# Clubroot Guidelines for

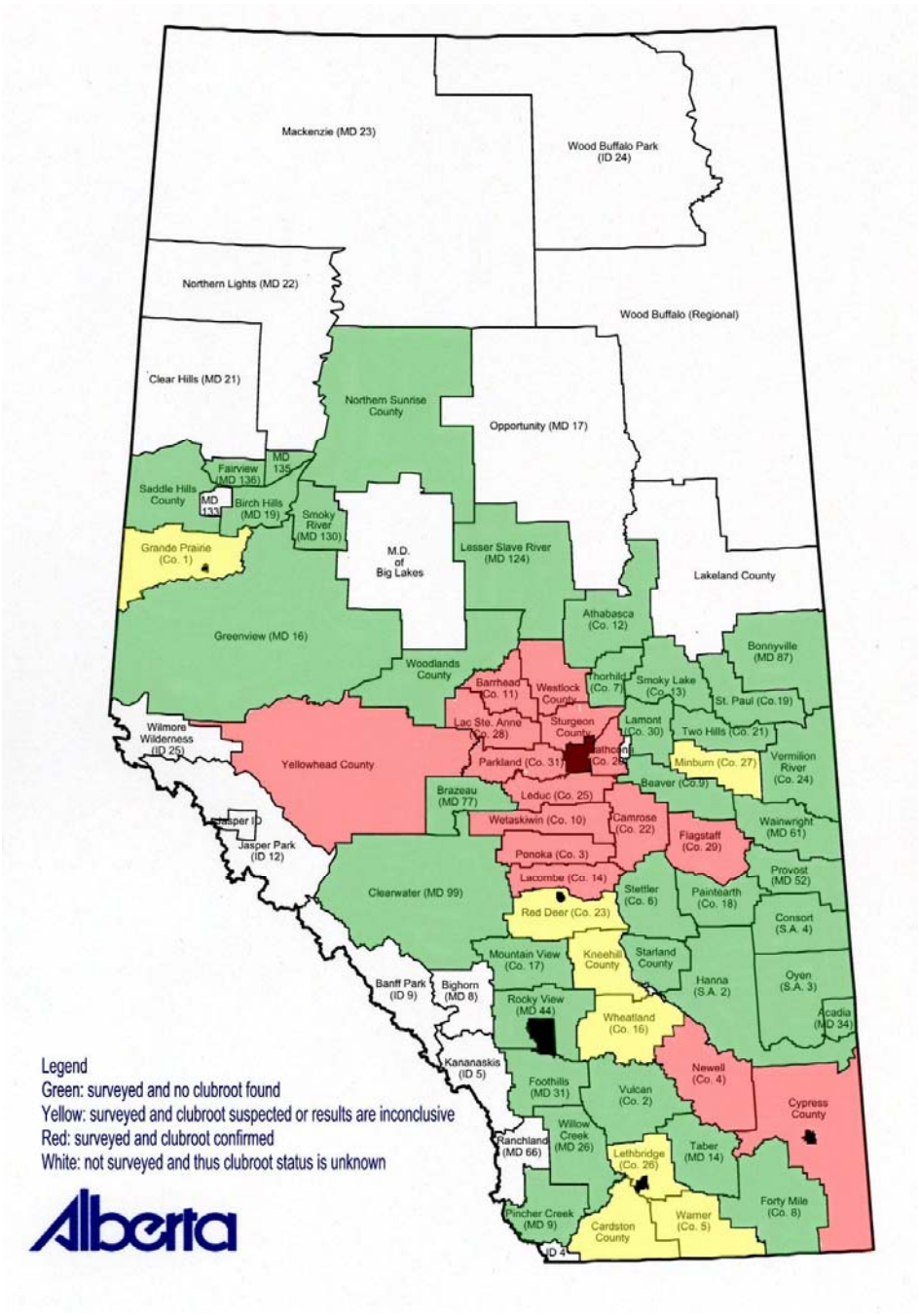
# Canola Field Research Activities

Clubroot, a disease of canola and all members of the Brassicaceae family, is spread through soil movement. This document summarises procedures that canola industry personnel/researchers will follow to ensure that they do not spread clubroot through their activities.

### *Areas of Risk*

Fifteen counties and the City of Edmonton have been affected in Alberta.

- Sturgeon
- Leduc
- Parkland
- Wetaskiwin
- Strathcona
- Westlock
- Camrose
- Flagstaff
- Barrhead
- Lac Ste. Anne
- Newell
- Ponoka
- Lacombe
- Yellowhead
- Cypress



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***Accessing Areas of Risk***

- Industry personnel will avoid driving vehicles or equipment into any field in these infested municipalities.
    - Industry personnel should park on road-sides and try to do any work from here or on the grassy approaches or ride in the grower's own vehicle when inspecting his field with him.
    - Exceptions can be made for field-trials with permission of the grower. In these cases vehicle sanitation procedures will apply.
- Industry personnel can walk into fields in these infested municipalities but must follow human sanitation procedures.
- Active communication with growers in these municipalities is important.
    - Industry personnel should enquire with the grower if the clubroot is known or suspected to be present in the field or surrounding area.
    - Establish with the grower the type of field practices (from rotations, custom field operators, oilfield activities, etc.), which potentially increase the chance of spreading clubroot, as a part of risk assessment.
    - Inform the grower of the precautionary measures being taken to prevent clubroot spread. Enquire with the grower if he requires any additional measures and what those should be. Growers should feel encouraged to inspect industry equipment and protocols to be satisfied that there is no risk of contaminating their land. If tours are to be conducted, then establish clearly what precautions will be implemented.
    - Industry personnel should respect the privacy of the grower and stress that all information about his farming operation including clubroot infestation will not be shared.
- Fields selected for trials should be sampled prior to planting to determine if clubroot is present. Land in proximity to the entrance way to the field and/or the plot area should be sampled in a W pattern providing 10 samples, which can be submitted as a composite. If detected positive by PCR test or by other identifiable means (infected crops or weeds), these fields will not be utilised for research. Sampling canola volunteers/Brassica weeds should ideally be done in the year prior to the trials, if the plot location is known. The exception would be research trials aimed at studying clubroot-related issues.
    - If clubroot is discovered at the site while the site is in use (e.g. on plants in plots) the grower will be informed and should be encouraged to report this information to the municipality (e.g. Ag Fieldman). Use of field equipment needs to be minimized, and any such equipment must follow vehicle sanitation procedures. Trucks, trailers, etc. should be parked or unloaded off-site.
- Any fields known to have clubroot infestation will be off-limits to any vehicle access and will be strongly avoided for foot-traffic as well.
- Records should be kept of all fields visited in these municipalities.

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### *Vehicle Sanitation Procedures*

The largest clearly established factor contributing to clubroot spread in Alberta is contaminated soil on agricultural equipment.

If a vehicle enters a field in the infested municipalities then it will follow these procedures:

1. Before entering any field, vehicles and equipment must be clean. Growers should be encouraged to inspect any vehicles/equipment as well. This will reduce concern that soil (infested or not) is being transported.
2. When leaving the field, knock off all clumps of soil in field before leaving field – preferably not in the field's approach, but off to one side.
3. If a pressure washer is available, pressure wash any visible soil, focus on tires, undercarriage, and any other parts that may have contact with soil. If this is not available, drive directly to a car-wash and clean vehicle and equipment as best as possible.
4. Mist down tires and other points of contact with a disinfectant, such as 1-2% bleach solution (bleach can be corrosive), Rocal, or 1% Virkon. This disinfectant process should be the last step, since most disinfectants do not effectively penetrate soil. The disinfectant will need to be in contact for 15 to 20 minutes with the pathogen to be effective. Vehicles and equipment need to be clean and free of soil for the disinfectant process to be effective.

Vehicles should especially stay out any of these fields following a rain – wet soil is much more difficult to remove than dry.

### *Human Sanitation Procedures*

If industry personnel enter a field in the infested municipalities, whether it is known to have clubroot or not, they will follow these procedures:

1. Wear disposable foot-wear that can be removed immediately after leaving the field. Another option is to use rubber-boot or foot-wear that can be sterilized with a disinfectant solution upon leaving the field.
2. Dispose of the disposable foot-wear in a sterile fashion. Sealing in a garbage bag and burning is preferred. Do not re-use disposable foot-wear.
3. Clean and disinfect any tools that may have come in contact with soil, such as a shovel or soil coring unit.

### *Clubroot Prevention Equipment*

Industry personnel working in the infested municipalities should carry these equipment:

- Disposable foot-wear – i.e. Tyvec booties
- Garbage bags for disposing foot-wear
- Water in a misting bottle
- 1-2% bleach solution some other disinfectant in a misting bottle
- Pail of disinfectant for cleaning tools

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***Testing for Clubroot***

Soil and plant samples can be tested for the presence of clubroot DNA via PCR should be sent to:

1. 20/20 Seed Labs
   201- 509 11th Ave
   Nisku, AB T9E 7N5
   (780) 955-3435

2. BioVision Seed Labs
   7225 B Roper Road
   Edmonton, AB T6B 3J4
   1-800-952-5407

- For soil sampling: approximately 500 grams (2.5 cups) of soil need to be obtained for this test. A composite sample taken in a “W” pattern near the major approach or entrance to the field or in the plot area. Soil should only be sampled from the top 5 cm (A horizon), excluding as much surface organic matter as possible.
- For plant sampling: obtain roots from suspected plants and place in a zip-lock bag. These can be fresh or dry roots.

***Further Information***

For more information on clubroot and the Alberta Clubroot Management Plan please see AGDEX 140/638-2 at: http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex11519 .