

# PROVISIONAL HYC HARVEST RESULTS:

## Wheat Disease Management Germplasm Interaction Trial

2020 NSW Hyper Yielding Crops Research Centre

### Hyper Yielding Crops (FAR2004-002SAX)

A Grains Research & Development Corporation (GRDC) national investment

**Sown:** 21 April 2020

**Harvested:** 14 December 2020

**Rotation position:** 1<sup>st</sup> Cereal after canola

**Soil type and management:** Red/brown clay loam – Kelly chained over summer

#### Key Messages:

- The feed winter wheats RGT Accroc and Anapurna significantly out yielded all other cultivars at all three levels of disease management and achieved over 10t/ha with fungicide input.
- There was a significant interaction between cultivar and fungicide management with the stripe rust susceptible cultivars Trojan and DS Bennett giving yield responses of 5.27 and 3.07t/ha to a single flag leaf fungicide compared to less than a 1t/ha increase with the majority of cultivars.
- Septoria tritici blotch (STB) was the principal disease in untreated crops of Scepter and Beckom, whilst stripe rust was the main disease in Trojan, DS Bennett, Coolah, RGT Accroc and Catapult. Other cultivars were subject to low levels of both stripe rust and STB disease pressure.
- Only Trojan, Catapult, Coolah and DS Bennett gave significant yield increases to the application of four units of fungicide (seed treatment and three foliar fungicides) over a single flag spray.

**Table 1.** Influence of fungicide strategy and cultivar on grain yield (t/ha).

Cultivar	Management Level			
	Untreated	1 Fungicide Unit	4 Fungicide Units	Mean
	Yield t/ha	Yield t/ha	Yield t/ha	Yield t/ha
Trojan (spring)	2.28 n	7.55 hij	8.13 efg	<b>5.98</b>
Scepter (spring)	7.07 kl	8.60 d	8.55 de	<b>8.07</b>
Nighthawk (facultative)	7.98 gh	8.47 def	8.54 de	<b>8.33</b>
Anapurna (winter)	9.69 c	10.22 b	10.46 ab	<b>10.12</b>
RGT Accroc (winter)	9.72 c	10.86 a	10.83 a	<b>10.47</b>
Beckom (spring)	7.75 ghi	8.46 def	8.66 d	<b>8.29</b>
Catapult (spring)	6.06 m	7.84 ghi	8.46 def	<b>7.45</b>
Gregory (spring)	6.75 l	7.15 jkl	7.40 ijk	<b>7.10</b>
Coolah (Spring)	7.26 jk	8.07 fg	8.75 d	<b>8.03</b>
DS Bennett (Winter)	5.68 m	8.75 d	9.48 c	<b>7.97</b>
<b>Mean</b>	<b>7.02</b>	<b>8.60</b>	<b>8.93</b>	
<b>LSD Cultivar p = 0.05</b>		0.26 t/ha	P val	<0.001
<b>LSD Management p=0.05</b>		0.28 t/ha	P val	<0.001
<b>LSD Cultivar x Man. P=0.05</b>		0.45 t/ha	P val	<0.001

*Please read the notes accompanying these express results for interpretation*

*Winter – winter wheat, Spring – spring wheat.*

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Yield figures followed by the same letter are not considered to be statistically different ( $p=0.05$ ).  
 Plot yields: To compensate for edge effect a full row width (22.5cm) has been added to either side of the plot area (equal to plot centre to plot centre measurement in this case). All provisional results have been analysed through ARM software with further analysis when the final results are released.

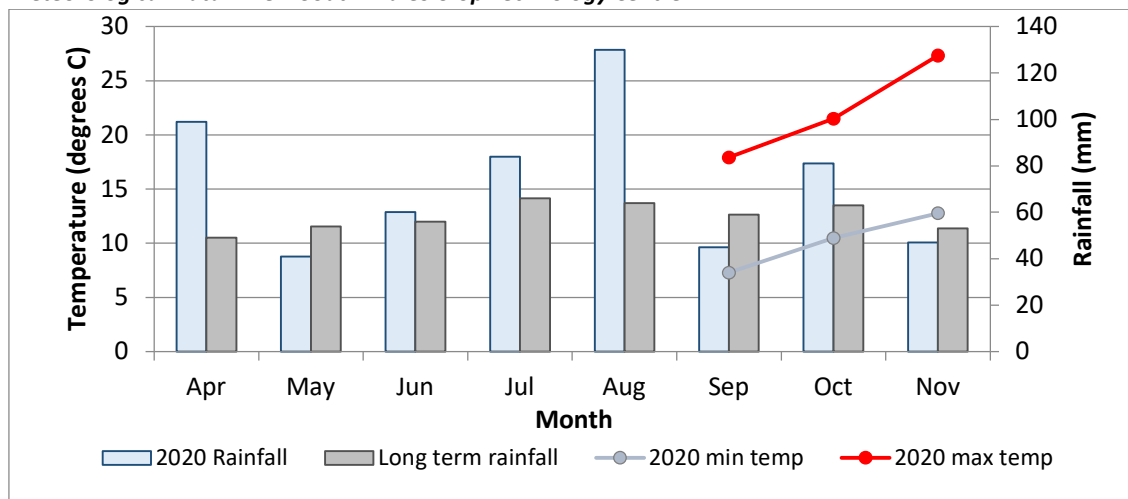
**Table 2.** Details of the management levels (kg, g, ml/ha).

Plant pop'n:		180 seeds/m <sup>2</sup> (150 plants/m <sup>2</sup> target) - all three managements		
	Timing	Untreated	1 Fungicide Unit	4 Fungicide Units
Seed treatment:		Vibrance/Gaucha	Vibrance/Gaucha	As 1 F unit + Systiva
Basal Fertiliser:	21 April	120kg MAP (12 Kg N)	120kg MAP (12 Kg N/ha)	120kg MAP (12 Kg N/ha)
Nitrogen:	18 June	40kg N/ha	40kg N/ha	40kg N/ha
	29 July	70kg N/ha	70kg N/ha	70kg N/ha
Total N Applied:		122kg N/ha	122kg N/ha	122kg N/ha
PGR:		---	---	---
Fungicide*:	GS31	---	---	Prosaro 300ml
	GS39	---	Amistar Xtra 800ml	Amistar Xtra 800ml
	GS59-61	---	---	Opus 500ml

All other inputs of insecticides and herbicides were standard across the trial.

\*Timings of fungicides were adjusted to take account of the differences in spring and winter wheat phenology (development).

**Meteorological Data – New South Wales Crop Technology Centre**



**Figure 1.** 2020 growing season rainfall (GSR April - November) and long-term rainfall (1955-2020), min and max temperatures recorded at research site (September – November). Rainfall from host farmer records. Partial temperature data set due to timing of weather station installation.

**Field Applied Research (FAR) Australia gratefully acknowledges the investment support of the GRDC in order to generate this research, project partners and the input of the Baldry Family and Brill Ag in managing this research trial.**

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