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Welcome to the 2015 Ergot Alert Newsletter!

We would like to welcome you to the 2015 Ergot Alert Newsletter, brought to you by OSU Extension and USDA-ARS and sponsored by the Western Integrated Pest Management Regional Competitive Grants Program. The purpose of this newsletter is to provide timely information about ergot spore production to grass seed growers and field personnel in the Columbia Basin, the Grande Ronde Valley, and Central Oregon in an effort to aid in decisions related to ergot management during the course of the 2015 growing season.

This year we have seven Burkard spore traps (Fig. 1) deployed in three grass seed production areas: the Columbia Basin (OR and WA), the Grande Ronde Valley (OR), and central Oregon (Table 1). These spore traps capture airborne spores (and other material) continuously. Personnel collect the spore trap samples and perform trap maintenance on a weekly basis. We are also collecting weather data from nearby AgriMet and AgWeatherNet weather stations and directly from the fields.



Figure 1. A Burkard spore trap deployed in a perennial ryegrass seed field. *Photo: J. Dung.*

Airborne ergot spores have already been observed at the following sites:

- **PRG-1 (April 19)**
- **PRG-2 (April 22)**
- **KBG-4 (April 26)**
- **KBG-3 (May 1)**

Table 1. Ergot spore monitoring sites

Site	County	Grass species	Cultivar	Planting date
PRG-1	Umatilla, OR	Perennial ryegrass	Multiple	Aug 29 2014
PRG-2	Umatilla, OR	Perennial ryegrass	Pavilion	Sept 20 2013
KBG-1	Benton, WA	Kentucky bluegrass	Arrowhead	Sept 2 2014
KBG-2	Benton, WA	Kentucky bluegrass	Arrowhead	Sept 3 2014
KBG-3	Union, OR	Kentucky bluegrass	Wildhorse	May 5 2010
KBG-4	Union, OR	Kentucky bluegrass	Baron	April/May 2014
KBG-5	Jefferson, OR	Kentucky bluegrass	Multiple	Aug 11 2014

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Ergot in Grass Seed Crops: A Review

Ergot is a seed replacement disease of grasses caused by fungi in the genus *Claviceps*. Some species of *Claviceps* are relatively host-specific while others, such as *C. purpurea*, can affect many different grass hosts including those grown for seed. The fungus overwinters as sclerotia on or near the soil surface (Fig. 2). Sclerotia are hard, gray to purple-black in color and can be similar in size to the host seed or two to three times larger. The sclerotia germinate in spring, producing one or more stalked, spherical structures (capitula; Fig. 2) that eject airborne ascospores (sexual spores). Only unfertilized flowers are susceptible to infection and the degree of infection depends on the amount of inoculum present, the susceptibility of the crop, and environmental conditions. Infected florets exude honeydew (Fig. 3), which is a sticky, viscous matrix of plant sap and conidia (asexual spores). The sugary nature of honeydew can attract insects which can facilitate secondary spread of the disease. The disease cycle is completed when mature sclerotia are returned to the field during harvest. The ergot disease cycle is outlined in Figure 4.



Figure 2. Ergot sclerotia (left) and a germinating capitulum (right). Photos: J. Dung and J. Eggers.



Figure 3. Drops of ergot honeydew (arrows) produced by infected perennial ryegrass (left) and Kentucky bluegrass (right). Photo: N. Kaur.

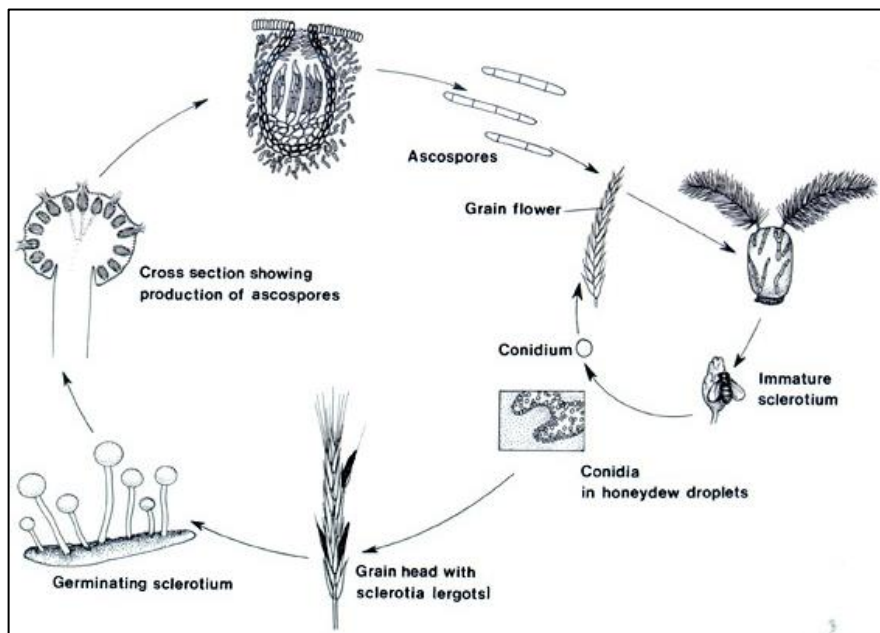


Fig. 4. The ergot disease cycle begins with sclerotia germination (bottom left corner). Airborne ascospores are released from fruiting bodies (capitula) which can infect unfertilized flowers of susceptible grass hosts. Infected flowers produce honeydew, a sugary combination of plant sap and conidia, which can be dispersed by water or insects and result in secondary spread of the disease. Figure: G. Schumann. *The Plant Health Instructor* DOI: 10.1094/PHI-I-2000-1016-01

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General Recommendations for Ergot Management: Long-term management of ergot in cool season grass seed production will require an integrated disease management approach that includes both cultural and chemical methods:

Cultural Management

- Plant ergot-free seed
- Rotate field out of susceptible grasses
- Control annual bluegrass or other *Poa* species
- Remove as much ergot as possible from the field during harvest. Ergot can be removed later during seed cleaning
- Destroy screenings containing ergot. If buried, they should be more than 3 inches deep
- Use resistant cultivars or cultivars that flower for only a short period of time
- Prevent flowering of grasses in pastures or in field margins
- Open field burning will reduce but not eliminate ergot (propane burning has not proven effective)

Chemical Management

- Please consult the PNW Plant Disease Management handbook for fungicide products available for ergot suppression in OR/WA grass seed crops or search the Pesticide Information Center Online. Links to the web resources are listed below:
 - *Pacific Northwest Plant Disease Management Handbook:*
<http://pnwhandbooks.org/plantdisease/grass-seed-ergot>
 - *Washington State Pest Management Resource Service Pesticide Information Center Online Databases:* <http://cru66.cahe.wsu.edu/LabelTolerance.html>

****Application of a pesticide to a crop or site not on the label, or in a manner inconsistent with label directions, is a violation of pesticide law and may subject the applicator to civil penalties.***

Do you have questions, comments or observations about ergot that you would like to share?

If so, please contact:

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