



Department of  
Primary Industries and  
Regional Development



# Understanding and managing Sclerotinia in lupins

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**GRDC Project Code Number:** DAW2104-002RTX - *Sclerotinia management for narrow leaf lupin crops in Western Australian farming systems*

## Key messages

- Sclerotinia stem rot (SSR) is a damaging and increasingly prevalent disease in lupins, with disease risk higher in high density crops that are grown in a paddock with previous history of the disease, a loamy soil type, achieve early canopy closure and are of good yield potential.
- In 2021, SSR was widespread in northern and central WA lupin crops, both in the canopy and at ground level (basal) thought to be promoted by wetter than average conditions and wet soil profiles in early winter combined with mild temperatures. Several foliar fungicide treatments, applied at or after flowering, reduced canopy infection when disease incidence was high but did not significantly reduce basal infection in field trials. Yield responses were variable.
- Lupin varieties Jurien, Barlock and Amira differ in their susceptibility to diverse WA Sclerotinia isolates as measured by yield, lesion length and sclerotia production in pot experiments.

## Aims

A four-year GRDC funded project investigating SSR (caused by *Sclerotinia sclerotiorum*) in broadacre lupin crops (narrowleaf and albus) commenced in 2021 and is a collaboration between DPIRD, CCDM and the Mingeneew Irwin Group with support from the WA lupin industry. The aim is to understand the SSR disease infection process, yield/grain quality impacts and effective management strategies and includes research focussing on basal (myceliogenic germination of sclerotia directly infecting plants at ground level) and canopy infection (carpogenic germination of sclerotia to produce ascospores that infect petals and the crop canopy).

## Results

The presentation will cover field trials, large-scale grower trials, glasshouse experiments and surveys of commercial lupin crops conducted in 2021 in order to understand: how disease development is affected by weather conditions, sclerotinia history, time of sowing, lupin varieties/species and fungicide timing; aggressiveness of WA sclerotinia isolates on commercial varieties; myceliogenic germination of sclerotia, and environmental triggers for basal stem infection; distribution, incidence and yield/quality impacts of sclerotinia in lupin crops surveyed in the Geraldton and Albany port zones. Out of 22 lupin crops surveyed in the Geraldton port zone (GPZ), 21 had canopy SSR infection and 20 had basal. Historically only 2 out of 11 trials conducted in the GPZ from 2016-2019 gave a yield response to fungicide, however with significant infection in 2021, yield responses of 4 – 23% were found in 5 out of 7 trials. Current observations are that the disease predominantly causes yield loss by affecting pod production on the main spike. Development of SSR was too slow or late in cooler southern regions to significantly respond to fungicide application or impact yield in 2021.

## Conclusion

SSR disease in lupins is highly dependent on favourable rainfall and temperature conditions for disease development, persistence and spread. Incidence of both basal and canopy infection in lupins was very high in the GPZ and parts of the Kwinana north port zone in 2021, where dense crops with early canopy cover and ongoing rainfall and temperatures through winter favoured disease development and spread. Damaging disease levels of sclerotinia in lupin are hard to predict, making decisions on value of management in each cropping situation challenging. Instead of disease management aiming solely for a yield response, there may be other benefits such as for grain quality and reducing sclerote production, which could reduce need to grade seed and future infection risk of canola and pulse crops.

### Acknowledgements

The research undertaken as part of this project is made possible by the significant contributions of growers through both trial cooperation and the support of the GRDC, the author would like to thank them for their continued support especially the MIG growers who hosted trials in 2021.

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### Further information

[Managing sclerotinia in lupins DPIRD page: https://www.agric.wa.gov.au/grains-research-development/understanding-and-managing-sclerotinia-stem-rot-lupins](https://www.agric.wa.gov.au/grains-research-development/understanding-and-managing-sclerotinia-stem-rot-lupins)

**The presentation is available to be viewed online** at the link below: GRDC Grains Research Update 2022, held online – Perth Day 6, Soils/Pulses: Understanding and managing sclerotinia in lupins – Ciara Beard, Pippa Michael  
<https://grdc.com.au/events/past-events/2022/march/grdc-grains-research-update-online-perth-day-6-soils-pulses?videoid=6301430385001>

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