Project Title:	Best Practice Management of Net Blotch in Barley and Interactions with Pre-harvest Head Loss and Stubble Management.
GRDC Project No.:	TAR00006
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Objectives

- Investigate the best practice foliar fungicide management in barley on barley for STNB in medium rainfall zones in Western Australia.
- Better understand the interactions of STNB, stubble and fungicides on the impact of disease, yield and profitability of barley on barley rotations.
- Investigate if higher levels of STNB are associated with pre-harvest head loss.

Background

Throughout the wheatbelt there has been a large increase in barley planting, which has resulted in increasing levels of Spot Type Net Blotch (STNB). In many situations growers are planting barley on barley as it is a very profitable and relatively low risk rotation. However, the current varieties which are grown in this system (eg. Scope, Hindmarsh, La Trobe) are either susceptible or moderately susceptible to STNB. Currently management of STNB has been difficult, especially in retained stubble systems.

Research

Two identical barley fungicide trials assessing the impact of spot type nett blotch were sown side by side in the one paddock, where one trial had the previous year's barley stubble retained and the other had the stubble burnt. This created two different disease pressure scenarios to assess the impact of fourteen different fungicide treatment and timing combinations. Single fungicide were applied at Z31 (stem elongation), Z38 (flag leaf emergence) or a combination of both timing. The trial design was completely randomized and replicated 4 times on both the burnt and retained stubble treatments. Leaf infection scores (calculated as % green leaf area infected) were conducted two weeks after both fungicide applications to assess the longevity of different fungicide formulations and combinations. Unharvested strips were left in each plot to look at head loss interaction with fungicide treatments. Plots were harvested using a plot harvester and statistical analysis was conducted on yield, grain quality and head loss data.

Outcomes

In the retained stubble trial, there was 10% yield response to fungicide in a low rainfall year (190mm GSR, 2.4-2.8 t/ha) in the medium rainfall zone (MRZ), significant at $p<0.08$, although when stubble was burnt there was not a yield response. There was an economic return ($20-40/ha) under high disease pressure (retained stubble), but not when stubble was burnt (Lose of $10 to $30/ha). Head loss was significantly lower at 95% confidence interval when some fungicides were used. This result needs validating to be confident in this result as the % CV for the data set (20) was quite high. The trial demonstrated slight differences between fungicide product on leaf infection and also significant difference related to fungicide timing on leaf infection. In both trials, fungicides significantly impacted grain screenings whereby in most instances there was fewer screening where a fungicide was applied. Interestingly, the burnt stubble yielded 400kg/ha more than retained stubble irrespective of fungicide treatment. This result needs further evaluation as it may be a result or nutritional, water relations or frost interactions.

Implications

This study has demonstrated that even in a low rainfall year (190mm GSR) farmers can obtain an economic response to fungicide for the management of spot type nett blotch under high disease pressure scenarios (retained barley stubble). In addition the trial reinforces the importance of fungicide timing to protect early and later infection of spot type nett blotch. The study also highlight that in low disease scenarios (stubble burnt), farmer do not have to apply a fungicide in lower rainfall years.

Publications

The data from this trial has contributed to a nett blotch paper that will be presented at Crop updates by Andrea Hills, DAFWA.