Trial 3. HYC Barley Disease Management (FAR VIC B23-04-02)

Key Points:

- *Conducted in RGT Planet (SVS to Net Form Net Blotch (NFNB)), untreated plots saw infection levels of NFNB of 96.5% leaf area infected (%LAI) on flag-2 and 66.9 %LAI on flag-1 when assessed at early grain fill (Figure 2).*
- *The best treatments in terms of controlling diseases were ones that used a combination of group 3, group 7 and group 11 fungicides at multiple spray timings. These treatments gave between 67-77% control on the flag-1 leaf layer (Figure 2).*
- *Systiva alone (treatment 2), or Systiva with a late follow up fungicide application (treatment 11) gave poor control of NFNB with only 3% and 41% control respectively on flag-1 at early grain fill.*
- *With low disease pressure early in the season, there were no statistical differences between untreated plots and Systiva treated plots when assessed at stem elongation (GS32) (Table 3).*
- *Despite high levels of Net form Net Blotch (NFNB) assessed in the trial, there was no yield response to fungicides with generally poor control across the trial (Table 2).*
- *Fungicides did influence grain quality with untreated plots having lower test weight and retention scores and higher screenings (Table 2).*

Treatments:

Table 1. Fungicide management strategy treatment list.

	Treatment			
	GS00	**GS31**	**GS39-49**	**GS59**
1.	---	---	---	---
2.	Systiva	---	---	---
3.	---	Prosaro 300 mL/ha	---	---
4.	---	---	Aviator Xpro 420 mL/ha	---
5.	---	Prosaro 150 mL/ha	Radial 420 mL/ha	---
6.	---	Prosaro 300 mL/ha	Radial 840 mL/ha	---
7.	---	Prosaro 300 mL/ha	Revystar 750 mL/ha	---
8.	---	Revystar 750 mL/ha	Radial 840 mL/ha	---
9.	---	Prosaro 300 mL/ha	Aviator Xpro 420 mL/ha	---
10.	---	Aviator Xpro 420 mL/ha	Radial 840 mL/ha	---
11.	Systiva	---	Radial 840 mL/ha	---
12.	Systiva	Prosaro 300 mL/ha	Radial 840 mL/ha	---
13.	---	Prosaro 300 mL/ha	Aviator Xpro 420 mL/ha	Opus 500 mL/ha
14.	Systiva	Prosaro 300 mL/ha	Radial 840 mL/ha	Opus 500 mL/ha
15.	Systiva	Prosaro 300 mL/ha	Aviator Xpro 420 mL/ha	Opus 500 mL/ha

Table 2. Influence of management strategy on barley grain yield (t/ha) and quality (% & kg/hL).

Trt.	Yield	Protein	Test weight	Retention	Screenings
	t/ha	%	kg/hL	(%)	(%)
1.	5.98 -	12.5 ab	64.7 b	82.5 d	4.1 ab
2.	6.08 -	12.7 a	64.8 b	86.7 bc	3.0 bc
3.	6.18 -	12.5 ab	65.1 ab	85.8 c	3.3 bc
4.	6.55 -	12.3 ab	65.7 ab	89.7 abc	2.5 bc
5.	6.60 -	12.2 b	65.6 ab	90.0 abc	2.8 bc
6.	6.28 -	12.3 ab	65.2 ab	89.7 abc	2.4 bc
7.	6.54 -	12.5 ab	66.3 a	86.1 c	5.1 a
8.	6.72 -	12.2 b	65.7 ab	90.9 ab	2.2 bc
9.	6.39 -	12.3 ab	65.7 ab	91.6 a	2.2 bc
10.	6.70 -	12.4 ab	65.5 ab	91.7 a	2.0 bc
11.	6.47 -	12.2 b	65.4 ab	89.7 abc	2.5 bc
12.	6.62 -	12.1 b	65.6 ab	92.6 a	1.8 c
13.	6.59 -	12.5 ab	65.9 ab	89.6 abc	2.6 bc
14.	6.99 -	12.2 b	66.1 a	92.3 a	2.1 bc
15.	6.85 -	12.4 ab	65.6 ab	91.0 ab	2.2 bc
Mean	**6.50**	**12.4**	**65.5**	**89.3**	**2.7**
LSD P=0.05	ns	0.2	0.7	2.9	1.2
P Value	0.313	0.001	0.005	<0.001	<0.001

Table 3. Net Form Net Blotch (NFNB) and Spot Form Net Blotch (SFNB) severity (%) on Flag-2, Flag-3 and Flag-4 in treatments 1 and 2 at GS32.

	NFNB			SFNB		
Treatment	**FL-2**	**FL-3**	**FL-4**	**FL-2**	**FL-3**	**FL-4**
1. Untreated	0.2 -	0.0 -	1.0 -	0.1 -	1.0 -	0.1 -
2. Systiva	0.1 -	0.0 -	0.2 -	0.0 -	0.1 -	0.0 -
Mean	**0.1**	**0.0**	**0.6**	**0.0**	**0.6**	**0.1**
LSD P=0.05	ns	ns	ns	ns	ns	ns
P Value	0.353	1.000	0.308	0.391	0.165	0.278

Table 4. Net Form Net Blotch (NFNB) severity (%) on Flag-1, Flag-2, Flag-3 and Flag-4 at GS39.

Treatment	FL-1	FL-2	FL-3	FL-4
1	0.3 -	1.9 a	5.0 a	4.7 a
2	0.2 -	0.9 ab	1.9 b	2.9 ab
4	0.0 -	1.3 ab	2.4 b	3.5 ab
8	0.2 -	0.5 b	0.9 b	0.8 b
10	0.1 -	0.5 b	0.8 b	0.9 b
12	0.0 -	0.4 b	1.0 b	1.6 b
Mean	**0.1**	**0.9**	**2.0**	**2.4**
LSD P=0.05	ns	0.9	2.2	2.0
P Value	0.128	0.025	0.006	0.006

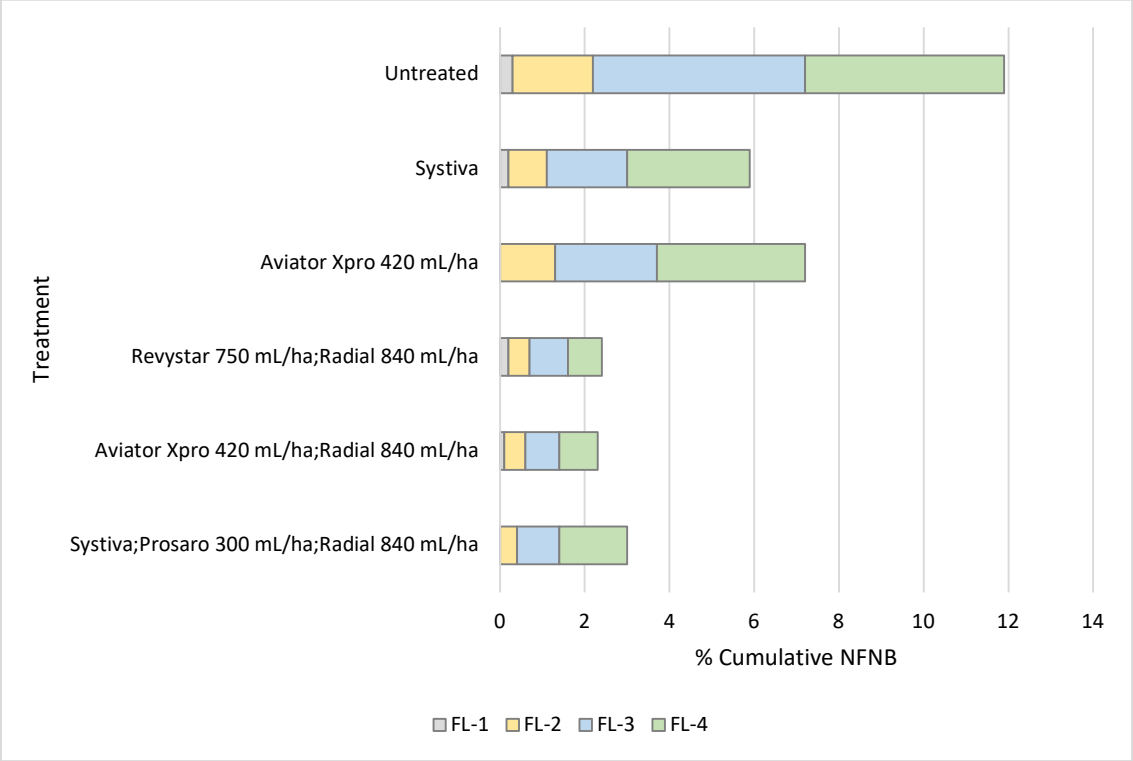


Figure 1. Influence of management strategy on Net Form Net Blotch (NFNB) on Flag-1, Flag-2, Flag-3 and Flag-4 in select treatments (1, 2, 4, 8, 10 & 12) at GS39. Refer to table 4 for statistical analysis.



Image 1. Net Form Net Blotch (NFNB) infection in untreated RGT Planet plot. Taken 3 November 2023.

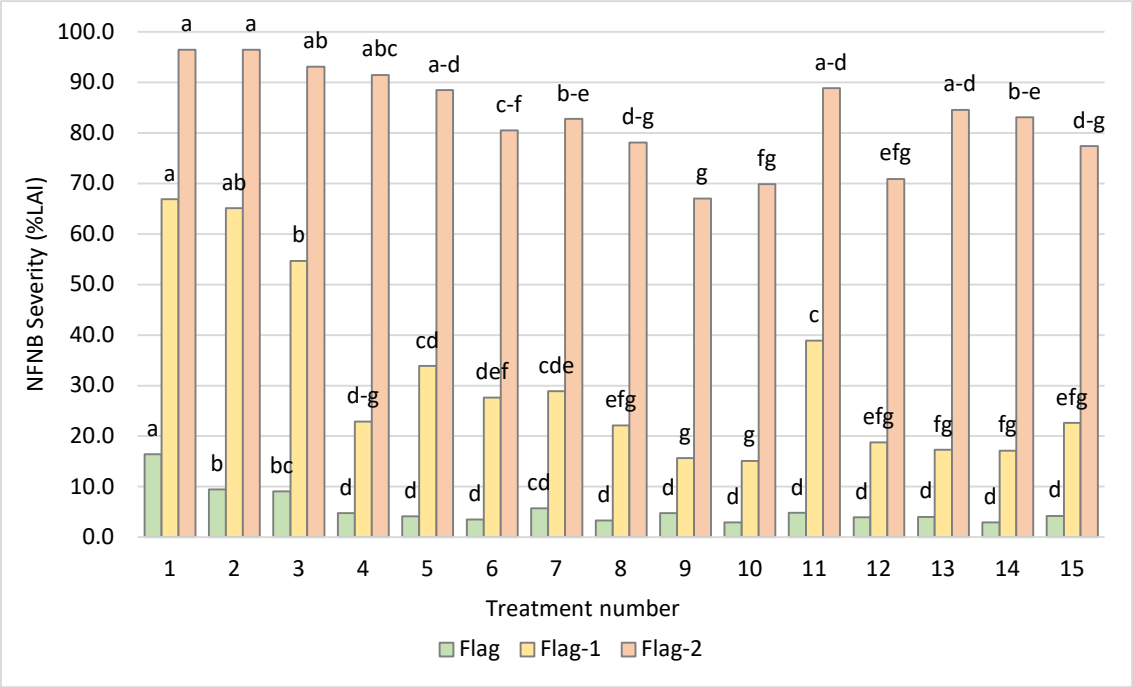


Figure 2. Influence of fungicide treatment on Net Form Net Blotch (NFNB) severity on flag, flag-1 and flag-2 when assessed at the start of grain fill (GS71) on 27 October. Treatments as per table 1.

Table 5. Trial input and management details.

Sowing date:		**22 May 2023**
Harvest date:		**23 December 2023**
Seed Rate:		200 seeds/m^2
Basal fertiliser:	22 May	100 Kg/ha MAP
Nitrogen:	6 Jul	50kg N/ha
	28 Aug	100kg N/ha
Fungicide:	At sowing (GS00)	As per treatment list
	23 Aug (GS31)	As per treatment list
	14 Sep(GS37-39)	As per treatment list
	17 Oct (GS59)	As per treatment list

Table 6. 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