The Western Producer

‘Big 5’ threaten canola

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Crop pathologist Ron Howard discusses the top five diseases that affect canola, during a plot tour July 28 organized by Farming Smarter in Lethbridge. | Barb Glen photo

There are 10 to 15 diseases that can affect canola, says crop pathologist Ron Howard.

There are also non-disease threats and environmental factors that can cause symptoms in canola that mimic disease.

“Don’t jump to conclusions,” Howard told a July 28 Lethbridge plot tour organized by the Farming Smarter research group. “There’s a whole other world of issues out there.”

The key is to scout frequently and examine problem plants closely to determine what ails them.

At this point in the growing season, blackleg, sclerotinia and root rot are the most likely among the Big 5 to be evident, said Howard.

Blackleg

- seed-borne and residue- borne
- can survive year to year on infected crop residue
- two spore stages
- spores can travel on wind
- causes cankers at bottom of stem that weaken plant
- top plant growth often stunted and discoloured with poor seed set
- diagnosed by presence of stem cankers
- small black peppering will show in canker

- cross section of stem, cut at plant base, will show greyish black discolouration
- plant eventually weakens and falls over
- can be confused with root rot, root maggots and soil-line heat canker
- losses up to 50 percent have been reported
- resistant varieties the main protection
- seed treatments available
- foliar sprays can be used
- crop rotation a key strategy

  Howard: Pull 10 plants from various locations in field. If most have discolouration in the stem, "that's an indication that your variety is not resistant to the strains of blackleg that you have, and that's when you want to go back to your seed company and discuss other options that you may have."

Sclerotinia stem rot

- probably the most common of the Big 5
- enzymes degrade plant tissue
- fuzzy, white growth may be seen
- infection of main stem can cause yield loss
- also affects beans, peas, potatoes and other broadleafs
- likes humid, wet conditions
- can overwinter
- well-adapted to southern Alberta climate
- thrives in heavy plant canopies
- mushroom-like structures appear in spring or early summer and emit spores
- spores travel on wind
- favours dead and dying canola petals lying on plant leaves and crux of plant branches
- distinguished by bleached stems in older plants
- rotations the key control strategy
- foliar fungicides available

  Howard: "A great time to scout your crop for sclerotinia is at this time when you can see those dead and dying plants out there." He suggests examining plants after swathing, when white stems are more easily seen and can be examined.

Root rot

- caused by soil-borne fungal pathogens
- weakens base of plant and can mimic blackleg canker
- scout for weak or dying plants, then dig up and examine roots

- symptoms include light grey oval lesion of the upper taproot; dark grey discolouration of lower taproot; light brown, soft taproot lesion; dark brown, sunken, sharply defined taproot lesion
- crop rotation is key strategy

  Howard: “It’s the gift that keeps on giving. They’ll just keep gnawing away at the plant.”

Clubroot

- thrives in moist soil
- attacks all members of cabbage family
- now in more than 25 Alberta counties
- mostly in central Alberta; one pocket in Newell County near Brooks
- seems to prefer low pH soils
- travels via soil, so cleaning equipment essential
- infects roots, forms galls leading to root dysfunction
- resistant varieties available but some resistance is breaking down as disease evolves
- crop rotation, equipment sanitation the main strategies

  Howard: “We’ve remained relatively free of it here in southern Alberta and I think the main reason is we don’t have the intensity of rotations that they do in other parts of the province and this pathogen likes the wetter conditions you see in central Alberta. It likes the acidic soil conditions that exist there.”

Seedling blight and stem decay

- caused by soil-borne fungi
- attacks seeds or developing seedlings
- symptoms include gaps in seed rows, dead seedlings on soil surface
- poor emergence and stand
- counteract through good seed bed preparation, varieties well adapted to conditions
- fungicidal seed treatments available

  Howard: “These are caused by soil-borne fungi…. They’re there in the field. They’re established in our soil just waiting for a susceptible crop to be planted.”