PROVISIONAL HARVEST RESULTS:

Wheat Disease Management Germplasm Interaction Trial

2020 Victoria Hyper Yielding Crops Research Centre

Hyper Yielding Crops (FAR2004-002SAX)

A Grains Research & Development Corporation (GRDC) national investment

Sown: 25 April, 2020
Harvested: 16 December, 2020
Rotation position: 1st cereal following canola
Soil Type: Grey clay loam

Key Points:

- *The feed winter wheats SFR 86-090, SF Adagio, RGT Accroc and Anapurna were the only cultivars to break through the 9t/ha threshold.*
- *SF Adagio at 9.67 t/ha was significantly superior to all other cultivars with one fungicide applied (GS39 flag leaf emergence spray).*
- *There was a significant interaction between cultivar and fungicide management with the stripe rust and Septoria tritici blotch (STB) susceptible cultivars giving large yield responses to high input fungicide input (e.g. Trojan had a 6.83 t/ha response to controlling stripe rust, Revenue a 2.87 t/ha response to fungicide as a result of STB control).*
- *In contrast, the resistant varieties SF Adagio, Tabasco and Nighthawk gave less than 1 t/ha response to 4 units of fungicide.*
- *STB was the principal disease in the majority of varieties with the more STB resistant cultivars SF Adagio and Anapurna being the only cultivars to deliver over 8t/ha untreated with fungicide.*
- *Unfortunately Tabasco's excellent STB resistance is combined with a phenology that is too long for the southern Victorian environment.*

Table 1. Influence of management strategy and variety on grain yield (t/ha).

	Management Level			
	Untreated	**1 Fungicide Unit**	**4 Fungicide Units**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
Trojan (spring)	2.14 p	2.90 o	8.97 d-g	**4.67**
Scepter (spring)	5.82 n	7.87 jkl	8.78 efg	**7.49**
Nighthawk (facultative)	7.21 m	7.60 lm	8.11 jk	**7.64**
Anapurna (winter)	8.30 hij	8.97 d-g	9.23 b-e	**8.83**
RGT Accroc (winter)	7.85 jkl	9.13 c-f	9.58 abc	**8.85**
RGT Calabro (winter)	7.67 klm	8.63 gh	8.95 efg	**8.41**

Issued: 18 January 2021

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SFR 86-090 (winter)	5.94	n	9.15	c-f	9.82	a	**8.30**
Tabasco (winter)	7.67	klm	7.81	kl	8.11	ijk	**7.87**
SF Adagio (winter)	8.71	fgh	9.67	ab	9.44	a-d	**9.27**
Revenue (winter)	5.71	n	7.92	jkl	8.58	ghi	**7.40**
Mean	**6.70**		**7.96**		**8.96**		
LSD Cultivar p=0.05			0.27 t/ha		P val		>0.001
LSD Management p=0.05			0.18 t/ha		P val		>0.001
LSD Cultivar x Man. P=0.05			**0.47 t/ha**		**P val**		**>0.001**

Please read the notes accompanying these express results for interpretation

Winter – winter wheat, Spring – spring wheat.

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).

Sowing Date:		**25-April**		
Plant pop'n:		180 seeds/m^2		
Seed Treatment:		100kg/ha MAP		
Basal Fertiliser:		Vibrance & Gaucho		
Nitrogen:	23 June	69 N kg/ha		
	7 August	69 N kg/ha		
Total Nitrogen:		**148 N kg/ha** (including 10 N kg/ha with MAP)		
PGR:	GS30	Moddus Evo 100mL/ha & 650ml/ha Errex		
	GS32	Moddus Evo 100mL/ha & 650ml/ha Errex		
		Untreated	**1 Fungicide Unit**	**4 Fungicide Units**
Fungicide:	GS00	---	---	Systiva
	GS31	---	---	Prosaro 300ml/ha
	GS39	---	Radial 840ml/ha	Radial 840ml/ha
	GS59-61	---	---	Opus 500ml/ha

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

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

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Meteorological Data

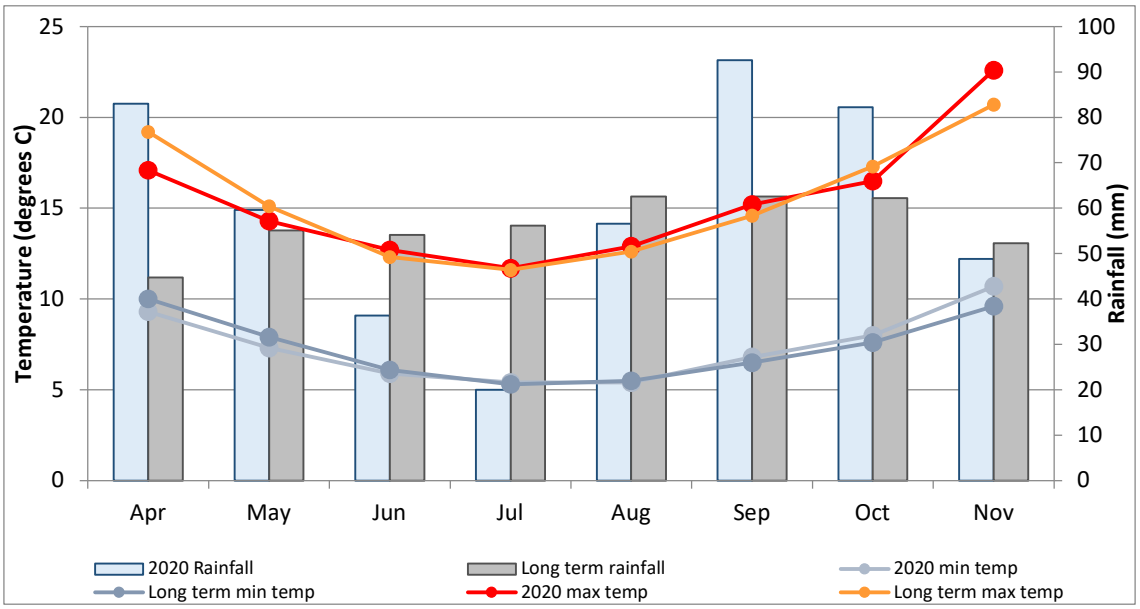

Figure 1. 2020 growing season rainfall and long-term rainfall (1968-2020) (recorded at Buckley (Balliwindi)), 2020 min and max temperatures and long-term min and max temperatures (2000-2020) (recorded at Colac (Mount Gellibrand)) for the growing season. *Rainfall April to November= 479.2mm.*

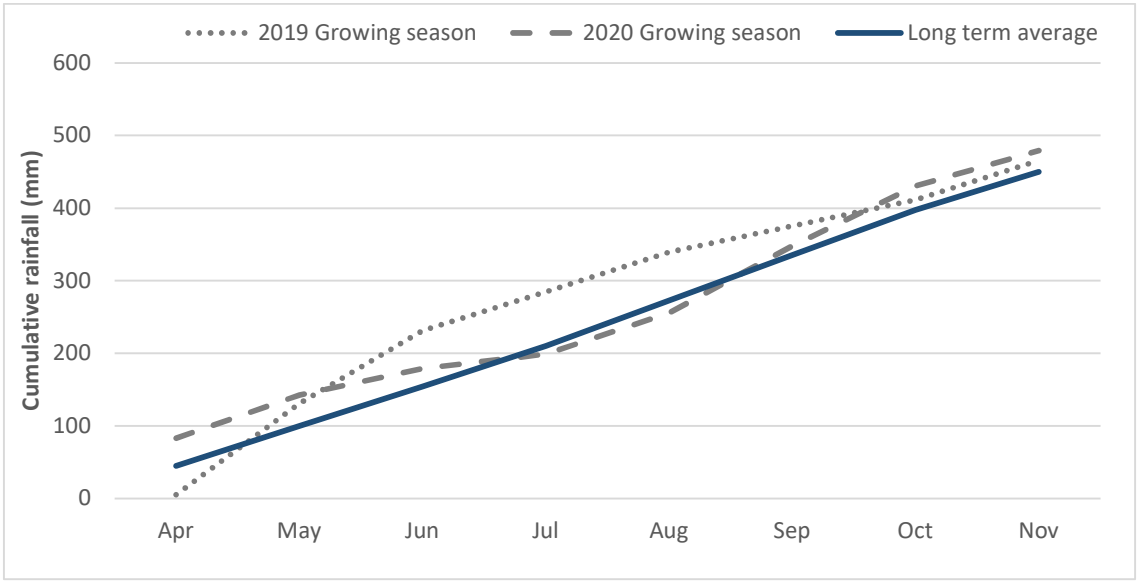

Figure 2. Cumulative growing season rainfall for 2019, 2020 and the long-term average for the growing season.

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 Peel Family in managing this research trial.