F5. Disease Management, MRZ Mid North (Hart), South Australia

Aim

To compare current and potential fungicide options for the control of blackspot in field pea.

Treatments

Variety:	Kaspa
Sowing date:	30 April (Early)
Fungicide tmts:	Nil, Mancozeb (2kg/ha), Chlorothalonil (2L/ha), Amistar® (700ml/ha), Amistar® Xtra (850ml/ha), Amistar® Opti (3L/ha), Amistar® + Tilt (700ml/ha + 500ml/ha), Filan® (200g/ha), Cabrio® (200ml/ha), Filan® + Carbio® (200g/ha + 200ml/ha), Syngenta Product (identity withheld)
Timing:	9 node + early flower
Fertiliser:	Map + Zn @ 75kg/ha

Results and Interpretation

Conditions were favourable for plant growth, foliar disease and grain yield in 2010. However blackspot infection was less than the early predictions based on 2009 stubble spore counts. This was most likely due to a combination of high summer and early autumn rainfall, prompting spore releases prior to sowing, and the dry start to May, which generally delayed sowing and reduced blackspot risk. Blackspot was recorded at moderate levels throughout the season despite the favourable growing season.

Blackspot infected pea stubble was collected from each time of sowing (early, mid and late) in the field pea disease management trial at Hart in November 2009. The disease level on the stubble varied for these sowing dates *viz.* 18, 12 and 8 nodes infected, respectively. Nylon pouches containing the stubble were incubated on the soil surface at Hart through 2010 and each fortnight one pouch per sowing date was sent by Peter Hooper (Alan Mayfield Consulting) to the Department of Agriculture and Food, WA (DAFWA) to count the spore release in their wind tunnel. Spore release patterns (Figure 2) show that the peak release was late April and by the time most field pea crops in South Australia were emerging in late May, very few blackspot spores remained. This data validated the prediction of early spore release by 'Blackspot Manager' and blackspot disease was of lesser severity in South Australia in 2010 compared to previous years with late release of spores, except in crops that were sown very early on the break of the season. The results in Figure 2 show that many more spores were released from the medium severity stubble (mid sown) than either the high or low severity (early or late sown). It was expected that the high severity stubble would produce most spores as had occurred in similar experiments in 2008 and 2009. Nevertheless the number of spores was much lower than in previous years, irrespective of severity of disease on the stubble.

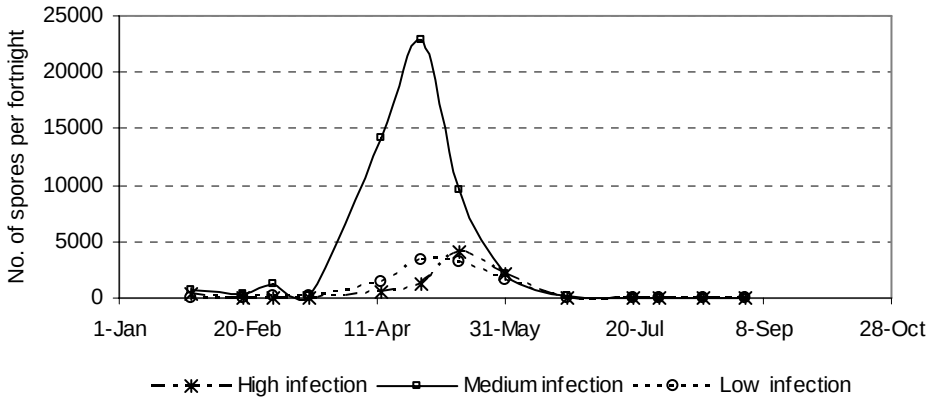

Figure F5.1. Blackspot spores trapped from pea stubble per fortnight from Hart incubation in 2010

A range of fungicides (unregistered for this purpose) were tested for blackspot control on early sown (30th April) Kaspa field pea at Hart in 2010, as the current options either provide inadequate or uneconomical control. These treatments included azoxystrobin (Amistar®), a range of azoxystrobin mixes, pyraclostrobin (Cabrio®)and boscalid (Filan®), and were compared to the registered products, chlorothalonil and mancozeb, as well as fortnightly sprays of chlorothalonil. Blackspot was assessed six times during the season and results are expressed as Area Under the Disease Progress Curve (AUDPC). Disease was less and yield was increased over the untreated in plots with chlorothalonil, pyraclostrobin and azoxystrobin plus chlorothalonil (Figures F5.2 and F5.3). However there is still room for improvement over these treatments as the response from fortnightly sprays was even greater (54% yield increase compared to unsprayed plots). This work will be validated in the coming season but any move toward registration will need to be conducted by chemical companies. In the meantime the recommended strategy in field pea crops with a yield potential of at least 2 t ha^{-1} is to apply P-Pickel T seed dressing followed by foliar applications of either mancozeb or chlorothalonil at 9 node growth stage and again at early flowering. This strategy should remain economic for grain prices above $200 tonne, but may not be economic in crops that yield less than 2 t ha^{-1}.

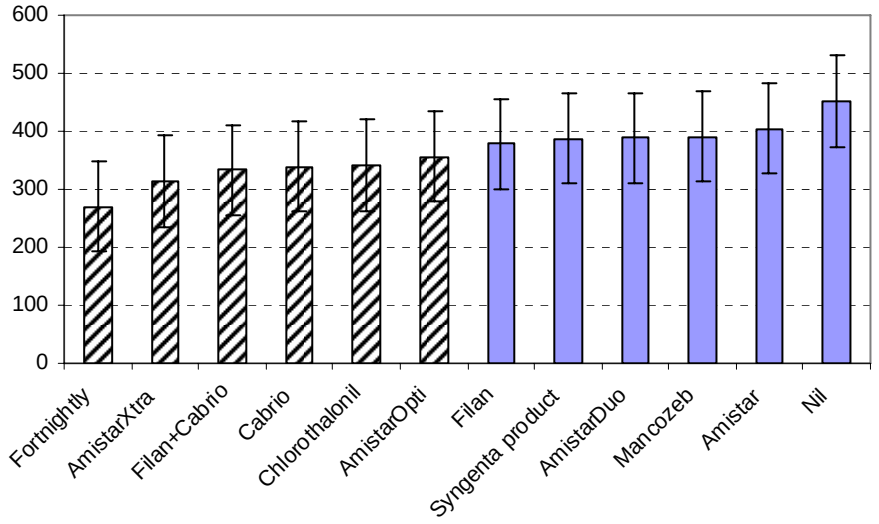

Figure F5.2. Blackspot assessed as Area Under Disease Progress Curve in fungicide treated plots of Kaspa at Hart 2010. Striped bars have significantly less disease than the untreated. L.S.D. = 78.2

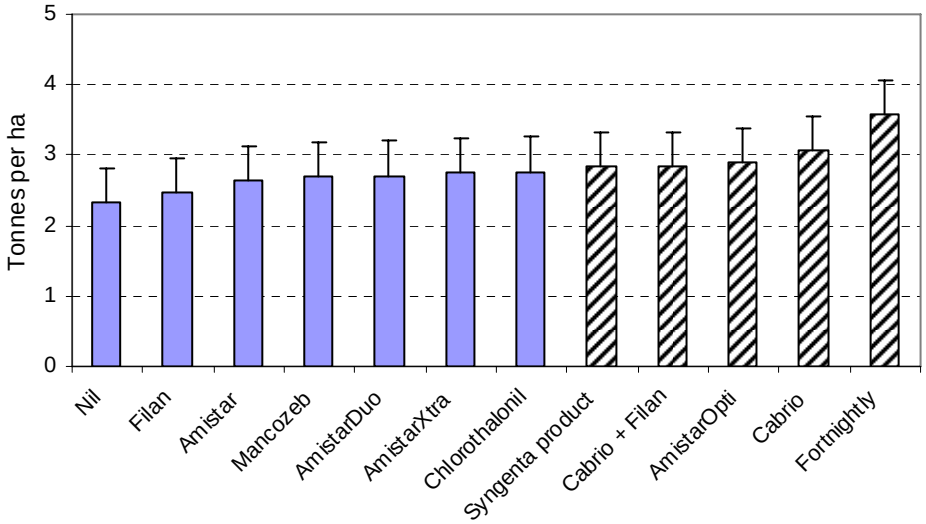

Figure F5.3: Yield in fungicide treated plots of Kaspa at Hart 2010. Striped bars have significantly more yield than the untreated. L.S.D. = 0.49

Key Findings and Comments

Chlorothalonil (Bravo®), pyraclostrobin (Cabrio®) and azoxystrobin plus chlorothalonil (Amistar® Opti) showed increased yield compared to the nil treatment, however further improvement is possible as the response from fortnightly chlorothalonil sprays was even greater.