Cynthia Ocamb, PhD. (Cindy)
Plant Pathologist, OSU Extension
Associate Professor--Botany & Plant Pathology
ocambc@science.oregonstate.edu 541-737-4020

2014 Crucifer survey findings

- Black leg (*Phoma lingam*)

  occurs across USA

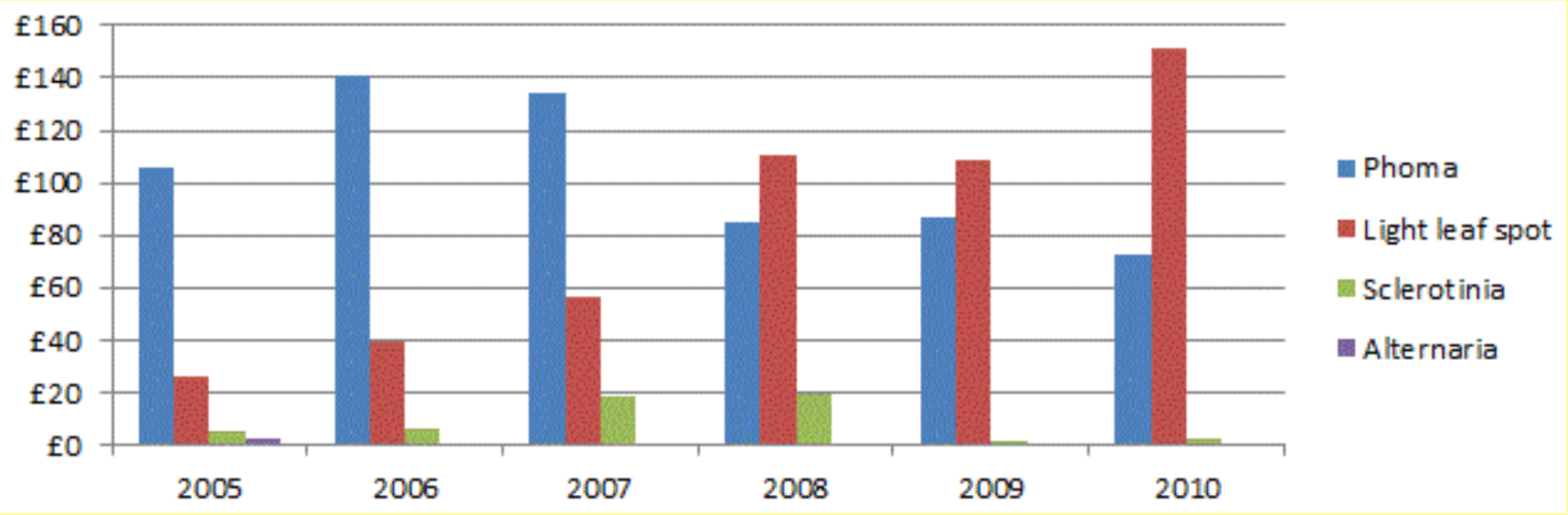
- White leaf spot (*Pseudocercosporella capsellae*)

  reported as problem in SE USA

- Light leaf spot (*Cylindrosporium concentricum*) problem in Europe, Australia, Asia

http://www.rothamsted.ac.uk/light-leaf-spot-forecast/historical-trends-light-leaf-spot

Winter oilseed rape losses due to disease (£Million)



Based on Defra-funded Winter Oilseed Rape Pest and Disease Survey Data delivered through CropMonitor (www.cropmonitor.co.uk). Data calculated with oilseed rape at a price of £380/t.

Found in crucifer survey during 2014:

43 different locations had Black leg (out of 61 examined)

24 sites -- Light leaf spot

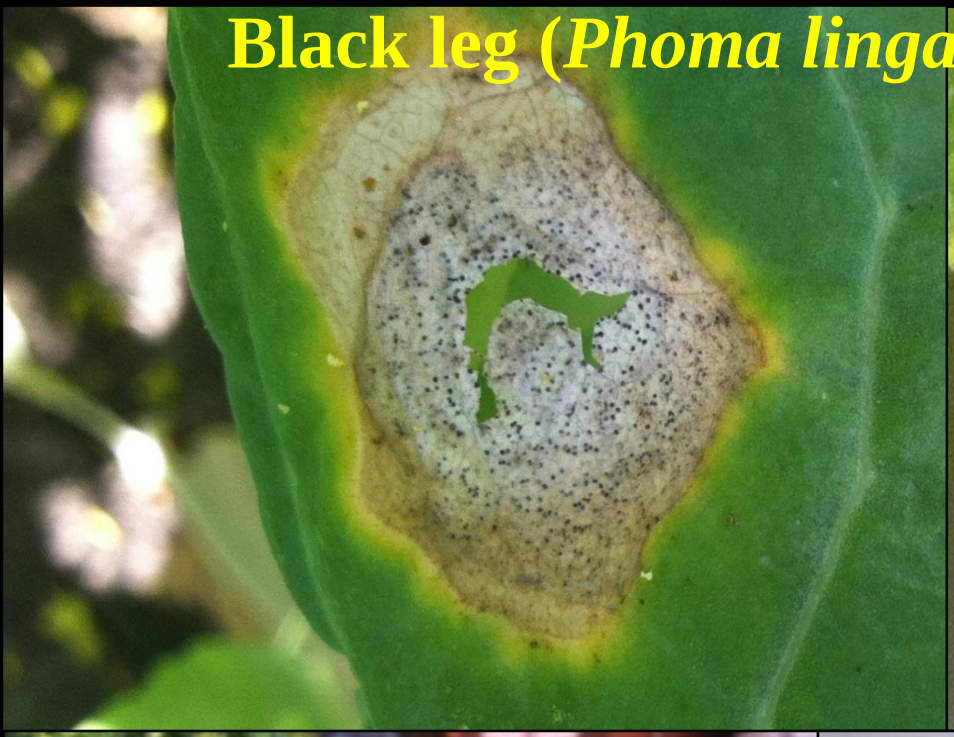
17 sites -- White leaf spot

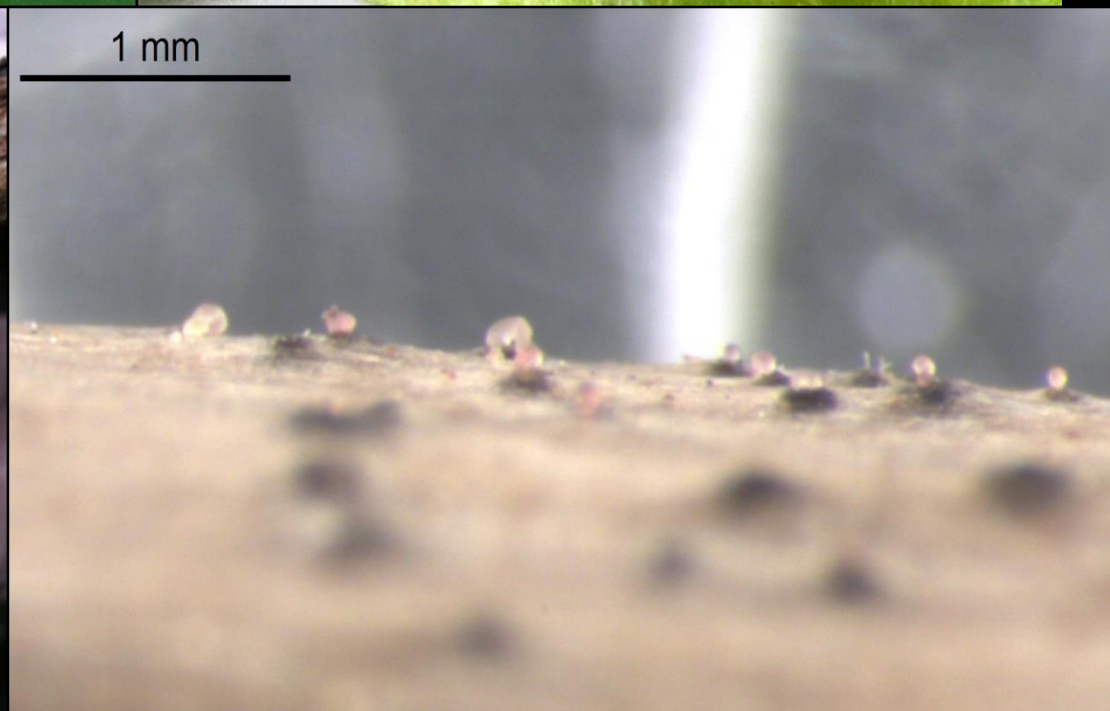
Trio of diseases were found in Benton, Linn, Marion, Polk, Washington and Yamhill county

Plants found infected with *Phoma lingam* in western Oregon; fall-planted seed fields unless otherwise noted.

County	Crop/plant	County	Crop/plant
Benton	Fall-planted canola	Marion	Kale
Benton	W. Russian Kale	Marion	Cabbage or collards
Benton	Mizuna (organic)	Marion	Russian Kale
Benton	Kale	Marion	Fall-planted canola
Benton	Collards	Marion	Fall-planted canola
Benton	Kale	Marion	Fall-planted canola
Benton	Volunteer mustard in wheat	Marion	Forage *Brassica*
Benton	Fresh market cabbage (spring sown)	Marion	Forage *Brassica*
Lane	Processing broccoli (spring sown)	Marion	Western yellow cress (weed)
Linn	Volunteer mustard in turnip	Polk	Cabbage
Linn	Chinese cabbage (spring sown)	Polk	Fall-planted canola
Linn	Chinese mustard (spring sown)	Polk	Fall-planted canola
Linn	Pak choi (spring sown)	Polk	Fall-planted canola
Linn	Turnip	Polk	Turnip
Linn	Western yellow cress (weed)	Polk	Turnip
Linn	Chinese cabbage (spring sown)	Polk	Forage *Brassica*
Linn	Chinese cabbage (spring sown)	Yamhill	Volunteer turnip in wheat
Marion	Forage turnip	Yamhill	Volunteer turnip
Marion	Black mustard (weed)	Yamhill	Fall-planted canola
Marion	Bird's rape (weed)	Yamhill	Turnip
Marion	Bird's rape (weed)	Yamhill	Turnip
Marion	Kale		

Black leg (*Phoma lingam*)





Light leaf spot *Cylindrosporium concentricum*

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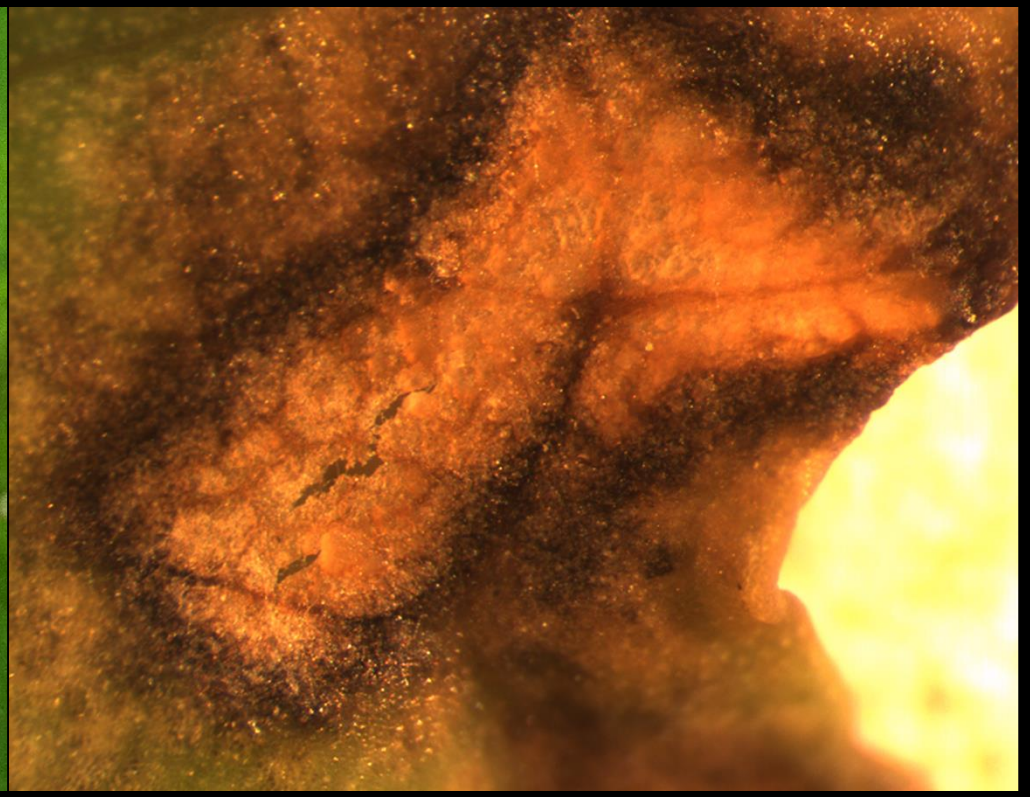
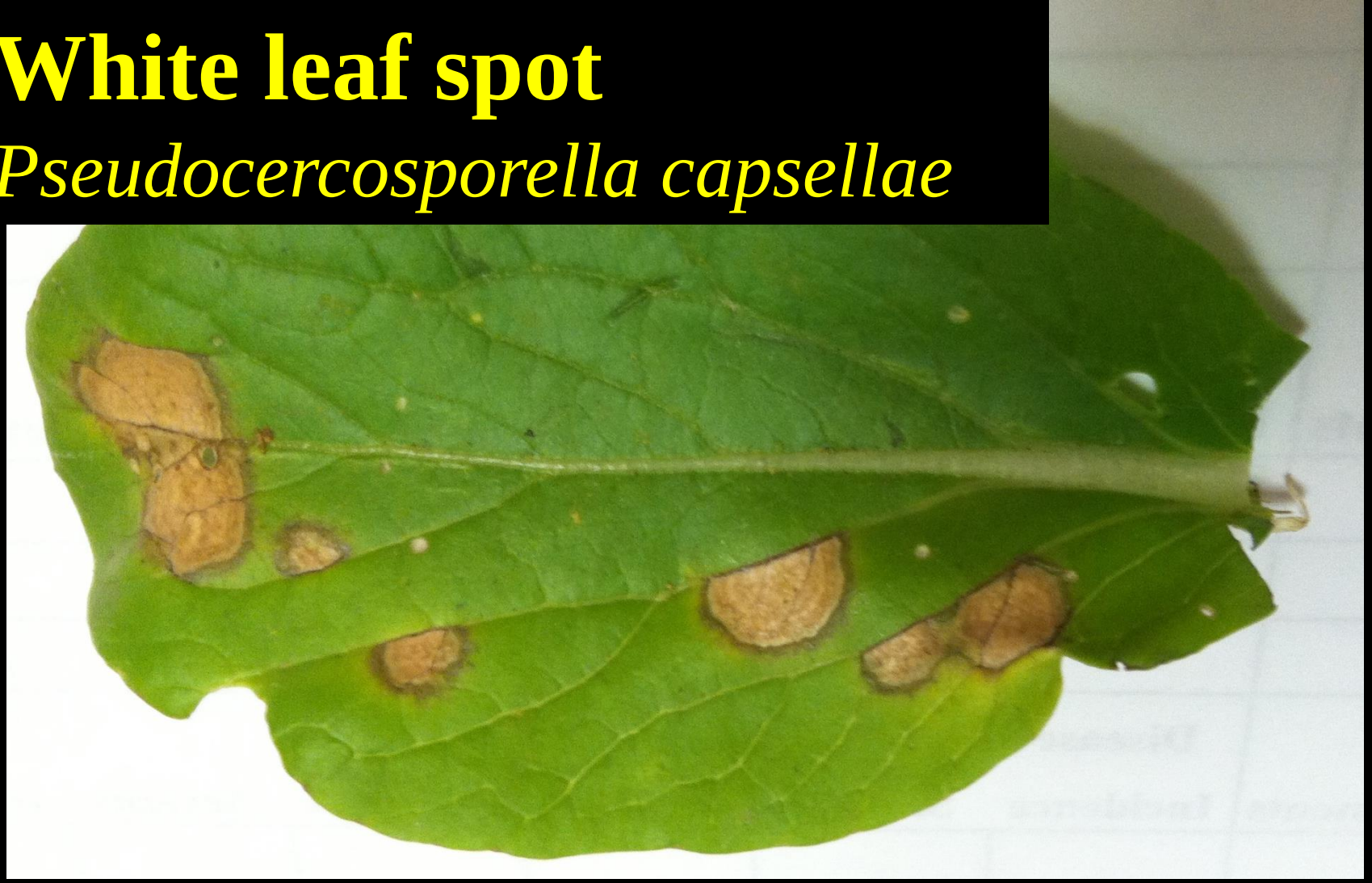
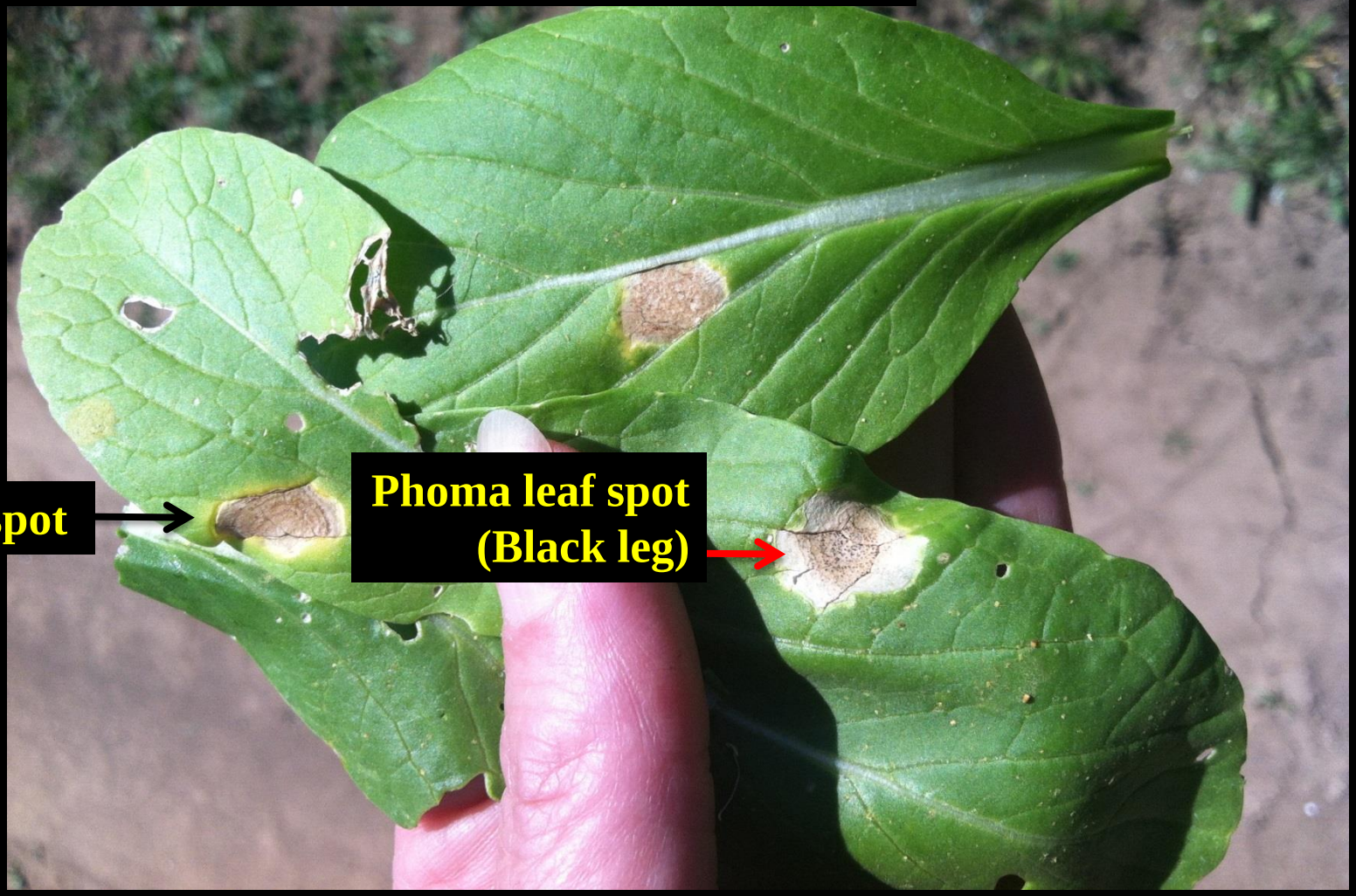


White leaf spot

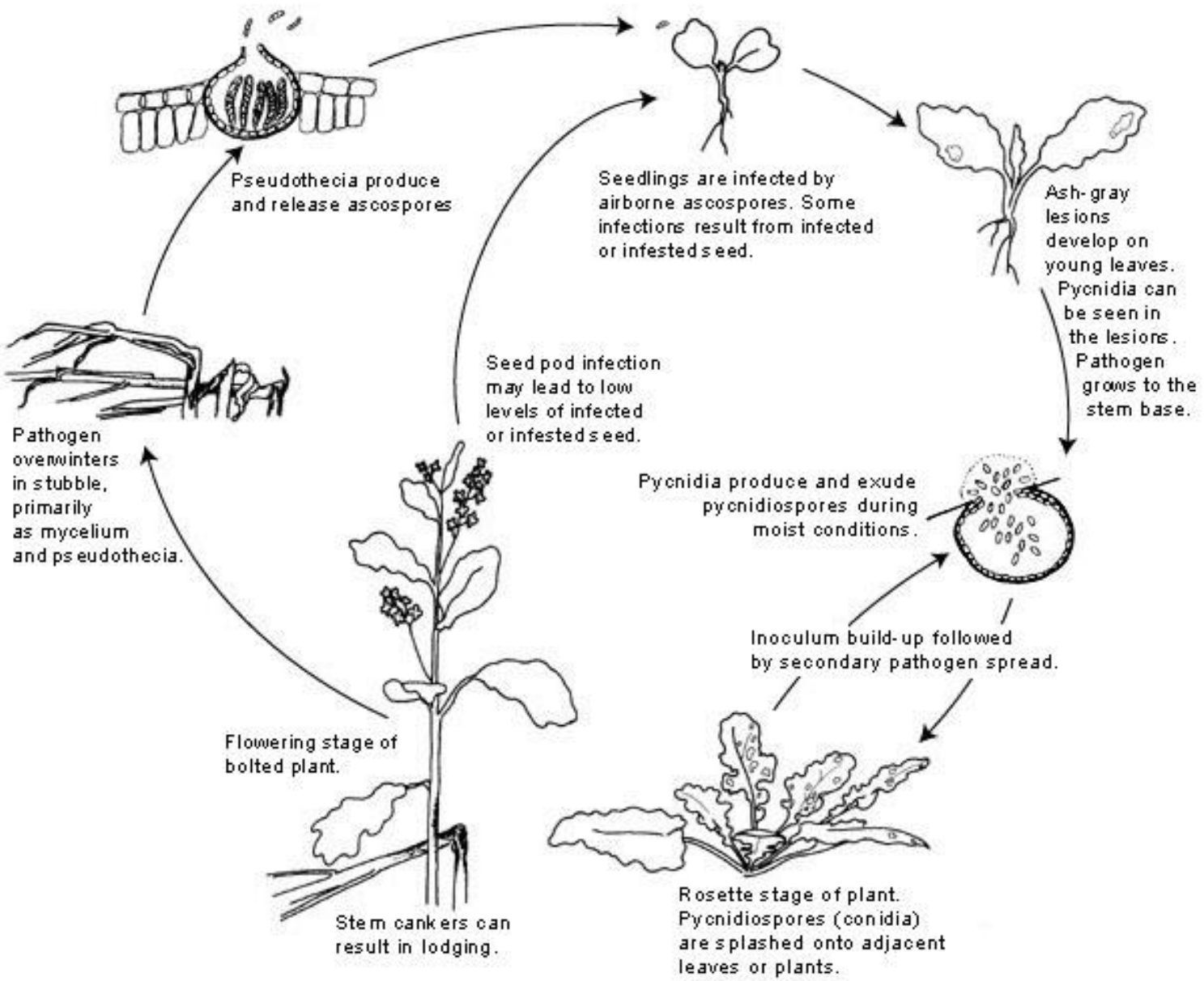
Pseudocercosporella capsellae



Brassica for seed planted in April



Black leg lifecycle



Black leg, Light leaf spot, White Leaf spot

- Ascospores develop on infected plant residues
- Asexual spores (conidia) spread relatively short distances by rain
- Cool, moist conditions promote disease
- Can be seedborne

Cultural control of black leg, light leaf spot and white leaf spot is critical for all crucifer growers in the valley

to avoid having these diseases become established

Fall
Black leg & LLS & WLS ascospore release from debris
LLS & WLS conidia develop and disperse by rain

Winter
Black leg ascospore release
LLS & WLS conidia

optimum for disease
intermittent rains
& 46 to 59°F

Spring
LLS & WLS & Black leg conidia
Black leg & LLS ascospore release, WLS?

Summer
LLS & WLS conidia develop
Black leg & LLS &WLS sexual stage develops

It is imperative that each grower, regardless of whether growing a seed, oilseed, vegetable, forage or cover crop:

- Incorporate or remove residues as soon as possible after harvest (flailing, shallow or deeper plowing).
  residues on soil surface are infectious until decomposed
- Rotate fields out of crucifers for at least three years.
- Avoid planting adjacent to a field infected the previous seasons.

It is imperative that each grower, regardless of whether growing a seed, oilseed, vegetable, forage or cover crop:

- Eradicate susceptible weeds and control volunteer crucifers.
- Plant only seed that has been certified to be free of *Phoma* and has been treated with a fungicide or hot water.
  - **Coronet fungicide seed treatment** (FRAC Group 7+11). **Not registered for use on radish.** Studies at WSU showed Coronet is very effective for seedborne *P. lingam* & other fungi.
  - **Dynasty** (FRAC Group 11) at 0.1 to 0.38 fl oz/100 lb seed (0.1 to 3.75 fl oz /100 lb seed for canola). Not effective on seedborne *P. lingam*.
  - **Maxim 4FS** (FRAC Group 12) at 0.08 to 0.16 fl oz/100 lb seed. Not registered for use on canola. Not effective on seedborne *P. lingam*.
  - **Thiram 50WP** (Group M3) at 8 oz/100 lb seed (not labeled for Oregon) **or 42-S Thiram** (FRAC Group M3) at 8 fl oz/100 lb seed (6.4 fl oz for canola). Not effective on seedborne *P. lingam*.

Foliar fungicides for fall-planted seed fields to protect from black leg:

- **Cabrio EG** (FRAC Group 11) for black leg of crucifers. **Not for use on canola or rapeseed**.
- **Quadris Flowable** (FRAC Group 11) is labeled for other fungal diseases on crucifers and will help control black leg.
- **Priaxor Xemium Brand** (FRAC Group 7+11) is labeled for other fungal diseases on crucifers and will help control black leg of **canola and leafy brassicas only**
- **Rovral 4F** (FRAC Group 2) for *Brassica* and *Raphanus* seed crops (SLN OR-130001, SLN WA-960027). **Not for use in canola/rapeseed**.

to protect from light leaf spot:

- **Proline 480 SC** (FRAC Group 3) at 4.3 to 5.7 fl oz/A **for canola only. Most efficacious fungicide group for light leaf spot control in UK studies**.

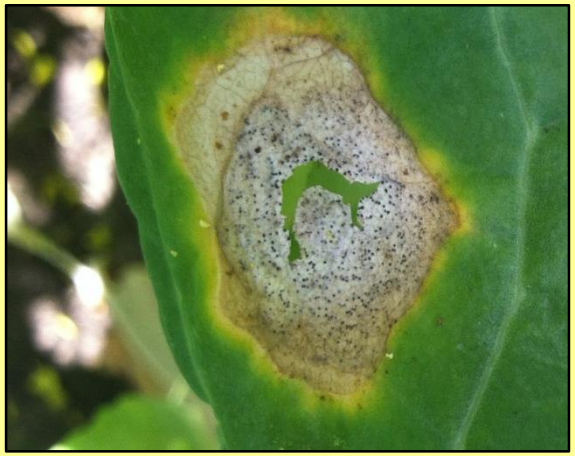
Limited Section 3 labels for light leaf spot in crucifer seed crops

- SLNs are now registered in Oregon for seed trt
- SLN applications underway for foliar trt

PNW Plant Disease Handbook website

http://pnwhandbooks.org/plantdisease/

Black leg (*Phoma*)



Light leaf spot (*Cylindrosporium*)

White leaf spot (*Pseudocercosporella*)

Finding symptomatic plants? Please feel free to contact me:

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Black leg (*Phoma*)

Light leaf spot (*Cylindrosporium*)

White leaf spot (*Pseudocercosporella*)