

Management of Sclerotinia in Canola

Sclerotinia Stem Rot

- Sclerotinia stem rot (caused by *Sclerotinia sclerotiorum*) has the potential to cause significant loss of yield in canola.
- Sclerotia bodies from infected plants are either removed from the field with the seed or deposited back into the field through plants stems that have shredded and lodged to the ground prior to harvest, through the breakdown of stubble, or by residue spread by the combine.
- Sclerotia bodies can remain viable in the field for five or more years.
- Under favorable environmental conditions, some sclerotia bodies will germinate to produce spores or mycelium that can infect plants directly while others remain dormant.
- Sclerotia bodies germinate producing apothecia when environmental conditions are right (warm and moist). Apothecia then produce ascospores that move with wind and rain to infect susceptible plants such as canola. Ascospores can remain viable for up to 4-5 days.
- Sclerotinia ascospores can be blown into fields up to 400 meters away.
- Moisture is required in the crop canopy for sclerotinia to develop. The proper environmental conditions during flowering are critical to the development of sclerotinia stem rot.

Sclerotinia Symptoms

- Sclerotinia symptoms develop late in the season. They are most visible as sclerotinia-infected plants ripen prematurely amongst healthy plants that are still green.
- Symptoms begin to show on stems and branches after the ascospores have infected the host plant, or after germinated sclerotia bodies (through mycelium or hyphae) have directly infected the stem of a host plant.
- Infected stems and branches appear bleached or grey to white in color. Infection can show up anywhere on the plant from the base to upper branches and pods.
- Seed inside infected pods may appear mouldy, or the seed in the pod may have been replaced by sclerotia bodies.
- In some cases, white mould may have developed on the outside of the plant where infection symptoms are present.
- When development of sclerotinia has progressed far enough in the plant, sclerotia bodies can be found inside an infected stem.



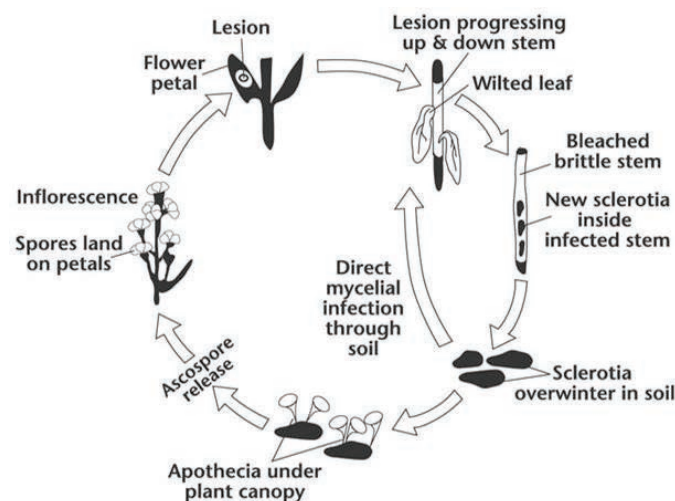
Seedpod infected with *Sclerotinia sclerotia*.

Courtesy of Canola Council of Canada.



Healthy canola field during pod stage.

Disease Life Cycle



Courtesy of Canola Council of Canada.
Canola Growers Manual, Page 1014c



Sclerotia bodies left in the base of canola stubble after swathing.

What Can You Do To Protect Your Canola Yield?

- Due to the variability of incidence from year to year, it is often difficult to understand how to best and most economically manage sclerotinia.
- A solid understanding of the risk for sclerotinia is important to understanding your crop management, rotation, weed control, canola hybrid selection, and fungicide needs.
- If sclerotinia has been observed on the field or in adjacent fields in the past three years, the current crop is considered to be at risk for sclerotinia.
- Yield of infected plants can be reduced 50% or more.

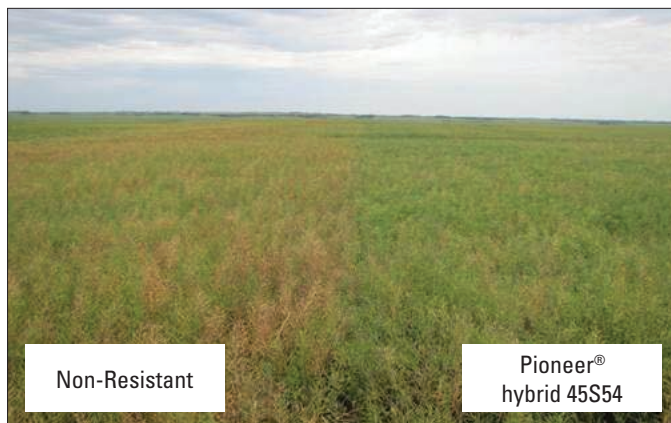
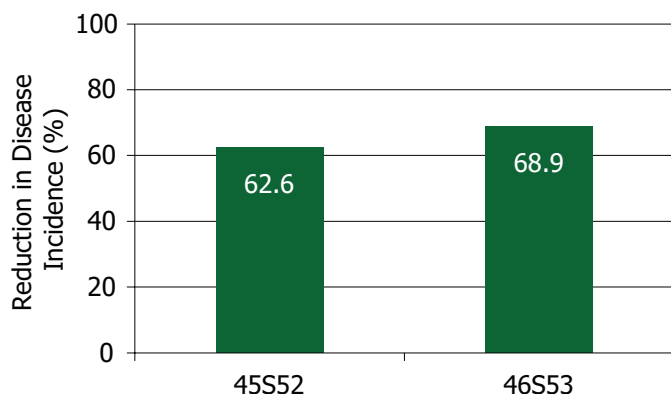
Reduce your Risk

- Ensure weeds and crop volunteers that are susceptible hosts to sclerotinia are well-controlled in the field.
- Consider a crop rotation that includes cereal or grass crops, as they are not susceptible hosts.
- Choose a canola hybrid that has genetic tolerance to sclerotinia.
- In the spring, evaluate the risk of sclerotinia based on environmental conditions to determine if a fungicide application is necessary.

Pioneer Protector® Sclerotinia Resistance Trait

- Pioneer® hybrid 45S52 (RR), 45S54 (RR), and 45S56 (RR) with the Pioneer Protector® sclerotinia resistance trait are able to provide over 60% reduction in sclerotinia incidence and offer flexibility and insurance when timing fungicide applications.
- Genetic sclerotinia resistance can provide season-long control of sclerotinia in years with low to moderate disease pressure.
- Use of Pioneer® brand canola hybrids with the Pioneer Protector sclerotinia resistance trait can reduce incidence of sclerotinia in the field by over 60%, reduce yield loss due to sclerotinia, and reduce the amount of sclerotia bodies that are returned to the soil.

Average Reduction in Sclerotinia Incidence (%) in 2011 Saskatchewan Trials Compared to Susceptible Hybrid



Other Management Strategies

- Increase the number of years that canola is left out of the rotation (at least three years).
- Apply a registered fungicide at the ideal stage of application. Application timing is usually at the 20-30% bloom stage.
- **A fungicide may also be required if using a canola hybrid that has genetic sclerotinia tolerance under conditions where sclerotinia disease pressure is high.**



Stem comparisons in canopy. Susceptible canola on the left and Pioneer brand canola hybrid with the Pioneer Protector sclerotinia resistance trait on the right. Saskatchewan, 2014.



Field results show that Pioneer brand canola hybrids with the Pioneer Protector sclerotinia resistance trait can reduce the incidence of sclerotinia in a canola crop by over 60%. Individual results may vary. Depending on environmental and agronomic conditions, growers planting Pioneer brand canola hybrids with the Pioneer Protector sclerotinia resistance trait may still require a fungicide application to manage sclerotinia in their crop.



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