

20/20 Tech Bulletin

What Causes Clubroot in Canola?

Clubroot (*Plasmodiophora brassicae*) is a soil-borne pathogen that causes serious yield losses in canola crops in western Canada.

There are currently no economical control measures available to combat the clubroot pathogen.



Early detection and implementation of effective management strategies are key to dealing with this pathogen.

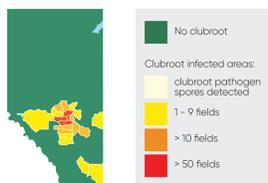
Management of clubroot-infected fields:

- Proper sanitization to mitigate the risk of soil movement
- Crop scouting
- Record-keeping
- Control of hosts: volunteer canola and cruciferous weeds (ie stinkweed, shepherd's purse, wild mustard)
- Utilization of clubroot-resistant cultivars
- Crop rotation practices
- Use of patch management techniques for infected areas
- Test soil to mitigate the risk of clubroot infection

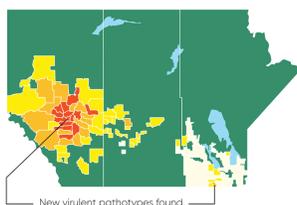
A growing threat in Western Canada. WHY is clubroot difficult to control?

Thousands of infested fields have been identified across canola growing regions.

Clubroot affected areas in 2011



Clubroot affected areas in 2018-2019*



*Cumulative clubroot infestations from 2003-2018 for Alberta, 2008-2019 for Saskatchewan and 2009-2019 for Manitoba.

- Clubroot spores may persist in the soil for up to 20 years waiting for ideal conditions and a host crop.
- Billions of spores may be found in 1 gram of soil.
- As spore concentration increases so does the disease risk.
- DNA testing for spore presence is crucial for clubroot management.
- Crop Scouting your canola crop for visual symptoms is imperative but is often too late to control the effects of the disease within that crop year.

Additional information is available from the Canola Council website:

<https://www.canolacouncil.org/canola-encyclopedia/diseases/clubroot/>

20/20 Seed Labs offers clubroot testing for both soil and plants.

We offer both qualitative (presence/absence) and quantitative (range of spores/gram of soil) DNA-based testing options.

Tips for submitting a sample for Clubroot testing

Soil:

- The best time for soil sampling is spring and late fall
- DO NOT sample randomly across the field. Disease incidence decreases as you move into the field.
- DO NOT test soil sample from fields with susceptible host crops and do not sample near a host plant. Test the infected plants instead.
- A positive test result indicates that under the right environmental conditions with a susceptible host crop there is a potential for the infection.

Sampling Soil:

- Sample at the field entrance or highly trafficked areas.
- Remove loose organic matter from the topsoil
- Collect 2 cups of topsoil
- A composite sample may be composed by evenly mixing soil taken from each sampling point
- Let the sample air dry before placing in a re-sealable plastic bag. **A cooler is not required.**
- Ship or drop off the soil sample(s): 507 - 11 Ave. Nisku Alberta, T9E 7N5

Plants:

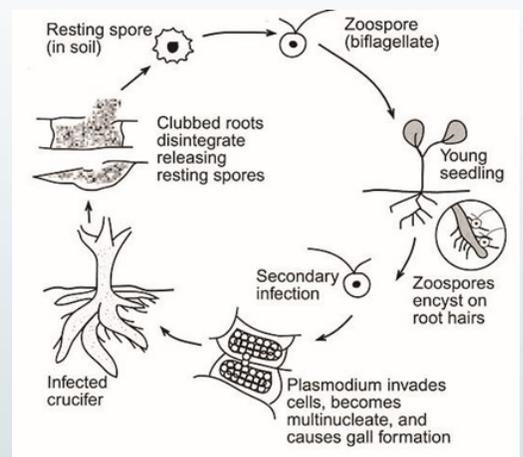
- Host plants for clubroot include planted or volunteer canola and weeds in the mustard family.
- Infected plants rapidly propagate clubroot and become concentrated sources of inoculum.
- A positive test result from a plant sample confirms clubroot disease presence

Sampling Plants:

- Visually survey the field. Look for patches of yellowing or early maturing plants near field entrances, wet spots, and highly trafficked areas.
- Pull plants from those areas and inspect for swollen or galled roots
- Collect 5 plant roots
- Wrap the plant in a paper towel and place in a re-sealable plastic bag. **A cooler is not required.**
- Ship or drop off sample(s): 507 - 11 Ave. Nisku Alberta, T9E 7N5

Testing turnaround time is three business days with the option to rush testing for results by the end of the next business day.

Contact 20/20 Seed Labs Inc. for more information regarding clubroot testing at support@2020seedlabs.ca



<https://www.alberta.ca/clubroot-disease-of-canola-and-mustard.aspx>



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