Field Biosecurity Protocol
Department of Plant Science, University of Manitoba

Adapted from MARFD guidelines for reducing clubroot risks associated with field research and the University of Manitoba Department of Soil Science Field Biosecurity Protocol

Updated: May 2016

Purpose
Ensure individuals conducting field research are following proper stewardship protocols to minimize the spread of soil-borne pathogens, weeds or insects. This includes University of Manitoba research stations at Carman, the Point, and Glenlea, non-university of Manitoba research stations, and on-farm research sites.

Background
Soil-borne diseases (e.g. clubroot, verticillium, soybean cyst nematode) are problematic because of the persistence of these pathogens in the soil. This concept could also apply to weeds and insects. Precautions must be taken to minimize the transfer of soil and to disinfect footwear, vehicles and equipment by which soil can be transferred in order to reduce the risk of transferring pests from one location to another.

This protocol provides guidance on the principles and practices required to reduce the risk of spreading soil-borne pests when conducting field research. It focuses on communication strategies along with sanitation of humans, vehicles, trailers, equipment and small tools used for field research. This protocol must be used along with standard operating procedures (SOPs) and safe work procedures (SWPs).

Definitions
1. “Field” shall mean an individual block or piece of land contained within a research location (e.g., field 8E at the Ian N. Morrison Research Farm or block 6 at the Point Research Station).
2. “Location” shall mean a research location composed of multiple fields (e.g., Ian N. Morrison Research Farm or the Point Research Station).

Communication and Documentation

- This protocol will be communicated to Faculty of Agriculture and Food Science staff via email and to Department of Plant Science staff and students during the spring safety training and orientation each year. This protocol will also be sent to Principal Investigators (PI’s) and technicians in the department, faculty, and all other units or organizations at the time of initiating a land request for the Carman and Point research farms.
- PI’s must discuss this protocol with their staff and students and work with them to develop the SOPs and SWPs that meet the needs of their specific research programs. PIs will be responsible for the conduct of the personnel in their research programs.
- This protocol should be discussed with any farmer, land owner, or non-University of Manitoba research farm prior to conducting research on their land. In addition to the departmental protocol, site-specific biosecurity protocols for other research facilities or farms must be followed as required.
- It is mandatory to use the MAFRD bio-security checklist (see Appendix) to document the biosecurity measures that have been taking place and that these be kept on file for five years. If needed, the documentation for cleaned vehicles, equipment and small tools will be used as evidence that protocols were followed at each location. Each PI will be responsible for managing these documents for their research projects.
- This protocol will be provided to any producer, research collaborator or research funding agency that requests this information from the Department of Plant Science.
This protocol can be utilized along with agreements for use of producer fields for research purposes in the Department of Plant Science. Principal investigators (PIs) may want to include a waiver in regards to biosecurity from producers as part of an agreement for access to their land. The land owner should be made aware of this protocol prior to signing the land lease.

Human Sanitation
- Try to reduce field visits when field conditions are muddy.
- When possible, use disposable footwear coverings that can be removed immediately after leaving the field and placed in a garbage bag for disposal.
- All non-disposable footwear should be scraped clean of visible soil and washed before the next location. When possible, use disinfectant between locations.
- Hands (and any other body parts) or clothing that may be covered with soil should be washed/cleaned/changed before leaving the location. The use of disposable gloves is also recommended when working directly with the soil.

Vehicle, Trailer and Equipment Sanitation
- Whenever possible, field visits should be done on foot.
- Vehicles (trucks and trailers) should be parked, on roads, grassed areas, or in the approach and not in fields.
- Try to reduce field visits when the field is muddy.
- All vehicles and wheeled equipment (tractors, quads, trailers, implements and sprayers, etc.) entering any field must be cleaned after use. Upon leaving the field you should:
  1. Rough clean, which includes knocking or scraping off soil clumps in the field. Within Plant Science research locations, a rough cleaning is currently required when moving equipment from field to field.
  2. Fine clean, (i) using compressed air to blow off remaining soil (for light texture soil and dry soil), or (ii) pressure-washing off remaining soil (for loams, clays and wet soil). It is preferred that this be done at the research station washing pad, or a nearby carwash (tires, wheels and undercarriage, especially wheel wells and anywhere else soil may have stuck). A fine cleaning is currently required when leaving a location.

Small Tool Sanitation
- All small tools (augers, shovels, trowels, etc.) entering any field must be cleaned after use. Upon leaving the field you should:
  1. Rough clean, which includes knocking or scraping off soil clumps in the field. Within a Plant Science research location, a rough cleaning is currently required when moving equipment/tools from field to field.
  2. Fine clean, using compressed air to blow off remaining soil (for light texture soil and dry soil) or (ii) washing as described above (for loams and clays and wet soil). Spray down the equipment with a disinfectant. A fine cleaning is currently required when leaving a location.

Appendix 1: MAFRD Field Bio-Security Checklist
- Print copies of the following check list and keep them in vehicles or with equipment.
### MAFRD Field Bio-Security Checklist

#### Staff Name: ___________________________  Crop Type: ___________________________

#### Date of Field Visit: ________________

#### Field Information

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<th>Legal Location (or GPS): ___________________________</th>
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#### Producer/Landowner

- Name ___________________________
- Phone Number ___________________________

#### Field Information

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#### Appendix 2: Disinfectants

- Name ___________________________
- Phone Number ___________________________
Potential disinfectants for small tools include:

1. Virkon
   - 2% concentration of Virkon (i.e. 40 g dry product per 2 litres of water)
   - Virkon solution should be mixed fresh prior to use every three days and placed in a labelled container.
   - Do not use Virkon solution that is more than 3 days old as a disinfectant.

   Example Label:
   2% Virkon Solution
   Discard by end of Shift Day 3 as domestic waste.
   Prepared by: __________
   Preparation Date: _________
   Expiry Date: _________

2. Bleach
   - 2% bleach solution (i.e. 40 mL of household bleach (5.25% sodium hypochlorite) per 2 litres of water)
   - Bleach solutions should be mixed fresh daily when used as a disinfectant
   - Bleach solutions must be labelled appropriately.
   - Warning: Bleach can stain clothing and foot ware.

   Example Label:
   2% Bleach Solution
   Discard daily as domestic waste.
   Prepared by: __________
   Preparation Date: _________
   Expiry Date: _________


4. F10 (http://www.northernparrots.com/f10-super-concentrate-disinfectant-prod6501a/)

Appendix 3: Testing for soil Pathogens

Potential testing locations include:

- 20 20 Seed Labs Inc. - http://www.2020seedlabs.ca/contact
- Pest Surveillance Initiative - http://www.mbpestlab.ca/field-testing/