GS-18-107-W	8.14	ij	87.1	jk	13.4	ab	75.8	a-e	1.3	fgh
GS-18-105-W	9.70	b-g	103.8	b-g	10.9	c	72.8	h	1.9	b-h
IGW6563	8.42	hij	90.1	ijk	11.9	abc	75.3	a-g	1.2	h
IGW6496	7.68	j	82.2	k	12.1	abc	76.1	abc	1.8	c-h
AGFWH004418 (w)	10.14	bcd	108.5	bcd	11.7	abc	76.2	abc	2.1	a-f
AGFWH004518 (w)	8.47	hij	90.7	h-k	13.9	a	77.0	a	1.3	gh
AGFWH004618 (w)	10.34	bc	110.6	bc	12.0	abc	75.6	a-e	2.8	a
V13079-049	9.52	c-g	101.8	c-g	11.8	abc	75.1	b-g	2.1	a-f
Mean	9.35		100.0		11.7		75.3		1.9	
LSD 0.05	0.83		8.9		2.2		1.7		0.8	
P Val	<0.001		<0.001		0.378		<0.001		0.009	

W= winter wheat, S= spring wheat, assumed spring where uncategorised

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

Sowing date:		**25-April**
Seed Rate:		180 seeds/m^2
Sowing Fertiliser:		100kg/ha MAP (10N, 21.9P)
Seed Treatment:		Vibrance & Gaucho
Grazing:		Nil
Nitrogen:	23 June	69 N kg/ha
	7 August	69 N kg/ha
PGR:	GS30	Moddus Evo 100mL/ha + 0.65L/ha Errex
	GS32	Moddus Evo 100mL/ha + 0.65L/ha Errex
Fungicide:	GS31	Opus 500ml/ha
	GS39	Radial 840ml/ha
	GS61	Prosaro 300ml/ha

Trial 3. HYC Genotype x Environment x Management (G.E.M) Trial Series

Objectives: To assess the performance of winter and spring wheat germplasm managed under three different levels of management (ANZAC 25 April sown).

Key Points:

- *The winter feed wheat RGT Accroc (awned) was significantly higher yielding under all managements compared to other varieties tested and exceeded 10t/ha under high input management.*
- *In general, grazing (mechanical defoliation at GS30) had less impact on yield with faster developing cultivars which reached GS30 earlier in the season (e.g. Scepter, Nighthawk, RGT Accroc and DS Bennett) compared to the slower developing wheats (e.g. RGT Calabro, Tabasco and 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 (2.95t/ha and 1.63t/ha respectively) associated with greater fungicide input under the high management approach.

- *Tabasco, a slow developing winter wheat from northern Europe 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 (9.03t/ha) quality milling wheat and was 13.4% lower yielding than the highest yielding feed wheat (10.42t/ha).*
- *Above ground dry matter available for grazing varied from 150kg/ha with the spring wheats to over 2000 kg/ha with the long season winter wheats.*

Treatments: Three management levels (see Table 2) differing in defoliation, nitrogen, fungicide and PGR input were applied to 10 varieties of winter and spring wheat.

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
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
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		0.38t/ha	P val	0.003
LSD Management p=0.05		0.58t/ha	P val	<0.001
LSD Cultivar x Man. P=0.05		0.66t/ha	P val	<0.001

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).
Grazing was accomplished by mechanical defoliation at GS30.

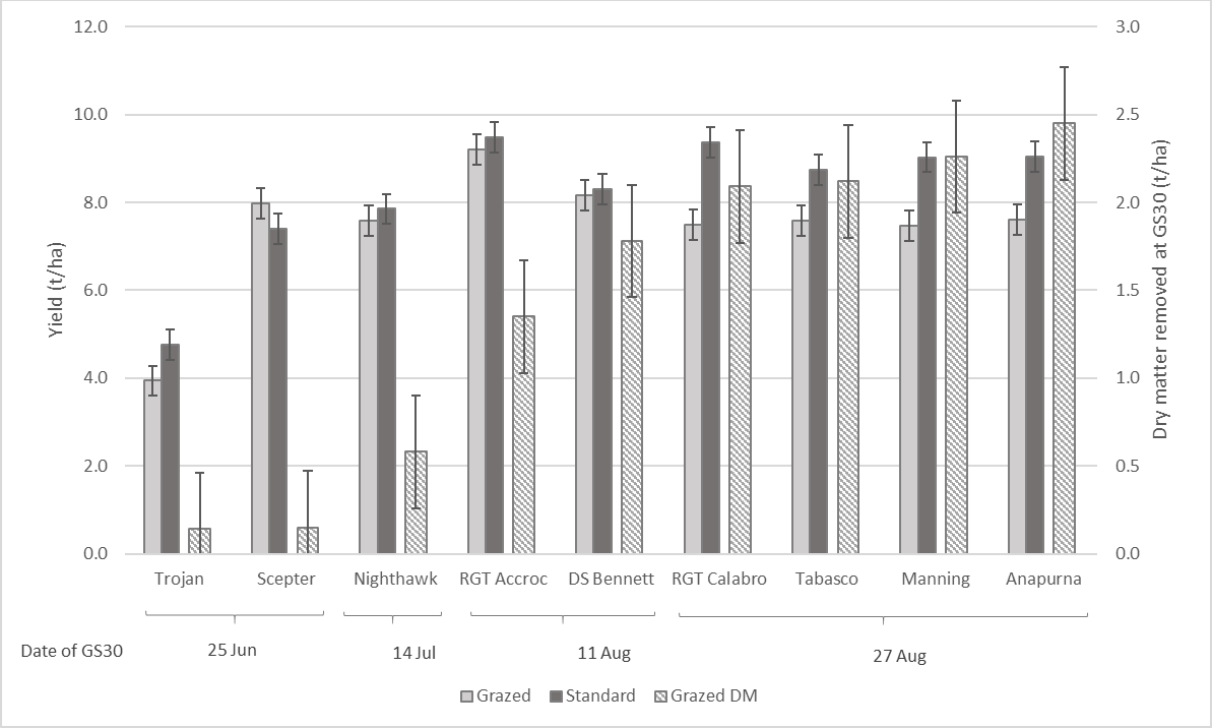


Table 2. Dry matter (t/ha) of the crop canopy at harvest.

			Management Level					
	Standard		**Grazed**		**High**		**Mean**
Cultivar	**DM t/ha**		**DM t/ha**		**DM t/ha**		**DM t/ha**
Trojan (spring)	20.5	a-e	13.0	k	14.4	jk	**14.1**
Scepter (spring)	19.5	a-f	15.3	g-k	18.8	a-i	**18.2**
Nighthawk (facultative)	18.4	b-j	16.4	e-k	20.6	a-d	**18.8**
Anapurna (winter)	16.7	d-k	15.2	h-k	22.3	ab	**18.6**
Acrocc (RGT) (winter)	20.2	a-e	16.5	e-k	19.3	a-g	**17.5**
Calabro (RGT) (winter)	22.6	a	16.5	e-k	17.4	d-j	**18.0**
Tabasco	18.0	c-j	16.7	d-k	20.1	a-e	**19.8**
DS Bennett	16.5	e-k	15.8	f-k	19.1	a-h	**17.6**
Manning	20.5	a-e	13.1	k	21.8	abc	**17.1**
Mean	**18.6**		**15.4**		**19.3**		
LSD Cultivar p = 0.05			2.3		**P val**		0.002
LSD Management p=0.05			1.9		**P val**		0.006
LSD Cultivar x Man. P=0.05			4.1		**P val**		0.162

Table 3. Harvest Index (HI%) at GS99.

			Management Level				
	Standard		**Grazed**		**High**		**Mean**
Cultivar	**HI%**		**HI%**		**HI%**		**HI%**
Trojan (spring)	28.0	gh	27.0	h	48.0	abc	34.3
Scepter (spring)	32.0	fgh	46.0	a-d	43.0	a-e	40.3

Nighthawk (facultative)	36.0	e-h	42.0	b-f	37.0	d-h	38.3
Anapurna (winter)	44.0	a-e	44.0	a-e	36.0	d-h	41.3
Acrocc (RGT) (winter)	50.0	abc	51.0	ab	48.0	abc	49.7
Calabro (RGT) (winter)	42.0	a-e	41.0	b-f	48.0	abc	43.7
Tabasco	36.0	e-h	40.0	c-f	35.0	e-h	37.0
DS Bennett	41.0	b-f	48.0	abc	42.0	b-f	43.7
Manning	49.0	abc	57.0	a	38.0	d-g	46.0
Mean	39.8		44.0		41.7		
LSD Cultivar p = 0.05			5.8		**P val**		<0.001
LSD Management p=0.05			4.3		**P val**		0.224
LSD Cultivar x Man. P=0.05			10.0		**P val**		0.001

Table 4. Flowering dates for cultivars in the GEM trial – Gnarwarre, Victoria sown 25 April

Trojan (spring)	8 Oct
Scepter (spring)	8 Oct
Nighthawk (facultative)	8 Oct
Anapurna (winter)	26 Oct
Acrocc (RGT) (winter)	26 Oct
Calabro (RGT) (winter)	5 Nov
Tabasco	18 Nov
DS Bennett	26 Oct
Manning	5 Nov

Table 5. 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).*

Trial 4. HYC Disease Management Germplasm Interaction

Objectives: To develop profitable and sustainable approaches to disease management in HRZ wheat.

Individual objectives specific to the trial were:

- Monitor the effectiveness of fluxapyroxad (Systiva) for early disease control in wheat.
- To evaluate whether newer germplasm or new fungicide chemistry allows a reduction in the number of fungicide applications whilst increasing profitability *(note: reducing the number of fungicides is seen as a key measure for slowing down resistance development in cropping systems).*
- Examine whether there is germplasm (varieties tested) that has sufficient early season disease resistance to replace the need for the Timing 1 (T1) spray applied at GS31-32.
- To determine the cost benefit ratio of fungicide application in HRZ regions of different season lengths

Key Points:

- *The feed winter wheats 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 and leaf rust control).*
- *In contrast, the STB resistant varieties SF Adagio, Tabasco and Nighthawk gave less than 1 t/ha response to 4 units of fungicide over the untreated with no statistical yield difference between 1 and 4 fungicide units. STB levels at flag leaf were observed to be less than 5%.*
- *STB was the principal disease in the majority of varieties with the more resistant cultivars SF Adagio and Anapurna being the only varieties to deliver over 8t/ha when untreated with fungicide, however all cultivars including these two generated significantly more yield with fungicide.*
- *Unfortunately, Tabasco's excellent STB resistance is combined with a phenology that is generally too long for a southern HRZ mainland environment.*