L2 Lentil Disease Management, Yorke Peninsula (Arthurton), South Australia

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Aim

To identify the optimum ascochyta blight (AB) management strategy for PBA Flash (rated moderately susceptible (MS) to foliar infections of AB).

Treatments

Varieties: Nipper (R), PBA Flash (MS) and a blend of 50% Nipper / 50% PBA Flash
Sowing date: 15 May
Treatments: Nil – no fungicide applied
Early Asco – 2L/ha Chlorothalonil during early August (1 Aug), during flowering (20 Sept) and early podding (9 Oct)
Normal Asco – 2L/ha Chlorothalonil during flowering (20 Sept) and early podding (9 Oct)
Complete – 2L/ha Chlorothalonil fortnightly from August 1st.
Note: Botrytis Grey Mould was controlled using district practice of 500ml/ha Carbendazim pre canopy closure.
Fertiliser: MAP + Zn @ 90kg/ha

Background

The current recommended practice for the management of AB in lentils varieties with a foliar disease rating of moderately susceptible through to moderately resistant involves the application of foliar fungicide (chlorothalonil) at the flowering and podding stages. This provides protection of flowers (to prevent yield loss) and pods (to prevent seed staining, and some yield loss).

PBA Flash, a well-adapted red lentil with high yield potential in lower yielding lentil growing areas, has a low level of resistance of both foliar and seed AB (currently rated MS) compared to many other common commercial varieties. It is possible that this variety will require additional (earlier) fungicide applications to manage AB on both the plants and seed, particularly in areas where lentil intensity in high and short lentil rotations are frequent.

Work conducted on cereals has shown that blending varieties with different disease resistances can improve grain yield by limiting the spread of disease through the crop. It is possible that blending varieties with different levels of resistance to AB can likewise limit disease, and improve grain yield. Nipper (rated R) and PBA Flash (MS) were selected due to their difference in AB ratings, and seed size and colour, which would allow separation of parental proportions if desired.

Results and Interpretation

- Foliar disease – a low level of AB infection was observed early in the growing season, however due to the below average winter and spring rainfall this did not develop. As a result fungicide treatments had no effect on grain yield.
- Grain yield – grain yield averaged 2.5t/ha across the trial, and a variety response for grain yield was generated (Table 1). PBA Flash was the highest yielding variety, outperforming Nipper by 23% in this trial. The blend of PBA Flash and Nipper showed intermediate yield between the two parent varieties.

Table 1. Grain yield of lentil varieties at Arthurton, 2012.

Variety	Nipper	PBA Flash	Nipper / PBA Flash Blend	LSD (P<0.05)
Yield (t/ha)	2.2 [a]	2.7 [c]	2.5 [b]	0.13

Key Findings and Comments

- A drier than average growing season in 2012 meant that there was minimal disease in this trial, and grain yield was lower than in previous seasons.

- PBA Flash outyielded Nipper by 23% in this trial, demonstrating its better suitability in shorter seasons and more marginal growing areas compared to Nipper.