



**Industry
Innovations**

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INDUSTRY INNOVATIONS 2024: PROVISIONAL HARVEST RESULTS – May Sown Wheat

2024 SA Bordertown Crop Technology Centre (MRZ)

Sown: 15 May 2024

Harvested: 10 December 2024

Rotation position: 2023 Canola

Soil type: Brown clay

FAR code: FAR MSA II W24-32

The Germplasm Evaluation Network (GEN) is a FAR Australia 'Industry Innovations' initiative that tests crop variety performance across FAR Australia's national network of Crop Technology Centres. GEN sites test variety performance with and without fungicide. FAR Australia provides the control varieties and breeders enter their chosen lines for evaluation.

Key Points:

- A very dry start to the season and 232mm growing season rainfall (GSR – Apr-Oct) resulted grain yields that ranged from 4.37 – 6.03t/ha depending on variety and foliar fungicide input.
- There were significant differences in grain yield due to both variety ($p < 0.001$) and fungicide management ($p = 0.044$) but there was no interaction between the two, meaning that varieties in general responded similarly to fungicide application with an average response of 0.3t/ha.
- The highest yielding variety was the coded spring wheat V15019-88 which was significantly higher yielding than all other varieties except Shotgun (RAC3227) (AH), LRPB Matador (AH) and Genie (AH) which all yielded 5.74 or above with fungicide protection.
- High levels (>50% plot infection) of stripe rust (SR) plot infection were present in Genie, Rockstar, and Shotgun (RAC3227) but disease was effectively controlled with a two-spray fungicide program.
- Septoria tritici blotch (STB) was recorded at low levels (less than 10% infection) in V15019-88, Ironbark (V14035-125), Boa (LPB19-8035), and LRPB Major. These varieties had lower levels of stripe rust infection and may have allowed STB to better compete for leaf area, although the severity of STB was very low due to drier conditions.
- Proteins in the trial averaged 10.2% suggesting higher levels of nitrogen could have been applied to achieve higher yields.
- Proteins ranged from 10.7% (Wallaroo) down to 9.7% for the new white spring wheat Shotgun. Screenings averaged 1.9%. Test weights averaged 78.2 kg/hL.

Issue date 3rd January 2025

Yield (t/ha) & quality data (% protein, test weight, % screenings)

There were significant differences in yield and quality due to variety and fungicide application ($p < 0.001$), but no interaction between variety and fungicide management (Tables 1 – 3 & Figure 1).

Table 1. Influence of fungicide application on the grain yield (t/ha) of winter and spring wheat (varieties grown plus and minus fungicide) – May 15 sow.

Variety	Management Level				
	Untreated		Plus fungicide		Mean
	Yield t/ha		Yield t/ha		Yield t/ha
Scepter (s)	4.74	-	5.15	-	4.95 de
LRPB Matador (s)	5.82	-	5.78	-	5.80 ab
Genie (s)	5.21	-	5.74	-	5.47 abc
Rockstar (s)	5.23	-	5.38	-	5.30 cd
TA0109 (w)	4.37	-	4.82	-	4.59 e
Wallaroo (w)	5.15	-	5.26	-	5.21 cd
V15019-88 (s)	5.75	-	6.03	-	5.89 a
Shotgun (RAC3227) (s)	5.18	-	5.80	-	5.49 abc
Ironbark (V14035-125) (s)	5.24	-	5.39	-	5.31 cd
Boa (LPB19-8035) (s)	5.24	-	5.54	-	5.39 bc
LRPB Major (s)	5.09	-	5.38	-	5.24 cd
Mean	5.18	b	5.48	a	5.33
LSD Variety p = 0.05	0.43		P val		<0.001
LSD Management p = 0.05	0.28		P val		0.044
LSD Variety x Man. p = 0.05	ns		P val		0.934

(w) – winter wheat variety, (s) – spring wheat variety

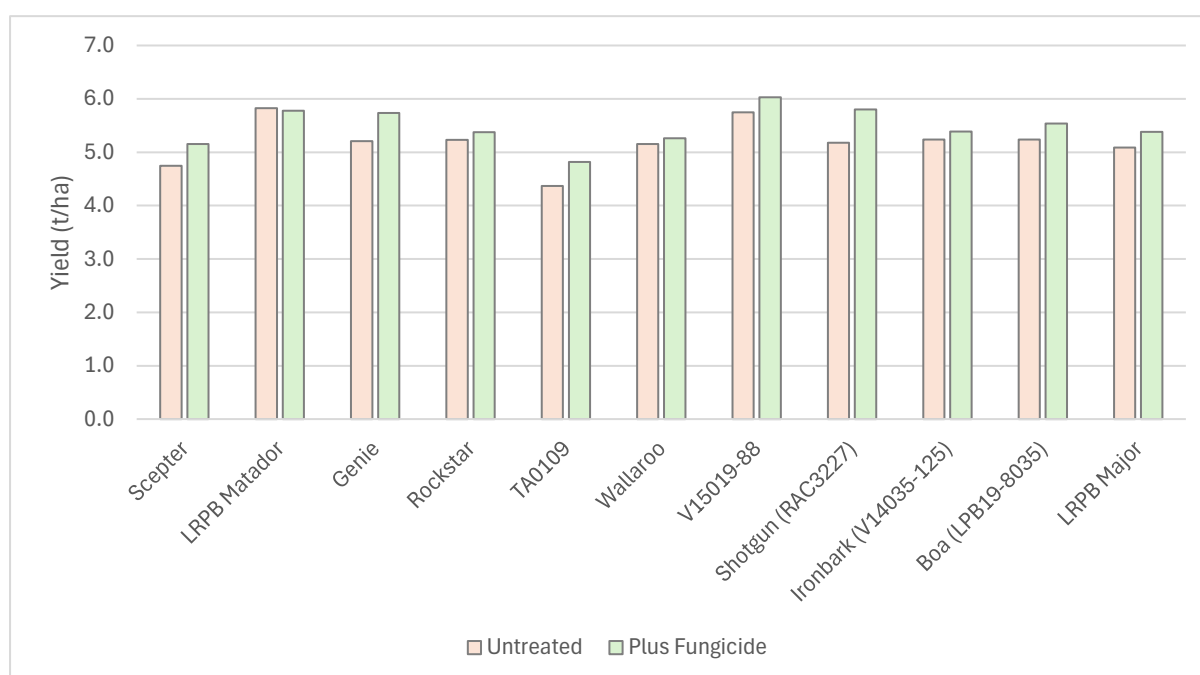


Figure 1. Influence of variety and fungicide application on grain yield (t/ha). Variety ($LSD_{0.05} = 0.43$, P -value = <0.001) & Fungicide management ($LSD_{0.05} = 0.28$, P -value = 0.044) – May 15 sown.

Table 2. Influence of variety and fungicide application on the grain protein (%) and test weights (kg/hL) – December 10 harvest.

Variety	Management Level																	
	Untreated			Plus Fungicide			Mean			Untreated			Plus Fungicide			Mean		
	Protein %			Protein %			Protein %			Test weight kg/hL			Test weight kg/hL			Test weight kg/hL		
Scepter	10.1	-	10.4	-	10.2	bcd	79.2	-	80.5	-	79.8	a						
LRPB Matador	10.0	-	10.0	-	10.0	cd	77.9	-	80.7	-	79.3	ab						
Genie	9.8	-	10.3	-	10.0	cd	75.2	-	81.0	-	78.1	ab						
Rockstar	9.9	-	10.3	-	10.1	cd	78.4	-	79.3	-	78.8	ab						
TA0109	10.3	-	10.3	-	10.3	bc	73.2	-	75.2	-	74.2	c						
Wallaroo	10.8	-	10.7	-	10.7	a	79.1	-	79.7	-	79.4	ab						
V15019-88	10.2	-	10.1	-	10.1	cd	78.1	-	80.2	-	79.1	ab						
Shotgun	9.5	-	9.9	-	9.7	e	75.5	-	78.3	-	76.9	b						
Ironbark	10.4	-	10.6	-	10.5	ab	77.4	-	79.3	-	78.3	ab						
Boa	10.1	-	10.5	-	10.3	bcd	78.5	-	79.2	-	78.9	ab						
LRPB Major	10.0	-	10.0	-	10.0	d	75.2	-	80.8	-	78.0	ab						
Mean	10.1	-	10.3	-	10.2		77.0	b	79.5	a	78.2							
Variety	LSD p = 0.05		0.3	P val	<0.001	LSD p = 0.05		2.6	P val	0.005								
Management	LSD p = 0.05		ns	P val	0.074	LSD p = 0.05		1.6	P val	0.018								
Var. x Man.	LSD p = 0.05		ns	P val	0.390	LSD p = 0.05		ns	P val	0.495								

Table 3. Influence of variety and fungicide on the screenings (% < 2.0 mm)– December 10 harvest. And the influence of variety on phenology.

Variety	Management Level														
	Untreated			Plus Fungicide			Mean			2 Sep			1 Oct		
	Screenings %			Screenings %			Screenings %			Zadoks (0-100)			Zadoks (0-100)		
Scepter	1.9	de	1.4	fg	1.6		37		65						
LRPB Matador	1.7	ef	1.7	ef	1.7		37		65						
Genie	3.2	b	1.9	e	2.5		33		59						
Rockstar	1.4	fg	1.6	efg	1.5		37		65						
TA0109	4.7	a	3.0	b	3.9		37		49-55						
Wallaroo	1.3	gh	1.0	hi	1.1		33		45						
V15019-88	1.5	fg	1.3	ghi	1.4		33		61-65						
Shotgun	2.3	c	2.3	cd	2.3		37		65						
Ironbark	1.3	ghi	0.9	i	1.1		33		61-65						
Boa	1.8	e	1.8	e	1.8		37		65						
LRPB Major	1.7	ef	1.3	gh	1.5		33		59-61						
Mean	2.1		1.6		1.9										
Variety	LSD p = 0.05		0.3	P val	<0.001										
Management	LSD p = 0.05		0.1	P val	0.001										
Var. x Man.	LSD p = 0.05		0.4	P val	<0.001										

Table 4. Influence of fungicide application and variety on plot disease infection levels (%) of Stripe rust (SR) and Septoria tritici blotch (STB) – assessed October 17.

Variety	Management Level									
	Untreated		Plus Fungicide		Mean	Untreated		Plus Fungicide		Mean
	SR %		SR %		SR %	STB %		STB %		STB %
Scepter	41.3	b	11.8	c	26.5	2.3	c	0.3	e	1.3
LRPB Matador	6.8	c	4.8	c	5.8	0.0	e	0.0	e	0.0
Genie	60.0	a	3.5	c	31.8	0.0	e	1.0	cde	0.5
Rockstar	71.3	a	9.3	c	40.3	0.0	e	0.0	e	0.0
TA0109	13.0	c	3.8	c	8.4	1.3	cde	0.0	e	0.6
Wallaroo	6.5	c	1.0	c	3.8	1.0	cde	0.0	e	0.5
V15019-88	0.3	c	0.0	c	0.1	4.5	ab	0.5	de	2.5
Shotgun	61.3	a	7.0	c	34.1	0.0	e	0.0	e	0.0
Ironbark	0.0	c	0.0	c	0.0	5.5	a	0.8	de	3.1
Boa	11.3	c	2.8	c	7.0	3.8	b	1.8	cd	2.8
LRPB Major	1.8	c	1.5	c	1.6	2.3	c	0.5	de	1.4
Mean	24.8		1.4		3.2	1.6		0.3		0.9
Variety	LSD p = 0.05		9.2	P val	<0.001	LSD p = 0.05		0.3	P val	<0.001
Management	LSD p = 0.05		12.1	P val	0.012	LSD p = 0.05		1.0	P val	<0.001
Var. x Man.	LSD p = 0.05		13.1	P val	<0.001	LSD p = 0.05		1.4	P val	<0.001

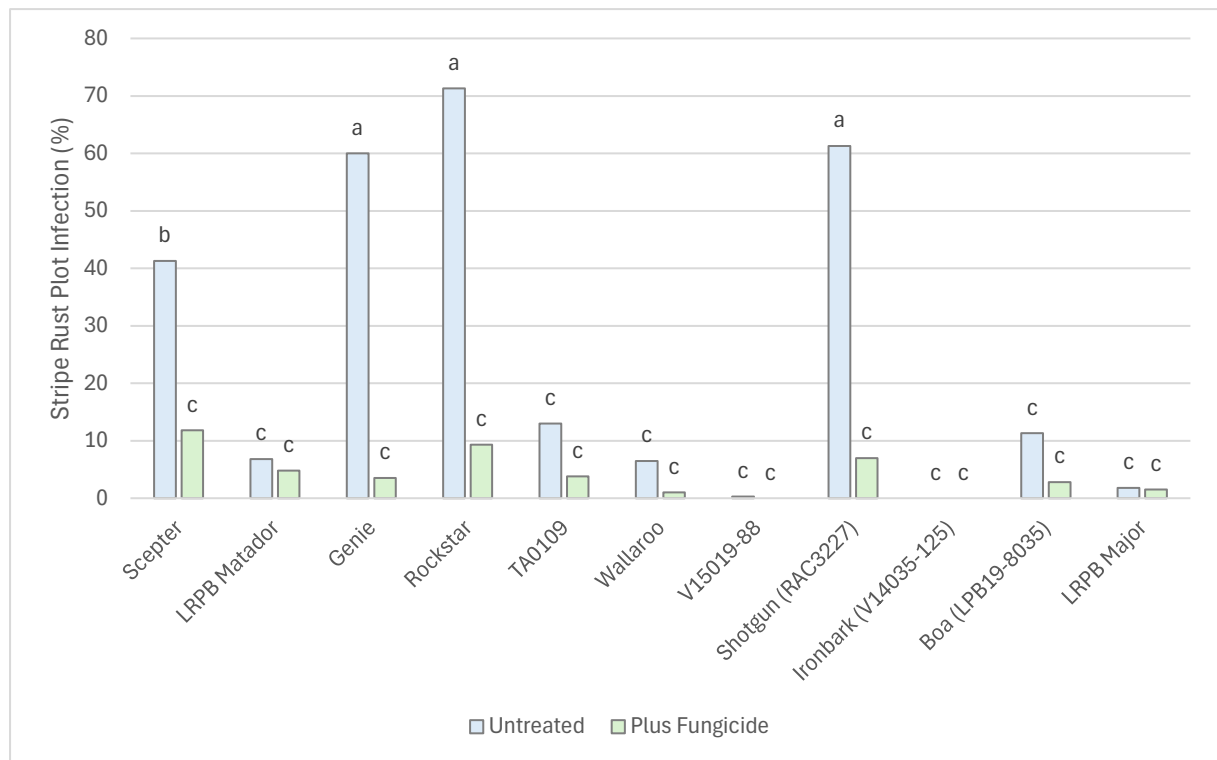


Figure 2. Influence of fungicide application and variety on plot disease infection levels (%) of **Stripe rust (SR)** Fungicide management x Variety (LSD_{0.05} = 13.1, P-value = <0.001) – assessed October 17.

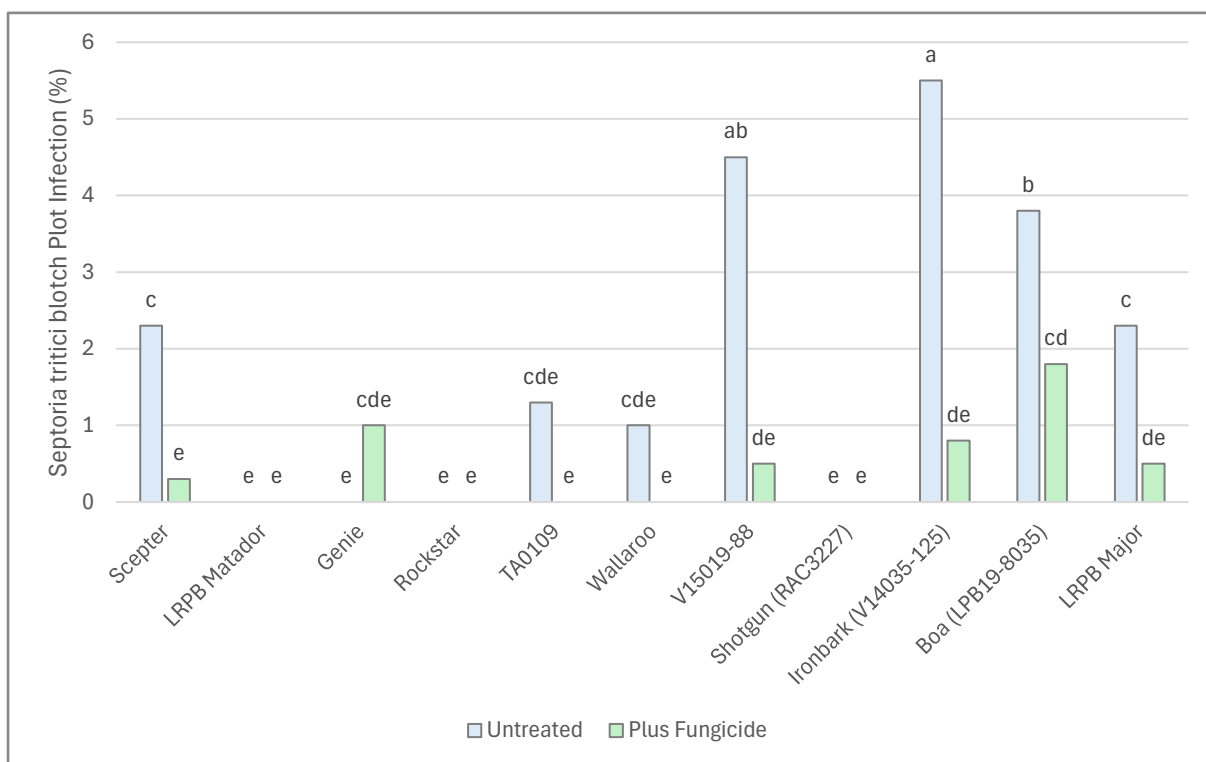


Figure 3. Influence of fungicide and variety on plot disease infection levels (%) of **Septoria tritici blotch (STB)** Fungicide management x Variety (LSD_{0.05} = 1.4, P-value = <0.001) – assessed October 17.

Table 5. Trial input and management details (kg, g, mL/ha, L/ha).

Sowing date:		15 May	
Harvest date:		10 December	
Seed rate:		180 seeds/m ²	
Basal fertiliser:	15 May	100 kg/ha MAP	
Pre-em herbicide:	14 May	TriflurX 1.50 L/ha Overwatch 1.25 L/ha	
Broadleaf herbicide:	5 Sept	LVE MCPA 570 0.40 L/ha Lontrel Advanced 0.08 g/ha Paradigm 25 g/ha Expedient 0.5 L/ha	
Nitrogen:	2 Sept	206 kg urea/ha (95 kg N/ha)	
Fungicide:		Untreated	Plus Fungicide
	GS37	----	Prosaro 0.30 L/ha
	GS65	----	Radial 0.84 L/ha

Please note that the label cut off for Radial is ear emergence (GS59). Poor weather resulted in the application being delayed into flowering past the label cut off.

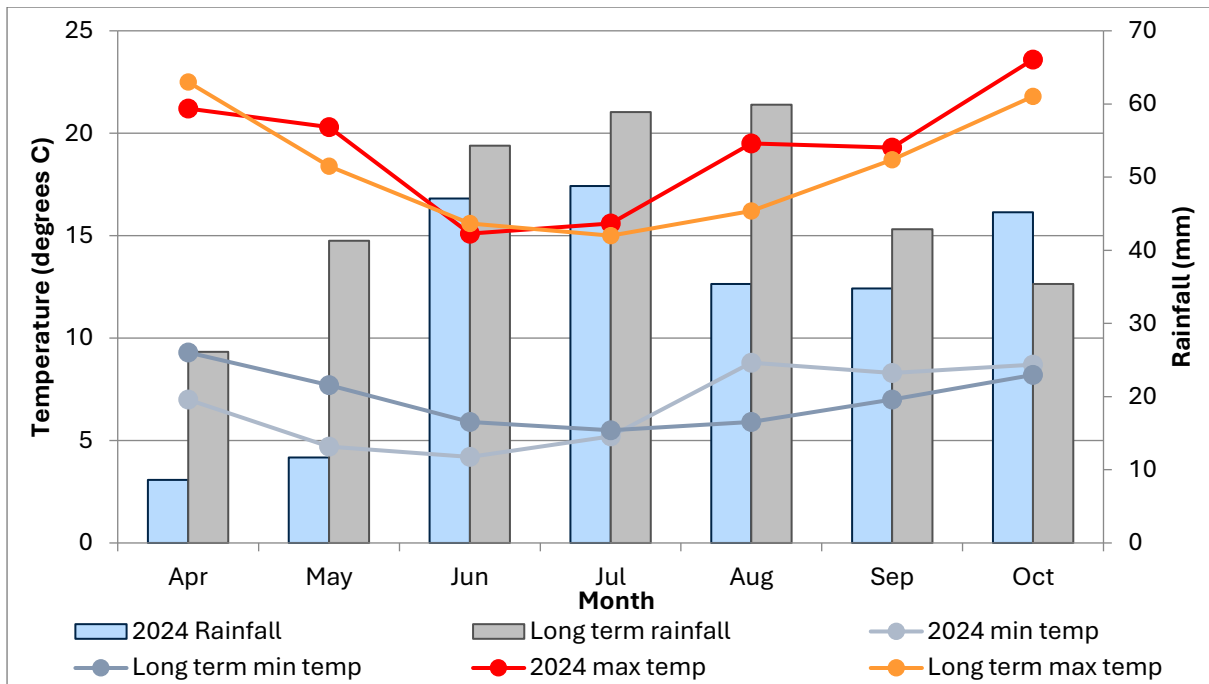


Figure 4. 2024 growing season rainfall and long-term rainfall recorded at Bordertown Industrial Estate (2002-2024). 2024 min and max temperatures, and long-term temperatures recorded at Keith (1906-2024). Growing season rainfall April to October= 232 mm.

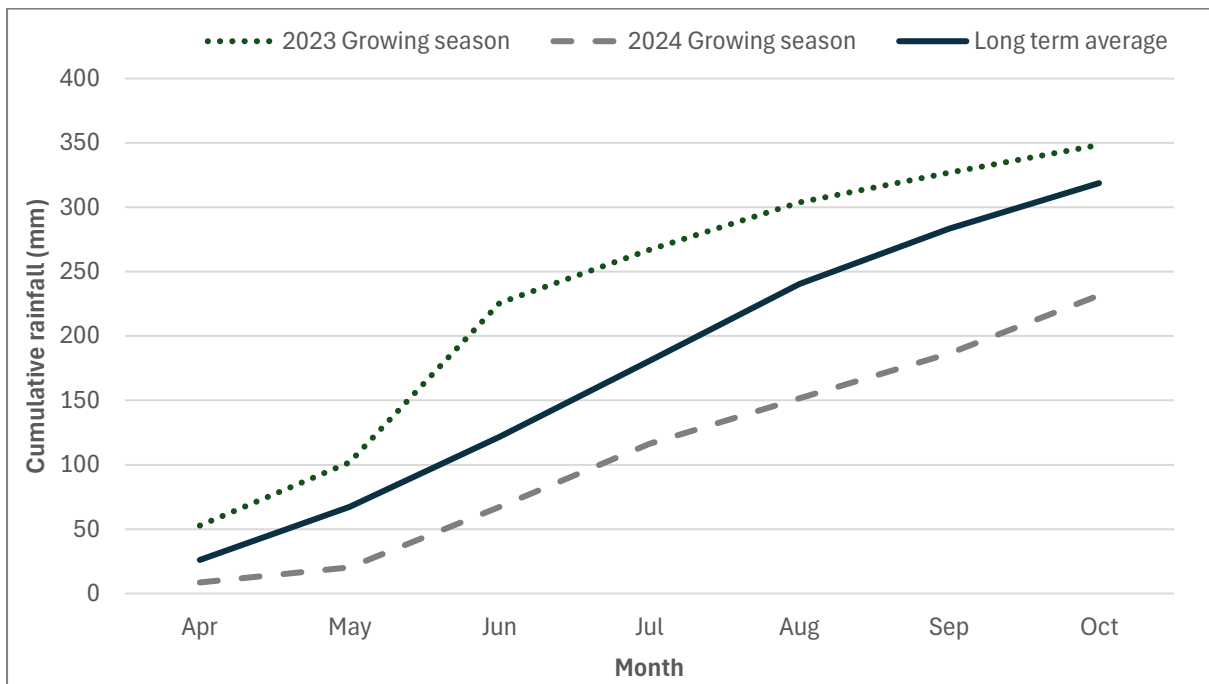


Figure 5. Cumulative growing season rainfall for 2023, 2024 and the long-term average for the growing season (April-October).

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