

Foliar Fungicides In Pulses During Dry Seasons

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Foliar fungicide recommendations for pulse crops have been designed for the high disease pressure situations of intensive pulse cropping systems in medium to high rainfall regions and seasons. Low disease pressure occurred in field trials conducted in South Australia in 2017 and 2018 due to low in-season rainfall. Both years the trials were sown in traditionally medium to high rainfall areas with an additional field pea trial in a low rainfall zone in 2018. All trials included untreated plots and fortnightly sprays of chlorothalonil. Lentil trials had no additional treatments. Chickpea trials included a 4-spray strategy to compare efficacy of chlorothalonil with AviatorXPro[®]. The 2017 field pea trial had two times of sowing, and compared mancozeb (2 sprays) with AviatorXPro[®] (2 sprays) and AviatorXPro[®] (2 sprays) plus mancozeb, all with P-Pickel T[®] seed dressing. The 2018 field pea trials included 2 sprays of AviatorXPro[®] or Veritas[®] with or without P-Pickel T[®]. Fungicide treatments significantly reduced AB severity in susceptible cultivars of all three crop types, and reduced seed staining in the lentil cultivar PBA Flash. However, associated yield gains were variable. No yield gains occurred in lentil and the incidence of seed staining was below the minimum receival standards. In chickpea, yield gains were associated with fungicide treatments applied to susceptible cultivars, Howzat and Sonali in 2017, and in fortnightly sprayed susceptible cultivars Howzat, PBAMonarch and PBAStriker in 2018. In field pea (2017), AviatorXPro[®] (2 sprays) increased grain yields 17% while AviatorXpro[®] plus mancozeb produced a 25% yield increase, similar to fortnightly chlorothalonil (mean yield = 3.1 t/ha). However, in 2018, there were no associated yield gains since yield and ongoing disease development was restricted by conditions (site mean yields; Hart = 1.42t/ha; Minnipa = 1.15t/ha). In the later sowing, there was no yield response to fungicides and a yield penalty of approximately 1 t/ha from the delayed sowing was observed. Previous research (McMurray et al. 2011) has shown that economic yield responses to fungicides for AB occur in early sown field pea crops in high disease with a yield potential greater than 1.5t/ha. This was confirmed in 2018 trials where disease severity was low and grain yields less than 1.5t/ha at both sites. These results indicate that in dry seasons foliar fungicides are unnecessary in lentil crops. Yield was particularly compromised by drought in 2018 and in these conditions foliar fungicides are not economic, even in the most susceptible lines. Conversely, not spraying for AB is high risk in chickpea due to low levels of genetic resistance in all cultivars, and could result in losing the entire crop. In these circumstances, growers should intensively monitor crops for AB and, if disease is present, a foliar fungicide spray prior to rain fronts will reduce the risks of disease spread and losses in yield and quality, even in low rainfall environments.

McMurray et al. 2011, *Euphytica*, **180**, 69-88.