HPC GEROGERY NVT TRIAL – VARIETY BY FUNGICIDE MANAGEMENT

KEY MESSAGES

- **In 2025, stripe rust was still present at yield limiting levels in susceptible varieties. RGT Zanzibar (rated R-MR for stripe rust) was the only variety with sufficient genetic resistance to not show a yield response to applied fungicides.**
- **Septoria tritici blotch (STB) was also present at significant levels (>15%) in Leverage and Scepter, which likely contributed to yield loss.**
- **Except for RGT Zanzibar, yields were maximised with at least one fungicide application made early in the growing season in comparison to a full fungicide package (three foliar applications).**
- **A full fungicide program was not needed in 2025 and, in some circumstances, resulted in yield penalties compared to a single application in August. This highlights the importance of educated decision making when managing disease.**

AIM

The following trial was completed under the FAR Australia led GRDC Hyper Profitable Crops (HPC) initiative (FAR2403-002SAX). As part of this project, HPC discussion groups are invited to design small plot validation and demonstration trials which are established next to a National Variety Trials (NVT) site. In 2025, the Riverine Plains HPC discussion group decided to evaluate different levels of disease control in a range of wheat varieties commonly grown in the region. This trial was established at the NVT site in Gerogery, NSW, with trial operations conducted by the local NVT service provider, Kalyx.

METHODOLOGY

This trial aimed to test the value of disease management in a range of commonly grown varieties in the region. These varieties, along with their disease ratings, are listed in Table 1.

These varieties were tested using three (3) different fungicide management strategies –

1. a nil control (no fungicide),
2. control until August involving one fungicide application (Amistar Xtra 800mL/ha applied on 21 August), and
3. a full control involving three fungicide applications (Amistar Xtra 800mL/ha applied on 1 September, Aviator Xpro 500mL/ha applied on 26 September and Opera 1000mL/ha applied on 24 October).

Trial operations, including spray applications, were undertaken by the local NVT service provider, Kalyx. A single disease assessment was completed by FAR Australia on 10 October.

Table 1 Varieties tested and their respective disease ratings for disease found in the trial.

VARIETY	DISEASE RATING[1]		
	Stripe Rust	Septoria Tritici Blotch	Powdery Mildew
Scepter	S	S	S-VS
RGT Zanzibar	R-MR	MS-S	R-MR
Stockade	MR	MS	S-VS
Genie	MS-S	S	S-VS
Illabo	MR-MS	MS-S	R-MR
Leverage	MR-MS	S	S-VS

VS= Very susceptible, S= Susceptible, MS= Moderately susceptible, MR= Moderately resistant and R= Resistant

1 Department of Primary Industries and Regional Development 2025 NSW Winter crop variety sowing guide.

RESULTS

RGT Zanzibar produced the highest average grain yield with 5.67 t/ha. While this variety was not statistically better yielding than Scepter or Leverage, RGT Zanzibar was the only variety that gave no response to applied fungicide (Table 2). Yield was not statistically improved in any variety by applying a full disease management package compared to control until August.

The two long season varieties, Illabo (winter) and Stockade (very slow spring) gave a negative response to the full fungicide program in comparison to control until August. This can occasionally happen when conditions are dry and fungicides are applied late to a clean crop. While no phytotoxicity was observed, it is possible that the crop had a reaction to the spray which has resulted in yield loss.

Stipe rust was the main disease present in the trial, with Scepter, Leverage and Genie showing the highest levels of infection (Table 3, Figure 1). Leverage took on significantly more stripe rust compared to Illabo, despite them both being rated MR-MS for stripe rust. RGT Zanzibar was the only variety that had no stripe rust present in the untreated plots and was the only variety to show no response to any level of fungicide intervention.

Table 2 Effect of wheat variety and disease management strategies at Gerogery, NSW. Yield uncorrected for moisture.

YIELD (T/HA)				
	Untreated	**Control until August**	**Full fungicide**	**Mean**
Scepter	5.05 c	5.80 ab	5.76 ab	5.54 ab
RGT Zanzibar	5.60 ab	5.81 ab	5.61 ab	5.67 a
Stockade	4.88 c	5.51 b	5.10 c	5.16 d
Genie	5.01 c	5.58 b	5.65 ab	5.41 bc
Illabo	5.04 c	5.51 b	5.11 c	5.22 cd
Leverage	5.11 c	5.79 ab	5.94 a	5.61 ab
Mean	5.11 -	5.67 -	5.53 -	
LSD Fungicide Strategy (p = 0.05)		0.43	P value	0.052
LSD Variety (p = 0.05)		0.20	P value	<0.001
LSD Fungicide Strategy by Variety (p = 0.05)		0.35	P value	0.023

Table 3 Influence of fungicide strategy and wheat variety on stripe rust, Septoria tritici blotch and wheat powdery mildew infection (Plot score % leaf area infected).

	PLOT INFECTION (%) ASSESSED 10 OCTOBER 2025					
Fungicide Strategy (mean of all varieties)	Stripe Rust		Septoria Tritici Blotch		Wheat Powdery Mildew	
1 Untreated	11.2	a	9.7	a	0.1	-
2 Control until August	0.8	b	2.7	b	0.0	-
3 Full fungicide	0.0	b	1.5	b	0.0	-
LSD (p = 0.05)	3.6		2.6		ns	
P value	0.002		0.002		0.111	
Variety (mean of all fungicide strategies)						
1 Scepter	13.7	a	9.6	a	0.0	b
2 RGT Zanzibar	0.0	c	3.8	cd	0.0	b
3 Stockade	1.1	c	0.8	e	0.0	b
4 Genie	3.1	bc	4.9	bc	0.2	a
5 Illabo	0.6	c	1.8	de	0.0	b
6 Leverage	5.6	b	6.9	b	0.0	b
LSD (p = 0.05)	3.8		2.5		0.1	
P value	<0.001		<0.001		0.007	
Fungicide Strategy by Variety						
Untreated						
1 Scepter	38.3	a	16.7	a	0.0	b
2 RGT Zanzibar	0.0	d	8.7	b	0.0	b
3 Stockade	3.3	cd	1.7	d	0.0	b
4 Genie	8.3	c	10.7	b	0.7	a
5 Illabo	1.7	d	3.0	d	0.0	b
6 Leverage	15.7	b	17.3	a	0.0	b
Control until August						
1 Scepter	2.7	cd	8.0	bc	0.0	b
2 RGT Zanzibar	0.0	d	1.3	d	0.0	b
3 Stockade	0.0	d	0.7	d	0.0	b
4 Genie	0.8	d	3.0	d	0.0	b
5 Illabo	0.0	d	1.7	d	0.0	b
6 Leverage	1.2	d	1.7	d	0.0	b
Full fungicide						
1 Scepter	0.0	d	4.0	cd	0.0	b
2 RGT Zanzibar	0.0	d	1.3	d	0.0	b
3 Stockade	0.0	d	0.2	d	0.0	b
4 Genie	0.0	d	1.0	d	0.0	b
5 Illabo	0.0	d	0.8	d	0.0	b
6 Leverage	0.0	d	1.7	d	0.0	b
LSD (p = 0.05)	6.6		4.3		0.2	

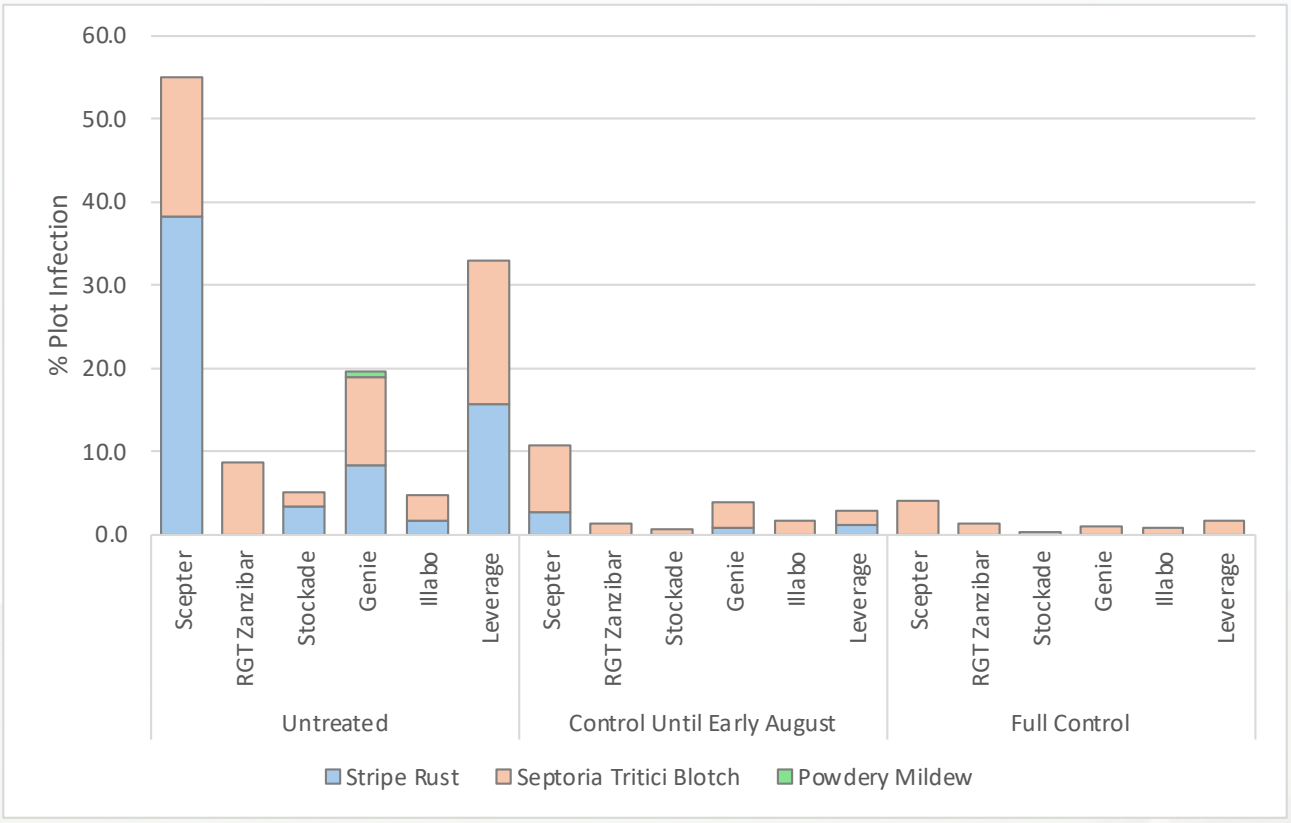

Figure 1 Influence of fungicide strategy and wheat variety on stripe rust, Septoria tritici blotch and wheat powdery mildew infection (Plot score % leaf area infected). See table 3 for details of statistical analysis.

SUMMARY

Even in a below average rainfall season, significant levels of both stripe rust and Septoria tritici blotch were present in untreated canopies of Scepter, Leverage and Genie. Low levels of both diseases were also present in Stockade and Illabo, all of which gave significant yield response to fungicide application. RGT Zanzibar, with a rating of R-MR to stripe rust, was the only variety with sufficient genetic resistance to have no response to fungicide.

Applying excess fungicides to clean crops in a drier than average season can result in a negative response to fungicide, reinforcing the need for a change in attitude to fungicides away from prophylactic spraying to more educated decision making (i.e. do I need this fungicide?).

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