

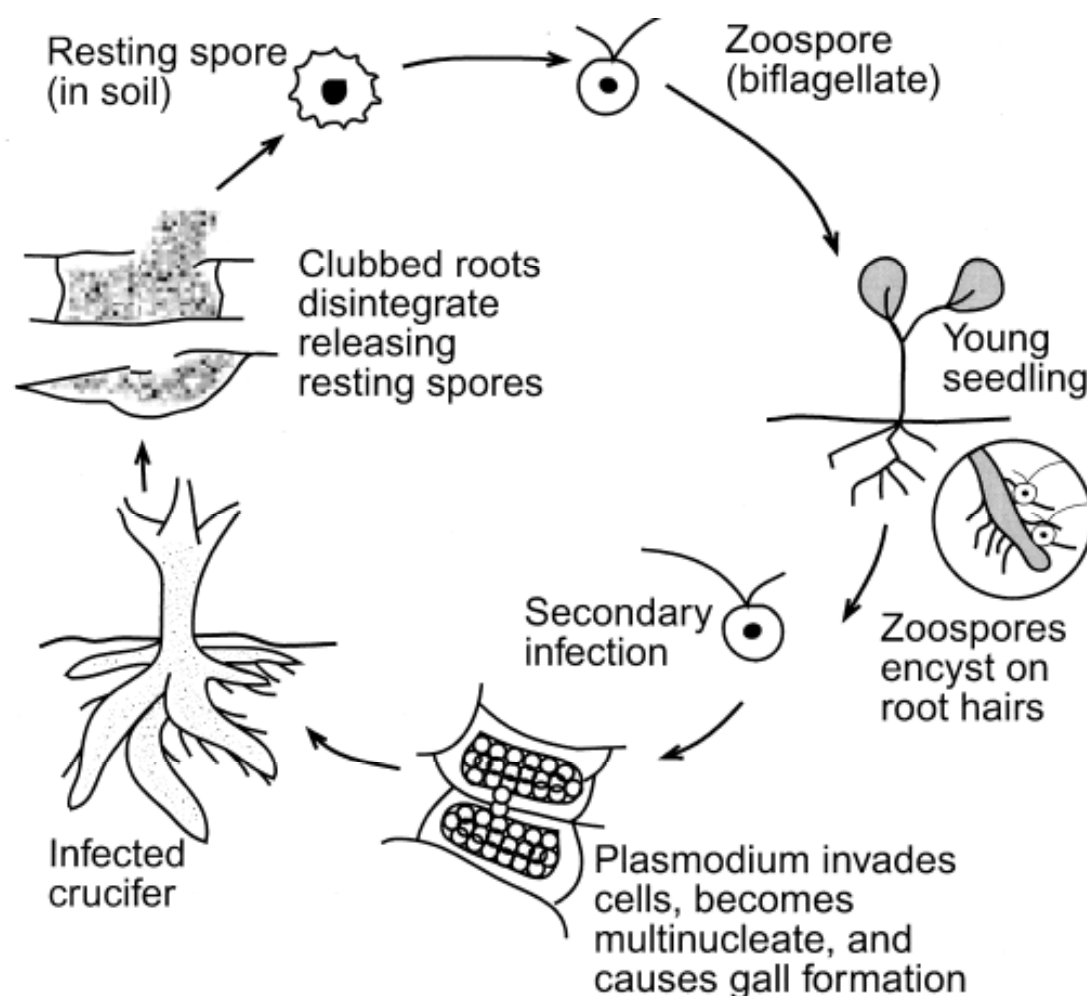


Serving Up Results.

Clubroot of Canola

Clubroot of Canola is a very serious soil-borne disease affecting canola and other cruciferous crops (cabbage family). Clubroot is caused by *Plasmodiophora brassicae* Woronin, an obligate parasite (it cannot grow and multiply without a living host) that survives in acidic soils. The pathogen causes a “gall” to form on the root of the plant thus starving it of water and nutrients. Studies have shown that yield loss is roughly equivalent to half the percentage of infected stems. This will depend on the stage at which the plant was infected.

Figure 1. Life Cycle of the Clubroot Pathogen (Source: Ohio State University)



The resting spore stage is part of the seriousness of the disease. Research has shown that resting spores can survive in the soil for at least 7 years. Resting spores can be transported by wind or water erosion.

SYMPTOMS

This pathogen causes swollen masses, or galls, to develop on the roots of the infected plant. These can range in size from a tiny nodules to a large mass that encompasses most of the root mass. The galls limit the roots ability to absorb water and nutrients thus causing the plant to wilt and shrivel during any moisture stress.

To Send Us a Sample

Give us a call if you require sample envelopes, prepaid courier pouches, or any other shipping supplies. Call us in Edmonton at 1-800-952-5407 or in Grande Prairie at 1-877-532-8889. For the shipping address and contact info for our labs see us at www.biovision.ca

Contact Us

To contact us or to drop off a sample, please make note of our addresses and phone numbers below.

BioVision Edmonton

7225 B Roper Road
Edmonton, AB T6B 3J4
Toll Free: 1-800-952-5407

BioVision Grande Prairie

12803-100th Street
Grande Prairie, AB T8V 4H3
Toll Free: 1-877-532-8889

Figure 2. Clubroot infected canola roots (Source: Canola Council of Canada Website)



MANAGEMENT

Fields with any level of clubroot in the soil should not be sown to a susceptible species. There are no resistant canola cultivars commercially available at this time. Extreme caution must be taken to limit wind and water erosion and to thoroughly clean machinery and vehicles before and after leaving these fields. Research has shown that liming the soil may limit the disease, however, this practice is usually not economically viable.

TESTING

BioVision Seed Labs offers a DNA based qualitative diagnostic tool for use on soil and plant samples. Developed by the University of Alberta, the test is based on detection of a portion of *P. brassicae* 18S ribosomal RNA (rRNA). The test can be used on soil and plant tissue and can detect as little as 1000 of *P. brassicae* resting spores per gram of soil. This test can also detect the pathogen within one week of infection. The sensitivity of this test allows you to identify the presence of the disease before symptoms and economic loss occur.

To submit a soil sample: Submit a minimum of 0.5 kg of soil from a composite sample from representative areas of the field or suspected areas. Be sure to include the entrance to the field as studies have shown this to be the area with the highest level of contamination. Take the sample from the top 5 cm of the A or surface horizon. Be sure to remove as much loose organic matter as possible. Air dry the sample for 24 hours and send in one of our zip loc sample bags.

To submit a plant sample: Collect suspected roots and place in our Ziploc sample bag and send to BioVision. It is recommended that a sample of soil be taken from surrounding suspect plants to submit as well.

For pricing and other information please call us toll free at: 1-800-952-5407