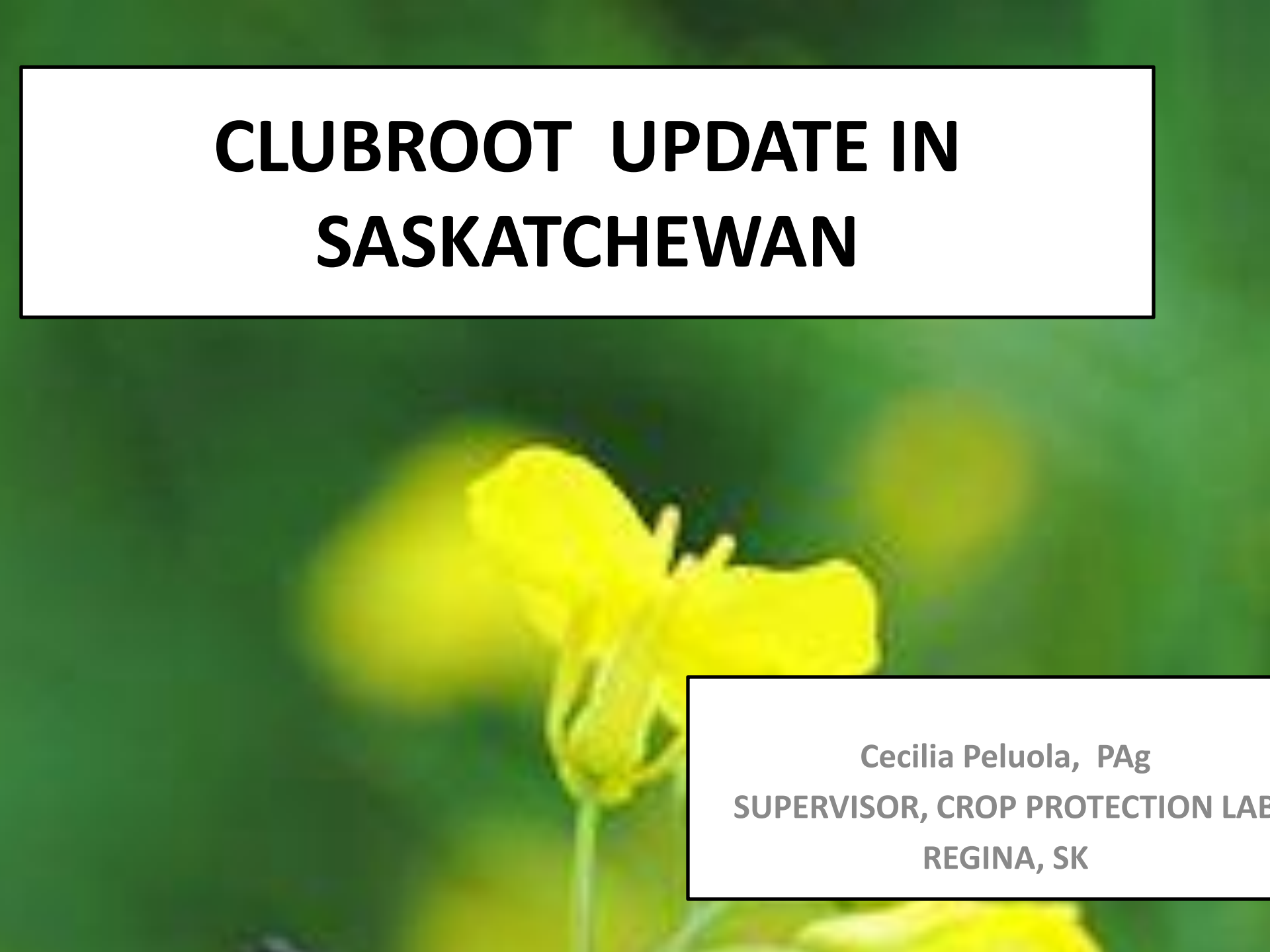




Government  
\_\_\_\_\_ of \_\_\_\_\_  
Saskatchewan

# **CLUBROOT UPDATE IN SASKATCHEWAN**



**Cecilia Peluola, PAg  
SUPERVISOR, CROP PROTECTION LAB  
REGINA, SK**

# Journey so far in Saskatchewan (SK) .....

Year	Significant Events
2008	Canola Disease Survey - 130 fields surveyed - soil samples collected from 30 fields – One positive field
2009	Declared a pest under <i>The Pest Control Act (PCA)</i>
2009	Ministry formed the SK Clubroot Initiative (SCI)
2009	Canola Disease Survey - 158 fields surveyed - soil samples collected from 60 fields – No positive fields
2010	Canola Disease Survey - 265 fields surveyed - soil samples collected from 76 fields – No positive fields
2011	Canola Disease Survey - 241 fields surveyed - soil samples collected from 99 fields – No positive fields
2011	Two fields confirmed positive outside of the Canola Disease Survey
2012	Canola Disease Survey - 253 fields surveyed - soil samples collected from 91 fields – One positive field

\* Confirmation of clubroot requires observation of disease symptoms in a susceptible plant as well as detection of the pathogen's DNA in a plant or soil sample. If DNA test results are positive for clubroot despite an absence of symptoms in the plant surveyed, a follow-up bioassay is required to dispel false-positives and prove pathogen viability.



# SK CLUBROOT PEST CONTROL ACTS, 2009: Excerpts

## Responsibilities

Section 4. *Every person shall take measures to destroy, control and prevent the spread of all pests on any land or other premises owned, occupied or controlled by him.*

### ***Enforcement of act: Municipalities***

*SK has 296 Rural Municipalities (RM)*  
*(2011 CENSUS)*



# SK CLUBROOT PEST CONTROL ACTS, 2009: Excerpts

## *Power of municipalities to pass bylaws respecting destruction of pests*

*Section 12 (1) Whenever a pest appears in a municipality or whenever the council of a municipality is of opinion that a pest is likely to appear in the municipality, the council may pass a bylaw providing for the **purchase of materials required for the control** or destruction of the pest*

*Section 12 (2) The council may, by the same or another bylaw:*

- (a) Require other means of controlling or destroying the pest;*
- (b) Require every person owning, occupying or controlling land in the municipality to control or destroy any pests.*

*(b) Section 12 (4) Every person owning, occupying or controlling land or premises where the pest exists shall control or destroy the pest by the methods specified in the bylaw.*



# The SK Clubroot Initiative (SCI), 2009

- **SCI purpose:**
- To develop the Saskatchewan Clubroot Management Plan, to promote awareness and minimize the risk of clubroot in the province.
- **SCI membership include:**
  - Saskatchewan Ministry of Agriculture,
  - SaskCanola,
  - Saskatchewan Association of Rural Municipalities (SARM),
  - Canola Council of Canada(CCC),
  - Agriculture and Agri-Food Canada (AAFC),
  - Canadian Association of Agri-Retailers
  - Ministry of Highways,
  - Ministry of Energy and Resources,
  - SaskEnergy, SaskPower, Canadian Petroleum Producers Association, Saskatchewan Auctioneers Association...



# Municipal Authority

under *The Pest Control Act*

- The Ministry encourages all municipalities in Saskatchewan to be consistent with clubroot policies/bylaws.
- **Ways to ensure consistency?**
  - Refer to the Saskatchewan Clubroot Management Plan for the most current, scientific, and practical recommendations, and responsibilities
  - RM's can consult with SARM and the Ministry for sample policy/bylaw



Government  
— of —  
Saskatchewan

# Municipal Authority Under *The Pest Control Act*

- If clubroot is suspected, inform Saskatchewan Agriculture by contacting the AKC (1-866-457-2377) or your local regional office, or send samples to the Crop Protection Lab in Regina for visual ID (diagnostic fee).
- If clubroot is confirmed, the Municipality must be notified, so they can fulfill their responsibilities under *The Pest Control Act*





# Clubroot Management

- Although crop rotation and resistant varieties will not prevent the introduction of clubroot, they will restrict clubroot development by preventing the increase of inoculum:
  - Practice a four year rotation for canola!
- Restrict movement of potentially contaminated soil:
  - Vehicles, field machinery or industrial/utility/other equipment with earth tag should be properly sanitized whenever possible/appropriate.
- Scout crops regularly and carefully:
- Carry out clubroot monitoring regularly



# Personal sanitation procedures

- As clubroot may take 6 to 8 weeks to develop, symptoms are most detectable later in the growing season (late July or August).
- Do not drive into field or access, but park on the road whenever possible.
- Surveyors and agronomists can walk into infested fields but must follow personal sanitation procedures.
- If survey personnel enter a field in any potentially infested regions, whether it is known to have clubroot or not, they are to follow these procedures:



# Personal sanitation procedures cont'd

- Wear disposable footwear that can be removed immediately after leaving the field. Another option is to use rubber boots or other footwear that can be disinfected misted with a disinfectant solution (5% bleach) upon leaving the field.
- Dispose of the disposable footwear in a sterile fashion. Sealing in a garbage bag and burning is preferred. Do not reuse disposable footwear.
- Clean and disinfect any tools that may have been in contact with soil in the field.



# Clubroot Monitoring

- **Equipment and Materials Needed:**
  - Clubroot survey sheets
  - Hand trowel /garden shovel
  - Disposable booties
  - Clipboard and pen
  - Pocket knife
  - Garbage bags
  - GPS unit or maps
  - Pail of five per cent bleach for soaking/cleaning tools
  - Five per cent bleach solution in misting bottle
  - Paper bags or boxes



Photo credit:  
Sean Miller



# Plant sampling

- Observe **20 plants** at each of **5 sites in the field**, for a total of **100** plants.
- Keep each of these 5 sites at least **20 metres from each other** and at least 20 metres from the field edge.
- If symptoms are observed, particularly in **field entrance or corners of field**, dig or pull up plants, shake off excess soil and inspect roots for the presence of galls.
- If clubroot is suspected, cut off stems and **collect root samples**
- **Air-dry root** samples in paper envelopes/boxes/bags and send **Crop Protection Lab**, Regina.



# Soil Sampling

- Can be **collected at any time** but soil should be dried after collection
- Soil samples should be comprised of a **mixture of small scoops** (approximately one cup each) of soil taken at each of **5 sites visited** in one field.
- Because clubroot is most likely to arrive on soil attached to **vehicles and field equipment**, IF the entrance to the field is evident, these 5 sites should be located in the vicinity of this approach.
- Clear away residue from the soil surface, and scoop approximately 1 cup of the
- Top 5-10 cm of soil at each site (total 1 litre from all 5 sites combined).



# Summary

## Municipalities have a lot of powers under the Act.

-Municipalities can **appoint Officers** to carry out actions under the Act.

-If actions are required, Pest control Officers (PCO) shall attempt to enter into an agreement.

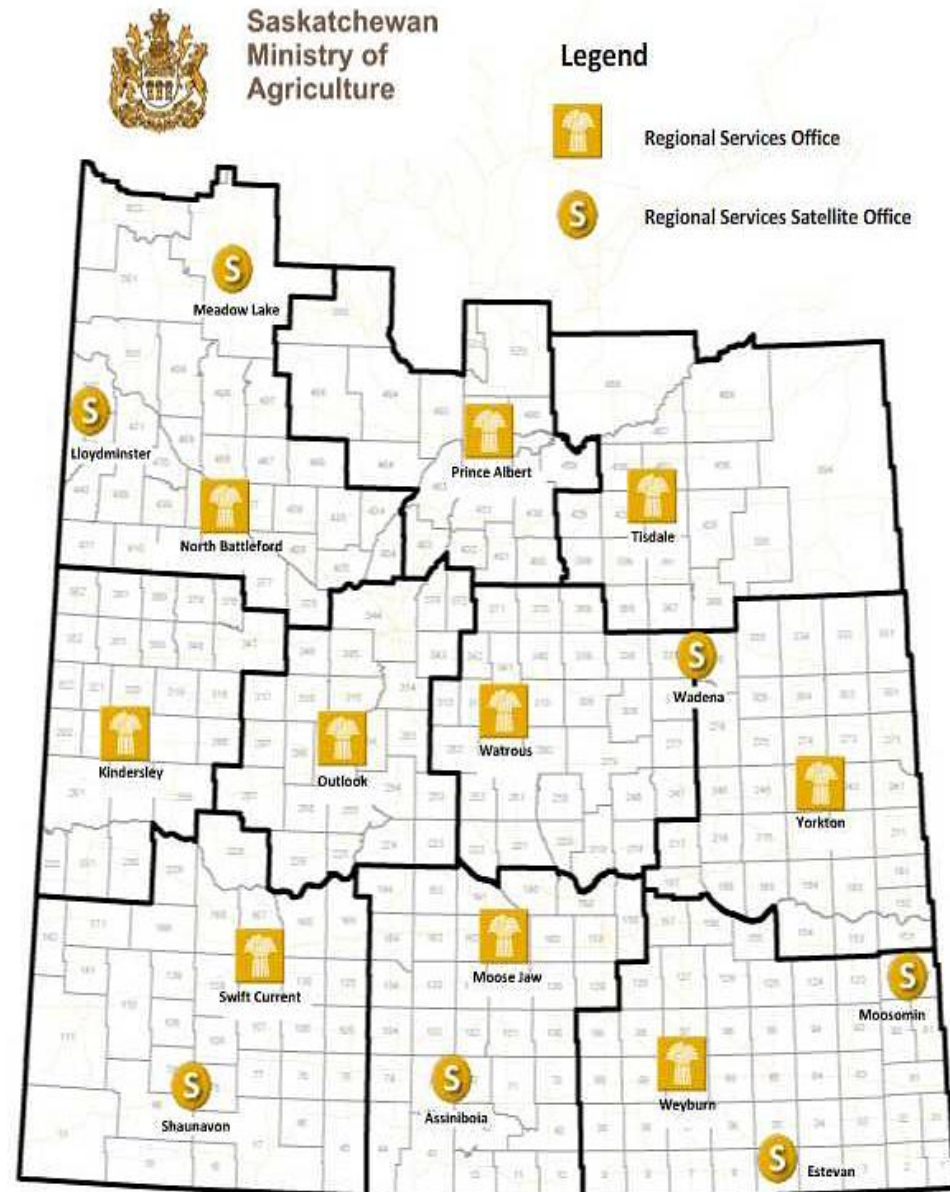
-**Officers can issue Orders** to carry out actions.

-Officers can carry out enforcement actions and **charge costs to taxes.**

-Municipalities may **pass a bylaw** to purchase required materials and/or to require adequate means to be taken to control or destroy the pest.

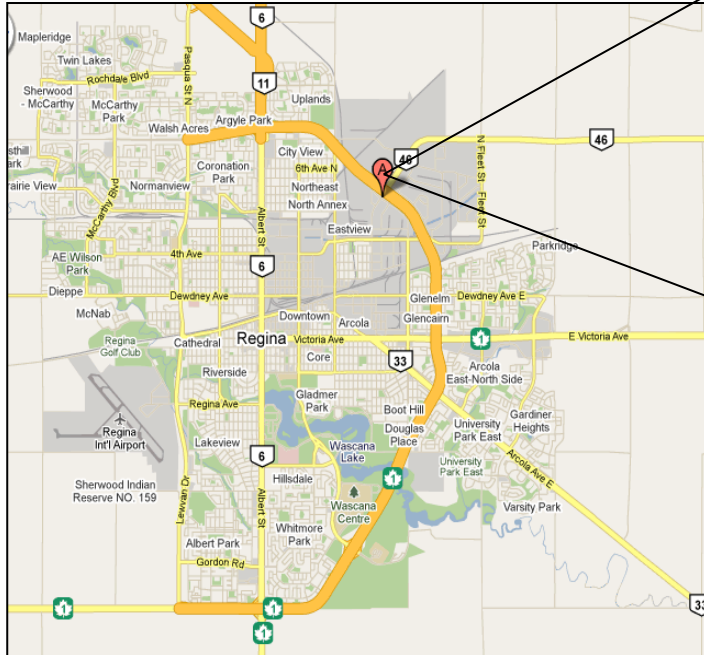
-**10 regional offices in the province are staffed with 4 regional specialists**

## Regional Offices Locations



# Journey so far.... 2013

## Crop Protection Lab, Regina, SK



**346 McDonald Street  
Regina, SK S4N 6P6**

**Hours (M-F)  
8:00AM-12:00PM  
1:00PM-5:00PM**



Government  
— of —  
Saskatchewan



# Journey so far.... 2013

- There was over **\$200,000.00 upgrade** to crop protection diagnostic laboratory in Regina for **PCR CLUBROOT testing**
- Declared open by Hon. Minister of Agriculture Lyle Stewart on April 18, 2013



Government  
— of —  
Saskatchewan

# 2013... Clubroot soil test

- Where we stand today!
- Symptomatic plants can be assessed for fee in Crop Protection Lab, 346 McDonald street, Regina.
- However, PCR soil test will be done on survey samples
- Co-ordinated by the Ministry of Agriculture and Saskcanola.
- **PCR TEST**
- **Conventional and real time PCR**
- **Any positive will be bioassay in a GC**

MAFRI



Government  
— of —  
Saskatchewan

# Positive soil..... what Next?

- A. Saskatchewan Clubroot Management Plan (SCMP) will be followed.**
- Grower will be informed, copies of the SCMP and clubroot Factsheet provided
  - Information on the PCA, Ministry advise on the next steps
- B. SaskCanola will provide a news release following grower's notification.**
- News release will disclose region but not specific area.
- C. Ministry will notify Saskatchewan Association of Rural Municipalities (SARM) of affected rural municipalities (RM)**
- RM** will determine how and when public information become necessary.
- D. Ministry work with the RM**
- to develop a clubroot strategy and appropriate management plan, including any relevant bylaws and extension materials.



# LOOKING INTO THE FUTURE!

- **Saskatchewan Ministry of Agriculture**
- Continue to take a leadership role
- Co-ordinate canola disease surveys
- Participate in clubroot surveillance
- Provide information to increase producer and public awareness of the disease and
- Methods to minimize its impact on canola production in the province



# Expectations

## WALK THE TALK!

- **ACKNOWLEDGEMENT**
- **SEAN MILLER**
- **V. VAKULABHARANAM**
- **C. BRENZIL**





[www.gov.sk.ca](http://www.gov.sk.ca)