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Recommendations for high-risk areas

For growers in an area known to have clubroot, the following steps are recommended to reduce the risk of disease spread:

Follow cleaning steps 1–3 listed inside this guide. This is especially important when leaving a field known to have clubroot. If this is not possible, following steps 1 and 2 is better than nothing because the more soil you clean from the unit and leave behind in the field, the more viable clubroot spores you leave behind as well.

Work infested fields last. If a farm has only one field known to have clubroot, by working that field last, growers will reduce the risk of directly transferring contaminated soil from infested to non-infested fields and should have extra time to give equipment a thorough cleaning before being used again.

Don't work fields when the soil is wet. Wheels caked in mud are that much harder to clean.

Ensure custom operators and anyone else entering your fields follow sanitation protocols. Don't feel awkward about asking.

Be responsible. Growers should inform local authorities and also tell custom operators that clubroot has been discovered in their field. Some municipalities require this by law. In other areas, this is just a common courtesy. Consider posting "Do not enter" signs beside any of your fields known to have clubroot.

Recommendations for low-risk areas

For growers in areas where clubroot has not been reported:

If in doubt, decontaminate. Do a rough cleaning at a minimum. If you know all your fields are clubroot free and your own equipment is used exclusively on your farm, the reduced risk of contamination may make sanitizing your equipment less necessary.

Ask anyone entering your fields whether they've recently been in a clubroot-infested area. If the answer is yes or they aren't sure, ask about their sanitation protocols and check that their vehicles and equipment have been cleaned and disinfected. Don't feel awkward about asking. Some workers and equipment cover wide geographic areas.

Make sure used equipment is clean. When buying used machinery or vehicles make sure they are clean before they leave the auction site or the farm they come from. Also check that the transport truck is clean. As a precaution, you may want to pressure wash and disinfect the equipment again when it gets to your farm. Perform this task in a low-traffic area away from any cultivated soil.



Managing Clubroot: Equipment Sanitation Guide

To contact your local Canola Council of Canada Agronomy Specialist, visit www.canolacouncil.org or call toll free at 1-866-834-4378.

For more information on clubroot of canola go to www.clubroot.ca

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Clubroot Sanitation



Clubroot is a soil-borne disease that can lead to severe gall formation on canola roots, resulting in premature ripening or plant death. Once it infests a field, clubroot is almost impossible to eradicate, so growers should take measures to prevent accidental introduction of the disease.

Clubroot spreads with the movement of contaminated soil. Soil can move by wind and water erosion, but the most common way to transfer soil from field to field is on farm machinery and vehicle tires, including recreation and construction vehicles. Therefore, equipment sanitation is a key clubroot prevention step.

3 steps to successful sanitation

Before you start cleaning, choose an appropriate worksite.

You should clean and disinfect the unit before leaving the field, and leave all contaminated soil in that field. A low-traffic grassed area near the field exit is an ideal place to sanitize equipment.

Step 1: Rough cleaning. Use a hand scraper, wire brush and/or compressed air to remove loose and clinging soil and crop debris from openers, tires and wheels. Sweep, blow or scrape residues off of the frame. This should remove at least 90% of the soil from the unit. *Time required: 1–2 hours for a 40-foot cultivator. Larger pieces of equipment, tractors and double disk units may take longer.*

Step 2: Fine cleaning. Use a pressure washer at 2,000–3,000 psi on all areas where soil can accumulate. Turbo nozzles are generally more effective at removing soil than regular nozzles. Addition of an industrial detergent may enhance the degree of soil removal. Steps 1 and 2 in combination should remove 99% of soil from the unit. *Time required: 1–2 hours for a 40-foot cultivator. (2–4 hours total for steps 1 and 2.)*

Step 3: Disinfection. Disinfect all openers, tires and wheels with a 1% bleach solution or surface disinfectant of equivalent strength. A 3-gallon backpack herbicide sprayer will work for this job. All areas should remain wet with the solution for 15–20 minutes. Disinfecting in the early morning or in the evening slows evaporation so a second or third application may not be necessary to keep the area wet for the required time. Step 3 alone is not effective. The first two steps are required if you plan to include the disinfection step. *Time required: 2 hours or more for a 40-foot cultivator. (4 hours or more for steps 1, 2 and 3.)*



A 40-foot cultivator can accumulate 50–200 pounds of soil on the shovels, shanks, frame and wheels. Tractors and double disks can carry substantially greater amounts. Drive the equipment to a non-crop area, such as a grassed area or pasture, for pressure washing and disinfection.

Clean and disinfect the unit before leaving the field. The ideal sanitation site is a low-traffic grassed area near the field exit. If you need to clean a unit before it comes on your farm, use a tarp to catch all soil that comes off the unit, then dispose of the soil in a safe manner.



Step 1a: A rough cleaning using a hand scraper will generally remove 90% or more of the soil and plant debris from equipment.



Step 1b: A strong stream of compressed air will help remove loose soil and dust from hard-to-reach areas or near sensors and instrument clusters where it may not be safe to pressure wash.



Step 2: Once the rough cleaning is complete, go over the unit with a pressure washer to remove the rest of the soil.



Step 3: Soaking all areas with a 1% bleach solution should inactivate any remaining clubroot resting spores hidden in cracks and crevices.



How much sanitation is needed?

The clubroot risk for your location and your individual risk tolerance will determine the best clubroot sanitation practices for you. Consider your answers to the risk questions below, and then weigh the financial risk. Financial risk requires an evaluation of the potential long-term cost of allowing the spread of clubroot onto your land or throughout your farm versus the valuable time it takes to clean equipment between fields. Depending on your situation, the best choice could range from sticking with your current practices to adopting all three steps highlighted in this guide.

What is your clubroot risk?

The following questions will help determine the risk of clubroot spread to your farm, or from field to field within your farm. Your answers will help you decide how much sanitation you need and when to use it.

Do you already have clubroot in at least one field? If yes, then you are at high risk of spreading clubroot throughout the farm on vehicles, equipment and machinery. Thorough sanitation between each field may be warranted.

Have you purchased equipment that may have originated in clubroot infested areas? Go to www.clubroot.ca or search provincial agriculture department websites where the equipment was previously used. If the equipment originates from a clubroot-infested area, make sure the equipment is sanitized before it comes to your farm.

Has your equipment been used in fields in infested areas? If so, it should be cleaned and disinfected before it comes back to your farm.

Who has access to your land? Custom operators, oil and gas equipment and trucks, earth-moving and excavating machines, hunters, recreational vehicles, soil sampling trucks, and even agronomists can carry clubroot-infested soil on tires, shoes and machinery. Make sure they follow clubroot risk mitigation protocols.

Do you use tillage? Tillage or any other farm practice that increases soil disturbance or results in frequent travel throughout a field will increase the risk of transporting clubroot-infested soil. Tillage may also increase soil erosion by wind and water – which can also spread clubroot-infested soil.