

Chickpea, economically viable fungicide strategies to control *Ascochyta* blight in varieties and advanced lines, MRZ Lower North (Turretfield), South Australia

Authors

Jenny Davidson, Sarah Day, Penny Roberts

Aim

To identify economically viable fungicide strategy to mitigate yield loss due to *Ascochyta rabiei* in varieties and advanced lines of chickpea.

Background

Ascochyta blight of chickpea, caused by the fungal pathogen *Ascochyta rabiei*, is a common fungal disease in South Australia. Infection occurs from infected seeds and conidia that are rain-splashed from infected stubble and diseased plants throughout the season. Ascochyta blight can cause total crop loss in seasons that are conducive to the disease. Crop losses occur due to extensive stem breakage and pod infection that lead to seed abortion.

Prophylactic foliar fungicides are recommended to prevent initial infections of *Ascochyta rabiei* since it is difficult to control this disease once it is established in the crop. Further, widespread loss of resistance in the southern region from 2015 led to the National Chickpea Breeding program to develop varieties with resistance to this disease. Thus, this trial was designed to evaluate the effectiveness of different fungicide strategies to mitigate ascochyta blight in advanced breeding lines and commercial chickpea varieties.

Treatments

Varieties: 12 varieties including 07 advanced lines (Table 1)

Treatments: 5 fungicide strategies

Fungicide strategies	Product	Active ingredients and concentration (g/l)	Time and rate of application (l/ha)
Nil + P-Pickel T	P-Pickel T®	Thiram (360) + Thiabendazole (200)	Seed dressing (200ml/100 kg seed)
Fortnightly chlorothalonil	Chlorothalonil	Chlorothalonil (720)	Fortnightly (2)
Chlorothalonil	Chlorothalonil	Chlorothalonil (720)	Vegetative, early flowering and pod set (2)
Veritas	Adama Veritas®	Tebuconazole (200) + Azoxystrobin (120)	Vegetative, early flowering and pod set (1)
Aviator XPro®	Bayer AviatorXPro®	Bixafen (75) + prothioconazole (150)	Vegetative, early flowering and pod set (0.6)

Table 1. Varieties and advanced lines sown in Turretfield ascochyta trial, 2019

Variety/breeding line	Resistance rating from testing in Southern Region
CICA1156	MS
CICA1352	MS
CICA1454	MS
CICA1521	S
CICA1551	MS
CICA1552	MS
CICA1841	MS
Genesis 090	MS
Howzat	VS
PBA Monarch	S
PBA Slasher	MS
PBA Striker	S

Table 2. Trial site details

Turretfield	
Sowing Date	19 June
Replicates	3
Disease Inoculum	Infected chickpea stubble collected from 2018 trial spread in the field

Results and Interpretation

- The trial faced numerous problems such as poor emergence in several lines, selective grazing by rabbits/hares and spray drift that confounded the fungicide applications. This trial was abandoned.

Acknowledgements

The research undertaken as part of the GRDC-funded Southern Pulse Agronomy project is made possible by the significant contributions of growers through both trial cooperation and the support of the GRDC and the authors would like to thank them for their continued support. The continued assistance in trial management from SARDI Agronomy groups at Clare, Minnipa, Struan and Port Lincoln is gratefully acknowledged and appreciated. The authors would also like to gratefully acknowledge SARDI Plant Pathology and Soil Biology groups for their scientific input and assistance, as well as advisors and grower groups involved in the project.