

Lentil, Yield loss from virulent forms of *Ascochyta lentis*, MRZ Yorke Peninsula (Maitland), South Australia

Authors

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Aim

To identify potential yield loss from the isolates of *Ascochyta lentis* in PBA Hurricane XT.

Background

Ascochyta blight of lentil, caused by the fungal pathogen *Ascochyta lentis*, is common in lentil growing in South Australia. Infection start from infected seeds or ascospores that are blown from infected stubble during winter. Further, conidia are rain-splashed from the infected stubble and diseased plants. The national Lentil Breeding program has developed several commercial varieties that are resistance to this disease. However, the resistance in varieties, Nipper and PBA Hurricane XT were lost within three years after their commercial release due to the high variability of the pathogen population. This is particularly true for Yorke Peninsula where lentil crops are grown in close rotation producing high selection pressure for virulent forms of the pathogen. In seasons that are highly conducive to the disease up to 30% yield loss has been reported in PBA Flash, which is a moderately susceptible variety. Further, seed staining, which occur as a result of the disease decreases the market quality of the grain leading to more economic losses. The recommended practice is to apply foliar fungicides ahead of rain events starting from the vegetative stage, and especially during the onset of pod set and filling for moderately susceptible varieties such as PBA Flash. Therefore, the trial was conducted to quantify the yield losses caused by ascochyta blight in intermediate disease resistant (MRMS) variety, PBA Hurricane XT to develop more economically viable fungicide program.

Treatments

Varieties: 9 varieties including 2 advanced lines (Table 2)

Treatments: 4 fungicide treatments (Table 1)

The trial was sown into a paddock with a history of ascochyta blight infection in PBA Hurricane XT to encourage natural infection.

Table 1. Fungicide treatments in Maitland lentil ascochyta trial, 2019.

Treatment	Fungicide product	Active ingredient and concentration (g/l)	Time and rate of application (l/ha)
Nil	Fungicides not applied	NA	NA
Fortnightly Chlorothalonil	Chlorothalonil	Chlorothalonil (720)	Fortnightly (2)
Chlorothalonil	Chlorothalonil	Chlorothalonil (720)	Pod set just before rains (2)
Veritas®	Adama Veritas®	Tebuconazole (200) + Azoxystrobin (120)	Pod set just before rains (1)

Table 2. Varieties and breeding lines sown in Maitland lentil ascochyta trial, 2019.

Variety/breeding line	Reaction to virulent isolate (from controlled screening)
PBA Hurricane XT	MRMS
PBA Hallmark XT	MRMS
PBA Ace	R
PBA Blitz	MR
PBA Bolt	MRMS
PBA Flash	MS
PBA Jumbo2	R
CIPAL1621	MR
CIPAL1721	MRMS

Table 3. Trial site details

Maitland	
Sowing Date	20 May
Disease Inoculum	Natural infection; paddock known to have virulent form present

Results and Interpretation

- Key Messages: None of the lentil varieties developed ascochyta blight due to the dry conditions during the season. Only few isolated lesions were developed in PBA Hurricane XT.

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