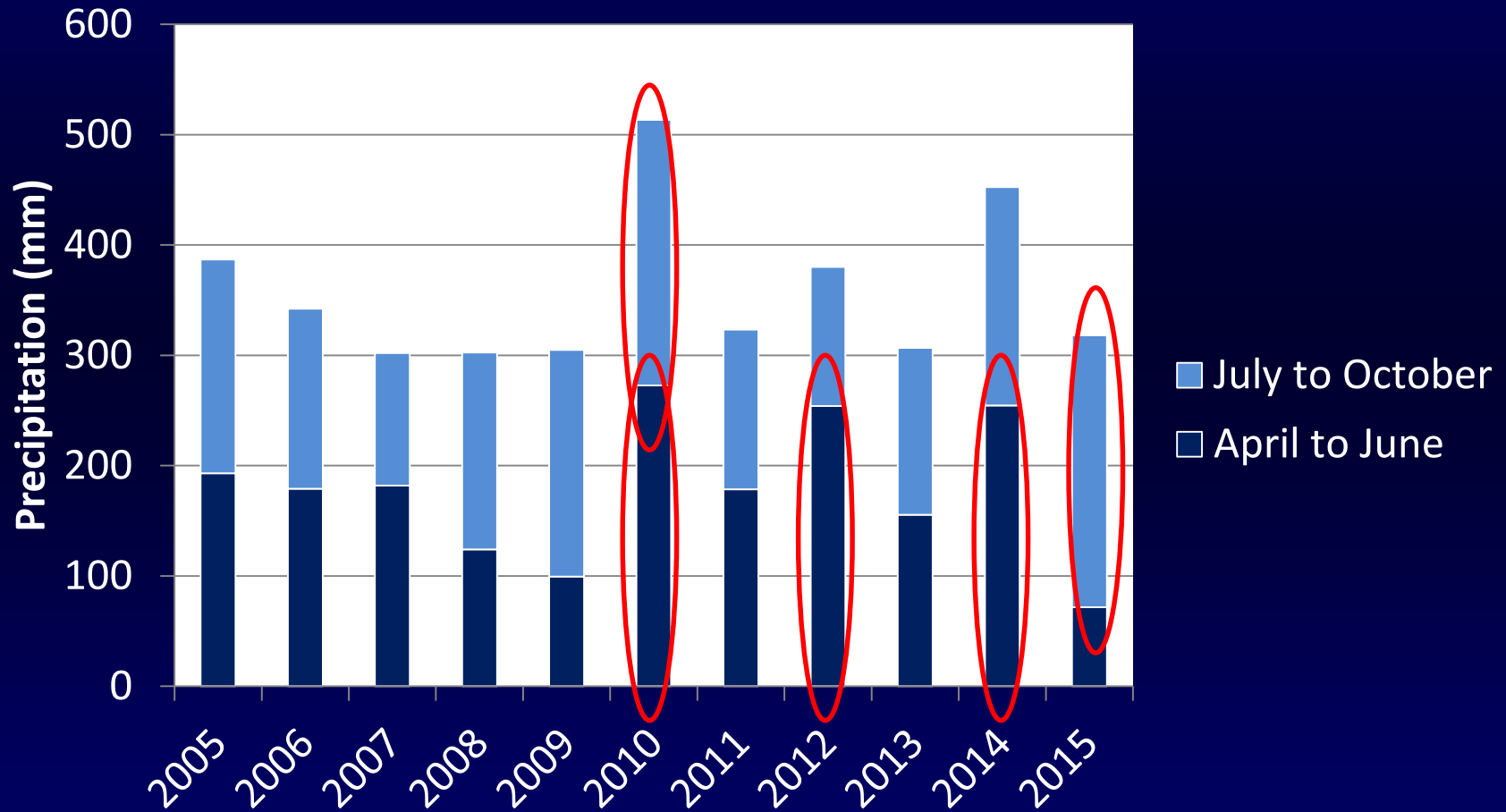


# Could someone please drain my soils?

**I want to grow pulses**

Sabine Banniza, Crop Development Centre,  
University of Saskatchewan

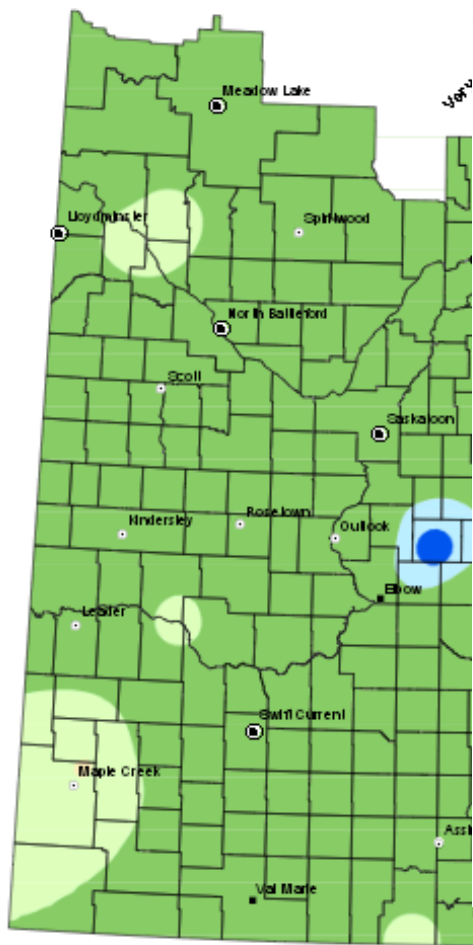
# Early and late season precipitation in Saskatchewan 2005-2015



# Cropland Topsoil Moisture Conditions

October 26, 2015

Mo

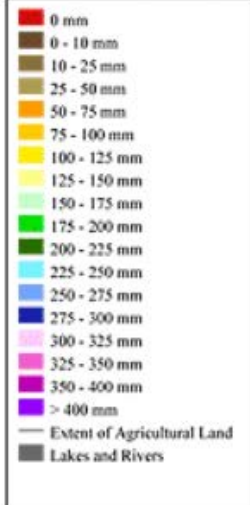
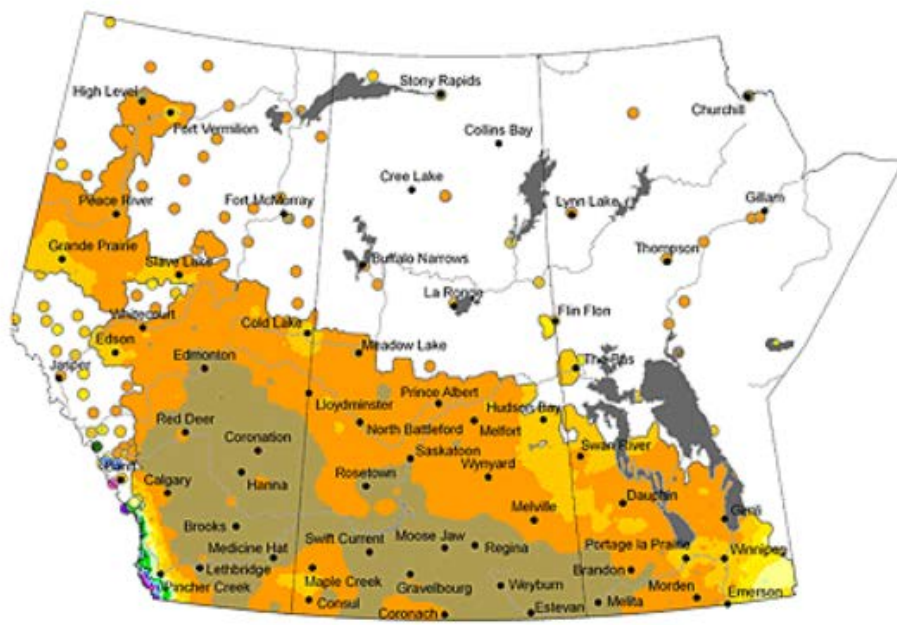


Agriculture and Agri-Food Canada Agriculture et Agroalimentaire Canada

Canada

## Accumulated Precipitation (Prairie Region)

November 1, 2015 to March 7, 2016



Produced using near real-time data that has undergone initial quality control. The map may not be accurate for all regions due to data availability and data errors.

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Prepared by Agriculture and Agri-Food Canada's National Approximate Information Service (NAIS). Data provided through partnership with Environment Canada, Natural Resources Canada, and many Provincial agencies.

Created: 03/08/16  
www.agr.gc.ca/drought

**NOTE:** Since techniques used to smooth the transition between zones can affect the values in localized areas, this map should be used for regional analysis only.



Data Source:  
Moisture - Ministry of Agriculture, Crop Report Database  
IDW interpolation (power 2.5, local radius 30 km)  
Geomatics Services, Ministry of Agriculture October 28, 2015

# Root rot pathogens in Saskatchewan

- Caused by a combination of species

## ⇒ **ROOT ROT COMPLEX**

- *Fusarium* spp.
- sometimes *Rhizoctonia* and *Pythium*
- in many cases *APHANOMYCES euteiches*
  - Very persistent and potentially very aggressive



# Symptoms



Courtesy of S. Phelps, SPG



## Wet soils, peas and lentil

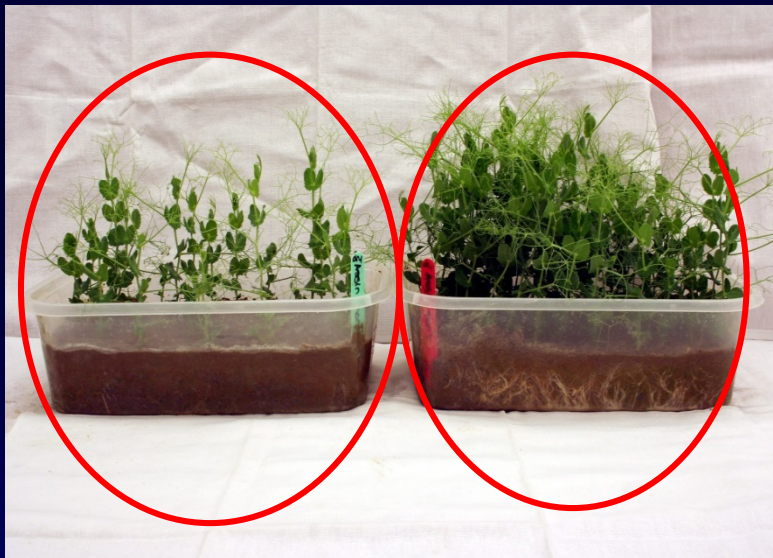
- Peas and lentil do not like wet feet
- A pea or lentil plant in wet soil is a stressed plant even without presence of pathogens

Peas grown in **STERILE** field soil: left normal watering, right water-logged conditions

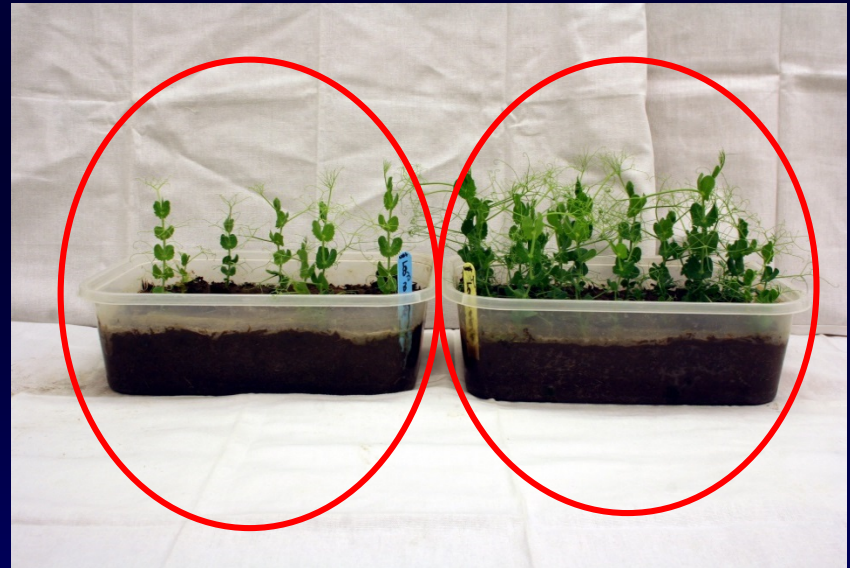


# Effect of water-logging on aphanomyces root rot severity

Normal watering  
Non sterile vs sterile  
field soil



Water-logged  
Non sterile vs sterile  
field soil





# Contributing factors to root rot increase: Soil compaction

Courtesy of Dr. S. Chatterton, AAFC





# Rotation

- Generally 4-year rotations
- In case of *Aphanomyces* 6- to 8-year rotations away from a susceptible host

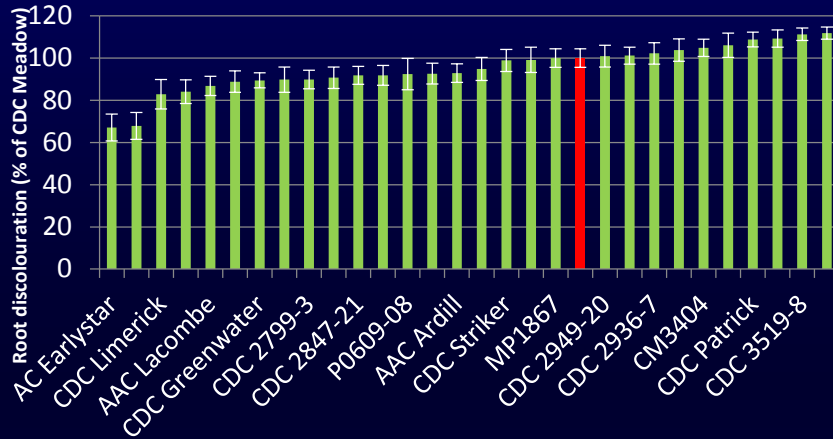


# Crop selection

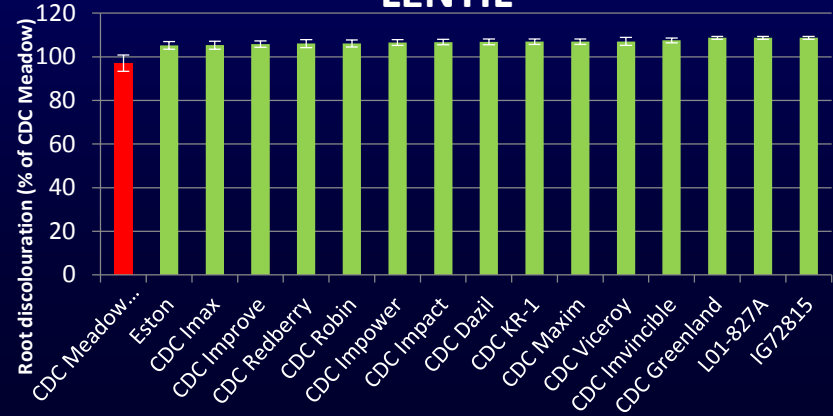
- All pulse crops susceptible to *Fusarium*, *Pythium*, *Rhizoctonia*
- **PEA, LENTIL, MANY ALFALFA, AND SOME BEAN VARIETIES** are **SUSCEPTIBLE** to aphanomyces root rot
- Soybean, faba bean and chickpeas have good partial resistance to aphanomyces root rot

# Crop resistance to *Aphanomyces*

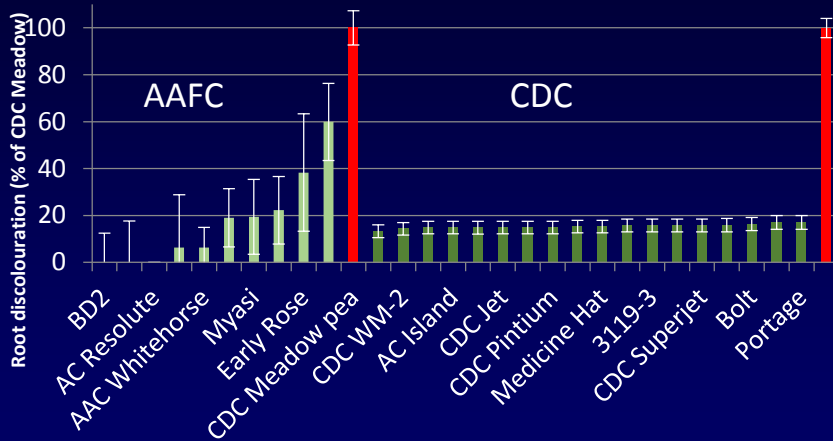
## PEA



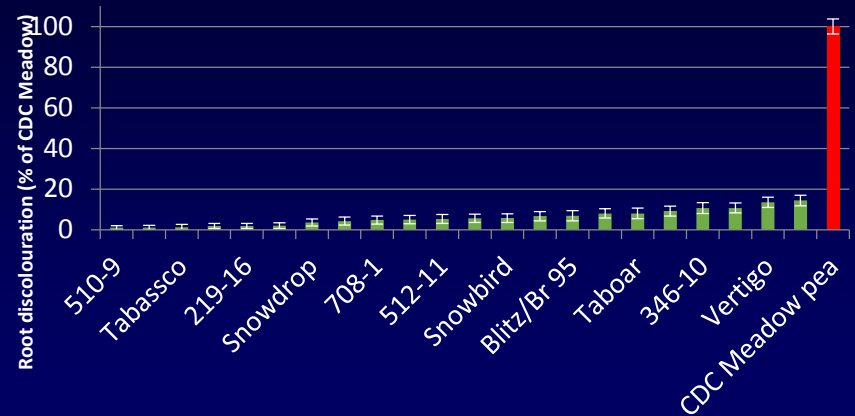
## LENTIL



## DRY BEAN



## FABA BEAN





<http://saskpulse.com/communications/magazines/pulse-point/>



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## In This Issue: March 2016

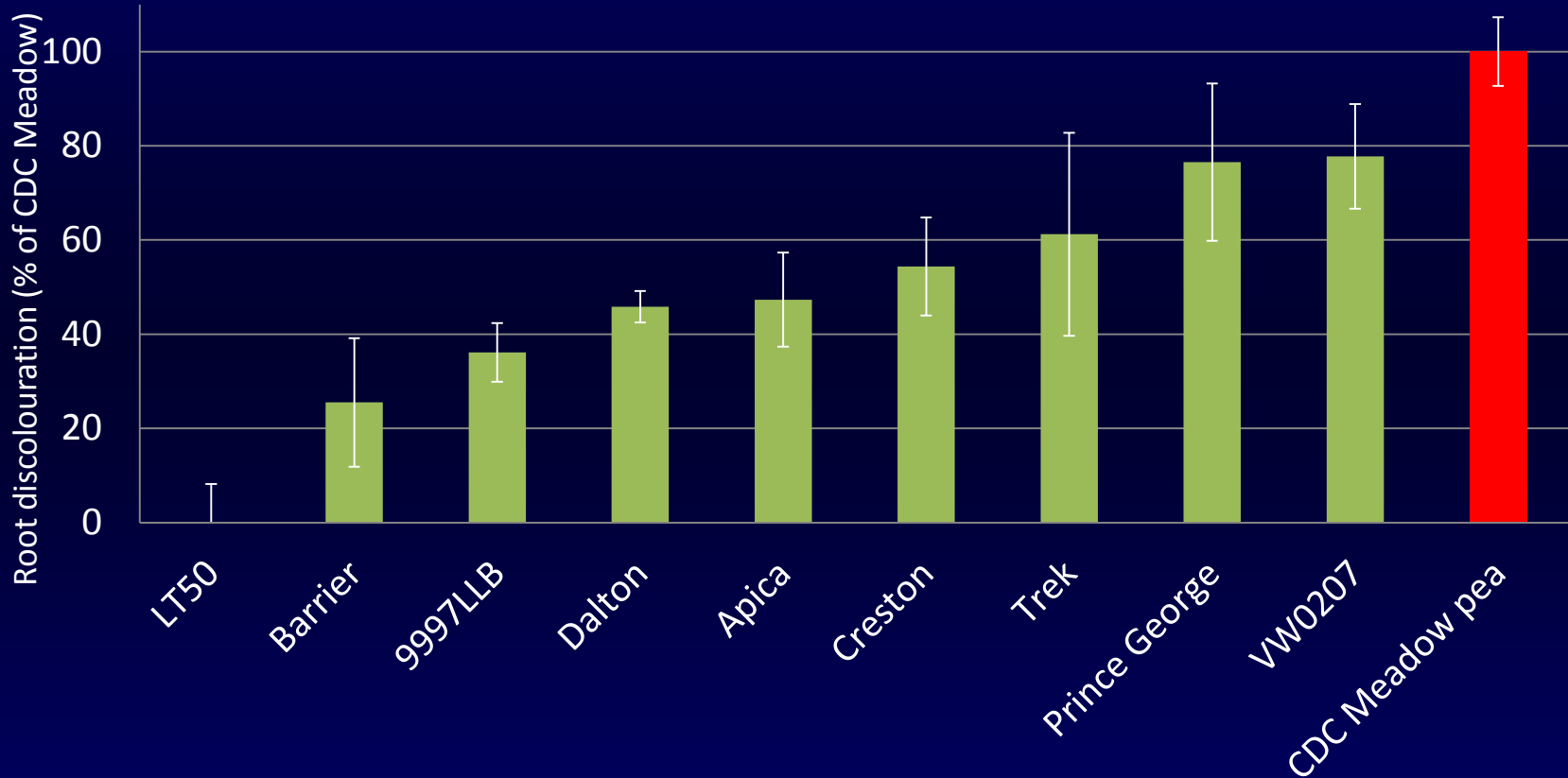
March 2016

### Unlocking Pulse Potential

- Seed testing is a wise investment ahead of 2016 planting
- Looking at new ways to control herbicide resistant weeds in pulse crops
- Growing lentils in shortened rotations - what to be aware of
- Chickpeas continue to see growth in Saskatchewan

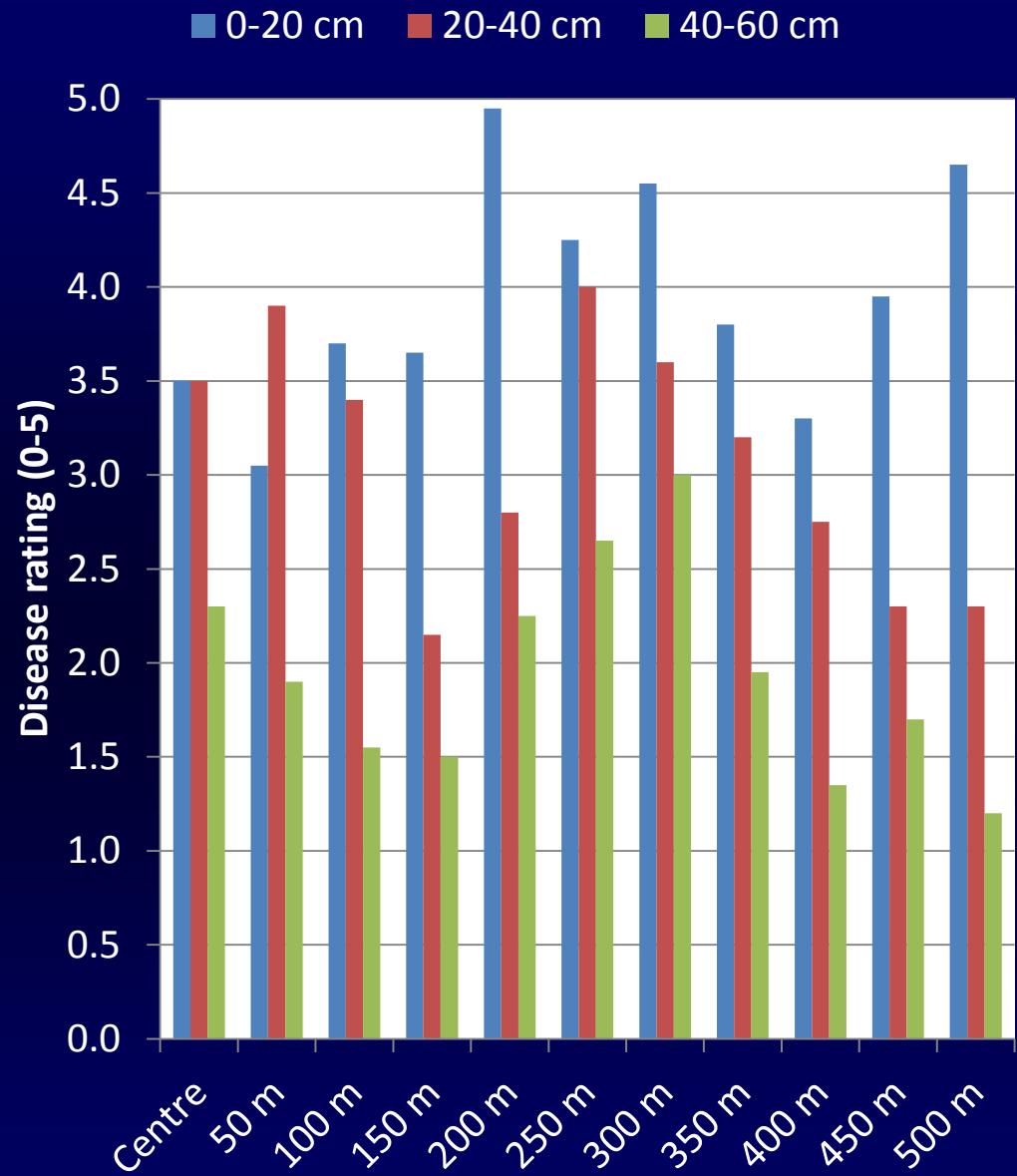
[VIEW PUBLICATION](#)

# *Aphanomyces* – Partially resistant crop **ALFALFA**



# Soil sampling for root rot diagnostic

- SPG-funded research project on spatial distribution of *Aphanomyces*/ risk model
- Variation in depth
- Variation across the field



Anthony Erickson & Syama Chatterton, AAFC Lethbridge



# Suppression of Aphanomyces root rot through fungicides

- Intego Solo
  - Full label for pulses except pea
  - Received emergency registration again for pea in 2016
  - Multiple mode of action including inhibition of cell division
- Phostrol
  - Possible registration for pea in 2017
- Others....????



# Faba bean

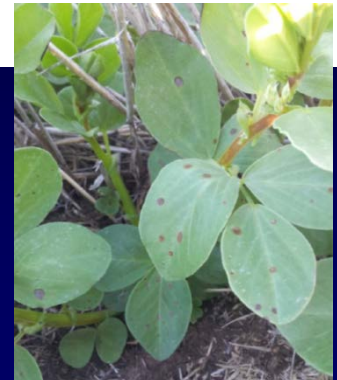
- Good partial resistance to aphanomyces root rot
- Susceptible to foliar diseases:
  - Chocolate spot (Botrytis)
  - Ascochyta blight
  - Anthracnose (?)



Ascochyta blight lesions with pycnidia



Chocolate spot lesions



**Rohan Kimber and Jenny Davidson (SARDI, South Australia)**

# Lesions NOT caused by pathogens



Faba beans at Kernen 2015  
Viper and Basagran  
application

Its not a disease – herbicide effect / oil additive reaction ?



- Difference between surfaces & often directional effect
- Entry point for minor pathogens
- Botrytis can infest necrotic material

**Rohan Kimber and Jenny Davidson (SARDI, South Australia)**



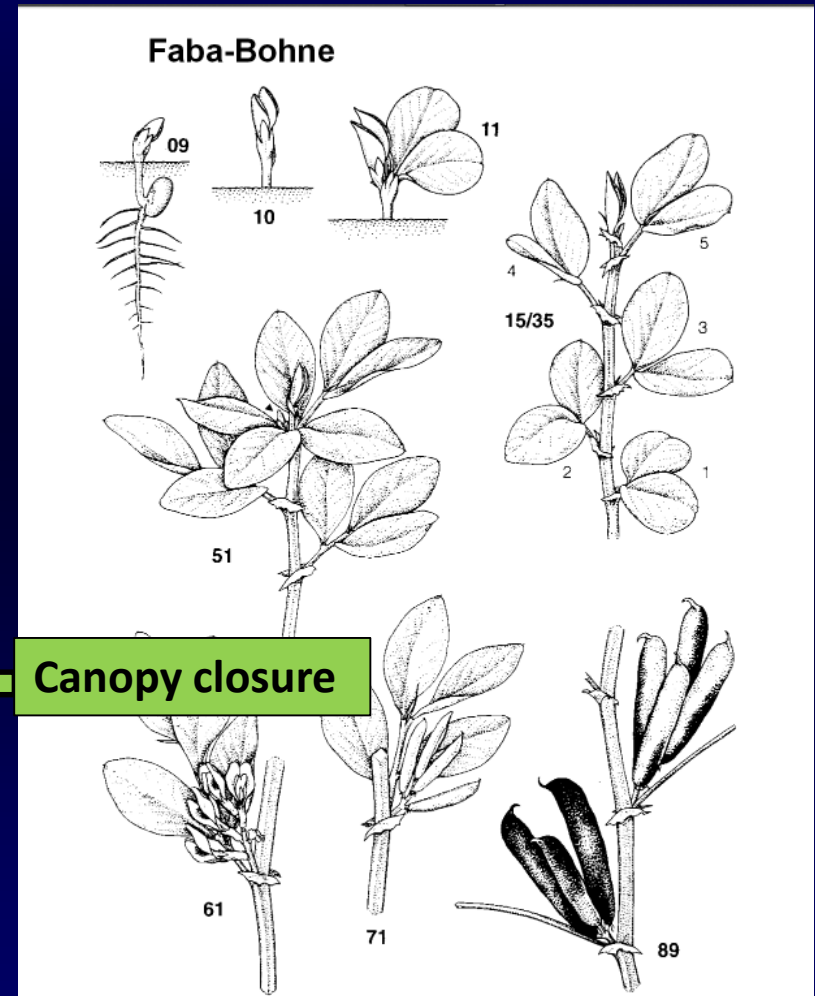
# Fungicide applications

- Most efficacious application before canopy closure (3-5 flowering node?)
- Later applications if rain and/or canopy remains wet
  - Botrytis spores (chocolate spot) are airborne!



# Growth stages of faba beans

BBCH Code	Definition
9	Seedling emergence
10	Shoot with scale leaves
11	First leaf unfolds
15-20	Further leafy nodes
21	First side shoots
50	First flower bud visible
61	First flowering node in bloom
65	Full flower: 5 <sup>th</sup> flowering node in bloom
71	10% of pods have reached maximum size
89	Full maturity: all pods dark, seeds hard and dry



# Lentil disease refresher

- Anthracnose, ascochyta blight
- Sclerotinia white mould, botrytis grey mould, stemphylium blight
- Highest efficacy of fungicide at 8- to 9-node stage
- Limited control of late season disease
- Chlorothalonil under review!





# A successful 2016!



Saskatchewan  
Ministry of  
Agriculture



SASKATCHEWAN  
pulse  
Growers



ADF



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NSERC  
CRSNG



CROP DEVELOPMENT CENTRE