

District Cereal Trials and Demos

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RESEARCH

DEMO

Best Practice



Location: Cowell
Franklin Harbour Ag Bureau

Rainfall

Av. Annual: 400 mm
Av. GSR: 256 mm
2009 Total: 274 mm
2009 GSR: 231 mm

Yield

Potential: 2.3 t/ha (W)
Actual: 1.5 t/ha (W)

Paddock History

2008: Pasture
2007: Wheat
2006: Wheat

Soil Type

Red clay loam

Plot size

6 m x 50 m

Yield Limiting Factors

Dry period in August/September

Location: Port Kenny
Mt Cooper Ag Bureau

Rainfall

Av. Annual: 426 mm
Av. GSR: 332 mm
2009 Total: 459 mm
2009 GSR: 408 mm

Yield

Potential: 6.1 t/ha (W)
Actual: 5.6 t/ha (W)
Potential: 6.5 t/ha (B)
Actual: 6.7 t/ha (B)

Paddock History

2008: Peas
2007: Barley
2006: Wheat

Soil Type

Red loam

Diseases

Rust

Plot size

10 m x 1.5 m x 3 reps

Yield Limiting Factors

Rust
andy loam

Plot size

10 m x 1.5 m x 3 reps

Key messages

- **Axe and Gladius produced the highest gross income at Franklin Harbour.**
- **Correll and Yitpi produced the highest gross income at Mt Cooper.**
- **Pugsley and Yitpi produced the highest gross income at Elliston.**
- **Flagship and Capstan produced the highest gross income of barley at Mt Cooper.**

Why do these trials?

These variety demonstrations were identified as priorities by local Agricultural Bureaus to compare current varieties to ones which are not commonly grown in the district, and to compare varieties in soil types and rainfall regions where National Wheat Variety trials are not conducted.

Franklin Harbour Wheat Demonstration

How was it done?

The Franklin Harbour demo was sown by the Ag Bureau on 30 May with a local combine sowing into a mechanical fallowed medic pasture. The demonstration (not replicated) was coordinated by local growers and harvested by the Minnipa Ag Centre team.

What happened?

Old favourite Halberd was included in the demonstration in 2009, however suffered due to poor germination from weevil damage to the seed. The demonstration suffered considerable moisture stress in August and September. 40 mm rain on 23 September saw regrowth which survived well until the hot weather in November which caused it to ripen quickly.

Mt Cooper Cereal Trial

How was it done?

Eleven wheat varieties and nine barley varieties replicated 3 times were sown on 18 May at 60 kg/ha and 45 kg/ha respectively, with 70 kg/ha DAP fertiliser at sowing and 50 kg/ha Urea broadcasted 8 July. Grain yield and quality were measured.

What happened?

Mt Cooper received 408 mm of rain for the growing season which meant varieties had little moisture stress throughout the year. Nitrogen was a key factor for high yields in 2009. The trial was sown on 2008 pea stubble with 50 kg/ha of urea broadcast during July to capitalise on the season.

Yitpi out-yielded Mace, AGT Katana, Wyalkatchem, Axe and Espada. The top seven varieties yielded over 5 t/ha. Even though Yitpi had the highest yield it didn't have the highest gross income due to grain quality. Protein of 10.4% downgraded its classification from H1 potential to ASW quality. A new variety RAC 1412 topped the gross income with \$965. RAC 1412 is a potential Yitpi/Correll replacement with better grain quality, CCN resistance and improved stem rust resistance.

Capstan, a malting variety, yielded better than all feed varieties tested; Hindmarsh, Keel, Fleet and Maritime and two other malting varieties Sloop SA and Flagship, while performing the same as WI 4262 and Commander. Despite Capstan meeting the requirements for malt grade, there is no segregation provided for this variety at Port Lincoln, so it would have been delivered as feed. Flagship was the lowest yielding variety, but had the best gross income due to grain quality and a premium provided for growing the variety.

Table 1 Grain yield quality and gross income of wheat sown at Franklin Harbour, 2009

Location: Elliston
Elliston Ag Bureau

Rainfall

Av. Annual: 410 mm
Av. GSR: 340 mm
2009 Total: 450 mm
2009 GSR: 400 mm

Yield

Potential: 5.6 t/ha (W)
Actual: 4.3 t/ha (W)

Paddock History

2008: Wheat
2007: Barley
2006: Grassy pasture

Soil Type

Calcareous sandy loam

Plot size

10 m x 1.5 m x 3 reps

Variety	Yield (t/ha)	Test Weight (kg/hL)	Screenings (%)	1000 Grain weight (g)	Protein (%)	Grade	Gross Income* (\$/ha)
Axe	1.51	88.4	0.5	42.9	13.0	H1	345
Gladius	1.45	84.9	1.7	39.3	13.1	H1	334
Derrimut	1.37	86.1	1.7	34.3	12.4	H2	299
Espada	1.41	82.9	1.7	39.1	12.7	APW	289
Catalina	1.23	84.3	1.6	38.2	13.0	H1	283
Wyalkatchem	1.33	83.2	0.8	45.2	13.5	APW	271
Yitpi	1.17	85.1	2.7	37.4	13.9	H1	268
Carnamah	1.24	86.9	0.9	44.1	13.1	APW	253
Guardian	1.18	84.5	3.0	36.3	12.6	APW	240
Lang	1.09	84.7	5.0	34.6	12.7	H2	238
Correll	.95	81.8	1.1	39.4	13.3	H1	218
Halberd	1.04	82.8	3.8	33.4	13.3	APW	212
Scythe	.84	84.7	4.2	36.1	14.2	APW	171
Frame	.63	81.5	4.1	36.3	13.5	APW	128

*Gross Income is grain yield x price (with quality adjustments) delivered to ABB Cowell using daily cash price 7/12/09

Table 2 Grain yield quality and gross income of wheat sown at Mt Cooper, 2009

Variety	Yield (t/ha)	Test Weight (kg/hL)	Screenings (%)	1000 Grain weight (g)	Protein (%)	Grade	Gross Income* (\$/ha)
RAC 1412	5.42	83.9	1.1	42.1	11.3	APW	965
Correll	5.28	81.7	1.9	46.4	10.9	APW	941
Yitpi	5.69	81.6	2.2	41.5	10.4	ASW	933
Gladius	5.20	82.7	1.3	49.6	11.1	APW	925
Mace	5.05	83.1	0.7	46.4	10.8	APW	898
Magenta	5.48	84.2	1.7	49.8	10.8	ASW	898
Axe	4.50	81.8	0.8	45.9	11.8	H2	891
AGT Katana	4.93	85.0	1.0	46.9	11.4	APW	878
Wyalkatchem	4.90	85.2	0.7	49.0	10.6	APW	872
Derrimut	5.06	84.2	1.6	39.4	10.4	ASW	830
Espada	4.28	81.7	1.2	47.0	11.6	APW	762
LSD ($P \leq 0.05$)	0.64						

*Gross Income is grain yield x price (with quality adjustments) delivered to ABB Port Lincoln using daily cash price 19/1/10

Elliston Wheat Trial**How was it done?**

The replicated trial was sown on 9 May, with 100 kg/ha N Rich 24 (24 N:16 P:0 K:1 S) banded below the seed.

What happened?

Rainfall in March and April allowed for optimum sowing time on 9 May. Growing season rainfall of approximately 400 mm contributed to grain yields up to 4 t/ha. The later maturing lines Pugsley and Yitpi produced higher yields than all other lines. The early maturing lines Axe, Bullet, Young and Peake

produced lower yields than the site mean.

The top yielding varieties were also the highest income earners after their respective qualities were considered, with Pugsley and Yitpi \$705/ha and \$672/ha respectively (Table 4).

Table 3 Grain yield quality and gross income of Barley sown at Mt Cooper, 2009

Variety	Yield (t/ha)	Test Weight (kg/hL)	Screenings (%)	1000 Grain weight (g)	Protein (%)	Retention (%)	Grade	Gross Income* (\$/ha)
Flagship	5.09	70.6	1.1	50.5	9.9	94.7	F1 1	819
Capstan	6.74	69.0	3.1	48.5	9.8	86.5	F1	714
Sloop SA	5.70	69.5	1.3	49.8	10.8	95.8	S1 1	713
WI 4262	6.60	68.3	1.0	45.2	9.6	95.6	F1	700
Commander	5.94	70.4	1.1	48.7	10.1	95.8	F1	630
Hindmarsh	5.89	70.2	1.1	45.5	10.6		F1	624
Keel	5.78	70.1	0.8	51.3	10.6		F1	613
Fleet	5.72	69.6	0.5	58.6	10.5		F1	607
Maritime	5.20	70.0	0.7	49.9	10.9		F1	551
LSD ($P \leq .005$)	.80							

*Gross Income is grain yield x price (with quality adjustments) delivered to ABB Port Lincoln using daily cash price 19/1/10

Table 4 Grain yield quality and gross income of Wheat sown at Elliston, 2009

Variety	Yield (t/ha)	Test Weight (kg/hL)	Screenings (%)	Protein (%)	Grade	Gross Income* (\$/ha)
Pugsley	4.2	77.6	0.8	9.3	ASW	705
Yitpi	4.1	78.5	0.9	9.4	ASW	672
Gladius	4.3	81.2	1.2	10.5	APW	605
Frame	3.6	77.5	1.1	9.8	ASW	590
Mace	3.3	83.6	1.5	10.6	APW	587
Correll	3.5	81.3	2.0	10.2	ASW	574
Wyalkatchem	3.2	84.9	1.3	11.2	APW	569
Espada	3.1	81.0	1.2	11.0	APW	551
Lincoln	3.2	84.6	3.5	10.0	ASW	524
Guardian	2.9	84.1	2.8	10.4	ASW	475
Derrimut	2.9	84.1	2.7	10.4	ASW	475
Axe	2.4	82.0	1.0	11.9	H1	475
Bullet	2.6	84.2	2.7	10.8	APW	462
Young	2.5	84.6	2.7	10.7	APW	445
Peake	2.3	82.7	4.1	10.7	APW	409

*Gross Income is grain yield x price (with quality adjustments) delivered to ABB Port Lincoln using daily cash price 19/1/10

Table 5 Grain yield of wheat varieties in Elliston trials as a % of Yitpi, 2006 - 2009

	2009	2008	2007	2006	Average
Variety	Yield as % Yitpi				
Axe	58	91	103	120	93
Bullet	63				63
Correll	85	85	104	136	103
Derrimut	71	100	99		92
Espada	76	105			90
Frame	88	94	83	95	90
Gladius	83	91	112	103	97
Guardian	71	87	96	120	94
Lincoln	78				78
Mace	80				80
Peake	56	87			72
Pugsley	105		100	98	101
Wyalkatchem	78	88	102	115	96
Yitpi	100	100	100	100	100
Young	61	95	96	111	91
Yitpi (t/ha)	4.10	2.48	2.21	0.98	1.89

Table 5 shows the long term data for the Elliston district wheat trials from 2006 to 2009, expressed as a percentage of Yitpi each year. Correll, Pugsley, Gladius and Wyalkatchem have a similar 4 year average yield to Yitpi, the rest at least 6% less.

What does this mean?

The high yields and gross incomes are very attractive based on 2009 results. New varieties should be considered for including in your farming system provided their other characteristics fit

your requirements. Root disease characteristics, susceptibility to harvest damage and leaf disease profile are just some of the attributes which should be considered along with grain yield for variety choice.

For complete and detailed notes on all varieties refer to the NVT website, www.nvtonline.com.au, or refer to the articles NVT Cereal Yield Performance Tables and the Cereal Variety Disease Guide.

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