

Trial 2. HYC Barley Disease Management (FAR TAS B23-04)

Key points:

- Trials conducted between 2020 and 2023 in Hagley have not shown any response to fungicide in spring sown barley.
- These results suggest that the management needed to combat barley disease in a susceptible variety when autumn sown, are not required in a spring sown scenario where pressure is much lower.
- Although there were statistical differences in the Net Form Net Blotch (NFNB) disease assessment conducted at early grain fill, levels of disease were minimal with severity levels under 5% leaf area infected and less than 1% incidence on Flag-1 (Table 2).
- Fungicides had no influence on grain quality.

Table 1. Influence of fungicide management on grain yield (t/ha).

Treatments					Yield
GS00	GS31	GS39-49	GS59	t/ha	
1	---	---	---	11.10	
2	Systiva	---	---	11.60	
3	Prosaro 300 mL/ha	---	---	11.28	
4	---	Aviator Xpro 420 mL/ha	---	11.54	
5	Prosaro 150 mL/ha	Radial 420 mL/ha	---	11.29	
6	Prosaro 300 mL/ha	Radial 840 mL/ha	---	11.66	
7	Prosaro 300 mL/ha	Revystar 750 mL/ha	---	11.44	
8	Revystar 750 mL/ha	Radial 840 mL/ha	---	11.48	
9	Prosaro 300 mL/ha	Aviator Xpro 420 mL/ha	---	11.55	
10	Aviator Xpro 420 mL/ha	Radial 840 mL/ha	---	11.54	
11	Systiva	Radial 840 mL/ha	---	11.69	
12	Systiva	Prosaro 300 mL/ha	---	12.04	
13	Prosaro 300 mL/ha	Aviator Xpro 420 mL/ha	Opus 500 mL/ha	11.67	
14	Systiva	Prosaro 300 mL/ha	Radial 840 mL/ha	Opus 500 mL/ha	11.86
15	Systiva	Prosaro 300 mL/ha	Aviator Xpro 420 mL/ha	Opus 500 mL/ha	11.51
Mean				11.55	
LSD P=0.05				ns	
P Value				0.292	

Table 2. Influence of fungicide management on Net Form Net Blotch (NFNB) severity (%) on Flag, Flag-1 and Flag-2, 6 December, GS71.

Treatment		NFNB severity (%LAI)					
		Flag		Flag-1		Flag-2	
1	Untreated	0.6	a	4.6	a	11.7	a
2	Systiva	0.0	c	1.3	bc	3.3	b-e
3	Prosaro 300 mL/ha	0.0	c	2.6	bc	7.8	a-d
4	Aviator Xpro 420 mL/ha	0.0	c	1.6	bc	8.1	abc
5	Prosaro 150 mL/ha; Radial 420 mL/ha	0.2	bc	3.2	ab	8.7	ab
6	Prosaro 300 mL/ha; Radial 840 mL/ha	0.2	bc	1.3	bc	3.8	b-e
7	Prosaro 300 mL/ha; Revystar 750 mL/ha	0.0	c	0.8	bc	5.3	b-e
8	Revystar 750 mL/ha; Radial 840 mL/ha	0.0	c	1.3	bc	3.3	b-e
9	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha	0.0	c	0.4	c	3.7	b-e
10	Aviator Xpro 420 mL/ha; Radial 840 mL/ha	0.0	c	1.2	bc	4.2	b-e
11	Systiva; Radial 840 mL/ha	0.0	c	0.8	bc	5.4	b-e
12	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha	0.5	ab	0.6	c	2.8	cde
13	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.1	c	0.6	c	4.0	b-e
14	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha; Opus 500 mL/ha	0.2	bc	0.8	bc	2.5	de
15	Systiva; Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.0	c	0.4	c	2.0	e
Mean		0.1		1.4		5.1	
LSD P=0.05		0.2		1.5		3.3	
P Value		<0.001		<0.001		<0.001	

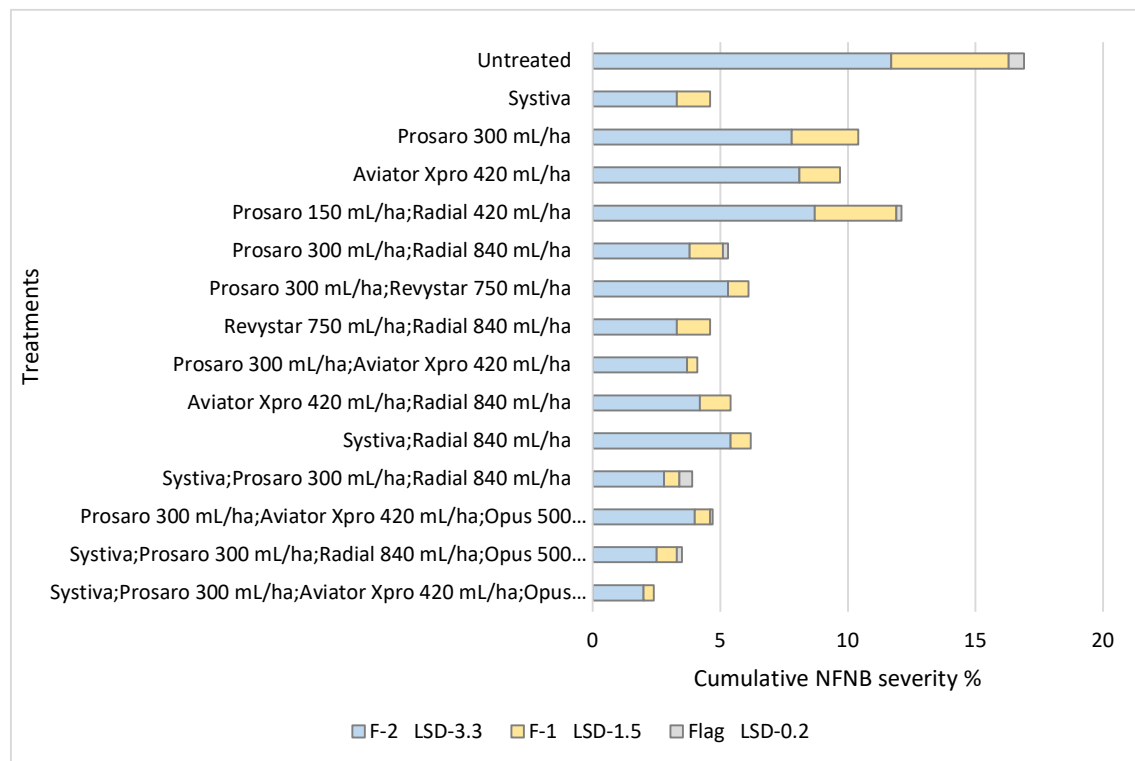


Figure 1. Cumulative Net Form Net Blotch severity (%LAI) on flag, flag-1 and flag-2, 6 December, GS71.

Table 3. Influence of fungicide management on Scald severity (%) on flag-1 and flag-2 and on Green Leaf Retention (GLR) (flag-3), 6 December, GS71.

Treatment		Scald severity (%LAI)		GLR (%LAI)
		Flag-1	Flag-2	Flag-3
1	Untreated	0.0 -	0.4 -	13.6 -
2	Systiva	0.0 -	0.1 -	34.6 -
3	Prosaro 300 mL/ha	0.0 -	0.3 -	29.2 -
4	Aviator Xpro 420 mL/ha	0.0 -	0.0 -	31.5 -
5	Prosaro 150 mL/ha; Radial 420 mL/ha	0.0 -	0.0 -	17.9 -
6	Prosaro 300 mL/ha; Radial 840 mL/ha	0.0 -	0.0 -	32.6 -
7	Prosaro 300 mL/ha; Revystar 750 mL/ha	0.0 -	0.4 -	36.8 -
8	Revystar 750 mL/ha; Radial 840 mL/ha	0.0 -	0.0 -	42.5 -
9	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha	0.0 -	0.3 -	43.4 -
10	Aviator Xpro 420 mL/ha; Radial 840 mL/ha	0.0 -	0.1 -	31.0 -
11	Systiva; Radial 840 mL/ha	0.0 -	0.0 -	33.3 -
12	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha	0.0 -	0.0 -	41.4 -
13	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.0 -	0.0 -	33.9 -
14	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha; Opus 500 mL/ha	0.3 -	0.3 -	37.4 -
15	Systiva; Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.0 -	0.0 -	40.8 -
Mean		0.0	0.1	33.3
LSD P=0.05		ns	ns	ns
P Value		0.471	0.766	0.183

Table 4. Influence of fungicide management on Net Form Net Blotch incidence (%) on flag, flag-1 and flag-2, 6 December, GS71.

Treatment		NFNb incidence (%)					
		Flag		Flag-1		Flag-2	
1	Untreated	0.2	a	0.8	a	1.0	a
2	Systiva	0.0	c	0.5	bcd	0.8	abc
3	Prosaro 300 mL/ha	0.0	c	0.8	ab	0.9	a
4	Aviator Xpro 420 mL/ha	0.0	c	0.5	bcd	0.9	a
5	Prosaro 150 mL/ha; Radial 420 mL/ha	0.1	bc	0.6	abc	0.9	ab
6	Prosaro 300 mL/ha; Radial 840 mL/ha	0.0	c	0.5	bcd	0.7	abc
7	Prosaro 300 mL/ha; Revystar 750 mL/ha	0.0	c	0.4	cde	0.8	abc
8	Revystar 750 mL/ha; Radial 840 mL/ha	0.0	c	0.5	bcd	0.8	abc
9	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha	0.0	c	0.1	e	0.9	abc
10	Aviator Xpro 420 mL/ha; Radial 840 mL/ha	0.0	c	0.5	bcd	0.9	abc
11	Systiva; Radial 840 mL/ha	0.0	c	0.3	cde	0.8	abc
12	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha	0.1	ab	0.3	de	0.6	bc
13	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.1	bc	0.3	cde	0.8	abc
14	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha; Opus 500 mL/ha	0.1	bc	0.3	cde	0.6	c
15	Systiva; Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.0	c	0.2	de	0.6	c
Mean		0.0		0.4		0.8	
LSD P=0.05		0.1		0.2		0.2	
P Value		<0.001		<0.001		<0.001	

Table 5. Influence of fungicide management on Scald incidence (%) on flag-1 and flag-2, 6 December, GS71.

Treatment		Scald incidence (%)			
		Flag-1		Flag-2	
1	Untreated	0.0	-	0.1	-
2	Systiva	0.0	-	0.0	-
3	Prosaro 300 mL/ha	0.0	-	0.0	-
4	Aviator Xpro 420 mL/ha	0.0	-	0.0	-
5	Prosaro 150 mL/ha; Radial 420 mL/ha	0.0	-	0.0	-
6	Prosaro 300 mL/ha; Radial 840 mL/ha	0.0	-	0.0	-
7	Prosaro 300 mL/ha; Revystar 750 mL/ha	0.0	-	0.0	-
8	Revystar 750 mL/ha; Radial 840 mL/ha	0.0	-	0.0	-
9	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha	0.0	-	0.0	-
10	Aviator Xpro 420 mL/ha; Radial 840 mL/ha	0.0	-	0.0	-
11	Systiva; Radial 840 mL/ha	0.0	-	0.0	-
12	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha	0.0	-	0.0	-
13	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.0	-	0.0	-
14	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha; Opus 500 mL/ha	0.0	-	0.0	-
15	Systiva; Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	0.0	-	0.0	-
Mean		0.0		0.0	
LSD P=0.05		ns		ns	
P Value		0.471		0.778	

Table 6. Influence of fungicide management on plot condition, 24 January, GS99.

Treatment		Lodging (0-500)	
1	Untreated	141.3	-
2	Systiva	93.8	-
3	Prosaro 300 mL/ha	63.8	-
4	Aviator Xpro 420 mL/ha	163.8	-
5	Prosaro 150 mL/ha; Radial 420 mL/ha	110.0	-
6	Prosaro 300 mL/ha; Radial 840 mL/ha	81.3	-
7	Prosaro 300 mL/ha; Revystar 750 mL/ha	130.0	-
8	Revystar 750 mL/ha; Radial 840 mL/ha	83.8	-
9	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha	138.8	-
10	Aviator Xpro 420 mL/ha; Radial 840 mL/ha	110.0	-
11	Systiva; Radial 840 mL/ha	97.5	-
12	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha	126.3	-
13	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	103.8	-
14	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha; Opus 500 mL/ha	116.3	-
15	Systiva; Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	106.3	-
Mean		111.1	
LSD P=0.05		ns	
P Value		0.715	

*Lodging index definition in '[Appendix. HYC Barley SA Crop Technology Centre](#)'.

Table 7: Influence of fungicide management on grain quality.

	Treatment	Protein (%)	Test weight (kg/hL)	Retention (%)	Screenings (%)
1	Untreated	11.0 -	64.1 -	89.8 -	2.8 -
2	Systiva	11.4 -	64.9 -	91.2 -	2.2 -
3	Prosaro 300 mL/ha	11.3 -	64.6 -	90.1 -	2.8 -
4	Aviator Xpro 420 mL/ha	11.2 -	64.2 -	90.3 -	2.7 -
5	Prosaro 150 mL/ha; Radial 420 mL/ha	11.2 -	64.9 -	90.8 -	2.6 -
6	Prosaro 300 mL/ha; Radial 840 mL/ha	11.0 -	65.1 -	92.6 -	1.9 -
7	Prosaro 300 mL/ha; Revystar 750 mL/ha	11.2 -	65.1 -	91.6 -	2.4 -
8	Revystar 750 mL/ha; Radial 840 mL/ha	11.0 -	65.3 -	92.8 -	1.9 -
9	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha	11.1 -	64.6 -	90.6 -	2.8 -
10	Aviator Xpro 420 mL/ha; Radial 840 mL/ha	11.1 -	65.1 -	91.9 -	2.1 -
11	Systiva; Radial 840 mL/ha	11.1 -	64.5 -	91.9 -	2.2 -
12	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha	11.1 -	65.5 -	92.0 -	2.3 -
13	Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	11.1 -	65.0 -	91.7 -	2.2 -
14	Systiva; Prosaro 300 mL/ha; Radial 840 mL/ha; Opus 500 mL/ha	11.2 -	64.9 -	91.0 -	2.5 -
15	Systiva; Prosaro 300 mL/ha; Aviator Xpro 420 mL/ha; Opus 500 mL/ha	11.0 -	65.0 -	91.2 -	2.4 -
	Mean	11.1	64.9	91.3	2.4
	LSD P=0.05	ns	ns	ns	ns
	P Value	0.543	0.934	0.906	0.776

Table 8: Details of the management levels.

Varieties:	RGT Planet
Sowing date:	6 September 2023
Harvest date:	24 January 2024
Seed Rate:	300 seeds/m ²
Basal Fertiliser:	6 Sep 100 kg MAP/ha
Seed Treatment:	As per treatment list
Nitrogen:	17 Oct 92kg N/ha
Fungicide:	As per treatment list

Table 9. Active ingredients and chemical loading (g/L) for products used.

Name	Active 1		Active 2		Type
Fungicide					
Aviator Xpro	Prothioconazole	150 g/L	Bixafen	75 g/L	EC
Opus	Epoxiconazole	125 g/L	---	---	SC
Prosaro	Prothioconazole	210 g/L	Tebuconazole	210 g/L	SC
Radial	Azoxystrobin	75 g/L	Epoxiconazole	75 g/L	EC
Revystar	Mefentrifluconazole	100 g/L	Fluxapyroxad	50 g/L	EC
Systiva	Fluxapyroxad	333 g/L	---	---	FS