



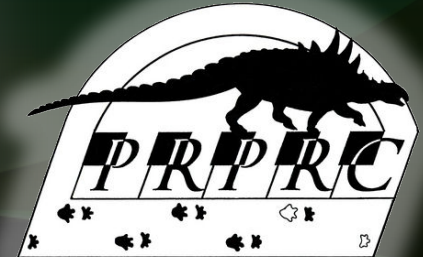
# Biosecurity in Agriculture

## Maintaining Sustainability

# About Me



UNIVERSITY OF  
REGINA



**Richard Boulding**  
Geoscience and Environment Researcher  
[rboulding@apas.ca](mailto:rboulding@apas.ca)



# The Background



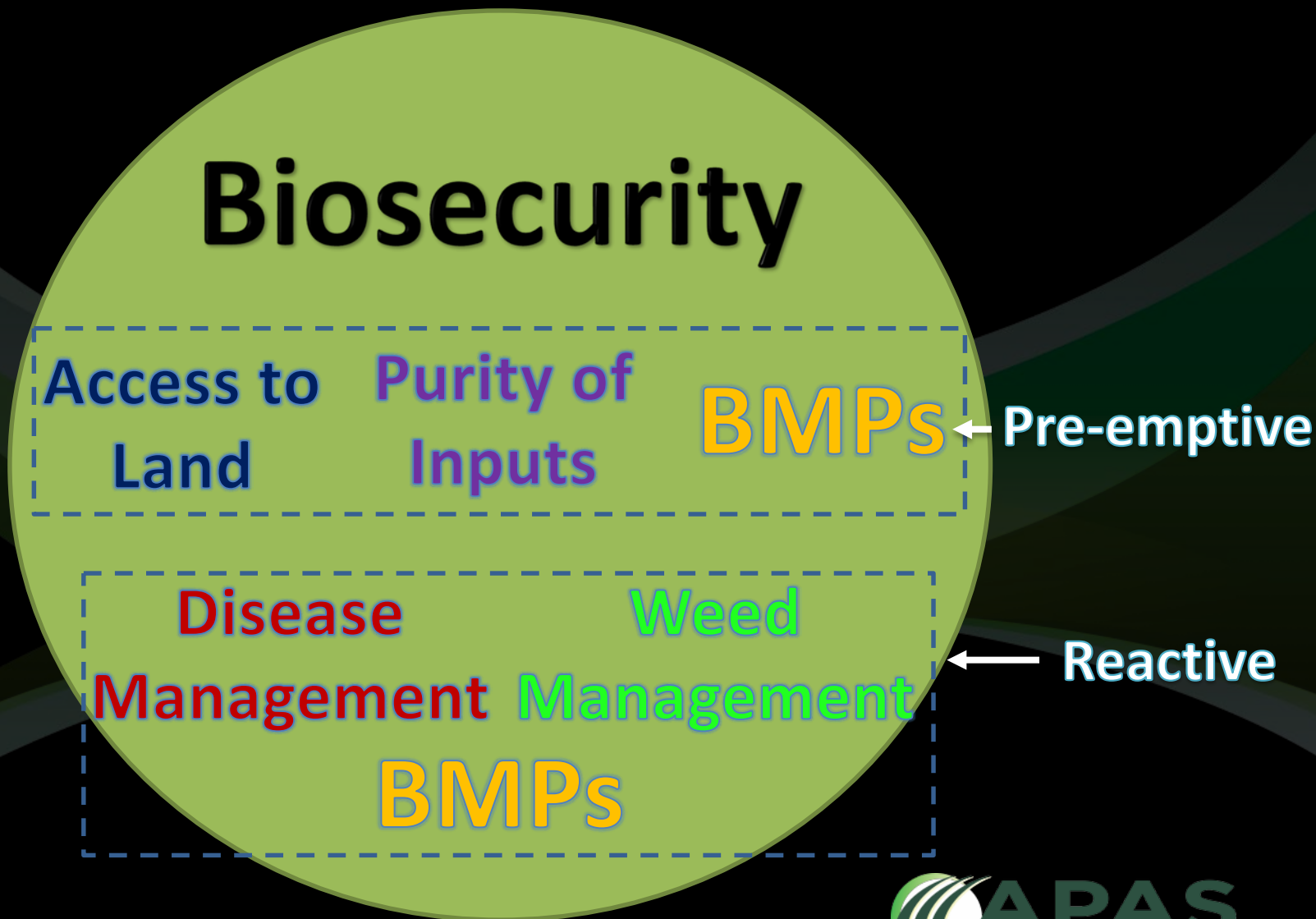


# What is Biosecurity?

- Multiple meanings depending on discipline
- **Def:** A set of preventive measures designed to reduce the risk of transmission of infectious diseases in crops and livestock, quarantined pests, invasive alien species, and living modified organisms. (Koblentz, 2010)
- **Two Key Functions:**
  - 1) Prevent Entry of Disease/Species
  - 2) Control Spread



# What Does Biosecurity Entail?



# Why Is Biosecurity Important?

Potential Contamination Vector:

## Seed

Key Risks:

- Introduction of new weed species

Risk Management Tools:

- Seed analysis prior to purchase
- Certificates of seed purity?



# Why Is Biosecurity Important?

Potential Contamination Vector:

## Soil

(seeds, bacteria, spores, prions, pathogens)

### Key Risks:

- Introduction and spread of **active** soil borne diseases (clubroot, root rot)
- Introduction of soil containing **dormant** bacteria, spores, or prions (Anthrax, Black Leg, Botulism, Chronic Wasting Disease including BSE)
- Introduction and spread of weed species

### Risk Management Tools:

- Cleaning of equipment between fields
- **Controlling access** by other users
- Using equipment last on field known to be infested with soil borne pathogen
- Livestock BMPs (Controlled Comingling, etc.)

# Why Is Biosecurity Important?

Potential Contamination Vector:

## Equipment

(owned or purchased)



### Key Risks:

- Introduction of seeds from weed species
- Introduction of soil containing active and dormant spores/pathogens
- Spread of disease and pests from field to field

### Risk Management Tools:

- Restricted access of equipment if not cleaned
- **Sanitation certificates?** from crown agents and industry groups gaining access to land and equipment dealers/auctioneers selling used equipment



# Access To Land



# Basic Breakdown: Access

**Trespass Act:** Access prohibited on **posted and enclosed** land

Does not apply to vacant Crown agricultural land, Crown resource land, or Parks in *The Parks Act*

**Wildlife Act:** Access prohibited on **posted** and but not enclosed land

**Gas and Electrical Inspection Acts:** Complete access in line of duty but can be denied at cost of having service discontinued.

**The Department of Agriculture, Food, and Rural Revitalization Act:** Surveyors, engineers, agrologists, ministry workmen and servants have access in line of duty.

**ATV Act:** Access prohibited on **private land** unless owned or occupied by him or immediate family

Access prohibited on **Crown land used or occupied other than by the Crown** without the permission of the owner or occupant of the land

**Snowmobile Act:** Access prohibited on private land **unless it is private land outside of a city, town, village, or hamlet** but can be **posted** to prohibit access

# Basic Breakdown: Fines

Trespass Act: not more than \$2,000

Wildlife Act: not more than \$100,000

Gas and Electrical Inspection Acts: N/A

The Department of Agriculture, Food, and Rural  
Revitalization Act: N/A but damage caused by them is compensated

ATV Act: not more than \$1,000 or 30 days imprisonment

Snowmobile Act:

First offence not more than \$100 or 30 days imprisonment.

Second or further offences not more than \$200 or 60 days imprisonment.

# Land Access In Other Provinces

**Ontario:** (Trespass to Property Act: R.S.O. 1990, CHAPTER T.21)

## Prohibition of entry

Entry on premises may be prohibited by notice to that effect and entry is prohibited without any notice on premises:

- that is a **garden, field** or other **land that is under cultivation**, including a **lawn, orchard, vineyard** and premises on which trees have been planted and have not attained an average height of more than two metres and **woodlots** on land used primarily for agricultural purposes
- that is **enclosed** in a manner that indicates the occupier's intention to keep persons off the premises or to keep animals on the premises.

R.S.O. 1990, c. T.21, s. 3 (1).

Persons found guilty of an offence and on conviction is liable to a fine of **not more than \$10,000**.

R.S.O. 1990, c. T.21, s. 2 (1); 2016, c. 8, Sched. 6, s. 1.



# Land Access Recommendations

## Access to Agricultural Land:

Adoption of a **simple Saskatchewan-tailored system** that is on par other provinces.

- Handled under **a single piece of legislation** (Other acts default to it in regards to prohibited land access)
- All **enclosed land** considered posted for all purposes
- All **cultivated land** considered posted (definition similar to Ontario)
- Higher max fine for trespass **(\$10,000)**

# Questions for Legal:

- **Trespass by night:** def. night, def. dwelling (home quarter?)
- **Texas Gates:** do they count as enclosed land?
- **Affixed Signage:** does “no hunting” written on a tire count? (meets dimension requirements)
- **Adherence to Signage:** Use of ATV or vehicles by crown agents and hunters
- **Visibility of Signage:** is buried by snow a defence for snowmobilers?

# Best Management Practices



# Industry Operating on Ag Land (BMPs)

 **SaskPower:** (Environmental Best Management Practices Manual)

Weed management protocols in section 3.8 but no mention of clubroot or other soil-borne diseases in section 3.5 on soils.

- Equipment, vehicles, and materials will arrive to the project site in a clean condition **free of any remnant soil or plant material** to reduce the risk of weed introductions.
- Determine if landowner or occupant is **aware of noxious or prohibited weeds occurrences** intersecting the right of way.
- Surveyors or environmental monitors **stake out infestations** for avoidance and mitigation
- If deemed necessary, **mechanical or pressure wash cleaning** may be required.



# Industry Operating on Ag Land (BMPs)

## Canadian Association of Petroleum Producers:

Clubroot disease management specific protocols including cleaning activities where practical or possible should occur prior to leaving a location (**upon arrival?**)

- **Mechanical cleaning** – brooms, brushes, air compressors, shovels, by hand
- **Washing** – water, steam, soap or detergent
- **Disinfectants** – 1-2% bleach-water mixture misted to maintain a wet interface for 15min.

Dependent on:

- Whether the site has a **confirmed case** of clubroot disease
- Where the site is located geographically
- Land use of site
- Landowner requests and commitments
- Washing infrastructure available
- Agriculture Fieldman/Municipality specific requirements



# BMP Concerns and Recommendations

## Concerns:

Due to costs many environmental BMPs are **reactive** and require knowledge of the problem being present to be enacted.

It is easier to enact BMPs with visible threats to biosecurity like weeds.

## Possible Recommendations:

**Pre-emptive protocols** like having equipment free of soil and plant material (**with disinfection certification?**) prior to entering on agricultural land and enacting cleaning protocols prior to leaving areas (**crop districts?**) with known contaminants.

# Weed Management



# Weed Management

## Concerns and Recommendations

### Federal *Seeds Act*:

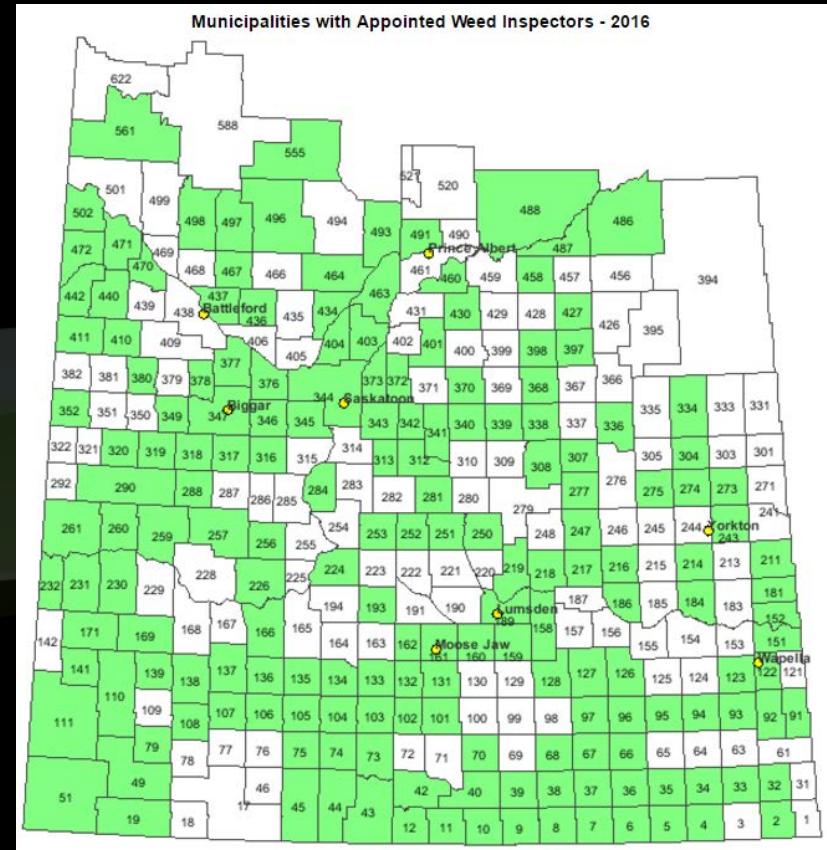
- **Purity of Seed:** (Particularly forage seed)
  - *Federal Seeds Act* to update standards as identification and seed cleaning technologies improve
  - **Certificate of seed purity** (guarantee to buyers)
- **Weed Classifications:** Species that may be considered invasive to Saskatchewan might not be included in federal lists that determine seed standards.
  - Clarification from Provincial Government on existing rules and classifications they follow.



# Weed Management

## Concerns and Recommendations

- Participation of RMs in Weed Management:
  - In 2016 only 176 out of 296 RMs had appointed weed inspectors (59%)
  - Advocacy for adoption of weed management protocols



# Weed Management

## Concerns and Recommendations

- **The Role of Highways:** (inconsistent treatment)

### Municipality deemed owner of roads:

For the purposes of this Act, a municipality is deemed to be the owner of the roads within its boundaries.

2010, c.W-11.1, s.3.

### Interpretation:

‘roads’ includes streets, lanes, **public highways**, road allowances, bridges, alleys, squares or thoroughfares intended for or used by the general public for the passage of vehicles or pedestrians.

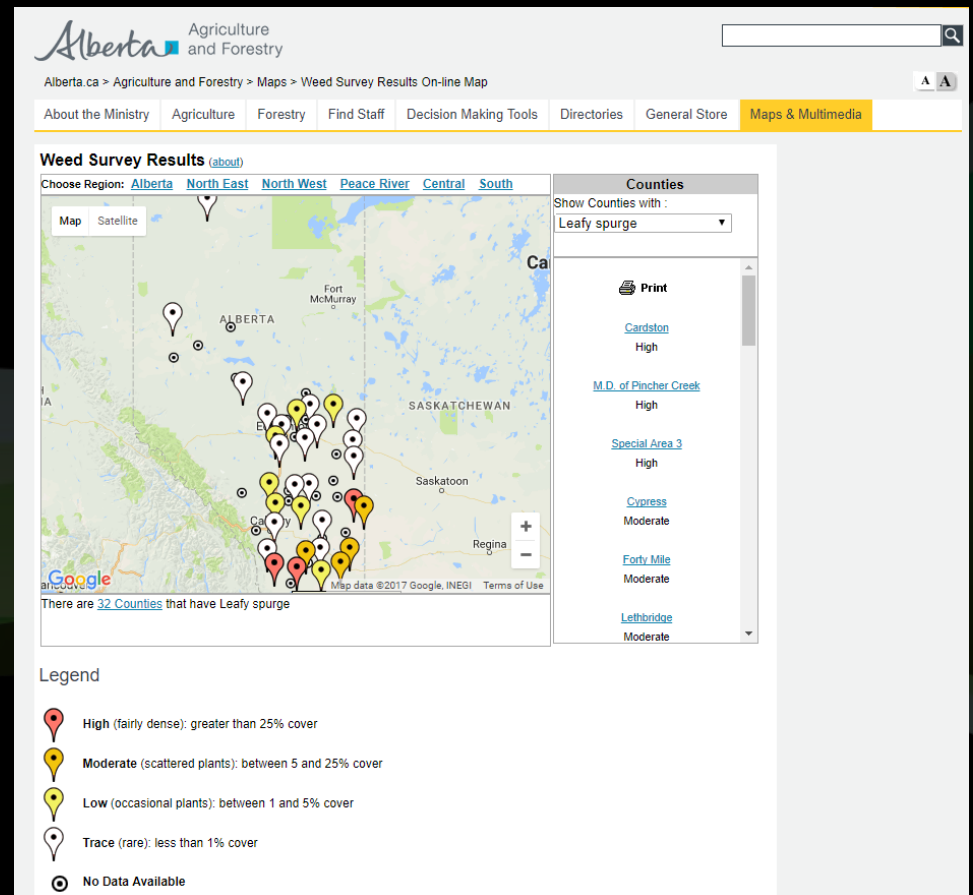
2010, c.W-11.1, s.2; 2014, c.19, s.60.

- Motion to write the Minister or Deputy Minister of Agriculture for clarification.
- Then determine if reimbursement is possible and how highways funds this.

# Weed Management

## Concerns and Recommendations

- **Weed Mapping:**  
(catching up to other provinces)



# Disease Management





# Disease Management:

Access by Ministry Officials For Clubroot Sampling

## The Department of Agriculture, Food and Rural Revitalization Act:

### Power to enter upon land

The minister may, by **surveyors, engineers, agrologists, workmen and servants** enter upon any land to whomsoever belonging, and survey and take levels of the land and take such **borings and samples from the surface or lower levels of the land** as he deems necessary for any purpose relating to the development, study or investigation of any irrigation, drainage, flood control, water storage, underground water or land reclamation project, the development, **study or investigation of which he considers to be in the public interest.**

**If any damage is done the minister shall pay to the owner of the land a reasonable sum to compensate him for the damage.**

# Disease Management: Clubroot

## Concerns and Recommendations

**The Issue:** Clubroot declared a 'pest' under *The Pests Declaration Regulations of The Pest Control Act* (SARM in 2009)

- The Brown or Norway Rat
- Grasshoppers
- The Warble Fly
- Richardson's Ground Squirrel

### Jurisdiction of rural officers

If a municipality other than a rural municipality has not appointed an officer, an officer designated by the rural municipality surrounding that municipality may exercise in that municipality all the powers conferred on officers by this Act.

2005, c.M-36.1, s.450.

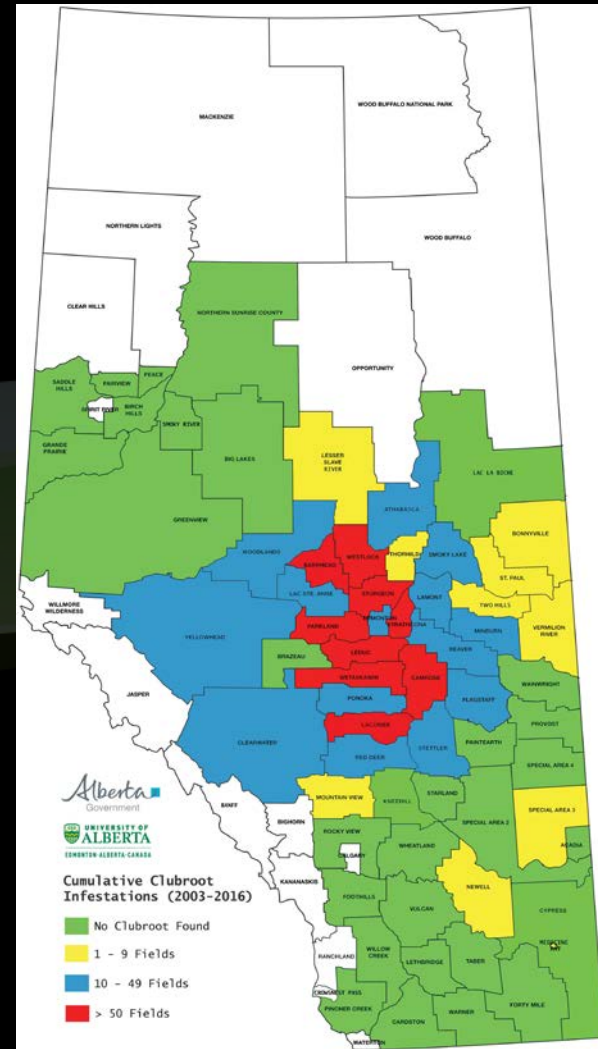
- Entry on land
- Enforcement of Act
- Order for Destruction of Pests

**Are pest control officers capable of handling clubroot?**

# Disease Management: Clubroot

## Concerns and Recommendations

- **Clubroot Mapping:**  
(catching up to other provinces)
  - Ministry officials need to be able to sample



# Other Concerns?

