



A CLINIC CLOSE-UP: *Phoma lingam* (Black leg) and Crucifer Seeds
 Oregon State University Extension Service January 2016

Under current Oregon Department of Agriculture seed rules (OAR 603-052-0860), crucifer seed stock (canola, cabbage, broccoli, kale, radish, turnip, forage crucifers, etc.) intended for commercial planting in Oregon must be accompanied by an official test stating that the **untreated** seed is free from blackleg (*Phoma lingam*=*Leptosphaeria maculans*; *P. biglobosa*). Many other national and international markets require imported crucifer seed to be accompanied by an official testing certificate showing that seed is free of the black leg pathogen. There are prescribed sampling protocols for seed testing, more information can be obtained from seed testing labs. **Seed stocks can be assayed for *Phoma* in official tests conducted only by seed testing labs that are recognized by the Oregon Department of Agriculture**, including:

Agri Seed Testing, Inc.

1930 Davcor Street SE, Salem, OR 97302
 Tel: 503-585-1440; Fax: 503-588-0733
 Email: office@agriseedtesting.com
<http://www.agriseedtesting.com>

Eurofins STA Laboratories

1821 Vista View Drive, Longmont, CO 80504
 Tel: 303-651-6417; Fax: 303-772-4003
 Customer Service: 800-426-9124
 Email: stacoinfo@eurofinsus.com

Iowa State University Seed Laboratory

109 Seed Science Center
 Iowa State University, Ames, Iowa 50011-3228
 Tel: 515-294-6826; Email: seedlab@iastate.edu
<http://www.seeds.iastate.edu/seedtest/>

**Oregon Department of Agriculture
 Commodity Inspection Program**

635 Capitol St NE
 Salem, OR 97301-2532
 Fax: 503-986-4737
 Email: seedservices@oda.state.or.us

Oregon State University Seed Laboratory

3291 SW Campus Way
 Corvallis, OR 97331
 Tel: 541-7374799;
 Fax: 541-737-2126

Current Oregon Department of Agriculture crucifer black leg seed rules require that crucifer seeds must be treated with fungicides or hot water to control seedborne *Phoma*. Fungicides which are registered in Oregon for crucifer seed treatment and have been shown to be effective on seedborne *Phoma* include Coronet, Mertect 340-F, and Rovral 4F. Mertect (SLN OR-100014) and Rovral (SLN OR-140013) can be used on crucifer seed (except canola) to be grown as a seed crop. Mertect has a supplemental label for head and stem *Brassica* crops as well as root crucifers including radish. Coronet has a section 3 registration for use on crucifers including canola (supplemental label), but is not currently registered for use on radish, rutabaga or turnip.

Crop group	Crucifer crops	Coronet	Mertect	Rovral
head & stem <i>Brassica</i> crops	broccoli; brussels sprouts; cabbage; cabbage, Chinese (napa); cauliflower; kohlrabi	Yes	Yes	No
leafy <i>Brassica</i> crops	broccoli raab; cabbage, Chinese (bok choy); collards; kale; mizuna; mustard greens; mustard spinach; rape greens	Yes	No	No
root vegetables	radish, rutabaga, turnip	No	Yes	No
crucifer crops grown for seed (no sprouts)	<i>Brassica</i> seed crops including canola, and radish	Yes for crops on label (no root crops)	Yes, except no canola	Yes, except no canola

Hot water treatments are typically done on-farm. To hot water treat crucifer seed, first pre-warm seed for 10 minutes in 100°F water, and then transfer seed to a hot water bath (122°F) for 15 to 25 minutes. Recommended time period for hot water treatment are 15 minutes for radish and mustard, 20 minutes for broccoli, cauliflower, collard, kale, kohlrabi, rutabaga, and turnip, and 25 minutes for Brussels sprouts and cabbage. After treatment, place seed in cold water for 5 to 10 minutes to cool, spread the seed out, and dry the seed. Small seed amounts are typically bagged in cheese cloth or tea balls; larger seed amounts can be treated if done with care. It is critical to maintain the hot water bath at 122°F, ideally with a double-boiler type of system, and to treat seed for the exact prescribed amount of time.

Regulatory items including crucifer black leg seed rules:

Oregon Department of Agriculture

Nancy Osterbauer

nosterbauer@oda.state.or.us

(503) 986-4666

Plant diagnostic clinics:

OSU Corvallis Plant Clinic

1089 Cordley Hall

Corvallis, OR 97331-2903

Tel: (541) 737-3472

<http://plant-clinic.bpp.oregonstate.edu/>

OSU HAREC Plant Pathology

PO Box 105/2121 S. 1st Street

Hermiston, OR 97838

Tel: (541) 567-8321

<http://oregonstate.edu/dept/hermiston/plant-pathology-plant-lab-testing>

References:

Miller, S.A. and Lewis Ivey, M.L. Hot water treatment of vegetable seeds to eradicate bacterial plant pathogens in organic production systems. Ohio State University Extension Factsheet HYG-3086-05. Available on-line at <http://onionline.osu.edu/hygfact/3000/pdf/3086.pdf>

Oregon Dept. of Agriculture Crucifer Black Leg Ruling:

<http://www.oregon.gov/ODA/programs/Pesticides/Pages/PesticidesCurrentIssues.aspx> (scroll to “Details about permanent blackleg rule in Oregon” for a PDF file of the ruling)

PNW Plant Disease Management Handbook website - Seed Crops, Crucifers (*Brassica* and *Raphanus* spp.) – Black Leg: <http://pnwhandbooks.org/plantdisease/seed-crop-crucifers-brassica-and-raphanus-spp-black-leg>

PNW Vegetable Extension Group – Brassica black leg website:

http://mtvernon.wsu.edu/path_team/brassicaceae.htm#blackleg and

http://mtvernon.wsu.edu/path_team/ipmResources.htm#brassica

WSDA Crucifer Quarantine Chapter 16-301 WAC: General Seed regulations:

<http://apps.leg.wa.gov/wac/default.aspx?cite=16-301&full=true> (start at Section 409)

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