

Fitzroy - Malting Barley Fact Sheet

A high yielding, malting quality barley variety, with extensive adaptation across northern New South Wales and southern Queensland.

Fitzroy is a medium to late maturing, high yielding malting variety with good resistance to major leaf foliar diseases, best suited to southern Queensland and northern New South Wales.

Features

- Superior yielding malt barley variety, compared to Gairdner and Grimmett
- Endorsed by the Australian malting and brewing industries as acceptable for domestic brewing
- Best adaptation to northern NSW / southern QLD
- Grain plumpness superior to Gairdner, Grimmett and Tallon
- Medium to late maturing variety, similar flowering time to Mackay
- Lower protein content compared to Gairdner
- Semi dwarf variety, prostrate early growth habit
- Excellent straw strength and head retention
- Resistant to leaf rust and net form of net blotch

Pedigree

Fitzroy (pronounced, "Fitz-roy") VB9926 has been bred by the Department of Primary Industries – Victoria from the cross WI2808/Alexis through the Malting Barley Quality Improvement Program (MBQIP). Fitzroy was named after the Australian Football League (ALF) club "Fitzroy Lions", which successfully migrated to QLD. This reflects the breeding, evaluation and adaptation of the variety.

Target End Use Markets

In terms of brewing performance Fitzroy is well suited to the domestic brewing industry, similar to Grimmett. Fitzroy represents an improvement compared to the current malting varieties in northern NSW and southern QLD in wort viscosity, resulting in improved run-off times in the brewery compared to Gairdner.

Plant Characteristics

Fitzroy is a medium to late maturing, very high yielding, semidwarf variety with excellent straw strength and head retention. Early sown Fitzroy has the same time to flowering as Mackay. Fitzroy sown late flowers at the same time to Gairdner

Grain Yield

Longterm (2002-2004) average yield (t/ha) of Fitzroy is consistently 14% above the currently grown malting variety Gairdner across northern NSW, southern and central QLD (Table 1). Yields of Fitzroy are equal to or superior to feed varieties in northern NSW and southern and central Queensland.

Table 1. Longterm barley yields (t/ha) for northern New South Wales (NNSW), western Queensland (WQLD, southern Queensland (SQLD) and central Queensland (CQLD) as a % of Gairdner (2002-2004).

Variety	EQLD (2002-2004)	CQ 2002-2004	WQLD 2002-2004	ENSW (2002-2004)	WNSW 2004
Gairdner (t/ha)	2.47	2.08	1.80	4.32	4.31
MALTING					
Cowabbie	112	122	112	107	93
Fitzroy	116	114	114	115	100
Gairdner	100	100	100	100	100
Grimmett	99	121	102	102	86
Tallon	103	109	98	102	90
FEED					
Binalong	106	103	110	113	99
Grout	119	145	125	108	99
Kaputar	101	117	113	103	101
Mackay	113	124	111	109	93
Skiff	105	111	108	108	97
Tantangara	109	113	103	107	101

Grain Plumpness and Quality

Physical grain quality analysis indicates the average grain plumpness of Fitzroy is superior to Gairdner, Grimmett and Tallon (Table 2).

The grain protein concentration of Fitzroy is on average 1.2% and 1.0% lower than Gairdner and Grimmett respectively (Table 3). These comparison are heavily biased toward data from the 2003 season and it is advised that additional data be used before any strong conclusions can be drawn. Grain protein is subject to yield dilution effects, and the substantial yield advantage of Fitzroy compared to Gairdner is likely to result in lower grain protein unless supplementary nitrogen is available. The hecta-litre weights of Fitzroy may be slightly lower than Gairdner and Grimmett. Additional data will improve reliability for these assessments.

Table 2. Average grain plumpness (%>2.5mm) of Fitzroy and comparative varieties in eastern NSW and eastern and western QLD

	Eastern NSW	Eastern QLD	Central QLD	Western QLD
MALTING				
Fitzroy	76.3	65.0	62.7	57.3
Gairdner	52.9	45.2	57.8	45.6
Grimmett	72.0	50.0	49.5	34.2
Tallon	52.5	42.0	49.5	42.1
FEED				
Binalong	40.6	50.6	37.8	47.8
Kaputar	86.4	48.7	34.6	19.2
Mackay	57.6	59.7	45.6	47.4
Skiff	79.7	40.3	48.2	34.1

Table 3. Mean grain protein percentage of Fitzroy compared to competitor varieties in trials over the period 2003.

Variety	Eastern NSW	Eastern QLD	Central QLD	Western QLD	Average
MALTING					
Fitzroy	8.5	10.4	14.1	12.2	11.3
Gairdner	10.1	11.2	15.5	13.4	12.5
Grimmett	9.3	11.0	15.3	13.5	12.3
Tallon	9.0	10.8	15.4	12.5	
FEED					
Binalong	10.6	11.0	16.2	12.8	
Kaputar	9.8	10.8	16.2	15.0	
Mackay	8.2	10.6	14.9	12.8	
Skiff	10.2	11.5	16.3	12.2	

*A weighted average has been calculated for Fitzroy, Gairdner and Grimmett, which were common entries in all analyses.

Herbicide Tolerance

Herbicide tolerance testing conducted by the Wagga Wagga Agricultural Research Institute during 2003 indicates Fitzroy is at least as tolerant to the range of herbicides tested as other varieties (Table 4).

Table 4: Herbicide tolerance reactions of Fitzroy based on evaluation conducted by NSW Agriculture at the Wagga Wagga Agricultural Research Institute during the 2003 season for a 19th June sowing date.

Pre emergent applied herbicides:	Reaction*
Trifluralin 480 (Triflur 480®)	Tolerant
Post emergent applied herbicides:	Reaction*
Diclofop-methyl (Hoegrass®)	Tolerant
Diclofop-methyl+fenoxaprp-p-ethyl (Tristar® Advance)	Tolerant
Tralkoxydim (Achieve® WG)	Tolerant
Chlorosulfuron (Glean®)	Tolerant
Metsulfuron methyl (Ally®)	Tolerant
Bromoxynil (Buctril200®)	Tolerant
Diflufenican + MCPA (Tigrex®)	Tolerant
2,4 D Amine 500g/kg	Tolerant
Dicamba + MCPA	Tolerant
Picloram + MCPA	Tolerant

- Tolerant indicates no significant yield reduction was recorded at twice the recommended application rate
- Moderately tolerant indicates a significant yield reduction of less than 10% was recorded at twice the recommended application rate
- Moderately intolerant indicates a significant yield reduction of less than 20% was recorded at twice the recommended application rate
- application rate

Disease Resistance

Fitzroy is resistant to leaf rust and the net form of net blotch (NFNB), moderately susceptible to stem rust and the spot form of net blotch (SFNB), also moderately susceptible to susceptible to spot blotch, and is susceptible to powdery mildew (PM). Disease reactions for Fitzroy compared to competitor varieties are shown in Table 5. Due to susceptibility to powdery mildew, it is recommended Fitzroy seed should be treated with a systemic seed dressing that provides protection against this diseases for at least 6 weeks after planting. Control of powdery mildew during early development using a seed dressing generally provides effective management of this disease.

In terms of root diseases, Fitzroy is moderately resistant to Common Root Rot and is susceptible to crown rot. Fitzroy is rated as susceptible to covered smut, which is simply controlled through the use of a seed dressing.

Table 5. Resistance of Fitzroy to commonly occurring diseases in the proposed growing regions compared to competitor varieties.

Variety	Leaf Rust	Stem Rust	Net Blotch Net Form	Net Blotch SpotForm	Spot Blotch	Powdery Mildew	Crown Rot	Common Root Rot	Covered Smut
MALTING									
Fitzroy	R	MS	R	MS	MS-S	S	S	MR	VS
Gairdner	S	MS-S	R	VS	S	S	VS	MR	S
Grimmett	S	MS-S	S	S	S	S	MS	MR	VS
Schooner	S	MS-S	R	MS	S	S	S	VS	R
Tallon	S	MS-S	S	S	S	R	S	MR	S
FEED									
Kaputar	R	MS-S	R	S	S	R	VS	MS	S
Binalong	R	S	VS	S	S	R	S	MR	VS
Mackay	MS	MS-S	MR	S	S	MR	VS	MR	S

* These ratings are less reliable and should be treated with caution. R= Resistant MR = moderately resistant MS = Moderately susceptible S = Susceptible VS = Very susceptible T = Tolerant MT = Moderately tolerant MI = Moderately intolerant I = Intolerant

Area of Adaptation

Fitzroy's excellent grain yields in northern Australia, relative to both malting and feed varieties, indicate broad adaptation to extensive areas in northern NSW and southern and central Queensland. Potentially Fitzroy could be successfully grown from Tamworth and Moree in northern NSW to Emerald in central Queensland (Figure1).

In southern Australia, Fitzroy was evaluated in Stage 4 trials in Victoria during the period 2000 – 2002. Over this period yields of Fitzroy were 99% of Gairdner in the Wimmera region and 96% of Gairdner in north-eastern Victoria. The lack of yield advantage of Fitzroy compared to Gairdner in this region resulted in trialing in the Victorian Stage 4 trials being discontinued. Limited trialing under irrigation has continued in north central Victoria at Kerang where Fitzroy has consistently outperformed Gairdner and demonstrated superior lodging resistance. However the opportunities for segregation of Fitzroy as a malting variety in this area appear limited.

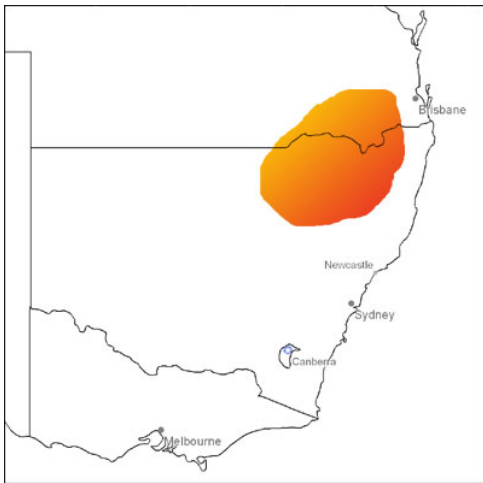


Figure 1. Regions of adaptation for Fitzroy in southern QLD and northern NSW based on yield comparisons with competitor varieties.

Plant Breeders Rights (PBR) and End Point Royalty (EPR)

Fitzroy will be protected by Plant Breeder's Rights (PBR). The EPR for Fitzroy is \$2.00/tn exclusive GST.

Seed Availability

AWB Seeds are marketing Fitzroy through all major seed retailers.



For more information call:
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