

Disease Alert – Light Leaf Spot in Crucifer Seed Fields in the Willamette Valley

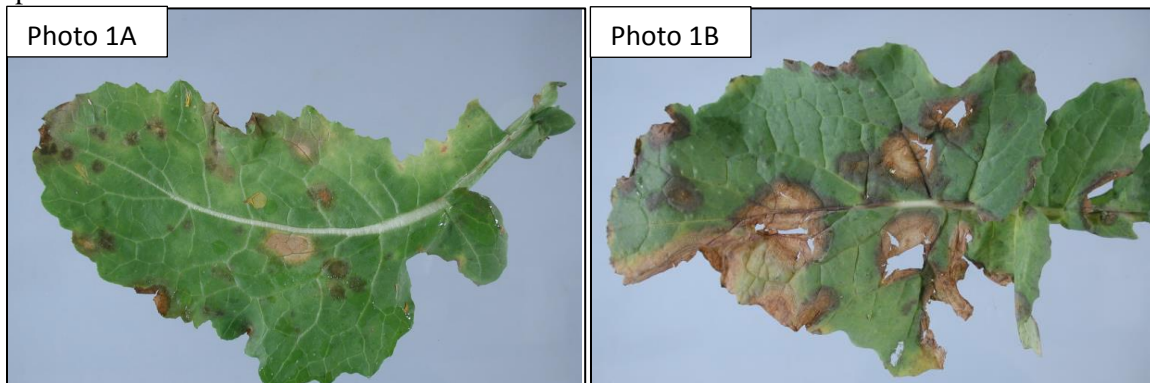
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Light Leaf Spot in Crucifer Seed Crops in Western Oregon, 2014

Beginning late March 2014, I found several leaf spot diseases in fall-sown crucifer crops and weedy species in the Willamette Valley. A survey in OSU research fields of fall-sown canola during late October in 2013 showed no leaf spots or seed/seedling diseases. However, light leaf spot caused by the fungus *Cylindrosporium concentricum* (sexual stage: *Pyrenopeziza brassicae*) was observed causing disease this spring in canola research fields as well as in commercial seed fields of forage *Brassica* species and “field” turnip. Light leaf spot was subsequently detected in other *Brassica* members including wild mustard, volunteer black mustard, vegetable *Brassica* seed fields, and *Brassica* species used as cover crops during 2014. While the specific host range for *C. concentricum* within the tribe Brassiceae is unknown at this time, it is likely that all brassicas crops grown in the Pacific Northwest are susceptible (1) with a range of susceptibility within each crop species. This disease hasn't been previously reported in North America, although an infected mustard field was found in western Oregon during 1998. Oilseed rape can be very susceptible with losses resulting from stand die-out, reduced pod numbers, and premature pod ripening; with less severe infections there is an overall growth reduction. *Brassica* species grown as vegetables in other areas of the globe, where this disease has been reported, suffer blemish defects that result in a decrease in quality but not quantity of yield.

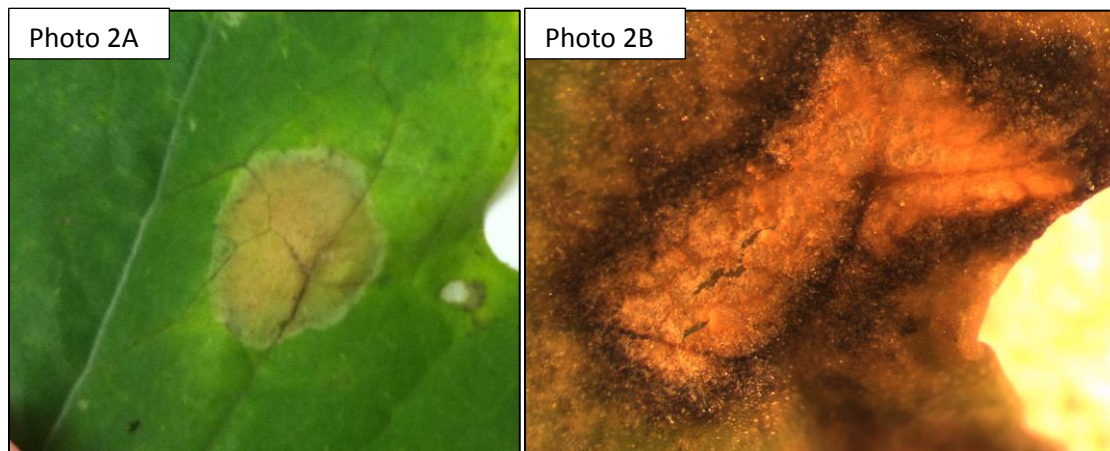
Ascospores (sexual stage) develop from apothecia on infected plant residues; after a wetting period, ascospores can be wind-dispersed relatively long distances to susceptible plants. Asexual spores (conidia) that develop can be spread only relatively short distances by rain or splashing water. Conidia enable increase of disease within a field, and potentially, pod infections during the following spring. Seed can be infected or casually infested with the asexual stage, yet seed transmission occurs at very low rates due to rapid die-out of the pathogen on seed. Even at low rates, infected seeds can move the pathogen into new regions. Epidemics can be initiated by seedborne inoculum or via ascospores arising from neighboring fields with infected plants or residues, or from infected volunteers. Wet conditions and cool temperatures (around 60°F) promote disease development. Plants infected during autumn may remain symptomless throughout the winter season until the following spring.

Cylindrosporium concentricum can attack leaves, stems, and pods; subsequently growing in a systemic manner throughout the plant except in the roots. Flecking may be observed on cotyledons while leaf infections start as discolored patches that develop into irregular brown lesions with cracked centers, sometimes turning black. Leaf lesions can coalesce, causing death of leaves. When young leaves are infected, distortion may also develop. Stem lesions are superficial, elongated brownish streaks with grayish-black margins. Flower infections may cause abortion. Pods infected while immature appear distorted while pods infected later appear relatively healthy looking, but may have white spore masses present. Seedlings can be killed or plants may be stunted. Cauliflower will have a brown discoloration of curds while Brussels sprouts exhibit black lesions.



Photos 1A and 1B above by the OSU Plant Clinic show light leaf spot on mustard and *Brassica*, respectively.

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Photos 2A and 2B above by the CM Ocamb show light leaf spot on *Brassica*.

Cultural controls:

- Eradicate susceptible weeds and volunteer *Brassica* plants.
- Remove plant debris or bury by deep-plowing; this is important for preventing sexual recombinants from developing with new virulence or fungicide resistance. Flailing followed by a shallow incorporation may be sufficient depending on the amount and size of plant debris as well as environmental conditions.
- Rotate out of crucifers for three years.
- Avoid planting adjacent to a field infected the previous season.

Chemical control: Apply sprays when leaf spots are first observed in the fall. Additional applications during late winter or early spring may be needed.

- Proline 480 SC (Fungicide Resistance Action Committee (FRAC) Group 3) at 4.3 to 5.7 fl oz/A is labeled for other fungal diseases on canola and can be used in Oregon on canola to help control light leaf spot.
- Quash (Group 3) at 2 to 4 oz/A at 20% to 50% flowering is labeled for other fungal diseases on canola and can be used in Oregon on canola to help control light leaf spot.

Reference

- (1) McCartney, H.A., and Doughty, K.J. 2007. Light Leaf Spot. Pages 31-35 in: Compendium of Brassica Diseases, Rimmer, S.R., Shattuck, V.I., and Buchwaldt, L. (eds.), APS Press, St. Paul, MN. 117 pp.