



# Canola Sclerotinia; Why was it worst in 2013? Future management strategies

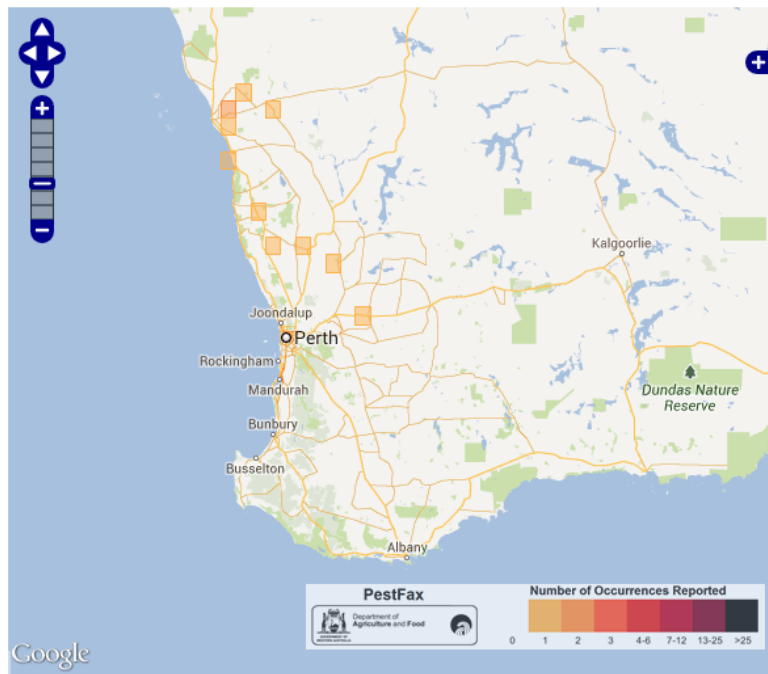
Ravjit Khangura  
25 Feb 2014



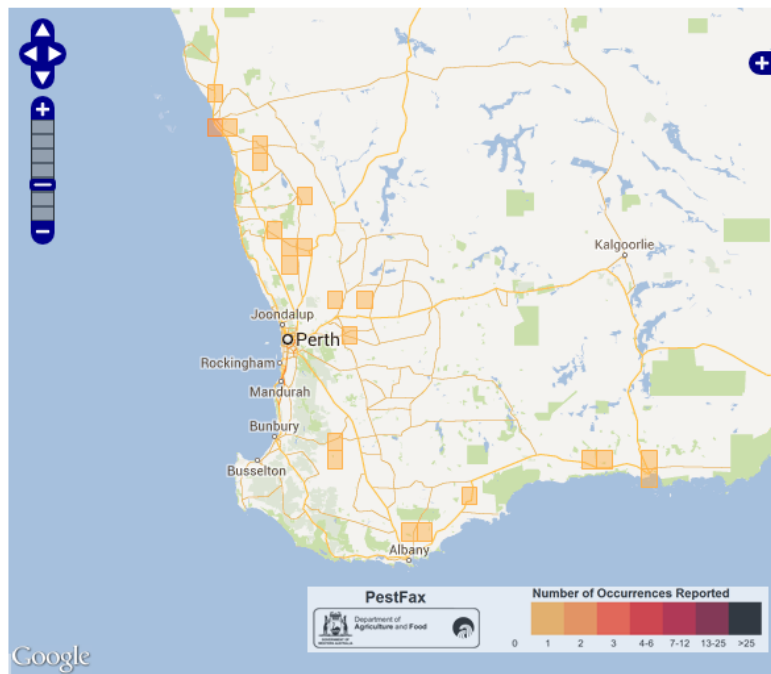
# Sclerotinia stem rot incidence in 2013

- Widespread from north to south
  - Average incidence across 86 samples was 28%.
  - Northern region incidence ranged between 0-60% with an average incidence 26%.
  - Low incidence in Gibson, Scaddan, Dalyup.
  - Yield losses ranged between 0.5-1t/ha.
  - Yield losses estimated at \$59M

# Sclerotinia reports via Pestfax

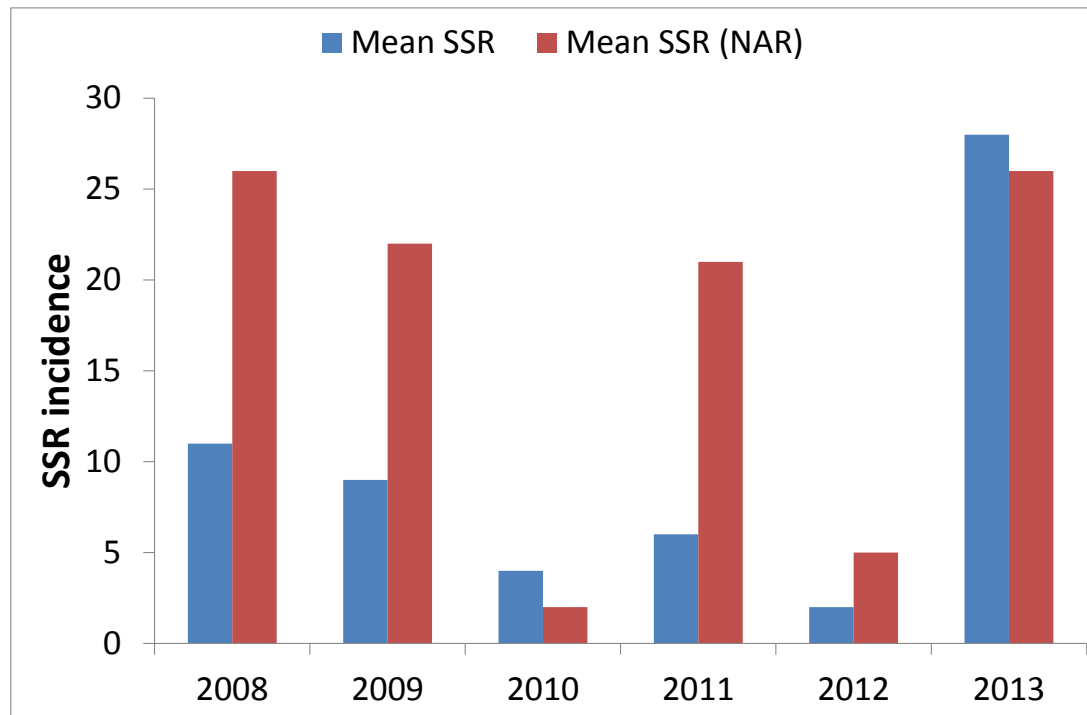


2011

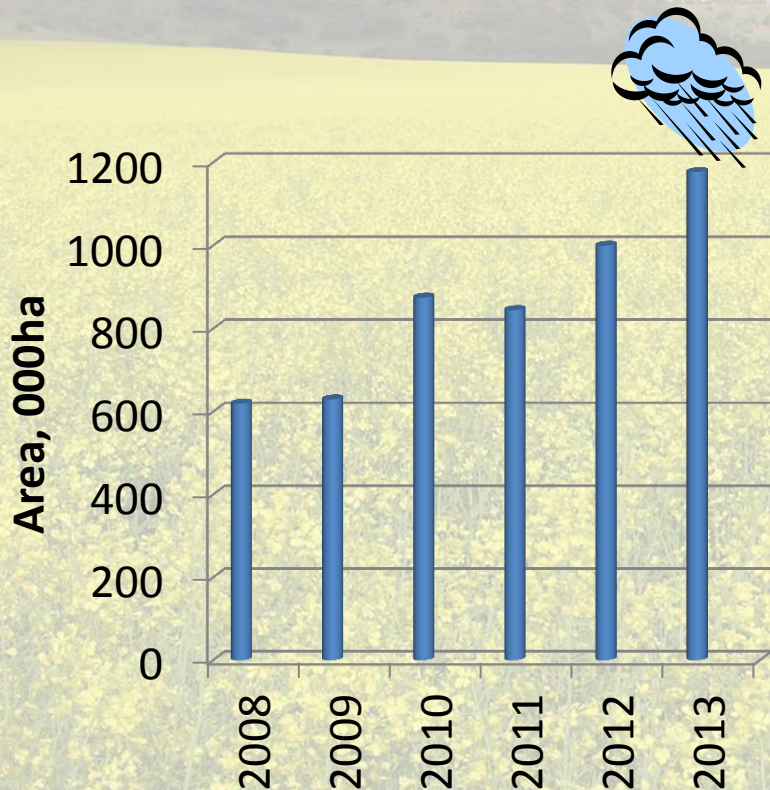


2013

# Historical SSR incidence (2008-2013)



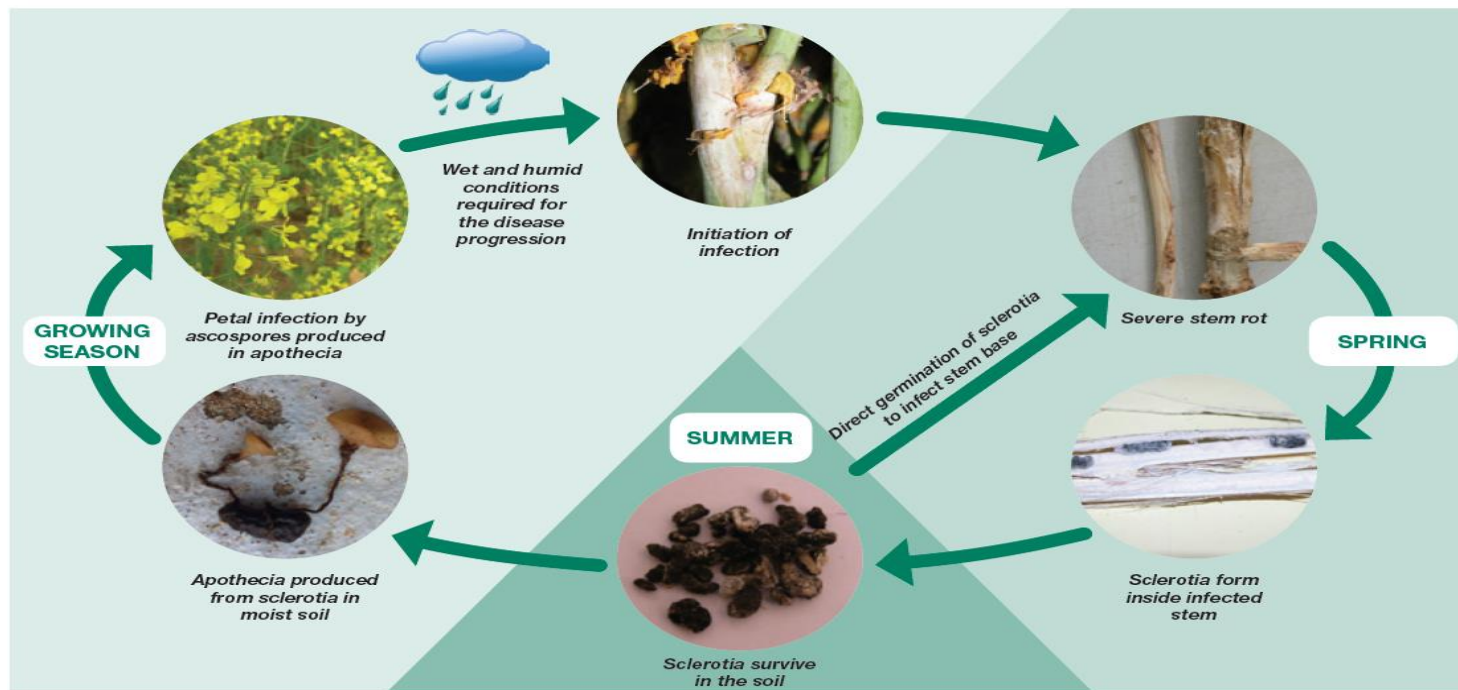
# Why SSR was so bad in 2013?



- Canola Plantings
- Shortened rotations
- Frequent rain
- Synchronisation of flowering with spore release
- Extended flowering period
- Conducive conditions post-infection



# Sclerotinia Life Cycle

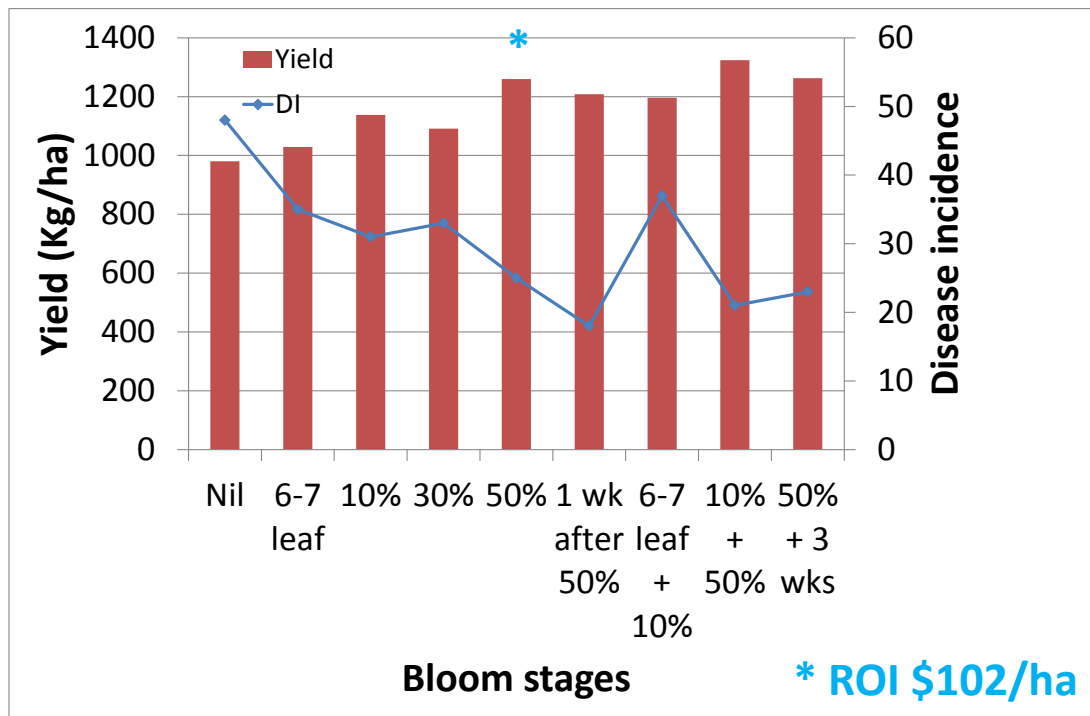


# Timing of fungicide application

- Location – East Chapman
- Variety - Cobbler
- Fungicide Prosaro® applied at various bloom stages @ 450ml/ha



# Timing of fungicide application





# Nil vs single spray

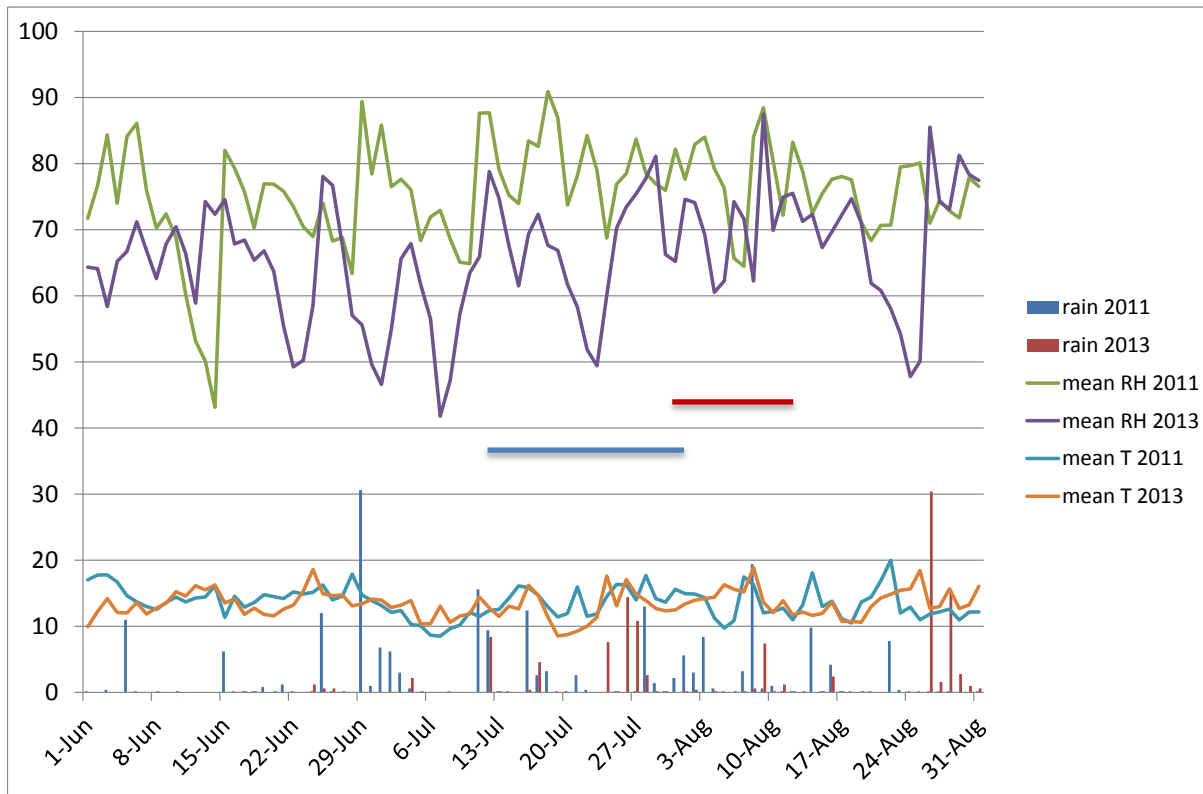
Nil



50% bloom



# Early vs late epidemics in the NAR 2011/2013



# Prosaro applications in 2013

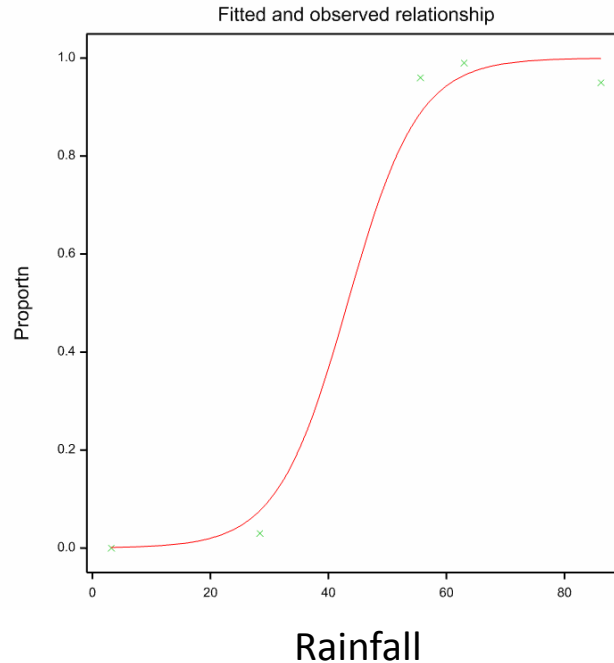
- Commercial crops treated at 30-50% flowering reported yield increase of 0.3-0.5t/ha



# Sclerotinia forecasting on the horizon



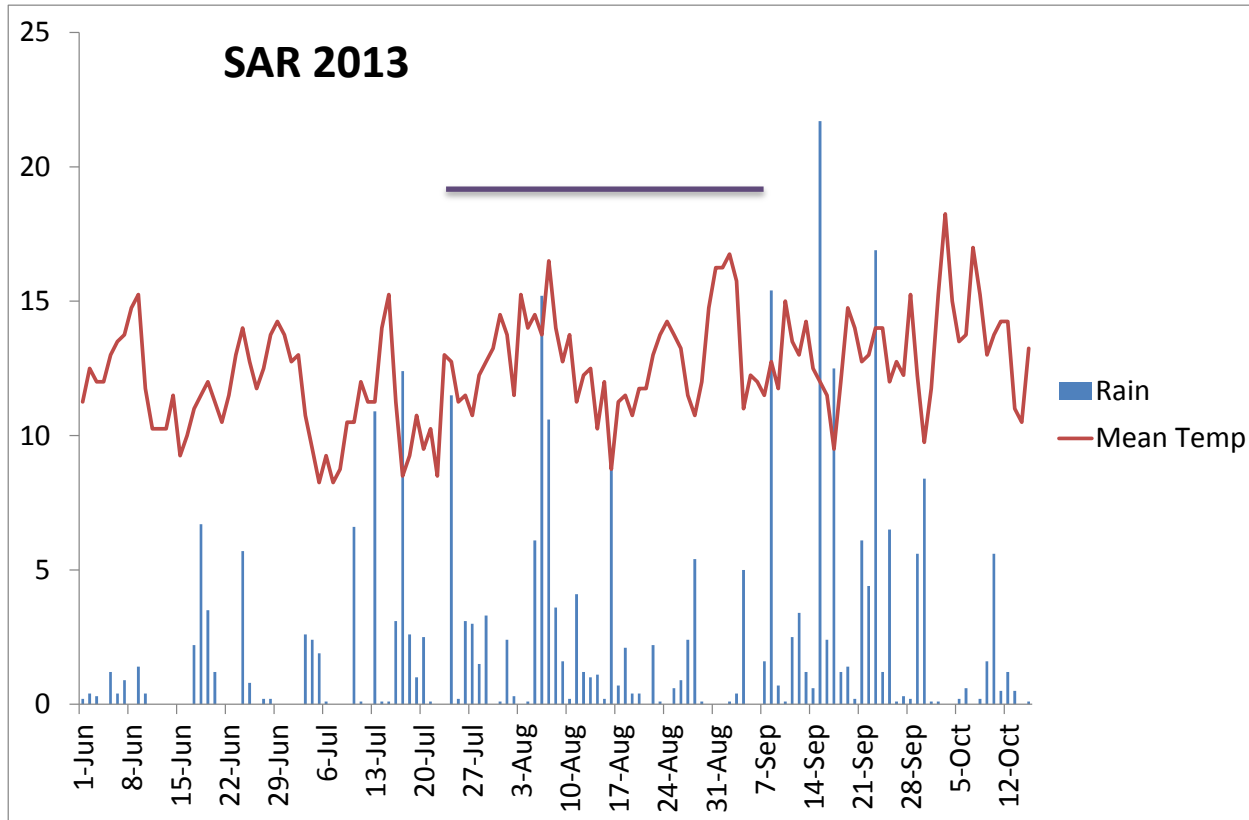
# Rainfall-Petal infection



$$\text{probability} = 1 / (1 + (\exp(-(-7.262 + 0.1679 * x))))$$



# Weather conditions post infection



Rainfall  
Rain days  
RH >80%



# Variables for modelling

- Rainfall in the lead up to flowering
- Petal infection
- Rain events following PI
- Relative Humidity
- Threshold / critical values will be established

# 1. Sclerocast – Regional Risk

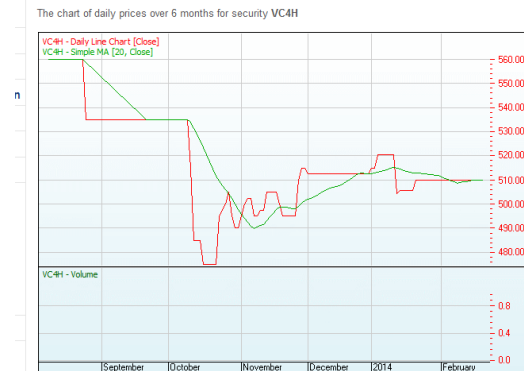
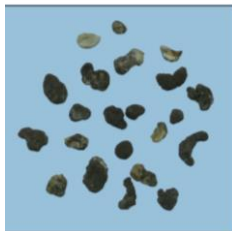
- Rotation history\*
- Disease incidence in the last affected crop\*
- Distance from last year's affected crop\*
- Weather factors leading up to the production of apothecia
- Percentage petal infection
- Conditions favourable for stem infection

\*(Good record keeping)

Canola Phenology Models (APSIM)



# 2. Spray decision



# Management strategies

- Long rotations
- Rotate with non-host crops
- Avoid sowing close to last year's infected crop
- Use clean seed (CBH 0.5%)
- Use recommended plant densities
- Use fungicide

# Key messages



- Favourable conditions created a ‘Perfect storm’ for Sclerotinia in 2013
- Time fungicide application in relation to conditions favourable for stem infection
- Key variables for SSR forecasting identified
- Watch the space for the first WA Sclero forecast!

# ACKNOWLEDGEMENTS

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- Australian National Canola Pathology Project
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  - A Van Burgel, M Salam, M Aberra and WJ MacLeod
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# Thank You





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Agriculture and Food



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# Questions?

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# Yield loss on an individual plant basis

- Walkaway
- H vs D = 92%
- H vs Lat = 18 %
- H vs MS = 12%\*

\* Main stem with small lesions

- Kojonup
- H vs D = 95%
- H vs Lat = 31 %\*\*
- H vs MS = 71%\*\*

\*\* Plants had severe infection at this site