REPORT TO THE AGRICULTURAL RESEARCH FOUNDATION FOR THE 2018 AWARD

TITLE: Are new SDHI fungicides worth the higher price for controlling stripe rust of wheat?

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Summary: fungicide products containing an SDHI are more expensive, but it is not clear whether they are worth the additional cost for controlling stripe rust of wheat. For SDHIs to be worth the higher cost, they must provide superior rust control to triazole and triazole/strobilurin blends. **Industry representatives and some crop consultants of the inland PNW promote new SDHI products to producers, claiming the higher SDHI product price is worthwhile due to superior rust control.** However, large-scale, multi-year, multi-location, replicated data and economic analysis does not exist to support the SDHI recommendation for rust control. For wheat producers in the inland PNW to make informed decisions about fungicide applications under changing market conditions, it is critical that we evaluate economic profitability of the new SDHI fungicide products compared to older triazole and strobilurin products.

Objectives:

1. Measure the effect of SDHI, triazole, and strobilurin fungicides on stripe rust of wheat in the inland PNW
2. Identify the economic profitability and "breakeven" wheat price for each fungicide

Accomplishments:

- This work has been the focus of two "Field Day" presentations and one "Post – Harvest Dryland Recap" meeting presentation. Growers and industry are extremely interested in this work. Thanks to the funding from ARF to get this project off the ground, this trial will continue in perpetuity with funding from private industry.
- After two years and two locations of data, **we have no evidence to suggest that SDHIs are worth the higher price for stripe rust control.** However, the past two years of fungicide testing (spring 2018 and 2019) have been low stripe rust epidemic years, we expect results may differ with heavier disease pressure. We will continue this work with support from industry to amass more data across years with differing stripe rust severity. This fungicide work has also led to additional research questions about the necessity of "herbicide timing" fungicide applications, the grower culture of applying "plant health effect" fungicides in the absence of disease pressure, and the need for additional product testing (e.g. nano-technology).
- The bulk of this work is in the statistical analysis phase for a Plant Disease Management Report. ARF will be the acknowledged funding source and provided a final copy of the manuscript.

Pitfalls:

- Our economist cooperator, Beau Olen, now works at the Oregon Department of Agriculture so we are currently seeking an economist to identify the economic profitability and "breakeven" wheat price for each fungicide. USDA-ARS at Pendleton is hiring an agricultural economist in 2021, so in the e


Duncan Kroese, FRA, applying fungicide treatments in spring 2019.

Thank you to the Ag. Research Foundation for funding this work, it has been extremely beneficial to getting my program off the ground.