

# Factors affecting sclerotinia stem rot infections in canola

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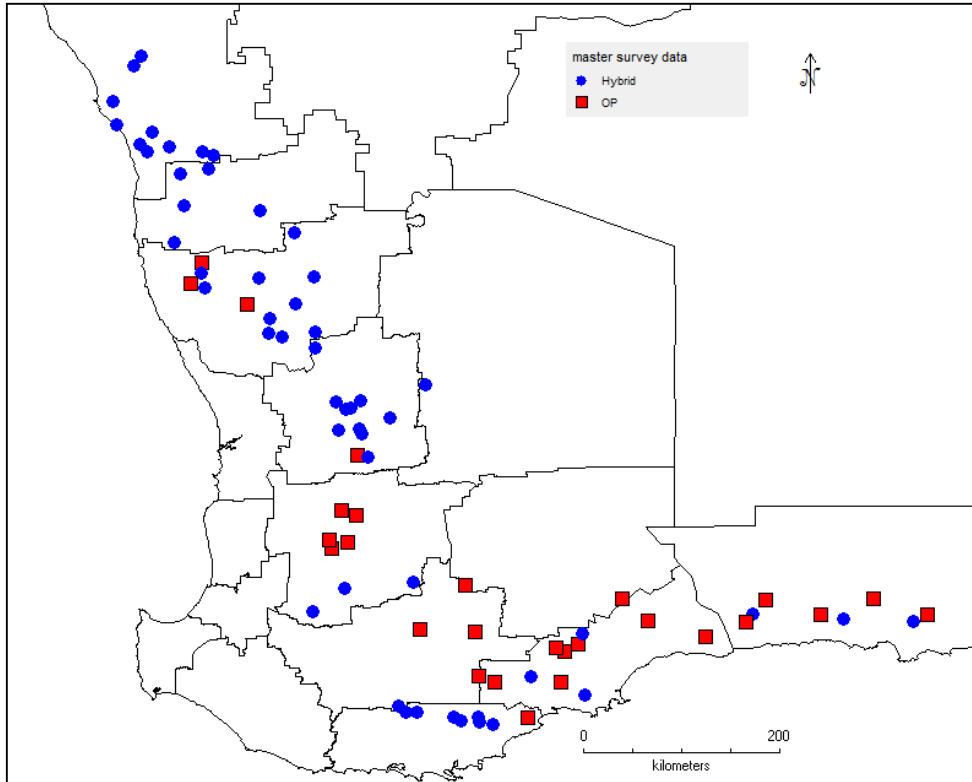


# Outline

Summary of three projects;

1. Field survey in 2016 of 82 sclerotinia stem rot infected canola paddocks in WA assessing location of sclerotinia lesions and sclerotia within lesions for potential HWSC
2. Spatial soil survey in 2017 of six paddocks with sclerotinia stem rot infections in 2016 to determine sclerotia left in the soil for future infection potential
3. Field trials in 2017 at seven locations in WA wheatbelt to record sclerotinia stem rot infection in hybrid/ open-pollinated canola varieties  $\pm$  fungicide application

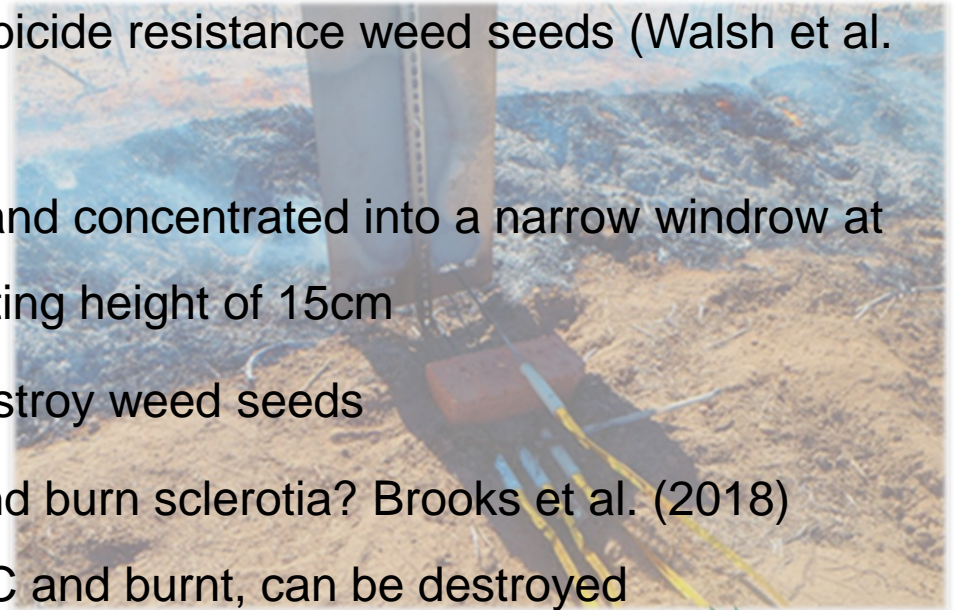
# 2016 field survey of canola paddocks for HWSC



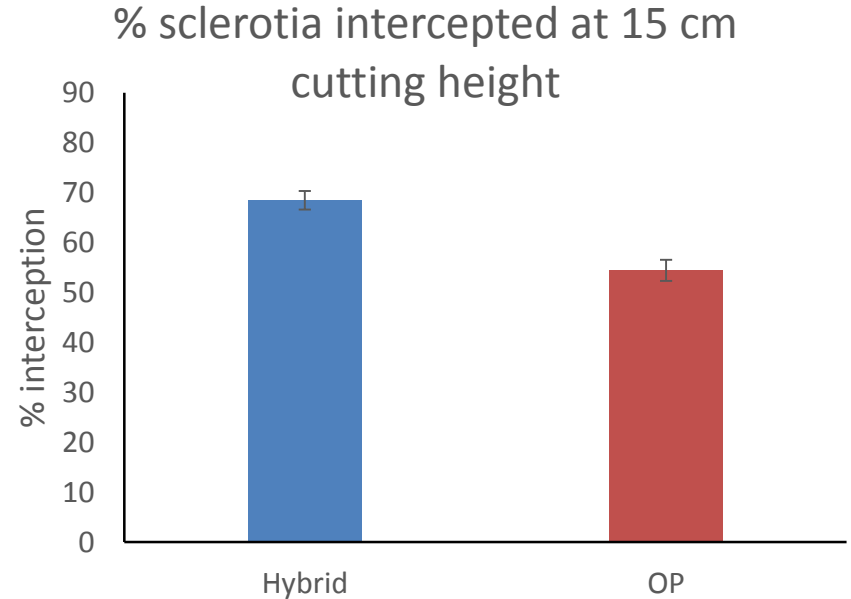
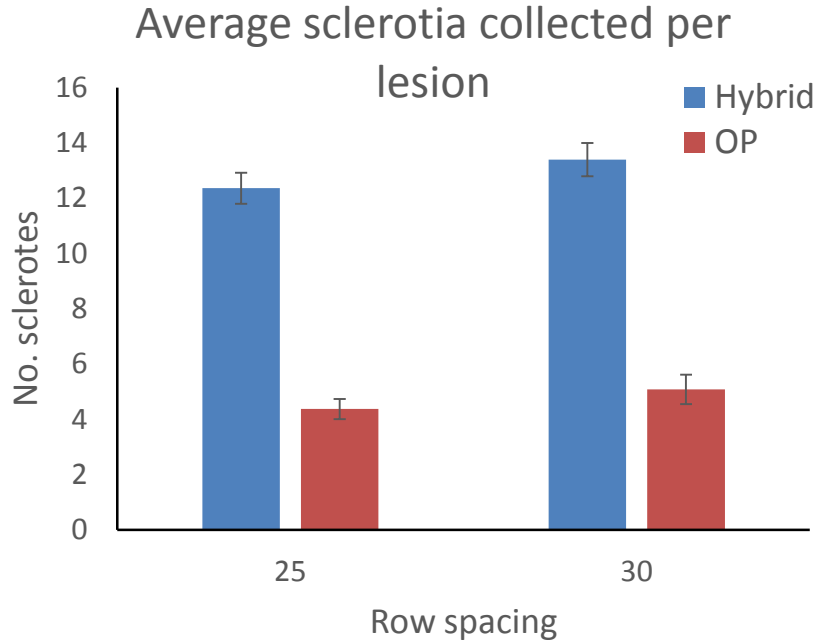
- 82 Locations
- 10 infected stems collected per location
- Canola stems dissected

# HWSC (potential method to reduce *Sclerotinia* inoculum levels)

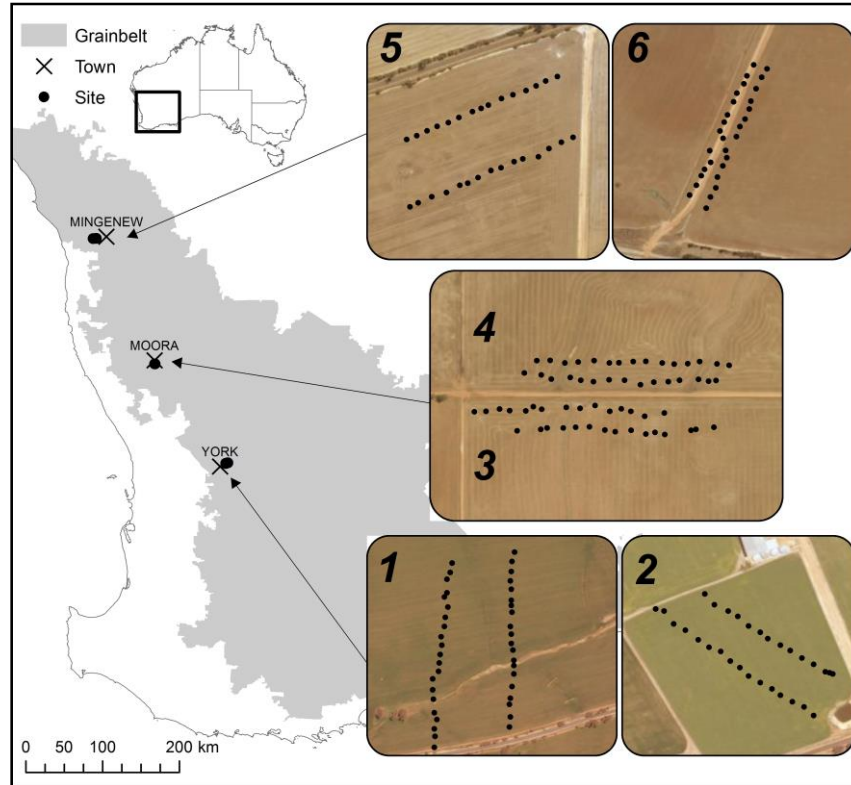
- Method developed to control herbicide resistance weed seeds (Walsh et al. 2013)
- Chaff mechanically intercepting and concentrated into a narrow windrow at grain harvest, recommended cutting height of 15cm
- Burnt the following Autumn to destroy weed seeds
- Can it also be used to capture and burn sclerotia? Brooks et al. (2018)  
sclerotia intercepted using HWSC and burnt, can be destroyed



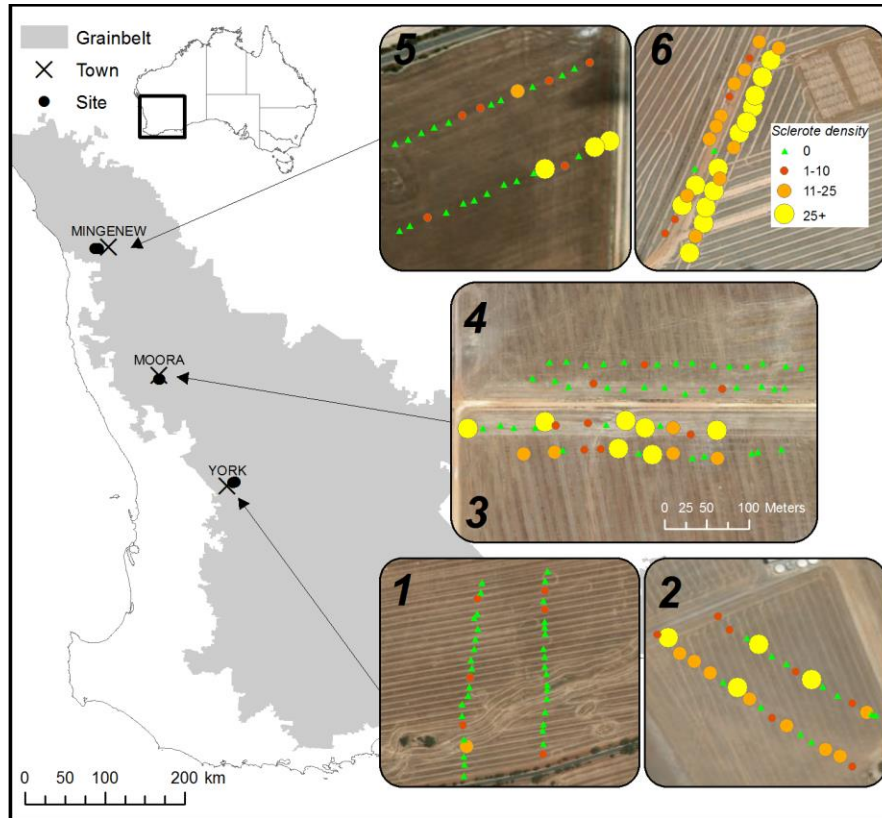
# Can HWSC be used to capture and burn sclerotes?



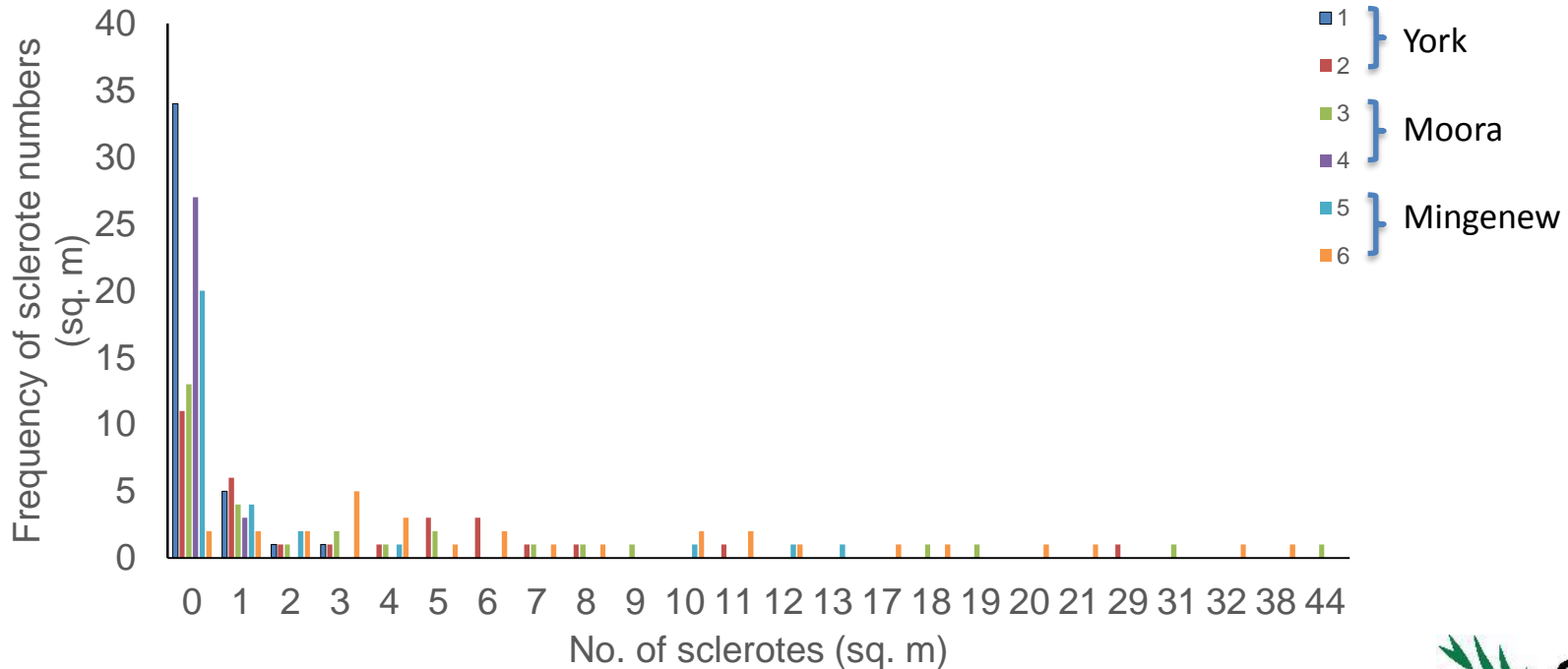
# 2017 Spatial soil survey of paddocks with significant sclerotinia stem rot infection in 2016



# 2017 Spatial soil survey of paddocks with significant sclerotinia stem rot infection in 2016



# Numbers of sclerotia of *Sclerotinia sclerotiorum* collected from 25cm<sup>2</sup> quadrat soil samples along transects in six paddocks with sclerotinia stem rot infected crops in 2016





# 2017 field trials in WA wheatbelt

- 7 trials – Greenough to Kojonup & Katanning
- 2 varieties – Benito and Hyola 559
- 2 treatments - +/- fungicide (Prosaro) @ 20-30% flowering

Dry season

Late start

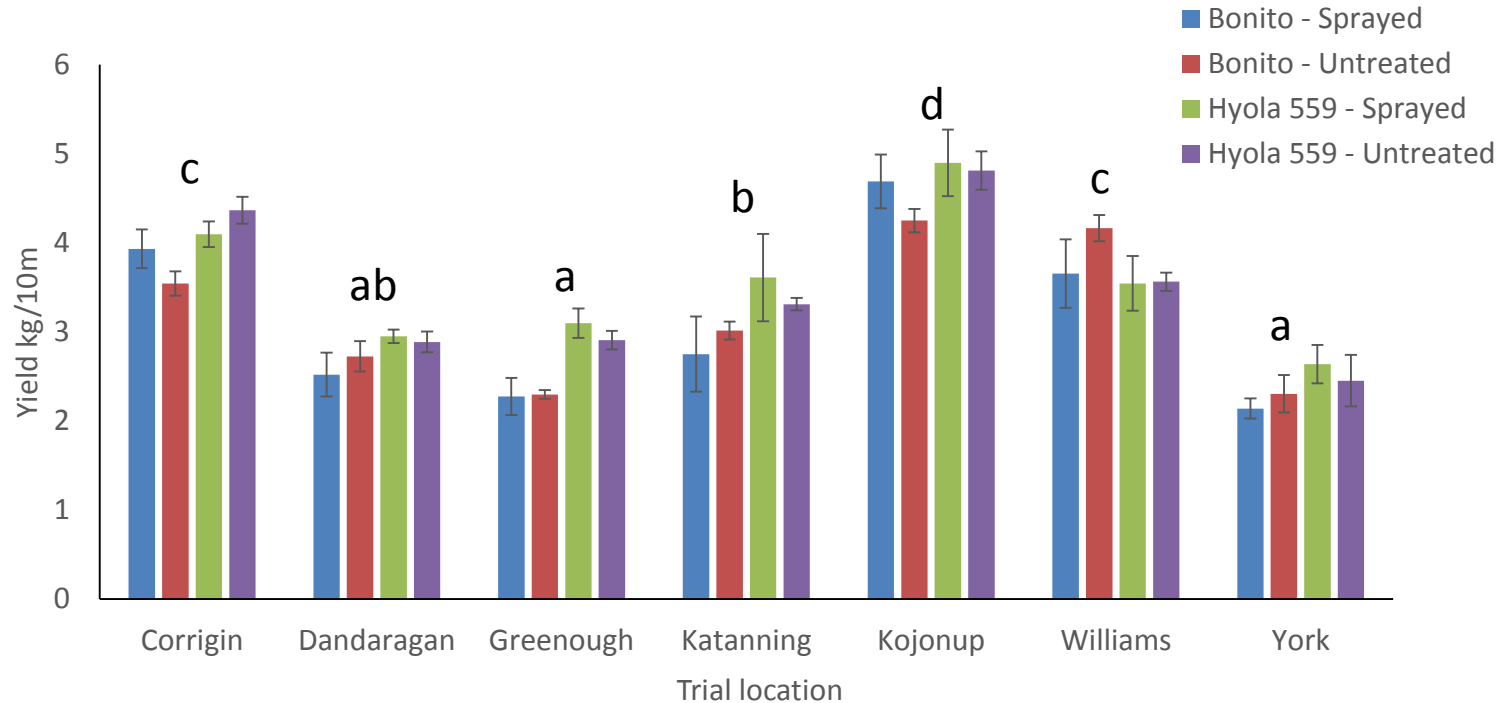
Poor germination & patchy establishment

# 2017 field trials: measurements

- Density
- Sclerotinia infection (very low at all sites)
- Harvest data
- Weather data
- To score from collected stems;
  - Lesion length
  - Stem width at lowest point of lesion & 2<sup>nd</sup> branch
  - No. of sclerotia (if infected)

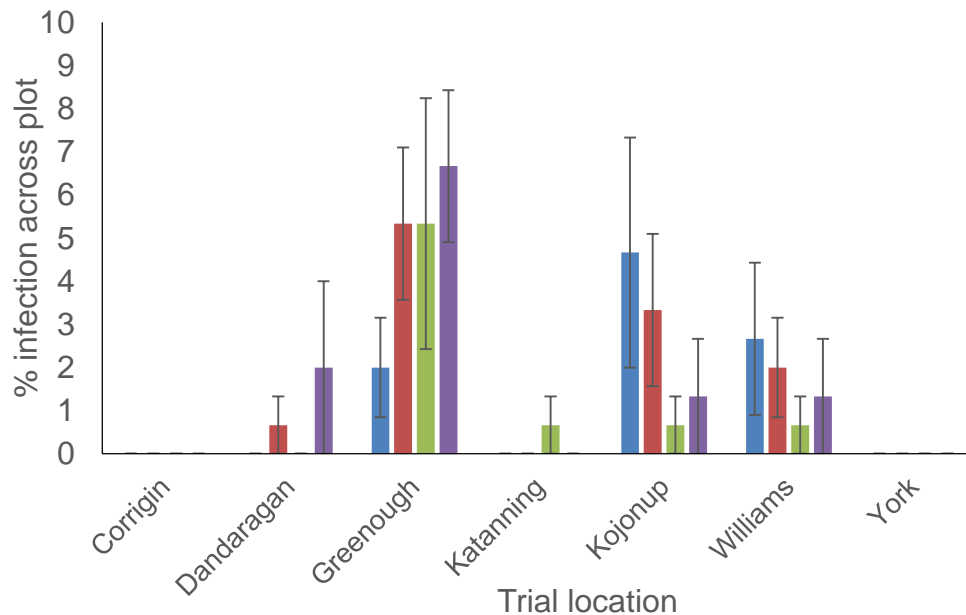


# 2017 field trial results

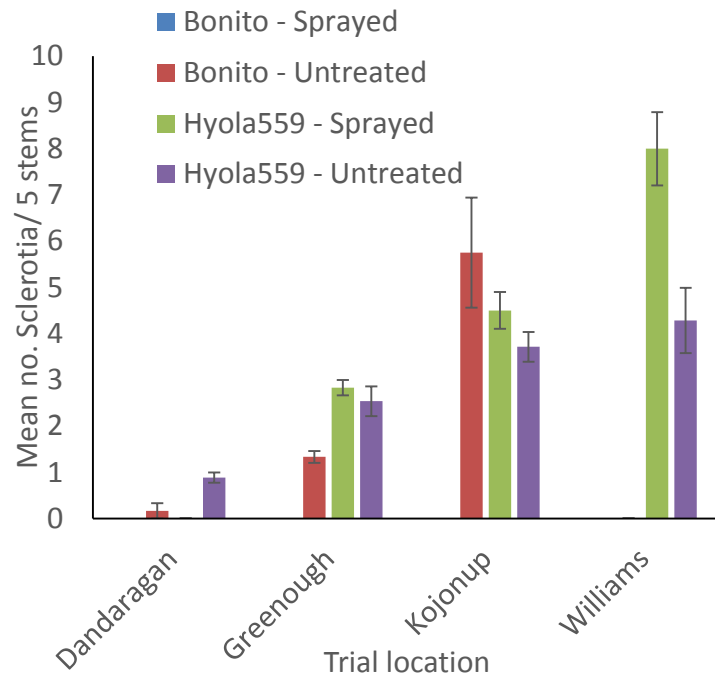


Canola yields following natural sclerotinia infection +/- sprayed for control

# 2017 field trial results



SSR infection rates on fungicide treated and untreated canola trials in 2017



Sclerotia per treatment (5 stems)

# Key messages

- In good years,  $> \frac{1}{2}$  of *Sclerotinia sclerotiorum* sclerotia can be removed during canola harvest following HWSC guidelines.
- The nos. of sclerotes left in soil following a sclerotinia infected crop is highly variable, but significant in patches. Rotation of canola with non-host crops is recommended.
- Even with a dry & late start to the season, sclerotinia stem rot was recorded in up to 10% of plots. However severity of infection and subsequent yield loss was low.
- If yield  $\uparrow$  by 1%, through better understanding of factors affecting SSR infection of canola, leading to improved management of disease, benefits to WA grain growers will be close to \$1.5 million per annum.

## Acknowledgments

Researchers on different projects reported:

2016 - Kyran Brooks, Michael Ashworth, Leon Hodgson

2017 - Pippa Michael, Matthew Denton-Giles, King Yin Liu, Linda Thompson

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