



“Barley Variety Trials”

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Key Outcomes:

- Several new varieties have been released for the 2012 season that look promising; they are only feed quality at this stage, but undergoing malt evaluation.
- NVT Trials weren't sprayed for leaf rust in 2011. This will change in 2012 to reflect farmer practice.
- Unsprayed v Sprayed varietal data is available for both Frances and Conmurra and it gives a good indication of effects of disease on yield across different varieties.

Trial Objectives: To assess the yield of a range of barley varieties at several sites

Trial Duration: Ongoing

Location: Various

Soil Type: Various

Paddock History: Various

Farmer Co-operators: Kym Makin,
Chris & Tim Fry, Lachie Seeers,
Kraig Johnson, J & C Gilbertson

Monthly Rainfall:

Column1	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	April-Oct	Total	Jan - Mar
Keith (Post Office)	57	82	66	17	30	42	62	54	29	22	43	19	256	522	205
Wolseley (BoM)	116	38	38	18	24	39	66	47	31	44	31	26	269	519	192
Millicent (BoM)	69	60	52	38	76	92	68	99	61	50	62	23	484	751	181
Frances (NRM)	115	38	61	24	35	54	41	82	50	18	22	28	304	568	214
Conmurra (NRM)	47	71	62	42	53	83	97	70	64	30	55	10	438	682	180

Yield Limiting Factors:

Type of Trial: Replicated Plot Trial

Trial Design: 8m long plots x 8 rows at 15cm spacings (1.2m total width);
3 replicates

Treatments:

All trials were sown with small plot equipment and managed as per usual agronomic treatment. Grain yield was determined by machine harvest.

Sowing dates for all sites are available in the Trial Site Management Data section at the end of the book.

Results:

Table 1: Upper South East barley variety trials in 2011 and long term, expressed as t/ha and % of site average yield

	SOUTH EAST				
	2011(% site average)		Long Term average across sites(05-11)		
Variety	Bordertown	Keith	t/ha	as % sites average	# trials
Barque	-	-	3.70	102	8
Bass	102	107	3.70	102	11
Baudin	91	90	3.50	96	13
Buloke	99	95	3.75	103	13
Capstan	115	107	3.93	108	13
Commander	108	105	3.91	107	13
Fathom	108	108	3.95	109	3
Flagship	94	104	3.67	101	13
Fleet	114	108	3.95	108	13
Gairdner	98	89	3.53	97	13
Henley	107	102	3.82	105	5
Hindmarsh	108	111	3.93	108	11
Keel	102	97	3.73	102	13
Macquarie	103	91	3.54	97	4
Maritime	94	101	3.61	99	12
Navigator	89	84	3.41	94	9
Oxford	117	109	3.95	109	7
Schooner	82	83	3.43	94	13
Scope	96	97	3.66	101	5
Shepherd	-	100			
Skipper	102	110	3.85	106	5
Sloop SA	90	86	3.55	98	13
Westminster	97	98	3.68	101	7
Wimmera	108	108	3.91	108	7

Site av. yield t/ha	4.47	4.44	3.64	100
LSD (%)	6	7		

Date Sown	2 Jun	26 May
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Soil type:

S=sand, L=loam, C=clay, Li=light, M=medium, H=heavy, F=fine, NW=non wetting / = separates top soil from sub soil

Site stress factors:

bo=boron toxicity, de= dry preanthesis, dl=dry post anthesis, lr=leaf rust, wg=grass weeds

Soil type	CL	CL
J-M / A-O rain mm	192/269	205/256
pHw	7.5	8
previous crop	canola	lentils
Site Stress Factors	bo,dl,lr	dl

Data source: SARDI/GRDC & NVT (long term data based on weighted analysis of sites, 2005-2011)

Data analysis by GRDC funded National Statistics Group

Table 2: 2011 Conmurra barley variety trial yield results

Variety	Sprayed		Unsprayed	
	Yield (kg/ha)	% site mean	Yield (kg/ha)	% site mean3
Barque	6417	93	4043	83
Baudin	7053	102	3725	77
Buloke	6743	97	3992	82
Capstan	5784	83	3377	70
Commander	8022	116	4690	97
Eld-Oxford	7993	115	6685	138
Finniss	6236	90	5205	107
Flagship	6379	92	4795	99
Fleet	7277	105	4975	102
Gairdner	6193	89	3073	63
Grange	7963	115	6028	124
Hannan	6247	90	4403	91
Henley	8256	119	6251	129
Hindmarsh	6725	97	5045	104
Keel	6150	89	4283	88
Lockyer	7295	105	4361	90
Maritime	6631	96	4675	96
Roe	6418	93	4717	97
Schooner	5743	83	5079	105
Scope	6171	89	4621	95
Sloop	6868	99	4684	96
SloopSA	5990	86	4296	88
SYN653-6	7040	102	5907	122
SYN937-5	7464	108	3975	82
Wimmera	8237	119	6498	134
Vlamingh	7405	107	5479	113
Bass	8075	116	5304	109
WABAR2537	7514	108	5563	114
Westminster	7245	105	6529	134
Navigator	6143	89	2809	58
Yarra	7288	105	5670	117

	Sprayed	Unsprayed
Site mean (kg/ha)	6934	4862
CV%	6.906	6.131
lsd(0.05)	794.9	784.6

Table 3: 2011 Conmurra barley variety trial quality data

Variety	Sprayed				Unsprayed			
	Protein	1000 grain wt	test weight	screenings	Protein	1000 grain wt	test weight	screenings
Barque	13.1	50.08	70.47	1.19	13.4	38.64	64.51	10.1
Baudin	11.5	44.98	71.26	1.76	12.5	30.28	60.90	18.47
Buloke	10.9	50.72	69.16	3.1	11.3	36.36	61.17	20.74
Capstan	12.9	43.14	69.51	3.37	14.8	28.46	60.66	41.82
Commander	10.7	50.38	70.26	1.32	11.5	36.62	64.93	7.22
Eld-Oxford	10.8	44.60	70.49	0.33	12.3	36.46	65.54	8.92
Finniss	13.3	45.28	79.31	2.17	11.8	39.52	71.95	6.55
Flagship	12	49.42	72.06	1.91	12.3	39.48	65.99	11.5
Fleet	12.5	60.60	70.00	0.65	12.9	48.08	64.75	2.41
Gairdner	12.1	45.92	70.67	3.2	11.3	34.22	62.31	27.15
Grange	13.2	52.28	71.12	0.36	12.9	40.04	65.59	12.87
Hannan	12.8	46.58	71.26	6.61	11.8	37.30	67.14	6.56
Henley	12	50.92	68.87	0.96	11.4	39.68	61.72	3.91
Hindmarsh	11	42.78	71.45	2.78	11.4	33.90	65.83	10.43
Keel	11.1	47.82	70.22	2.78	12.1	32.08	60.83	20.79
Lockyer	11.2	49.86	69.70	1	12.2	36.02	63.04	17.22
Maritime	12.4	52.28	69.77	1.86	12.6	40.08	63.35	8.32
Roe	11.6	45.06	70.05	1.88	12.1	32.36	62.63	10.73
Schooner	12.7	46.10	71.51	1.1	12.1	35.24	65.85	14.25
Scope	11.2	49.02	68.95	2.75	12	35.38	61.46	17.38
Sloop	12	49.42	71.45	1.01	11.7	40.02	66.24	7.05
Sloop SA	13.4	50.82	70.46	1.02	12.1	37.32	64.39	10
SYN 653-6	11.4	47.74	71.59	0	12.4	37.86	67.04	8.44
SYN 937-5	12.6	44.80	70.40	1.44	12.1	29.60	62.12	16.08
Wimmera	11.6	45.92	70.61	0.66	12.6	38.10	67.03	4.3
Vlamingh	11.7	45.46	71.87	0.7	12.3	34.24	65.76	8.93
WABAR 2537	11.6	44.54	70.78	0.14	13	33.60	64.44	7.61
Bass	12.6	52.56	72.62	-0.6	12.5	34.48	62.84	17.47
Westminster	11.5	49.70	71.52	0.64	12	42.16	66.89	0
Navigator	11.6	44.22	69.06	0.97	12	25.76	55.97	27.93
Yarra	11.5	50.76	71.97	0.53	12.2	42.80	67.99	8.56

Table 4: Frances barley variety trial yield data 2011

Variety	Sprayed		Unsprayed	
	kg/ha	% site mean	kg/ ha	% site mean ³
Barque	4819	100	4117	98
Baudin	5086	106	3657	87
Buloke	4632	96	3930	94
Capstan	5133	107	4494	107
Commander	4924	102	4289	102
Eld-Oxford	5911	123	5668	135
Finniss	4352	90	4264	102
Flagship	4703	98	3010	72
Fleet	3803	79	3947	94
Gairdner	4508	94	3828	91
Grange	5274	109	5416	129
Hannan	4584	95	4480	107
Henley	5643	117	4924	117
Hindmarsh	5328	111	4827	115
Keel	4585	95	3467	83
Lockyer	4705	98	4524	108
Maritime	4485	93	4041	96
Roe	4788	99	3695	88
Schooner	3520	73	2822	67
Scope	4852	101	3842	92
Sloop	4514	94	4166	99
Sloop SA	3907	81	2809	67
SYN 653-6	5090	106	4778	114
SYN937-5	4977	103	4537	108
Wimmera	5588	116	5649	135
Vlamingh	4804	100	3920	93
Bass	5195	108	4041	96
WABAR2537	5345	111	4728	113
Westminster	5266	109	4938	118
Navigator	4256	88	2510	60
Yarra	4850	101	4802	114

	Sprayed	Unsprayed
Site mean (kg/ha)	4820	4197
CV%	9.24	6.453
lsd(0.05)	751.9	642.9

NB/ Quality data for this trial will be available at a later date.



Table 5: Millicent Barley Variety trial 2011, Yield and Quality Data

Variety	kg/ha	% site mean
Bass	9107	119
Barque	9030	118
Henley	9020	118
Eld-Oxford	8922	117
Capstan	8696	114
Fleet	8604	113
Lockyer	8570	112
Commander	8429	110
Maritime	8384	110
Baudin	8219	108
WABAR 2537	8216	108
Yarra	8211	108
Grange	8173	107
Roe	8099	106
Buloke	8061	106
Flagship	7999	105
Scope	7726	101
Westminster	7694	101
Finniss	7466	98
Keel	7271	95
Sloop	7222	95
Navigator	7217	95
Hindmarsh	7126	93
Wimmera	6934	91
Schooner	6618	87
Gairdner	6451	85
SYN 937-5	6415	84
Vlamingh	6183	81
Sloop SA	6033	79
SYN 653-6	5631	74
Hannan	5043	66

Site mean	7638
CV%	5.494
Isd(0.05)	903.3

Comments on Barley Varieties from performance in NVT trials across the state

Provided by Rob Wheeler (Leader, New Variety Agronomy, SARDI)

In late 2011, more than six new barley varieties have been recently registered with potential for SA production. These include, Bass, Fathom, Henley, Skipper, Navigator and Wimmera. Most of these are potential malt varieties yet to be accredited by industry but some may be available for contracted and limited production in 2012.

The decision to grow either a malting or feed variety may depend on one or more factors, including;

- the difference in payments between malting and feed grades as related to yield differences (Table 1). Furthermore, differential pricing of varieties will continue and growers need to consider market premiums and discounts in addition to agronomic performance to maximize profitability;
- the probability of producing a malting grade barley;
- malting varietal storage segregations in bulk storage facilities;
- disease resistance and agronomic considerations

Seed dressings having activity on powdery mildew should be applied to all varieties susceptible to powdery mildew, particularly when sown before June.

The list below summarises current barley varieties according to their current quality classification grade and in alphabetical order (not in order of preference). New varieties are not included due to the lack of NVT data, and also pending classifications.

Variety	Max. Grade	Suitability and significant features
Baudin ^A	malting	Medium to high rainfall areas (>400 mm), avoid areas prone to leaf rust and net form net blotch
Buloke ^A	malting	All areas except where leaf rust is a problem. Has low domestic and moderate export brewing demand
Commander ^A	malting	All areas, except prone to net form net blotch. Moderate domestic brewing demand
Flagship ^A	malting	All areas, with timely harvest a priority. High export but low domestic brewing demand
Gairdner ^A	malting	Medium to high rainfall areas (>400 mm)
Schooner	malting	All areas, and suitable for Shochu market, moderate industry demand
Sloop SA ^A	malting	All areas where CCN resistance is required, with timely harvest or windrowing a priority. Avoid areas prone to spot form net blotch. Low industry demand
Hindmarsh ^A	food	All areas.
Barque ^A	feed	All areas, except where high risk of leaf scald or net form net blotch
Capstan ^A	feed	Medium to high rainfall areas where very high yields are targeted and test weight is easily achieved.
Finniss ^A	feed - hull-less	Specialised variety for on-farm animal feed use in all areas. High powdery mildew risk
Fleet ^A	feed	All areas, particularly for districts with lower rainfall and light soils
Keel	feed	All areas except deep sandy soils of lower fertility and avoid areas prone to leaf rust
Mundah	feed	Deep sandy soils of low fertility
Oxford	feed	Medium to high rainfall areas (>400mm) especially where leaf rust is prevalent
Scope	feed	All areas except where leaf rust is a problem. Imizadoline tolerant, pending APVMA accreditation
Yarra ^A	feed	All areas but avoid grass competitive situations and areas prone to net form net blotch.

Notes on New Varieties

Bass^A (WABAR2315) is a “Baudin type” export quality malting barley currently undergoing the final stage of Barley Australia malt accreditation. It is a mid to late maturing variety targeted to Gairdner production areas. Bass offers good resistance to scald, leaf rust and barley yellow dwarf virus but has no CCN resistance and is susceptible to net form net blotch so is not recommended for growing in SA where the disease occurs.

Fathom^A (WI4483) is a feed quality line developed using wild barley to improve stress tolerance and water use efficiency. Widespread yield data from SA NVT is limited to 2010 where Fathom averaged slightly higher yields relative to Hindmarsh and has good levels of resistance to CCN, scald, spot form net blotch and leaf rust. Fathom has shown susceptibility to NFNB so is not recommended for growing in SA where the disease occurs.

Henley^A is a European malting barley licensed to Seedmark under evaluation in Australia. It is mid to late maturing targeted as a Baudin replacement having good levels of resistance to powdery mildew, leaf rust and net form net blotch and variable scald resistance. Preliminary NVT trials in 2010 produced yields above Baudin in SA. Malting accreditation will not be completed before March 2013

Navigator^A (WI4262) is a potential, domestic malt quality barley currently undergoing Barley Australia accreditation and large scale trials with Coopers, Lion Nathan and CUB breweries. Navigator is a mid to late maturing variety similar to Gairdner but offering 2-3% higher yield potential, significantly improved physical grain quality and a good disease resistance profile with the exception of extreme susceptibility to leaf rust. Seed will be available for 2012 and for further information contact Viterra.

Skipper^A (WI4446) is an early to mid maturing potential malting quality line similar in phenology and plant type to Buloke and Flagship. Grain yield in 2009 and 2010 SA NVT was similar to Commander. Skipper entered Stage 1 malting accreditation in 2011. Skipper has a good disease resistance profile although has shown S/Vs susceptibility to leaf rust in some regions.

Wimmera^A (VB0432) is a mid to late maturing variety with similar plant architecture to Gairdner however it has significantly higher yield potential. Within SA NVT during the past two seasons it has averaged more than 20% higher yield than Gairdner. Wimmera is undergoing malt accreditation trials with completion expected by March 2013. Wimmera has shown resistance to leaf rust until a new strain emerged in 2011 to which it is now more susceptible.



Acknowledgements

