

Tasmania Crop Technology Centre

Hagley, TAS

Sown: 27-28 April 2022

Harvested: 30 January 2023 (Trial 2), 1 February 2023 (Trial 3), 07 February 2023 (Trial 4a), 30 January 2023 (Trial 4), 31 January 2023 (Trial 5, Trial 6)

Rotation position: Following Carrots in 2021

Soil type: Chromosol

Colwell P (ppm) 0-10 cm: 302.0

pH (CaCl₂) 0-10 cm: 6.66

Organic Carbon (%) 0-10 cm: 2.03

Trial 2: HYC Wheat Elite Screen (FAR TAS W22-02-1)

Key Points:

- There was significant interaction between cultivar and fungicide programme with yield response to fungicide ranging from 0.1 t/ha (AGFWH004818) to 3.52 t/ha (Beaufort).
- Grain yields ranged from 4.70 t/ha (untreated Beaufort) to 12.37 t/ha (Reflection treated).
- The highest yielding white wheat was the new cultivar long season winter wheat RGT Waugh which gave a 2.39 t/ha yield response to the fungicide programme.
- The other white wheat seen as a longer season replacement for Trojan was Stockade which gave a 1.64 t/ha response with Septoria tritici blotch (STB) and stripe rust intermediate susceptibility.
- AGFWH004818 and AGTW0005 have been in HYC trials for three seasons and showed no significant yield response to fungicide application in a very high pressure disease season.
- Both are stiffer strawed and are more disease resistant than Big Red but until the very high disease pressure of 2022 has been slightly lower yielding than Big Red.
- All varieties gave an economic response to the four-unit fungicide application with the exception of the red wheat AGT00005 and AGFWH4818 with yield increases ranging from 1.21 t/ha with the UK wheat Reflection to 3.52 t/ha with Beaufort.
- When fungicide treated there was no statistical difference amongst the six highest yielding cultivars with RGT Accroc, Beaufort and GS-18-105W being significantly lower yielding.
- The principal diseases in the trial were STB and stripe rust with the latter disease more severe than in 2020 and 2021 due to a new pathotype (239).
- Beaufort STB infection was so severe that a full fungicide programme did not control the disease. To a lesser extent the fungicide programme was not fully effective with RGT Accroc and GS-18-105W.
- Test weights reflected fungicide response with large increases in test weights where there were greater yield responses to fungicide.

Treatments: Nine elite lines were tested under both untreated and HYC High input fungicide management based on a foliar fungicide program preceded with a SDHI seed treatment (3 foliar fungicides – GS31, GS39, GS59-61 and Systiva seed treatment) and PGR management – split application Moddus 0.1 + Errex 0.65 – GS30 & GS32). 184kg N/ha was applied as a three split of nitrogen fertiliser application.

Table 1. Yield (t/ha) and grain quality assessment- protein (%), test weight (kg/hL) & screenings (%)
Mean of treated and untreated.

<i>Cultivar</i>		Yield		Grain quality assessments					
		Yield (t/ha)		Protein (%)		Test Weight (kg/hL)		Screenings (%)	
1.	RGT Accroc	8.64	d	10.4	d	73.9	f	1.2	cde
2.	Reflection	11.77	a	8.9	f	75.8	ef	3.4	a
3.	Beaufort	6.46	e	12.0	a	69.2	g	3.6	a
4.	SFR86-085 (RGT Waugh)	10.73	c	11.2	b	77.0	de	1.1	de
5.	GS-18-105-W	8.93	d	11.0	bc	79.3	bc	1.6	bc
6.	AGTW0005	11.52	ab	10.8	bc	78.6	cd	0.9	e
7.	Big Red	10.83	bc	9.8	e	80.6	ab	1.3	cd
8.	AGFWH004818	11.56	ab	9.9	e	78.6	cd	1.3	cd
9.	LRPB16-0598 (Stockade)	10.57	c	10.7	cd	81.4	a	1.9	b
LSD 0.05		0.79		0.37		1.95		0.40	
p-Value		<0.001		<0.001		<0.001		<0.001	
<i>Mean of nine cultivars</i>									
Disease Pressure									
1.	Full Fungicide Program	10.98	a	10.2	b	78.3	a	1.5	b
2.	No Fungicide	9.24	b	10.8	a	76.0	b	2.1	a
LSD 0.05		0.26		0.35		0.40		0.39	
p-Value		<0.001		0.014		<0.001		0.023	
Full Fungicide Program									
1.	RGT Accroc	9.85	d	10.0	g	75.2	ghi	1.0	gh
2.	Reflection	12.37	a	8.7	j	76.5	efg	3.1	b
3.	Beaufort	8.22	e	11.1	bcd	73.7	hi	2.6	c
4.	SFR86-085 (RGT Waugh)	11.99	ab	11.0	b-e	78.4	cde	0.9	gh
5.	GS-18-105-W	10.19	cd	10.6	ef	80.1	a-d	1.3	fgh
6.	AGTW0005	11.59	ab	10.8	de	79.2	b-e	0.8	h
7.	Big Red	11.66	ab	9.5	hi	81.1	ab	1.2	fgh
8.	AGFWH004818	11.61	ab	9.9	gh	78.6	b-e	1.2	fgh
9.	LRPB16-0598 (Stockade)	11.39	ab	10.6	def	82.0	a	1.7	def
No Fungicide									
1.	RGT Accroc	7.44	e	10.8	de	72.6	i	1.4	efg
2.	Reflection	11.16	bc	9.1	ij	75.0	ghi	3.6	b
3.	Beaufort	4.70	f	12.9	a	64.8	j	4.7	a
4.	SFR86-085 (RGT Waugh)	9.46	d	11.4	bc	75.6	fgh	1.4	fgh
5.	GS-18-105-W	7.66	e	11.5	b	78.5	b-e	1.9	de
6.	AGTW0005	11.45	ab	10.9	cde	78.0	def	0.9	gh
7.	Big Red	10.00	d	10.2	fg	80.1	a-d	1.3	fgh
8.	AGFWH004818	11.51	ab	10.0	g	78.7	b-e	1.4	efg
9.	LRPB16-0598 (Stockade)	9.75	d	10.8	de	80.8	abc	2.1	cd
LSD 0.05		1.11		0.52		2.76		0.56	
p-Value		<0.001		0.001		0.002		<0.001	

Table 2. Details of the management levels.

Sowing date	28 April	
Plant population	180 seeds/m ²	
Basal fertiliser	100 kg/ha MAP	
Nitrogen	10 August	46kg N/ha
	12 September	46kg N/ha
	20 October	92Kg/ha
PGR	GS30	Moddus Evo 100ml/ha + Errex 650ml/ha
	GS32	Moddus Evo 100ml/ha + Errex 650ml/ha
Fungicide	GS00	Systiva
	GS31	Prosaro 300ml/ha
	GS39	Aviator Xpro 500ml/ha
	GS59-61	Opus 500ml/ha

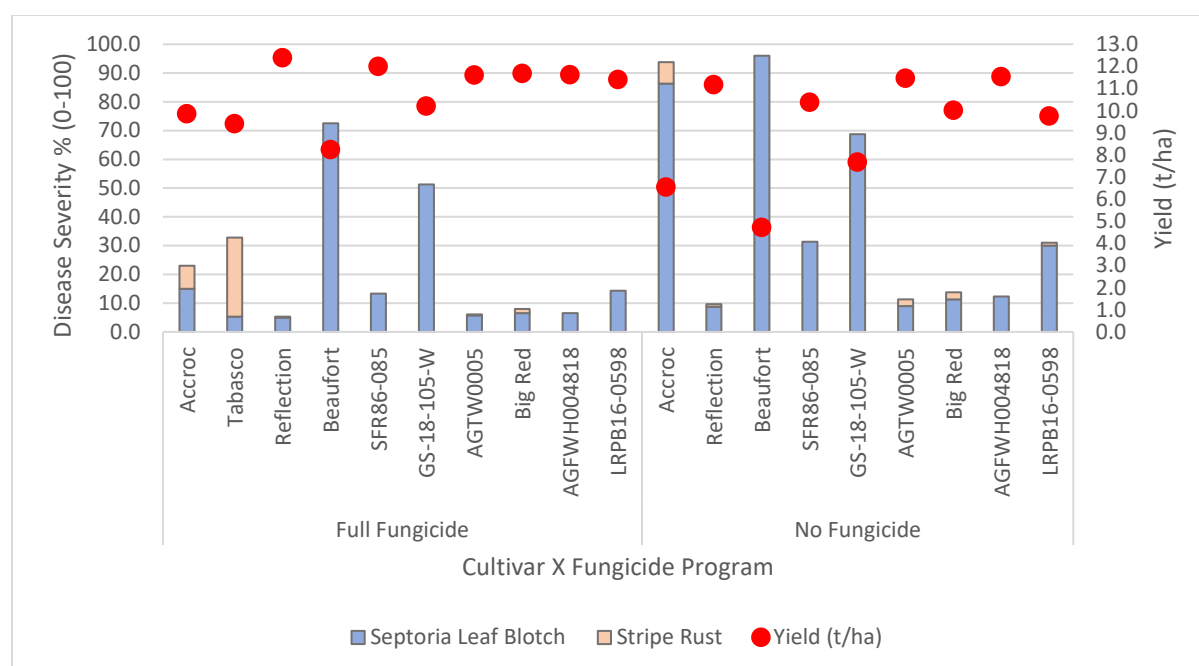


Figure 3: Effect of Fungicide and Cultivar interaction on Stripe Rust and Septoria Leaf Blotch and total grain yield (t/ha).