

# Disease Management

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# Outline

- Blackleg
- Clubroot
- Sclerotinia stem rot
- Aster Yellows

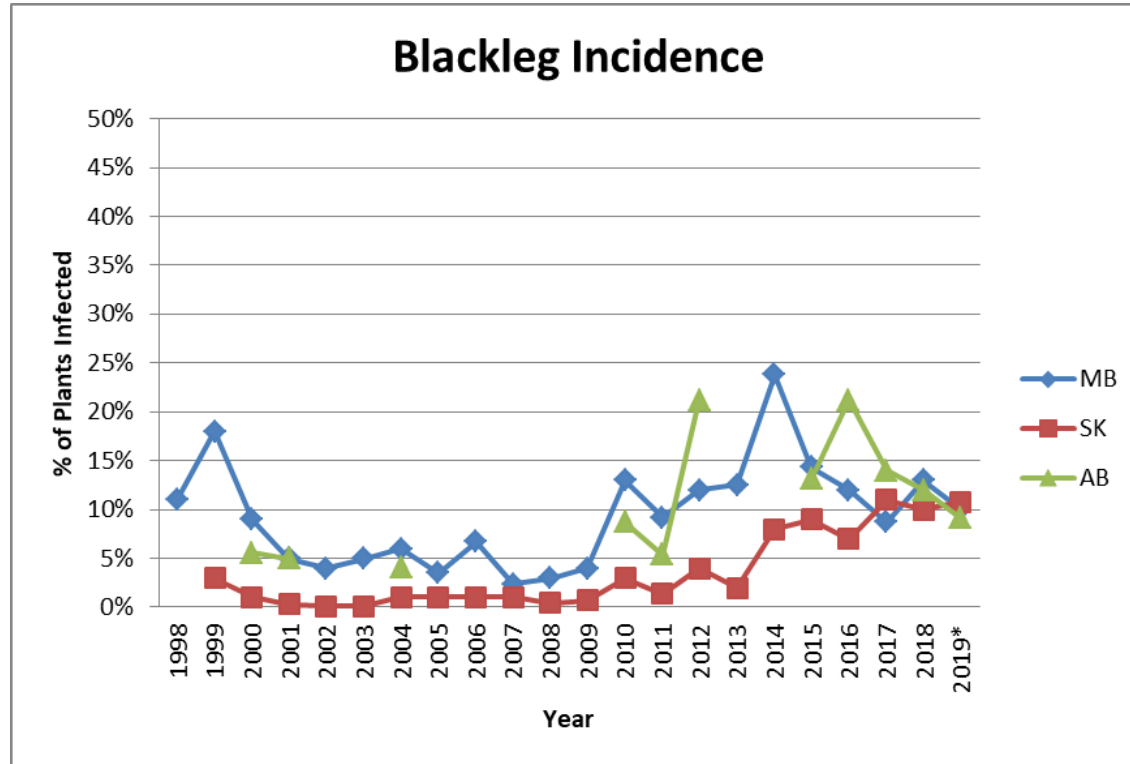


# Blackleg



# 2019 Blackleg Disease Survey Results

\*preliminary data\*



Incidence: MB-10%; SK-11%; AB – 9%

# Blackleg

## Key Messages:

1. First step is scouting!
2. If blackleg is present and severe, then consider adopting a longer crop rotation.
3. If cannot adopt a long crop rotation, then consider a long variety rotation if blackleg is a severe problem on that field. Chose varieties in a different blackleg resistance group or different resistance package.
4. For very high blackleg risk situations, then consider an early application of a fungicide.



# Blackleg

- Immediate blackleg concerns:
  - How to use a *L. maculans* race ID test.
  - How to select a variety if no R-gene label on some or no variety that matches race test.
  - What does quantitative resistance mean and how to use it when selecting a variety?



# Clubroot



# Clubroot

## Key Messages:

1. Scout for the disease and this pathogen.
2. Stop *P. brassicae* resting spore movement:
  - Use sanitation recommendations
  - Use clean inputs
  - Restrict access to fields
  - Use zero tillage





# Clubroot

## Key Messages:

3. Stop *P. brassicae* resting spore increase:
  - Use clubroot resistance to keep spore low. CR varieties can be used in a preventative situation. Deploy CR varieties when your community is at risk. Risk of clubroot resistance failure is low in low spore load situations.
  - Use a long crop rotation – a break from canola two or more years.
  - Control brassica weeds in canola and non-canola years.
4. Employ a patch management strategy for smaller patches.



# Clubroot

## Key Messages:

5. CR varieties can be overcome by *P. brassicae* population shifts (resistance failure). Under high spore loads, this can occur in two or three canola cycles. Deploy second generation clubroot resistance in these fields.



# Clubroot

- Immediate clubroot concerns:
  - New pathotypes being found every year.
  - How do we get growers to take an IPM approach?
  - *P. brassicae* does not normal fitness selection model.



# Clubroot

*P. brassicae* does not follow normal fitness selection model.



Root hair

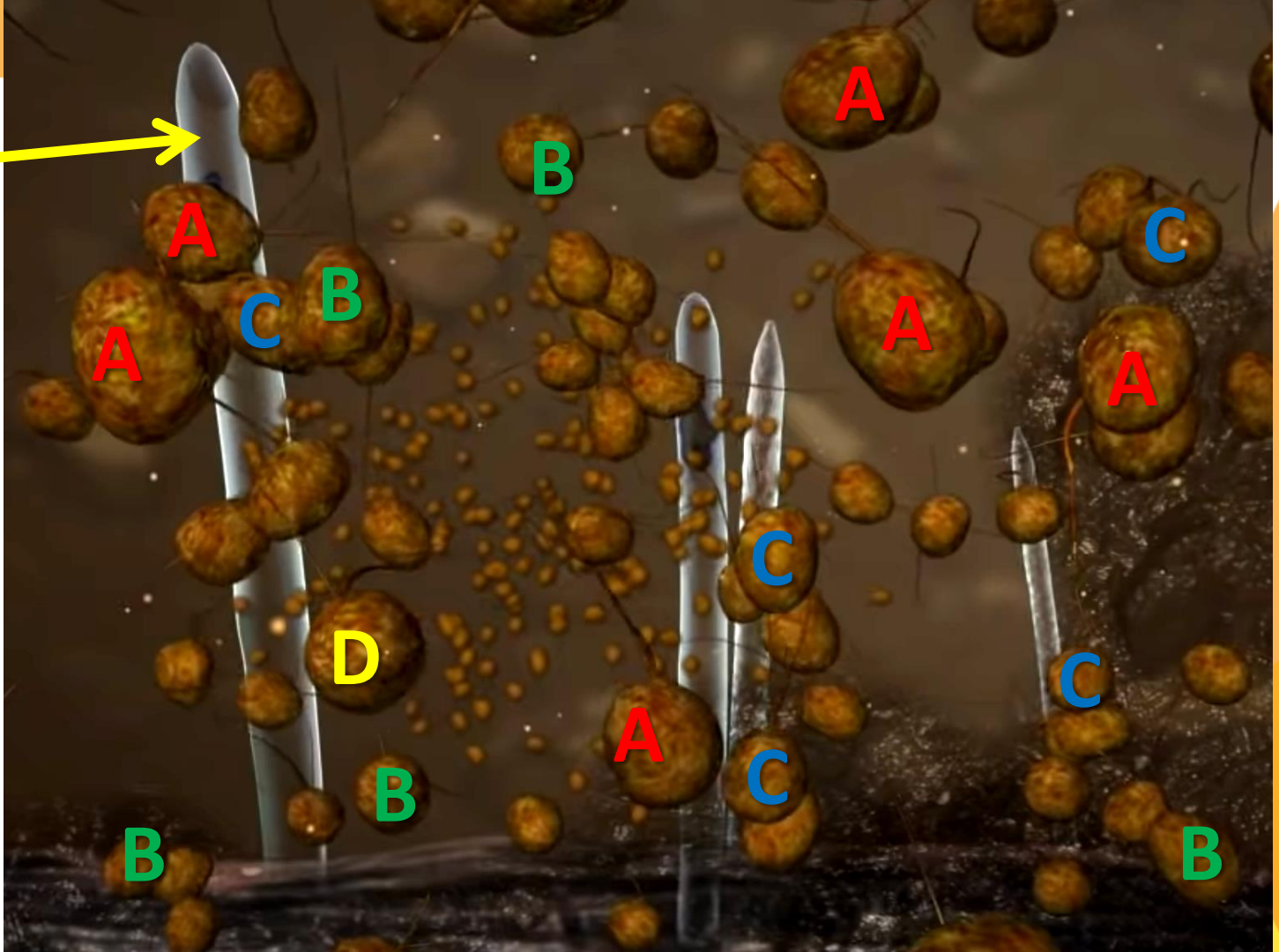


*P. brassicae* zoospore

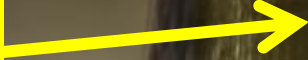




Root resistant to  
pathotypes:  
A, B, and C



Root resistant to  
pathotypes:  
A, B, and C

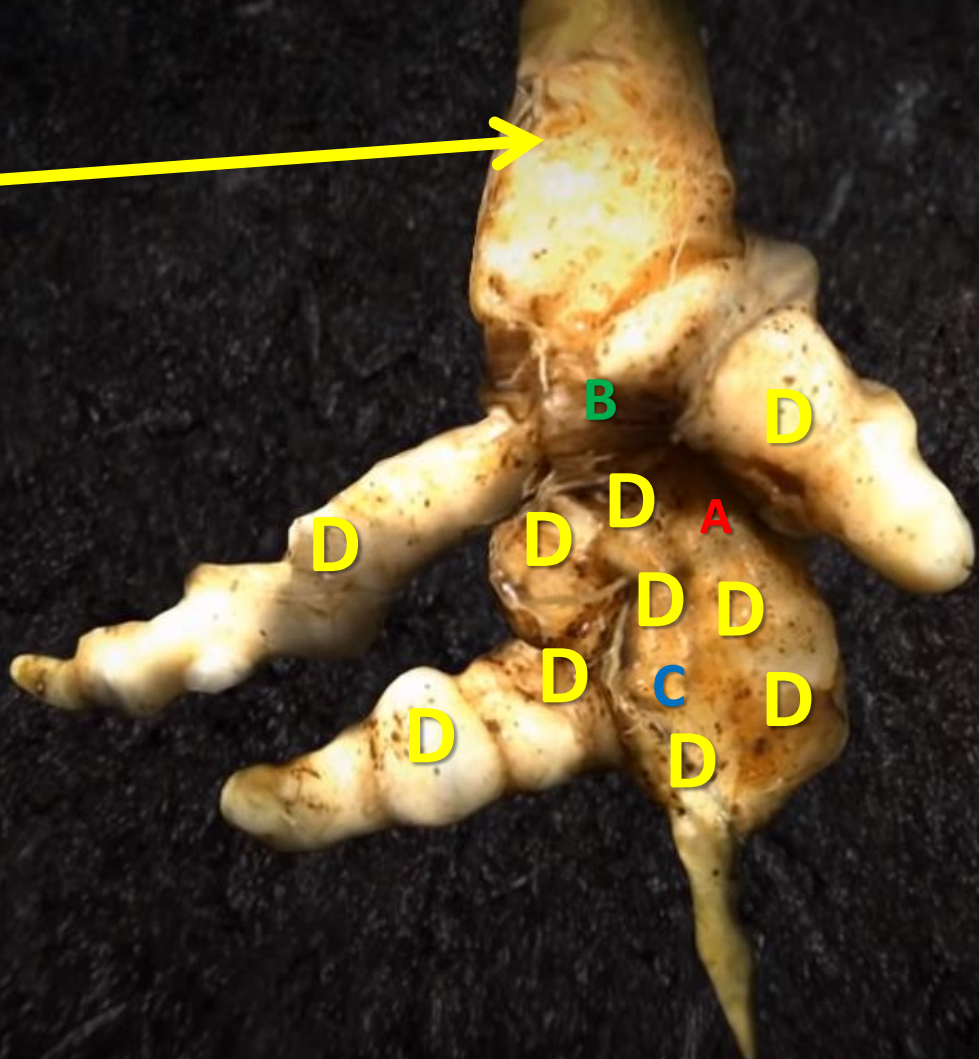




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# Clubroot

*P. brassicae* does not follow normal fitness selection model.

- Follows “Balancing Selection” model



# Clubroot

*P. brassicae* does not follow normal fitness selection model.

- Follows “Balancing Selection” model

Which means that pathogen genetic polymorphism is maintained.

What type of resistance should we recommend?

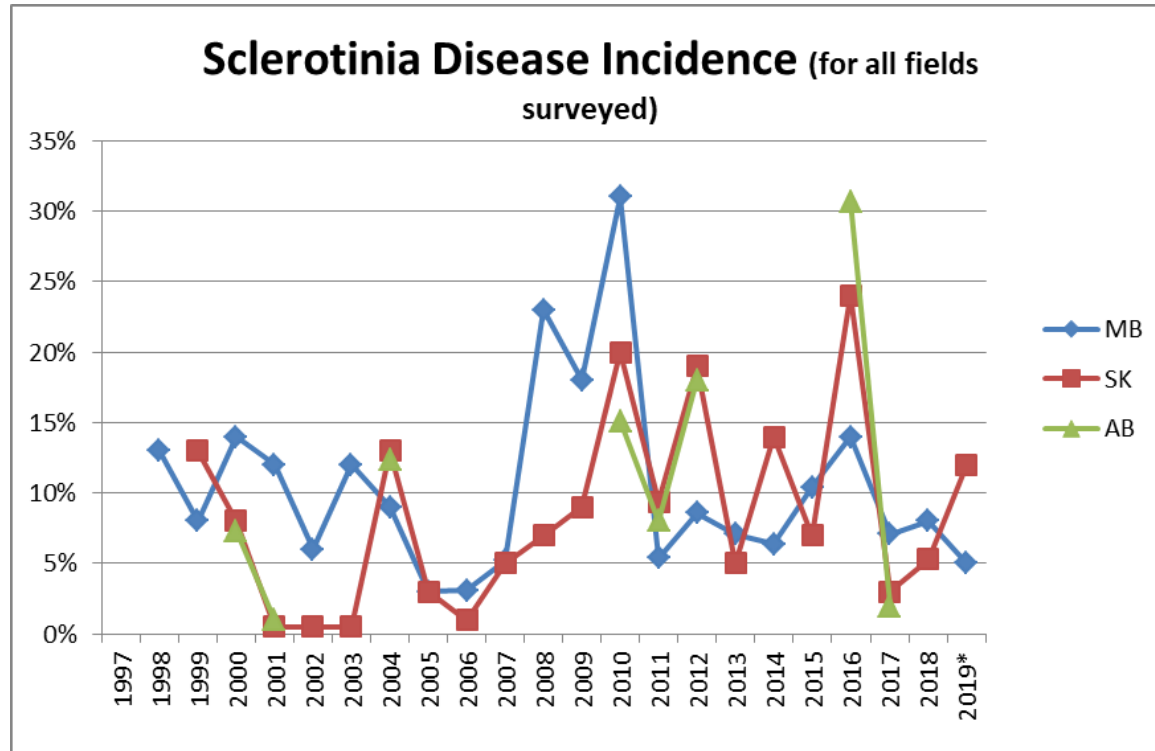


# Sclerotinia stem rot



# 2019 Sclerotinia Disease Survey

\*preliminary data\*



Incidence: MB-5%; SK-12%

Completed by Provincial Governments

# Sclerotinia stem rot

## Key Messages:

1. Use the sclerotinia stem rot checklist to determine if there is risk of sclerotinia stem rot developing.
2. Use sclerotinia stem rot fungicides in high risk situations for disease development.
3. Use moderately sclerotinia resistant or tolerant canola varieties.



# Sclerotinia stem rot

- Immediate Sclerotinia concerns:
  - We are still pretty bad at predicting sclerotinia outbreaks.
    - New tools need verification
  - Resistance breeding is slow.





# Aster Yellows



# Phytoplasma/Aster Yellows

- Immediate concerns:
  - Diverse symptomology
    - Abnormal, crinkly leaf tissue
    - Curled, twisted, fasciated, and/or aborted stems
    - Precocious germination
    - Stubble or senesced plants re-growing abnormal tissue
    - Aborted pods



# Early: June/July

Stems failing to elongate properly, crinkly leaves



Photo: Jack Payne

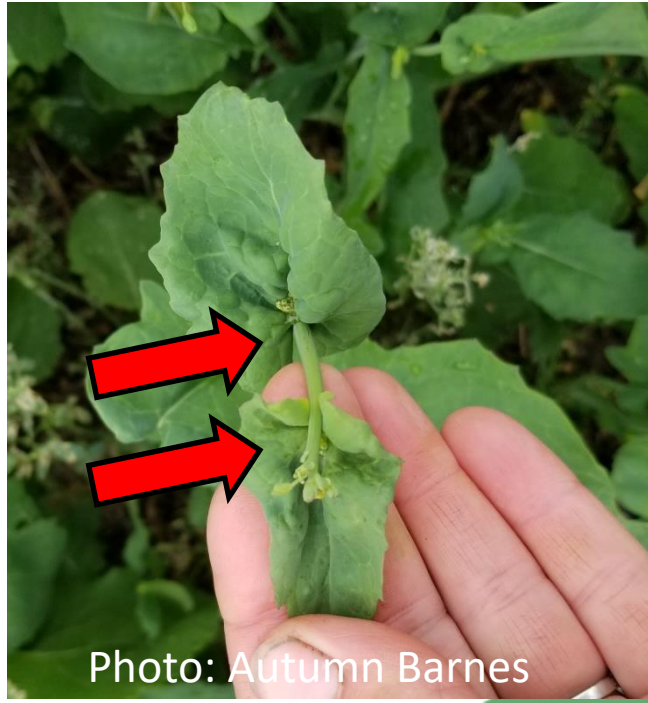


Photo: Autumn Barnes



Photo: Autumn Barnes

# Late: August/Sept

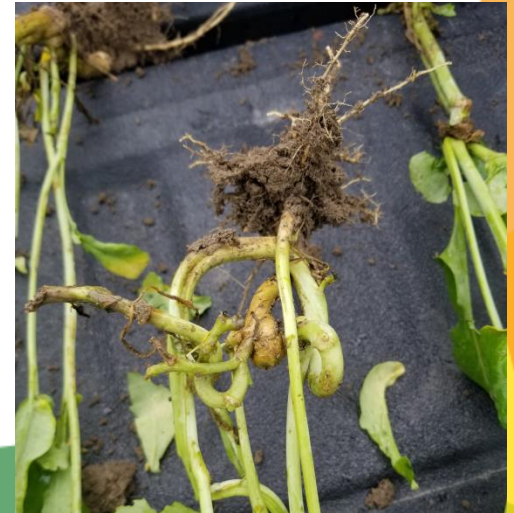


Photos: Autumn Barnes



# Phytoplasma/Aster yellows

- Immediate concerns:
  - Diverse symptomology
  - We need to learn more



Photos: Autumn Barnes

# Thank you

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