

Prairie Crop Disease Monitoring Network

**Guide to scouting
and identification of
sclerotinia stem rot
of canola
July 2024**





**PRAIRIE CROP DISEASE
MONITORING NETWORK**

General inspection of your canola field



Look at what is causing the premature ripening. Is it a plant disease, insect damage (e.g. root maggot), root rot, etc.? If it is plant disease then, which one is it? Don't ignore what is happening underground, i.e. to the root system.



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Work with the direction that the plants are leaning



**Red arrows indicate
direction plants are leaning**

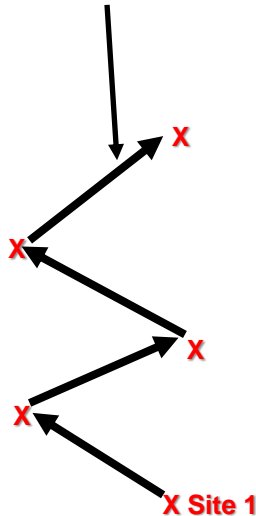


Open the canopy and work along a row



Suggested sampling pattern

**“W-shaped” sampling path
(total path length ~400-500 feet
in length, with 50-100 feet
between sampling points (X))**



**Headlands
of field
(avoid or
assess
separately)**



**Exploded view of Site 1. Assess along row
(direction of white arrow) looking at each
consecutive plant within a single row. Assess a
minimum of 25-50 plants at each of 4-6 sites in a
field.**

Kutcher and Wolfe (2006) rating scale for sclerotinia stem rot

Rating scale for sclerotinia stem rot assessments (Kutcher and Wolf 2006).

| Individual plant disease rating | Location of lesion on the plant | Symptoms |
|---------------------------------|---------------------------------|---|
| 5 | Lower | Main stem lesion with potential effects on seed formation and filling of entire plant |
| 4 | Upper | Lesion situated on main stem or on a number of branches with potential to affect up to 3/4 of seed formation and filling on plant |
| 3 | Upper | Lesion situated on main stem or on a number of branches with potential to affect up to 1/2 of seed formation and filling on plant |
| 2 | Upper | Lesion situated on main stem or branch(es) with potential to affect up to 1/4 of seed formation and filling on plant |
| 1 | Pod | Infection of pods only |
| 0 | None | No symptoms |

Rating scale for assessing the incidence and severity of sclerotinia stem rot of canola for each individual plant. Taken from Kutcher, H.R. and T.M. Wolf. 2006. Low-drift fungicide application technology for sclerotinia stem rot control in canola. Crop Protection 25: 640-646.

No to limited stem rot

Little or no sign of bleached white lesions on main stems or branches



No to limited stem rot

Little or no sign of bleached white lesions on main stems or branches

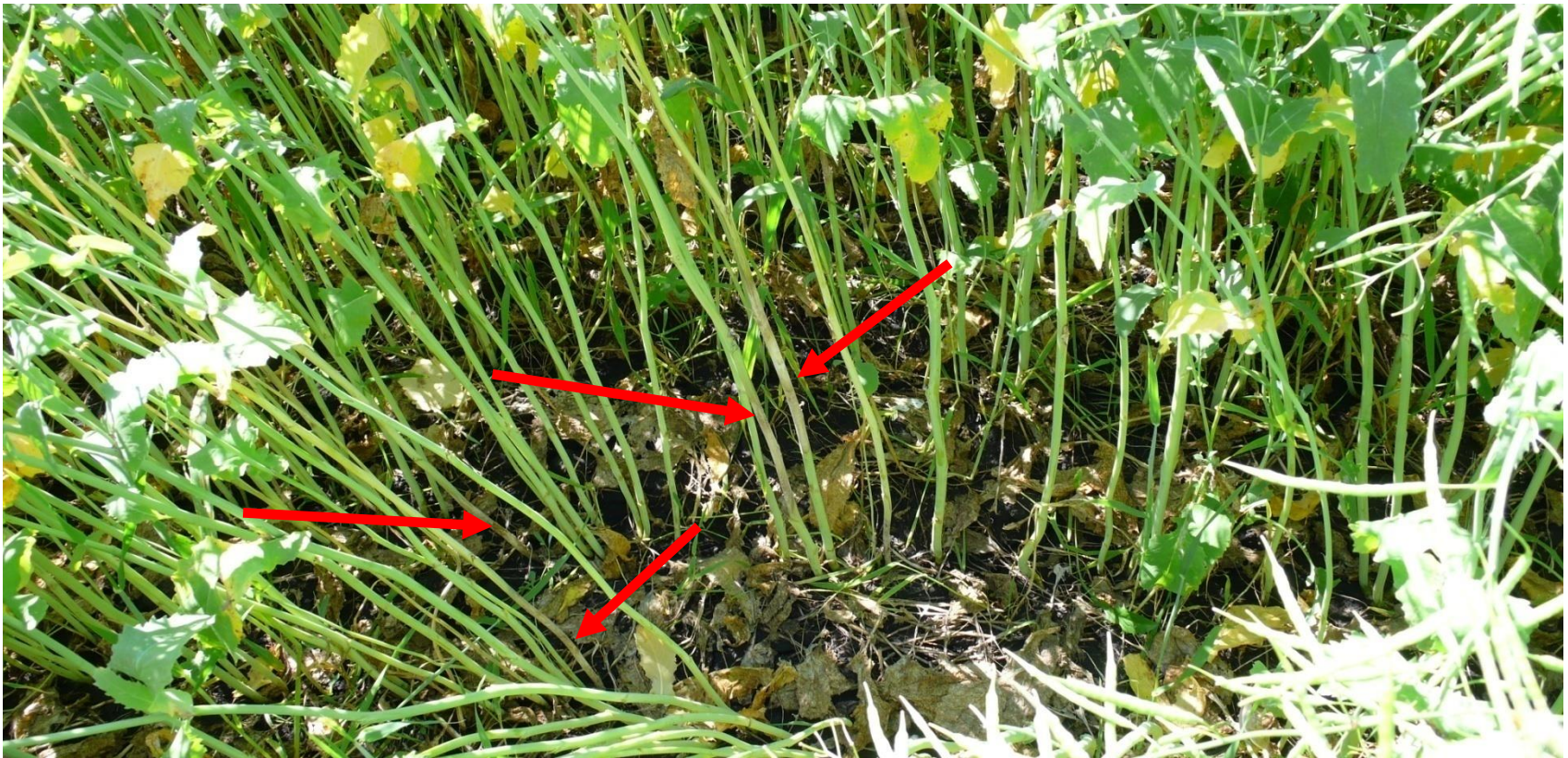




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Signs of sclerotinia stem rot

Red arrows indicate signs of bleached white lesions on main stems or branches



Signs of sclerotinia stem rot

Red arrows indicate signs of bleached white lesions on main stems or branches



Signs of stem rot

Some infections can be at the base of the plant or can be quite small. Make sure to look at all sides of the main stem or branch. Don't leave rating too late as normal ripening can make assessments difficult. Dried on leaves on the stems should not be confused with sclerotinia infections.

Red arrows indicate stem rot infections



Typical symptoms of sclerotinia stem rot



**Bleached,
infected
tissue**

**Green
healthy
tissue**

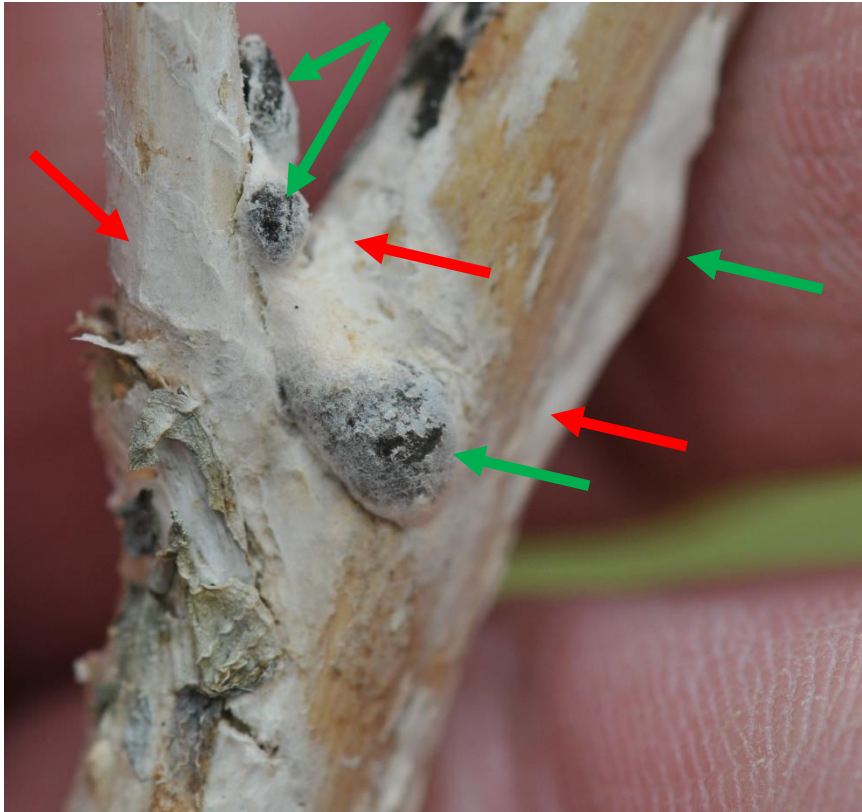


**Bleached, infected
tissue**

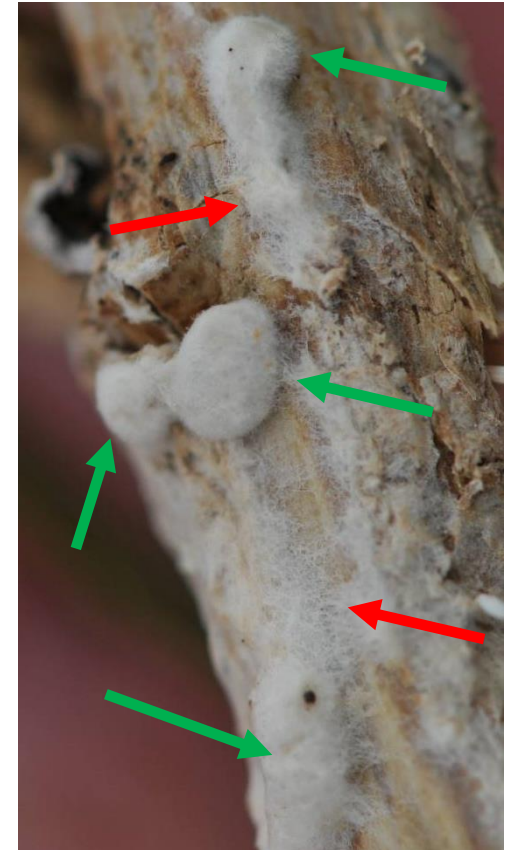
**Green
healthy
tissue**

R.K. Gugel

Typical symptoms of sclerotinia stem rot



Severe sclerotinia infection of a canola. Sometimes the infected tissue may have a whitish-tan colour. However, the affected tissue will be very brittle, whitish mycelia/hyphae may be present (red arrows), and sclerotia (green arrows) will be produced and the pith tissue will no longer be present.

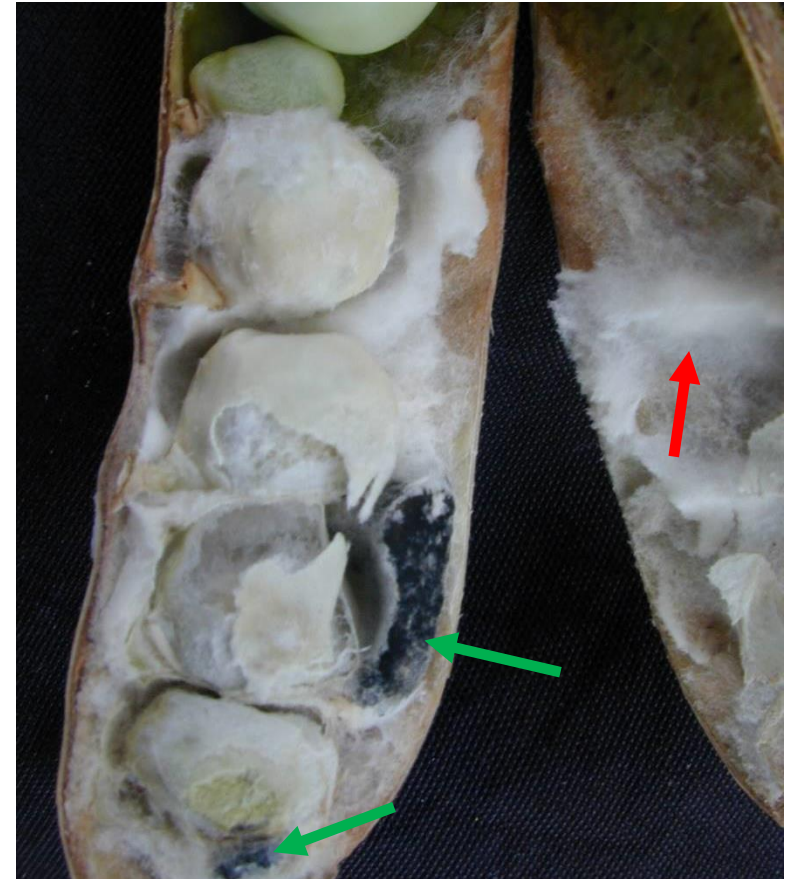


Sclerotinia infection of canola. Note whitish appearance and fluffy white mycelial (hyphae) growth (red arrows) and formation of sclerotial initials (green arrows).

Typical symptoms of sclerotinia stem rot



Severe sclerotinia infection of canola. Sometimes the infected tissue may have a whitish-tan colour. Affected tissue will be very brittle and shred and shatter easily, sclerotia will be produced in or on infected tissues, and pith tissue will no longer be present.

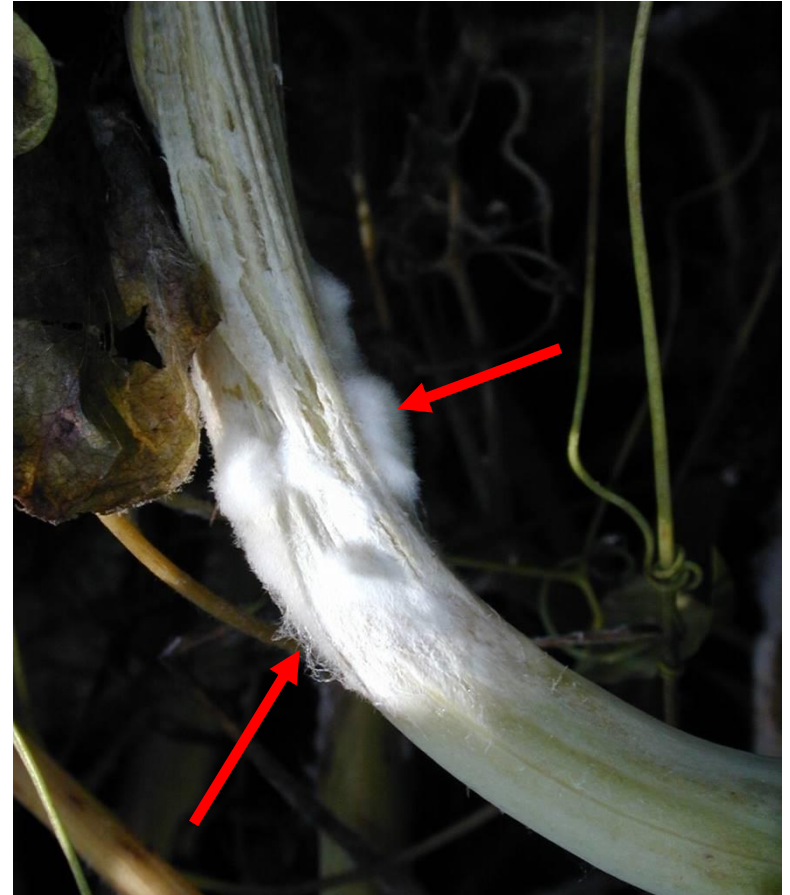


Sclerotinia infection of a field pea pod. Note whitish appearance and fluffy white mycelial (hyphae, red arrows) growth and formation of black sclerotia (green arrows).

Typical symptoms of sclerotinia stem rot



Sclerotinia infection of a chickpea stem. Note shredding and shattering of affected tissues (red arrow, typically when dry).



Sclerotinia infection of a field pea stem. Note whitish appearance and fluffy white mycelial (hyphae) growth (red arrows).

Symptoms that are not sclerotinia stem rot



Yellowing of an entire plant or branch or side of a stem (see above left and centre) is not indicative of sclerotinia. Note the presence of pith tissue in this stem (green arrow), which is not indicative of sclerotinia. If you press the stem between your thumb and forefinger and then run them along the stem you will not notice sclerotia inside the stem. With sclerotinia stem rot the pith is typically missing (diseased, red arrow), and infected stem tissue would be brittle, shred and shatter easily, and you may feel sclerotia as small bumps as you run the infected stem between your thumb and forefinger.

Symptoms that are not sclerotinia stem rot



Occasionally you may see suspicious symptoms as indicated above, but these are not typical of sclerotinia. Normally stem symptoms are associated with points of leaf attachment or in the axes of two branches. These are locations where sclerotinia infected petals can collect and clump and the sclerotinia pathogen can grow from the clumped petals into the stems. These symptoms may be due to minor bruising from hail or other abiotic or biotic issues, or where senesced leaf tissue has adhered to stems. When the symptoms are rubbed with your finger the underlying tissue is still green and appears healthy.

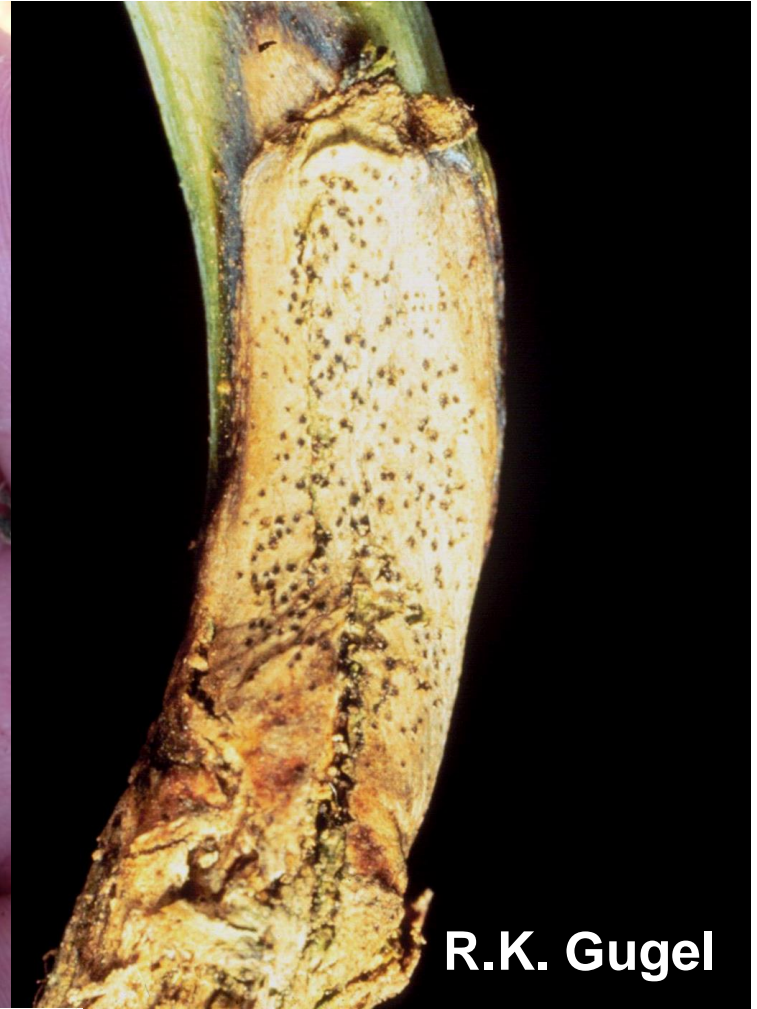


Symptoms that are not sclerotinia stem rot Blackleg of canola

Note distinct black pepper spots or bumps (pycnidia) that cover lesion surfaces. With moist conditions these pycnidia (asexual fruiting bodies) can ooze masses of reddish pink pycnidiospores.



R. Kutcher



R.K. Gugel

Symptoms that are not sclerotinia stem rot



**Brown
girdling
root rot**

Symptoms of brown girdling root rot (BGRR) initially appear as reddish-brownish lesions on the canola tap root (see right), which may expand to girdle the entire tap root. With severe infections the entire tap root may be affected and even rotted off (see left) and the entire plant is prematurely ripened. BGRR is mainly an issue with polish canola (*B. rapa*), while argentine types (*B. napus*) are much less affected.

Symptoms that are not sclerotinia stem rot

Clubroot



Clubroot symptoms – below ground symptoms. Above ground symptoms are typically comprised of prematurely ripened plants that may be yellowish and stunted.



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Symptoms that are not sclerotinia stem rot

Clubroot





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Symptoms that are not sclerotinia stem rot

Deteriorating clubroot galls



**Prematurely ripened stem,
that has no sclerotia and
doesn't shred and shatter
easily and where the pith
tissue is still intact.**

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