CLUBROOT UPDATE IN SASKATCHEWAN

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

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

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
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
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 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
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
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
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
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
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