

CLUBROOT

Clubroot is a serious soil-bourne disease in cruciferous crops, most notably canola. The disease causes galls or clubs to form on the root structure of the plant and causes death of the plant prematurely. Yield losses are estimated to be half of the percentage of infected stems. If you had 100% infestation you should expect 50% yield loss. Once clubroot infests a field it is impossible to eradicate. Spores can reside in the soil for 20 years!

Clubroot is spread by soil, and can occur through soil transport by wind or water erosion, on farm machinery, in manure from animals fed infected feed, and soil attached to seeds (earth tags). It is often first detected in fields at the entrance. Anyone accessing the field can potentially infect a field including: construction, utilities, petroleum industries, recreation vehicles, hunters, and custom operators/sprayers; as well as through livestock, manure, hay, straw, seed, rental equipment and even footwear.

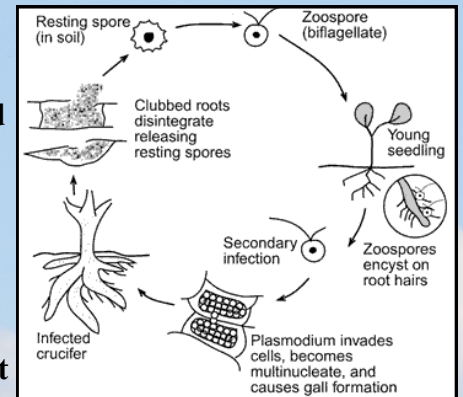
The spread of clubroot has been rapid across the province since it was first detected close to Edmonton in 2003. Prevention is paramount to protect yourself against clubroot. The best defense is to practice good sanitation, at a minimum, by removing soil clumps and crop debris. Washing equipment with hot water or steam, and disinfecting equipment with a weak 1-2% bleach solution and letting it sit for 10-15 minutes will remove any remaining spores on your equipment. Restrict access to your fields and be cognisant of equipment purchases (especially used) as it may be coming from an area with clubroot. Practice soil conservation to reduce the amount of erosion on your fields. Avoid the use of straw or hay from areas that may contain clubroot. Manage weeds and volunteers, especially those in the mustard family, dock and hoary cress or Brassica family as they are all hosts to clubroot. Use long rotations, it will not prevent clubroot but rather slow progression of the disease as the spore half life is 4 years.

Scout your fields! The optimal time to scout your fields is 2 weeks prior to swathing when the galls are most evident. To scout your fields:

- * First assess the field as a whole. Look for patches of the crop that exhibit wilting or stressed symptoms, premature ripening, stunting and yellowing of plants.
- * If you find plants with any symptoms, dig up a few plants to check for galls on the roots (it takes 6 weeks from initial infection for the galls to form) to properly diagnose clubroot infection.
- * Take steps to ensure no soil is transported from one field to another while scouting.

If you have fields infested with clubroot it will require long term management. Using long rotations (four year) will help prevent the accumulation of resting clubroot spores, but it will not eliminate or prevent the clubroot from spreading. Use clubroot resistant varieties, however even these varieties are not immune to clubroot (1-4% of seed is susceptible), expect some infected plants which can be attributed to volunteers and weeds. Minimizing traffic into the fields and committing to performing good sanitation practices will prevent the disease from spreading to new areas. Avoid working in wet fields as mud will easily stick to equipment and be transferred to other fields. If you have an infested field, work in this field last so you are less likely to spread the disease to other fields. Manage the disease with best management practices, being proactive and scouting your fields.

To learn about the Alberta Clubroot Management Plan contact your local Agricultural Fieldman or Lakeland Agricultural Research Association or visit: [http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/agdex11519](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex11519)



Severe clubroot galls or 'clubs' on canola root.
[Photo courtesy of T.K. Turkington, AAFC Lacombe]