



Winter barley agronomy: Two vs. Six-row

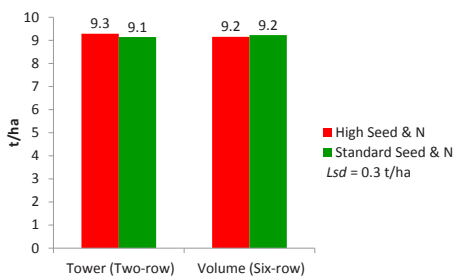
- The introduction of hybrid six-row varieties has led to a number of important management questions
- Such as the requirement for PGR treatment and fungicide timing

Yield components	Two -row	Six-row	Wheat
Ears/m ²	900-1200	650-900	480-600
Grains/ear	17-21	30-40	41-51
Grains/m ²	15,000-25,000	19,500-36,000	19,700-30,600
TGW (g)	50-58	40-45	46-56

A field experiment was carried out over six site/seasons testing fungicide timing and PGR requirement in a Hybrid six-row (Volume) and conventional two-row (Tower) grown at the standard seed & N rates and +25% of these standard rates

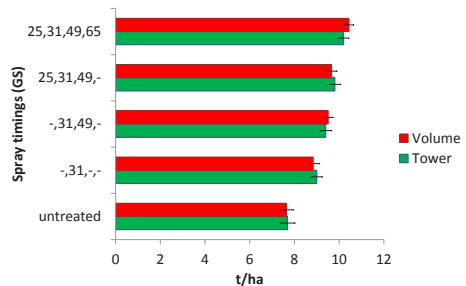
Did increasing seed & N rate increase yield?

- No, yield increase from increasing seed & N rate in either a two or a six-row variety
- Yield was similar in both varieties



Does fungicide timings need to change due to row type?

- No, each row type responded similarly to fungicide timing



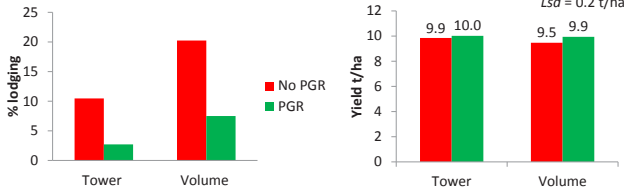
Notes: _____



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Do six-rows have a greater need for PGR?

- Yes, there is a greater need caused by increased lodging in six-row variety
- Leading to an increased yield response from PGR treatment in the six-row variety



Fungicides not only controlled disease

- Fungicide treatment significantly reduced the level of straw breakdown (brackling) in both varieties
- Timings at GS31/32 (1 spray) and GS49 (2 spray) having the largest effect.

Take home messages

- There is no evidence to suggest changing fungicide timing based on row type
 - Six-row varieties have a greater need for PGR application
 - Fungicide treatment reduces straw breakdown (brackling)



Notes: _____



Identifying susceptibility to improve resistance to Rhynchosporium disease

- Rhynchosporium is key disease on winter and spring barley
- Legislative pressures curtailing fungicide availability
- Project goal is to identify novel, durable sources of genetic resistance against Rhynchosporium



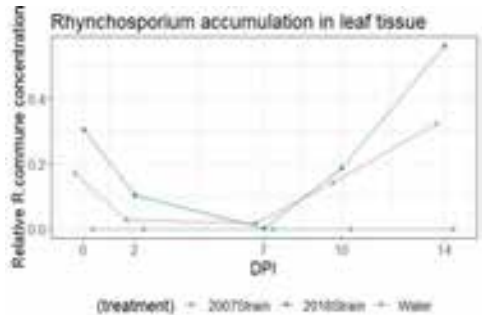
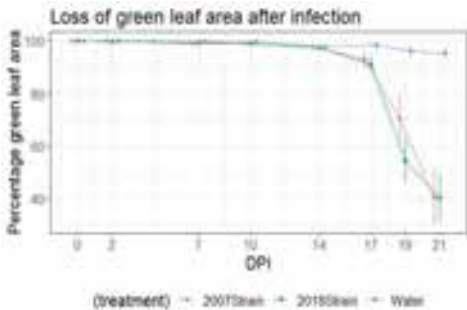
Susceptibility genes (S-genes):

- S-genes are targeted by diseases to promote infection
- Varieties lacking specific S-genes are more resistant
- S-gene based resistance has potential to be more durable than current resistant varieties

Characterisation of disease

Identify and characterise barley S-genes

Generate new barley lines lacking specific S-genes



Notes:



Ramularia Leaf Spot (RLS)

Identification

- Rectangular shaped lesion
- Reddish/brown colour
- Ring of yellow around lesion
- Restricted by leaf veins
- Right through the leaf



Untreated



CTL



SDHI

Potential Issues?

- Limited understanding of the disease (since late 1990's)
- Loss of fungicides (resistance developments & legislation)
- Difficult to predict outbreaks



Notes: _____



RLS risks

Is it a problem?

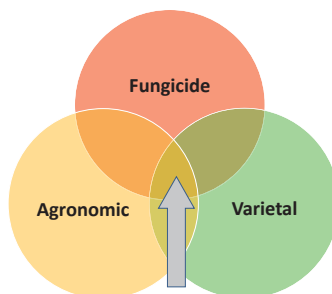
- Yield loss of up to 1 t/ha if untreated
- Resistance to strobs, azoles and SDHI's...
- Limited varietal resistance available
- Loss of chlorothalonil

Key points

- Multiple sources of infection (seed, stubble, airborne)
- Symptoms often only observed post flowering
- Problem exacerbated in stressed crops
- Correct fungicide timing essential for control

Managing the risk

- Grow more resistant varieties??
- Preventative spray at GS 45??
- Try to avoid crops becoming stressed??



Where we need to be!



Notes: _____

