

# A field scouting guide for canola producers

## Is it verticillium stripe or blackleg?

**Blackleg** and **verticillium stripe** can both cause stunting, leaf chlorosis, lodging, dieback and premature ripening symptoms. Use this guide to differentiate between these two diseases when scouting your canola crops.

### STEP 1: Check external symptoms

**Blackleg is a stubble-borne disease caused by a fungus that favours wet/warm conditions. Though infection happens in spring, these symptoms are easier to identify later in the growing season:**

- Cankering at the base of the stem where it becomes woody. Basal stem lesions may be blackened at the base, with stem tissue constricted or pinched at the soil surface (**A**).
- Lesions on cotyledons, leaves and stems, usually at the base or points of leaf attachment (**B**).
- Under moist weather conditions, a viscous pink liquid carrying the pycnidiospores ooze from pycnidia (**C**).
- Dotting of numerous small, black round pycnidia (**D**).



**Verticillium stripe is a soil-borne disease caused by a fungus that favours infection in stressed canola plants under dry/hot conditions. It is easiest to identify just prior to swath timing or immediately after harvest (prior to decomposition) by:**

- Partial stem senescence on one side (half) of the stem (**A**).
- Peeling back of the outer stem (epidermis) and faint black vertical striping on stems which darkens with maturity (**B**).
- Shredding and breakdown of the vascular system or inner stem (without sclerotinia-causing sclerotia) (**C**).
- Late in the season, tiny black ("peppery" looking) microsclerotia (smaller than blackleg pycnidia) occur on stems (**D**).



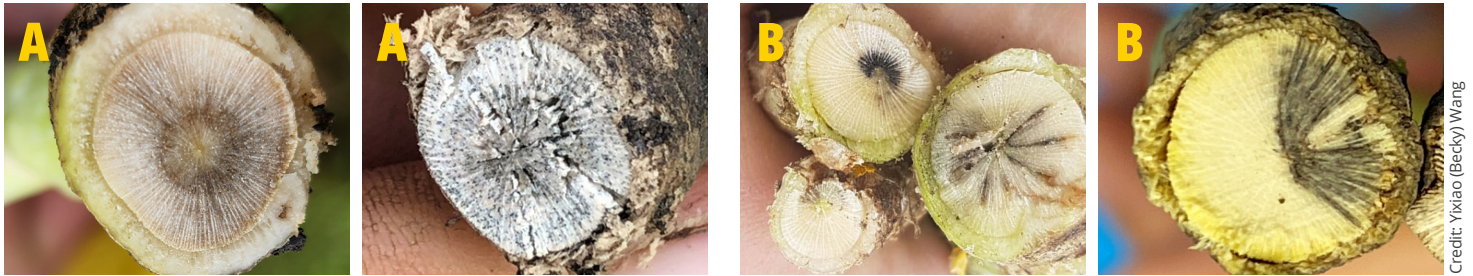


## STEP 2: Check the cross section

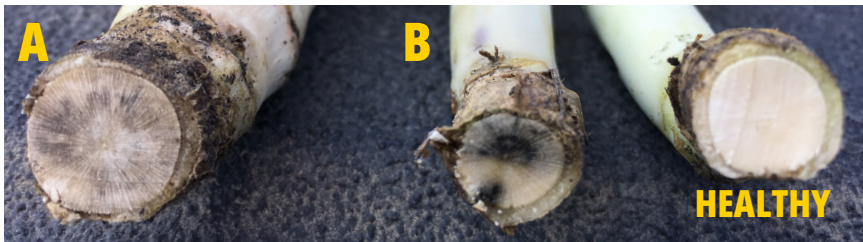
Cut the stem at ground level near the root and view the cross section.

**Verticillium stripe** infects the plant from the root up the vascular system, so it can be identified by a greyish hue (not black) across entire cut, with a starburst pattern in earlier stages (A).

**Blackleg** infects plants from the leaves down, so it can be identified by black and/or brown necrotic discolouration, often in pie-shaped sections. It is fully black in extreme cases (B).



Credit: Yixiao (Becky) Wang



Plants with both blackleg and verticillium stripe will exhibit symptoms of both diseases (C).



Credit: Yixiao (Becky) Wang

## STEP 3: Check the stem

Snip another stem at ground level near the root, cut a few inches of the stem longitudinally and observe.

**Verticillium stripe** exhibits hollowing and darkening of the inner stem (as the vascular tissue breaks down) with symptoms extending several inches up the stem (right).



**Blackleg** exhibits blackening of the cortex and epidermis that is restricted to the lower stem, without hollowing of the stem (right).



Plants with both blackleg and verticillium stripe will exhibit a hollow and darker inner stem along with blackening of the cortex and epidermis (photos right).



Credit (all four photos): Yixiao (Becky) Wang

## STEP 4: Collect plant samples

Submit samples for both blackleg race identification and verticillium stripe testing.

*Visit the Canola Encyclopedia for more information on these diseases and talk with your agronomist about a management plan.*