

# Clubroot – Identification, Prevention and Management

## What is Clubroot?

Clubroot is a serious soil-borne disease of cruciferous crops. In canola, it causes swellings or galls to form on the roots, which ultimately cause premature death of the plant. It is caused by a fungus-like protist called *Plasmodiophora brassicae*.

Currently, there are no economical control measures that can remove this pathogen from a field once it has become infested. However, it is possible to curtail the spread and reduce the incidence and severity of the disease.

Yield loss can vary from minimal to 100% depending on many factors including time of infection, soil moisture, temperature, soil Ph, and spore load.

The most effective methods to manage Clubroot infested fields is through a combination of planting resistant varieties, a minimum 4 year crop rotation, scouting and soil amendments.

## How do I identify Clubroot?

- Above the ground, Clubroot infected canola can look very similar to canola suffering from other diseases or environmental stresses.
- **It is crucial to scout fields throughout the season and pull up roots to check for gall formations.**
- Have suspected soil or plant tissue tested. In Ontario, A&L Canada Laboratories provides this service.



Canola Clubroot root galls from a field near Verner, Ontario

## How do I prevent the spread of Clubroot?

- **Sanitation is key to preventing and managing Clubroot as it spreads by movement of soil. Contaminated farm equipment is the predominant culprit in spreading Clubroot.**
- Be proactive. Always use properly cleaned equipment and ensure anyone entering your fields does the same. Equipment moving from infested to non-infested fields is high risk and all equipment should be cleaned to remove any soil traces before equipment enters your field.
- If you have already moved equipment from an infested field into other fields – there is a risk the disease has been spread to those areas. Check those fields frequently for Clubroot.
- Wind and water erosion, recreational vehicles, exploration/construction equipment, livestock, manure, hay, seed potatoes, common (uncleaned and untreated) seed, and even footwear can also move Clubroot spores. Any soil transfer from an infested field creates risk.

## How do I manage Clubroot?

Once Clubroot enters a field it cannot be removed. However, with careful management using multiple tools the severity of Clubroot can be reduced.

- Plant varieties bred for clubroot resistance. It is important to note, however, that clubroot resistance may become less effective with continued use. Fields should be scouted regularly.
- Long canola rotations will help to prevent the build-up of clubroot resting spores. Growers in clubroot-infested areas should grow canola only once every four years in order to reduce soil inoculum levels and preserve existing clubroot resistance for their farms for as long as possible.
- There has been some evidence that liming soils to above 7.2 Ph can help in lightly infested fields.

**Stay informed and educated – Clubroot is a complex disease.**

**The Canola Council of Canada website offers excellent and comprehensive resources at [www.clubroot.ca](http://www.clubroot.ca)**

**This information page was developed using resource material from the Canola Council of Canada.**