



Agronomy Update | Blackleg

Blackleg, caused by *Leptosphaeria maculans*, is one of the most economically significant diseases of canola across all major production regions. It is endemic in prairie systems and requires integrated management to protect yield and maintain the durability of host resistance.

The disease cycle is closely tied to crop rotation and residue persistence, as inoculum levels decline with time between canola crops. Most canola hybrids contain resistance genes to prevent the selection of virulent pathogen races. With short crop rotations, blackleg is able to adapt breakdown resistance genes. Blackleg resistance comes from two main types of defense mechanisms:

Major gene resistance (qualitative, R-gene resistance, seedling resistance) is a mechanism that provides strong, early protection but can “break down” quickly if the same R gene is used too often in crop rotations.

Minor gene resistance (quantitative or adult plant resistance) is controlled by several genes that each provide partial resistance. This mechanism is more durable over time.

Some hybrids contain both major and minor gene resistance. These hybrids will have the most robust blackleg resistance.

BLACKLEG Disease Severity Rating Scale	
<i>Blackleg severity is scored for each canola plant using the following scale based on the area of diseased tissue in the cross section.</i>	
0 	0: No diseased tissue visible in the cross section.
1 	1: Diseased tissue occupies <25% or less of cross section
2 	2: Diseased tissue occupies 26-50% of cross section
3 	3: Diseased tissue occupies 51-75% of cross section
4 	4: Diseased tissue occupies >75% of cross section with little or no constriction of affected tissues
5 	5: Diseased tissue occupies 100% of cross section with significant constriction of affected tissues; tissue dry and brittle, plant dead

Blackleg field rating scale for different levels of blackleg stem infection.

Source: Blackleg, Canola Council of Canada

How to delay blackleg breakdown:

- **Rotate Resistance (R) Genes:** Switch it up from year to year. Avoid planting hybrids with the same R gene. Most seed vendors identify which R genes are in each hybrid. Use that information and alternate hybrids.
- **Widen Rotations:** A three-year canola rotation will give blackleg inoculum time to break down. This is especially true in fields that are high-risk for blackleg.
- **Scout in the Fall:** After harvest is a great time to scout for blackleg. Snipping right above the roots and looking for blackening - to the right is the blackleg severity chart. If blackleg is suspected, samples can be collected and sent to diagnostics labs to confirm blackleg presence.

Ask a UFA team member about sending samples for blackleg testing or ask about ways to control blackleg.