

Clubroot, a threat to your canola, detected in Peace Region

Clubroot is a serious soil-borne disease that affects plants of the Cruciferae or Brassicaceae family (canola, cabbage, broccoli, cauliflower, kale, mustard, turnip, etc). This article focuses on clubroot in canola because it is one of the only affected crop commercially grown in the Province. Clubroot was first detected in a canola farm near Edmonton in 2003, and now in the Peace Region (County of Northern Lights, Big Lakes, Birch Hills, MD of Greenview). Although, no cases have been recorded in Mackenzie County, farmers need to be on guard. It is transferred through the soil because spores live in the soil and every time the soil moves via strong wind or moving tractor the spores can move.

Clubroot, is caused by a spore producing fungus *Plasmodiophora brassicae*. The clubroot spores can stay in the soil for up to 20 years. It is estimated that about 1 million to a billion spores are contained in each gram of heavily infested Alberta soils. Multiplication of the spores and crop infestation is favoured by warm soil temperature (20-24 °C), slightly acidic soil (6.5 or less) and good soil moisture conditions.

The pathogens infect canola roots and cause galls to form, thereby restricting the flow of water and nutrients to the plant. The restriction of raw materials to the plant lead to wilting, yellowing and seed wrinkling or contraction. Ultimately, infected plants die. Clubroot can cause up to 50% yield loss.

- The Canadian recommendation is producers to use clubroot resistant varieties on all fields can minimize the degree of infestation. There are a number of clubroot resistant canola varieties/cultivars that are available from the different breeders or marketers. The use of clubroot resistant varieties will not eliminate clubroot or prevent the disease from getting to a field. However, they may minimize the loss and degree of infestation.
- Thorough sanitation of equipment such as washing with compressed air or pressure washer is one major way to prevent clubroot field to field transfer. When purchasing used equipment or hiring custom operators, check that machinery is clean before it arrives on farm. Think biosecurity.
- Planting a small square of permanent grass at field entry and exit points, providing a non host area for soil to drop or machinery leaves an infested field from an area likely to have less clubroot spores.
- Long crop rotation and canola systems rotations are extremely essential to the prevention of clubroot. A 4-year canola rotation can significantly reduce the effect of the disease and minimise transferability from field to field. It must be noted that, the spores can stay in a field for up to 20 years, hence crop rotation will not eliminate the disease. However, the level of

infestation declines with long (4 years or more) rotation. The fungus *Plasmodiophora brassicae* is an obligate parasite. That means it requires a living host to grow and multiply.

- To learn more about clubroot and other pests and diseases, we encourage you to contact the Mackenzie Applied Research Association (MARA) on 780 927 3776. You can also visit our website www.mackenzieresearch.ca to learn more about agriculture and environmental issues in the Mackenzie County.