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Welcome to the 2016 Ergot Alert Newsletter!

Welcome to the first issue of the 2016 Ergot Alert Newsletter, brought to you by Oregon State University Extension Service and USDA-ARS and sponsored by the Washington Turfgrass Seed Commission, the Oregon Seed Council, the Oregon Department of Agriculture Alternatives for Field Burning Research Financial Assistance Program, the Columbia Basin Grass Seed Growers, the Jefferson County Seed Growers Association, and the Union County Grass Seed Growers Association. The goal of this newsletter is to provide timely information about ergot spore production to Kentucky bluegrass and perennial ryegrass 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 2016 growing season.

This year we have seven spore traps deployed in three grass seed production areas: the Columbia Basin (Umatilla Co., OR and Benton Co., WA), the Grande Ronde Valley (Union Co., OR), and central Oregon (Jefferson Co., OR) (Fig. 1, Table 1). We are also collecting weather data from nearby AgriMet and AgWeatherNet weather stations and directly from the fields.

Epidemiology of Ergot in Grass Seed Crops

Ergot is a seed replacement disease of grasses caused by fungi in the genus *Claviceps*. The fungus overwinters as sclerotia on or near the soil surface. 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 (Fig. 2). Primary inoculum consists of airborne spores called ascospores which are produced in the spring and infect unfertilized flowers. Infected flowers exude honeydew (Fig. 2), which is a sticky combination of plant sap and asexual spores called conidia. 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.



Fig. 1. Location of spore traps in the Columbia Basin (Umatilla Co., OR and Benton Co., WA), the Grande Ronde Valley (Union Co., OR), and central Oregon (Jefferson Co., OR). *Airborne ergot spores have already been observed at sites PRG-1 (April 17), PRG-2 (April 20), and KBG-2 (April 9).*

Table 1. Ergot spore monitoring sites

Site	County	Grass seed crop	Cultivar	Ergot spore level
PRG-1	Umatilla, OR	Perennial ryegrass	Mixed cultivar trial	Low
PRG-2	Umatilla, OR	Perennial ryegrass	Pavilion	Low
KBG-1	Benton, WA	Kentucky bluegrass	Prafin	None
KBG-2	Benton, WA	Kentucky bluegrass	Rubicon	Very low
KBG-3	Union, OR	Kentucky bluegrass	Mixed cultivar trial	None
KBG-4	Union, OR	Kentucky bluegrass	Baron	None
KBG-5	Jefferson, OR	Kentucky bluegrass	Mixed cultivar trial	None

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Ergot IPM:

Our 2016 research focus is to develop a comprehensive, multi-tactic IPM program for ergot in grass seed crops that incorporates chemical controls, biological controls, host plant resistance, and disease modeling. In addition to information on spore production, we will provide timely updates on our recent findings through this newsletter. Some of the established cultural and chemical methods for ergot are listed below:

Cultural Management

- Plant ergot-free seed.
- Rotate field out of susceptible grasses.
- Control annual bluegrass and 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. Managing early flowering grassy weeds may be particularly important in the Columbia Basin since spores have already been observed this year. If infected, early flowering grass weeds may become sources of honeydew later in the season.
- 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>



Figure 2. Ergot sclerotia (left) and honeydew (right, indicated by an arrow) produced by infected Kentucky bluegrass. Photos: J. Dung and N. Kaur.

Do you have questions, comments or observations about ergot that you would like to share? If so, we welcome your thoughts and insights! Please contact:

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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.
