PROVISIONAL HARVEST RESULTS:

Wheat G.E.M (Genotype x Environment x Management) 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: 31 December, 2020
Rotation position: 1st cereal following canola
Soil Type: Grey clay loam

Key Messages:

- *The winter feed wheats RGT Accroc (awned) and SFR 86-090 (awnless) were significantly higher yielding under all managements compared to other varieties tested and exceeded 10 t/ha under high input management.*
- *In general, grazing (mechanical defoliation) had less impact on yield with faster developing cultivars which reached GS30 earlier in the season (e.g. Scepter, Nighthawk, SFR 86-090, RGT Accroc and DS Bennett) compared to the slower developing wheats (e.g. RGT Calabro, Tabasco Manning).*
- *Septoria tritici blotch (STB) was the principal disease in the majority of varieties however the varieties subject to stripe rust infection, Trojan and Scepter, saw the biggest improvement in yield (2.95 t/ha and 1.63 t/ha respectively) associated with greater fungicide input under the high management approach.*
- *Tabasco, a slow developing winter wheat with good disease resistance and standing power was significantly higher yielding under the standard input management compared to the high input management regime giving no yield response to additional fungicide, N or PGR input.*
- *Scepter under high input management was the highest yielding (9.03 t/ha) quality milling wheat (quality grade awaited) and was 13.4% lower yielding than the highest yielding feed wheat (10.42 t/ha).*

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

	Management Level			
	Standard Input Management	**Grazed Standard Management**	**High Input Management**	**Mean**
Cultivar	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**	**Yield t/ha**
Trojan (spring)	4.76 l	3.94 m	7.71 ijk	5.47
Scepter (spring)	7.40 k	7.97 h-k	9.03 cde	8.14
Nighthawk (facultative)	7.85 ijk	7.58 jk	8.55 e-h	7.99

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Anapurna (winter)	9.05	cde	7.60	jk	9.25	cd	8.63
RGT Accroc (winter)	9.49	bc	9.20	cde	10.42	a	**9.70**
RGT Calabro (winter)	9.36	cd	7.50	k	9.41	c	8.75
SFR 86-090 (winter)	9.04	cde	8.90	c-f	10.13	ab	**9.36**
Tabasco (winter)	8.75	d-g	7.59	jk	7.88	ijk	8.07
DS Bennett (winter)	8.30	f-i	8.16	g-j	8.96	cde	8.47
Manning (winter)	9.03	cde	7.46	k	9.25	cd	8.58
Mean	**8.30**		**7.59**		**9.06**		
LSD Cultivar p = 0.05			0.43t/ha		P val		<0.001
LSD Management p=0.05			0.24t/ha		P val		<0.001
LSD Cultivar x Man. P=0.05			0.75t/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 (10 kg N/ha included in total N below)		
Basal Fertiliser:		Vibrance & Gaucho		
		Standard	**Grazed**	**High**
Grazing at GS30		---	✓	---
Nitrogen (N):	23 June	69 N kg/ha	69 N kg/ha	86 N kg/ha + 15 S kg/ha
	7 August	69 N kg/ha	69 N kg/ha	86 N kg/ha + 15 S kg/ha
	17 Sept			25 N kg/ha
Total N:		**148 N kg/ha**	**148 N kg/ha**	**207 N kg/ha**
PGR:	GS30	---	---	Moddus Evo 100mL/ha & Errex 650ml/ha
	GS32	---	---	Moddus Evo 100mL/ha & Errex 650ml/ha
Fungicide:	GS00	---	---	Systiva
	GS31	Opus 500ml/ha	Opus 500ml/ha	Prosaro 300ml/ha
	GS39	FAR F1-19 750ml/ha	FAR F1-19 750ml/ha	FAR F1-19 750ml/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).*

Meteorological Data

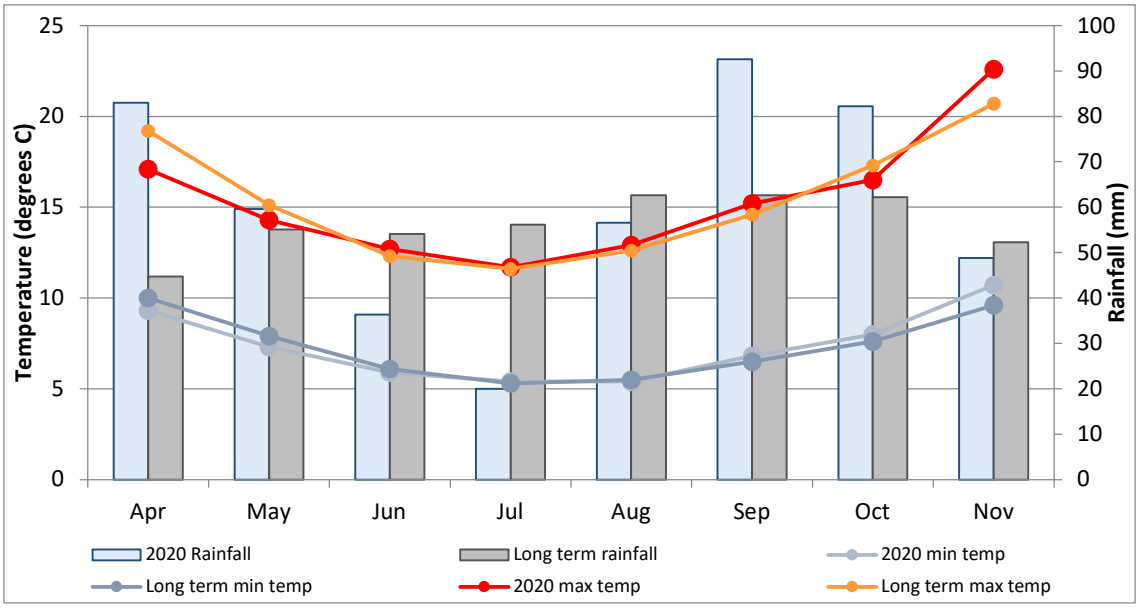

Figure 1. 2020 growing season rainfall and long-term rainfall (1968-2020) (recorded at Buckley (Balliwindi)), 2020 min and max temperatures and long-term min and max temperatures (2000-2020) (recorded at Colac (Mount Gellibrand)) for the growing season. *Rainfall April to November= 479.2mm.*

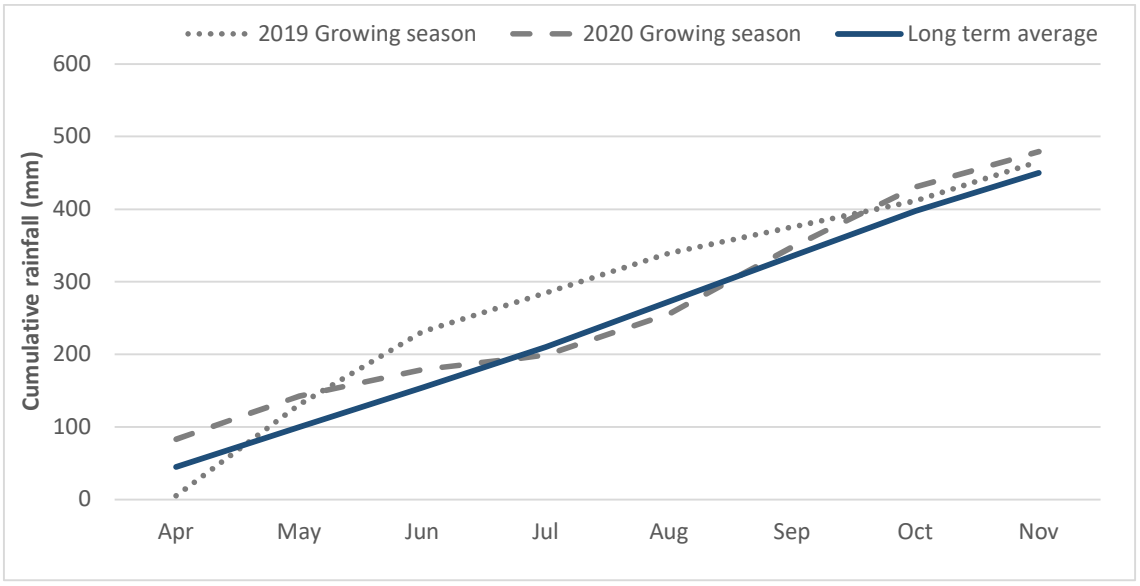

Figure 2. Cumulative growing season rainfall for 2019, 2020 and the long-term average for the growing season

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