

Verticillium wilt of canola

What is verticillium wilt of canola?

Verticillium wilt of canola (*Verticillium longisporum*) also known as verticillium stripe, is a soil-borne fungus that damages canola crops overseas. Infected plants are stunted and discoloured and seeds are small, resulting in yield losses of 10 to 50%. Higher losses occur when crops are infected early in the season.

Once the plant is fully ripe, the fungal disease produces spores, known as microsclerotia, which remain on the plant stem and re-infect the soil as plant material decays.

Verticillium wilt can affect a number of annual and perennial plant species in both temperate and subtropical zones. Vulnerable crops include canola as well as broccoli, cabbage, cauliflower, horseradish, radish, and wild mustard.

What does it look like?

Verticillium wilt of canola shows as stunted plants, discoloured leaves and early ripening with small seeds.

Symptoms appear on the stem and roots from the flowering stage onwards, but it is most easily seen at or after harvest. Late in the season it causes dead areas on plants and shredding and blackening of the stem tissue.

What can it be confused with?

The symptoms of discolouration of stems and early ripening are similar to blackleg. Cut the stem at ground level and look at the cross-section to differentiate—any blackening inside the stem will identify the disease as blackleg.

The symptom of shredding of the stem looks similar to sclerotinia stem rot, but with sclerotinia the stem will be hollow inside and the sclerotia (spores) are large and like rat droppings rather than the microsclerotia of verticillium wilt of canola, which look like ground pepper.

Hail or physical damage can also cause lesions similar to verticillium wilt of canola, but microsclerotia won't be present beneath the stem surface.



Infected canola seedlings (left) with healthy seedlings (right)

E. Diederichsen, Freie Universität Berlin



Brownish stripes along the stems of canola become visible during maturation of the crop (red arrows). Later blackish layers on stems and stubbles appear

A. v. Tiedemann, University of Göttingen



Peeling of stem to reveal microsclerotia

Canola Council of Canada

What should I look for?

Leaf yellowing, early ripening, stunting and, as the disease progresses, stem lesions and shredding of the stem tissue. Once the plant is fully ripe, the stem peels to reveal the tiny black microsclerotia.

How does it spread?

Fungal microsclerotia are released into the soil where they can survive for many years. They spread through surface and ground water, wind dispersal of infested soil or crop debris, on contaminated planting and harvesting equipment or through contaminated seed. People can also spread the spores around by moving infested material or carrying infested soil on boots.

Where is it now?

First reported in 1960 in Sweden, the disease is now widespread in Europe, present in Germany, Poland, Ukraine, Russia, France, the Czech Republic, Belgium, the Netherlands, the U.K. and Japan. It was found in Canada in 2014 and has since been discovered in the US, in cauliflower in California and horseradish in Illinois.

How can I protect my farm from verticillium wilt of canola?

Since verticillium wilt is soil-borne, implement good hygiene practices on your farm to prevent spread. Keep machinery, equipment and tools clean and control people and vehicle movement in production areas to minimise the risk. People returning from overseas can pose a threat, particularly if they have visited crops or farms.

Only bring in seed, feed and fertilizer from reputable suppliers.

Early detection is crucial in stopping or slowing progress of a new pest. Monitor your crops regularly for anything unusual, and call in a specialist without delay to help identify anything unfamiliar.

If you see anything unusual, call the **Exotic Plant Pest Hotline** on **1800 084 881**.



Comparison of verticillium (left) and blackleg (middle) infections to a clean stem (right)

Canola Council of Canada

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