2. MFMG Wheat Trials
PART A. Wheat Variety Trials

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Two MacKillop Farm Management Group (MFMG) wheat variety trials were sown in 2018 at Sherwood and Frances. These trials are conducted annually to enable growers to evaluate a selected number of varieties under specific local conditions. An additional trial was conducted at Conmurra evaluating potential high yielding varieties for the high rainfall zone. Conmurra results are reported in Chapter 5.

General Comments around MFMG Trial Results in 2018

Trial site annual and growing season rainfall for 2015 to 2018 are presented in Table 1. With four distinctly different seasons, the results again reiterate the importance of reviewing long-term data when making varietal choices. Mean grain yield (% of site average) for MFMG wheat variety trials at Sherwood and Frances region in 2016 - 2018 are shown in Table 2. Only those varieties present in all 3 years are shown.

Table 1: The 2015 – 2018 annual growing season (April – October) rainfall data.

	Average Rainfall (mm)				April-Oct Rainfall (mm)			
Trial Site	**2015**	**2016**	**2017**	**2018**	**2015**	**2016**	**2017**	**2018**
Sherwood (Wirrega)	278	636	549	431	194	462	405	340
Frances	325	656	645	454	245	529	416	403

Table 2: Mean grain yield (% of site average) for MFMG wheat variety trials at Sherwood and Frances in 2016 - 2018.

Variety	Classification	Sherwood				Frances			
		Mean Yield t/ha	2016	2017	2018	Mean Yield t/ha	2016	2017	2018
			6.17	4.79	2.97		6.28	6.63	4.18
		# Trials				# Trials			
LRPB Arrow	AH	2	-	91	88	2	-	109	89
Beckom	AH	2	110	95	-	2	104	104	-
Bremer	FEED	1	95	-	-	0	-	-	-
Chief CL Plus	APW	1	-	112	-	1	-	102	-
LRPB Cobra	AH	2	106	95	-	1	-	97	-
Corack	APW	2	99	98	-	2	103	99	-
Cosmick	AH	2	102	105	-	2	103	106	-
Cutlass	APW	0	-	-	-	1	98	-	-
Derrimut	AH	0	-	-	-	1	95	-	-
Emu Rock	AH	1	98	-	-	1	100	-	-
Forrest	APW	0	-	-	-	1	93	-	-
Grenade CL Plus	AH	0	-	-	-	1	88	-	-
Harper	APW	2	104	84	-	1	103	-	-
Hatchet CL Plus	AH	2	80	96	-	1	-	83	-
Impala	ASFT	1	97	-	-	0	-	-	-
Mace	AH	3	100	117	86	3	99	102	112
Magnetite		1	104	-	-	1	94	-	-
LRPB Havoc	AH	1	-	-	76	1	-	-	81
Longsword	FEED	2	-	109	104	2	-	101	123
RAC2388	-	1	-	109	-	1	-	113	-
Razor CL Plus	ASW	1	-	97	-	1	-	95	-
RGT Accroc	FEED	1	-	87	-	1	-	96	-
Scepter	AH	3	109	106	95	3	105	104	83
LRPB Scout	AH	0	-	-	-	1	101	-	-
Sheriff CL Plus	APW	1			88	1			112
Steel	FEED	1	83	-	-	1	86	-	-
SQP Revenue	FEED	0	-	-	-	1	112	-	-
LRPB Trojan	APW	3	112	99	87	3	109	100	89
Zircon		1	100	-	-	1	113	-	-
Vixen	AH	1	-	-	96	1	-	-	109
Wyalkatchem	APW	1	100	-	-	0	-	-	-
Wallup	AH	0	-	-	-	1	92	-	-
Yitpi	AH	1	97	-	-	0	-	-	-

Sherwood

At Sherwood (Table 3), the winter wheat variety Longsword was the highest yielding variety (3.43 t/ha). Vixen (2019 release) and Scepter followed closely (3.18 and 3.16 t/ha, respectively). The mid-season variety, Scepter again demonstrated its ability in 2018 to perform in this environment under different seasonal conditions. Test weights for all varieties were over the minimum 76 kg/hl required for H1, with protein being a limiting factor for some varieties achieving maximum grade.

A hay cut was undertaken on selected varieties in the Sherwood trial on 1 November to reflect the grower's practice for ryegrass control in this paddock in 2018 . The yield and quality results are given in Table 4. Average yield was 3.31 t/ha and yields were similar for the varieties evaluated.

Table 3: MFMG 2018 Sherwood Wheat Variety Trial Grain Yield and Quality.

Variety	Yield (t/ha)	Julian Day	1000 grain weight (g/1000 seeds)	Test Weight (kg/hl)	Protein (%)	Screenings (% < 2.00mm)
Mace	2.84 c	284	39.8	82.4	11.6	0.4
Scepter	3.16 b	284	44.3	83.0	11.0	0.7
Longsword	3.43 a	288	40.1	82.8	12.3	0.5
LRPB Havoc	2.50 d	279	43.5	83.3	11.4	0.3
LRPB Trojan	2.87 c	288	41.2	82.9	11.9	0.6
LRPB Arrow	2.91 c	289	41.0	82.3	11.7	0.3
Vixen	3.18 b	284	42.4	82.5	11.4	0.5
Sheriff CL Plus	2.90 c	289	39.7	82.1	12.0	0.1

Site Mean	2.97
P value (0.05)	<0.001
LSD	0.224
CV (%)	3.5

Means followed by same letter do not differ significantly

Table 4: MFMG 2018 Sherwood Wheat Variety Trial DM Yield and Quality (cut 1st Nov 2018).

	Mace	Scepter	Longsword	LRPB Havoc	LRPB Trojan	LRPB Arrow
Dry Matter (t/ha)	3.15	3.76	3.25	3.28	3.28	3.11
Dry Matter (%)	88.6	89.1	90.0	89.7	90.4	89.2
Moisture (%)	11.4	10.9	10.0	10.3	9.6	10.8
Crude Protein (% of dry matter)	7.5	9.8	8.7	8.4	9.7	9.9
Acid Detergent Fibre (% of dry matter)	26.2	24.2	29.8	26.0	29.4	26.4
Neutral Detergent Fibre (% of dry matter)	51.6	49.1	54.7	50.7	54.6	50.6
Digestibility (DMD) (% of dry matter)	64.7	69.4	62.8	64.4	64.9	67.6
Digestibility (DOMD) (Calculated) (% of dry matter)	61.7	65.5	60.0	61.4	61.8	64.1
Est. Metabolisable Energy (Calculated) (MJ/kg DM)	9.5	10.3	9.2	9.5	9.6	10.0
Water Soluble Carbohydrates (% of dry matter)	21.2	16.7	18.3	18.1	18.7	14.6
Fat (% of dry matter)	2.7	2.9	2.7	2.9	2.7	2.9
Ash (% dry matter)	3.1	2.2	5.2	5.4	6.1	3.1
AFIA Grade for Cereal hay + silage	B3	A2	B2	B2	A2	A2

Site Mean	3.31 t/ha
P value (0.05)	0.623
LSD	NS
CV (%)	2.7

NS – not significant
Note: Vixen and Sheriff CL Plus were not cut for DM evaluation.

Frost Events:
This trial experienced frost conditions on the following dates throughout the flowering period: -0.1 °C on Aug 25, -0.4 °C on Sep 3, -0.3 °C on Sep 4, -1.5 °C on Sep 7, -2 °C on Sep 8, -0.2 °C on Sep 17, -2.6 °C on Sep 24, -2.1 °C on Sep 25, -2.2 °C on Sep 29, -3 °C on Sep 30, -1 °C on Oct 5, -2.3 °C on Oct 24, -0.7 °C on Oct 26, -0.6 °C on Oct 29. Interpret results with caution.

Heat Events:
This trial experienced extreme heat conditions on the following dates throughout the flowering period: 33.1 °C on Oct 2, 34 °C on Oct 22, 32.3 °C on Oct 25, 34.5 °C on Oct 30. Interpret results with caution.

Trial Inputs (all plots)

2018 Date	Product and Rate/ha				
	Fertiliser	**Herbicide**	**Fungicide**	**Insecticide**	**Other**
6-Jun Sowing	18:13:0:10 + 2 % Zn 140 kg PLUS Impact (in furrow) 400 mL	Roundup PowerMax 2.5L Cavalier 75mL Sakura 118g TriAllate 1.6L			Seed Treatment Gaucho 600 240mL / 100 kg seed Raxil T 100mL / 100 kg seed
27-Jun				Lorsban 500mL	
23-Aug			Prosaro 150mL	Lorsban 500mL	
29-Aug	Urea + SOA (100kg N, 20kg S)				
7-Sep		Buctril 2.0L Lontrel 150mL			
3-Oct	Urea (100kg N)				
8–Oct			Prosaro 150mL	Lorsban 500mL	

Frances

The results for the Frances wheat variety trial are shown in Table 5. Yields averaged 4.18 t/ha and ranged from 3.40 to 5.15 t/ha with no statistical difference in yields between any of the varieties. Test weights for all varieties were over the minimum 76 kg/hl and screenings all fell below the 5.0% required for H1 with protein being a limiting factor for some varieties achieving maximum grade.

Table 5: MFMG 2017 Frances Wheat Variety Trial Grain Yield and Quality.

Variety	Yield (t/ha)	Julian Day	1000 grain weight (g/1000 seeds)	Test Weight (kg/hl)	Protein (%)	Screenings (% < 2.00mm)
Mace	4.70	7-Oct	43.8	78.4	12.4	0.4
Scepter	3.45	9-Oct	49.1	79.3	11.7	0.2
Longsword	5.15	14-Oct	42.7	78.7	12.3	0.2
LRPB Havoc	3.40	7-Oct	45.4	79.2	12.6	0.4
LRPB Trojan	3.73	11-Oct	48.4	79.1	11.9	0.2
LRPB Arrow	3.74	15-Oct	47.0	79.9	12.7	0.1
Vixen	4.56	8-Oct	48.6	77.9	12.0	0.1
Sheriff CL Plus	4.70	15-Oct	45.3	79.4	11.3	0.3

Site Mean	4.18
P value (0.05)	0.11
LSD	NS
CV (%)	6.3

NS - not significant

Frost Events:
This trial experienced frost conditions on the following dates throughout the flowering period: 0 °C on Sep 2, -1 °C on Sep 26, -1.6 °C on Sep 29, -1.4 °C on Sep 30, -0.2 °C on Oct 24. Interpret results with caution.

Heat Events:
This trial experienced extreme heat conditions on the following dates throughout the flowering period: 32.2 °C on Oct 22. Interpret results with caution.

Trial Inputs (all plots)

2018 Date	Product and Rate/ha				
	Fertiliser	Herbicide	Fungicide	Insecticide	Other
8-May		Roundup PowerMax 2.5L Cavalier 75mL			Meta Slug and Snail Pellet 7.5kg
24-May Sowing	18:13:0:10 + 2 % Zn 140kg PLUS Impact (in furrow) 400mL	Terbyne Xtreme 1.2kg Sakura 118g TriAllate 1.6L		Lorsban 500mL Alpha Forte 80mL	Seed Treatment Gaucho 600 240 mL / 100 kg seed Raxil T 100mL / 100 kg seed
18-Jun					Meta Slug and Snail Pellet 7.5kg
7-Sept		Buctril 2.0L	Prosaro 150mL	Lorsban 500mL Alpha Forte 80mL	Meta Slug and Snail Pellet 7.5kg
8-Oct			Prosaro 150mL	Lorsban 500mL	
6-Sept	Urea (200kg N)				

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