds decorated as black coloured infected seeds.
- Rodent drops
- Insect parts or drops

Ergotized grains

Black hulless barley
Background: Sclerotia

• Sclerotia refers to fungal disease caused by *Sclerotinia sclerotiorum*.

• Wider range of hosts, 374 species of broadleaf plants:
  - Dry beans, sunflowers, soybeans and canola
  - Field peas, potato, mustard, safflower, lentils, flax, borage, buckwheat, chickpea, lupine, faba bean.
  - Numerous vegetables.
Sclerotia as a seed contaminant

- Sclerotia can be a common contaminant of sunflower seeds (indicated by the arrow)

- Sclerotia contaminant in soybean

*Note: Photo from North Dakota State University*
Sclerotia as a seed contaminant

Sclerotia from Blue-eyed-grass
- Can be overlooked as seed

Sclerotia from soybean
- Variable size and shape
Sclerotia as a seed contaminant

Sclerotia and seeds of Brassica species

Sclerotia and seeds of Alsike clover
Sclerotia features

- Hard, black highly variable in size and shape
- Irregular shape
- Surface colour usually black

Sclerotia size range
Sclerotia features

• Interior colour of sclerotia is pure white
• Rough surface texture in exterior
Other debris similar to sclerotia

- Soil particles
- Rodent drops
- Infect plant materials
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