



**NORTHERN**

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# BARLEY

## SECTION 15

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## MARKETING

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## SECTION 15

## Marketing

## 15.1 Markets for malting and feed barley

Since the deregulation of Australia's malting and feed barley markets in the mid 2000s, barley has been freely tradable on the export and domestic markets. The northern region is the major supplier of malting barley to malt houses in Brisbane and Tamworth that provide malt to domestic and export end-users. These are mainly breweries in Brisbane, Yatala and Sydney and export markets in the Pacific and Asia, where increasing beer consumption is expected to underpin demand for Australian malting barley.<sup>1</sup>

Intensive domestic livestock industries—beef, pork, poultry and dairy—are all major users of feed barley, a preferred ingredient in rations for the energy it provides in the form of starch. Demand from operations in northern New South Wales (NSW) and Queensland rarely leaves an export surplus of feed barley.

Although malting barley attracts a price premium over feed, it generally yields less than feed barley, and because of the exacting specifications set for malt, it is a harder crop to grow than feed. Based on long-term averages, 20–25% of the Queensland/northern NSW crop yields malting quality barley.<sup>2</sup> A proportion of Australia's malting barley is downgraded to feed every season because it fails to meet malting specifications.

In 2010, Australia's first food barley segregation was opened for Hindmarsh<sup>®</sup>, which was developed as a malting variety but failed to meet industry specifications. The price it fetches is below that for malting; however, it can be expected to return a premium over feed in most years. It has potential markets in China and in Japan's distilled spirit industry.<sup>3</sup>

## 15.2 Marketing your crop

Adverse seasonal conditions and/or agronomy problems threaten to downgrade malting barley varieties from premium grades to feed or discounted malting segregations. Therefore, many growers opt to supply barley under a multigrade contract. These are available through private traders and also through Australia's three major malting end-users:

**Joe White Maltings:** A major buyer of northern NSW barley to supply its malt houses in Minto (Sydney) and Tamworth, it was bought by Cargill Australia in 2013. Go to <http://www.cargill.com.au/en/products/Malt/index.jsp> to find out more.

**Glencore Grain:** While its malting operations are centred in Victoria and South Australia, Glencore Grain is a trader of feed and malting barley in northern NSW and

<sup>1</sup> GRDC (2013) Asian beer market holds up local barley. GRDC Groundcover Issue 106, <http://www.grdc.com.au/Media-Centre/Ground-Cover/Ground-Cover-Issue-106-Sept-Oct-2013/Asian-beer-market-holds-up-local-barley>

<sup>2</sup> DAFF (2011) Barley malting, feed varieties and sowing times. Department of Agriculture, Fisheries and Forestry Queensland, <http://www.daff.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/barley/malting.-feed-varieties-and-sowing-times>

<sup>3</sup> GIWA Barley Council. Western Australian Malting Barley Variety Reveal Recommendations for the 2013/14 Harvest. Grains Industry Association of Western Australia, <http://www.giwa.org.au/barley-council>

southern Queensland through its Narrabri and Toowoomba offices. Go to <http://www.glencoregrain.com.au/> to find out more.

GrainCorp: As well as trading malting and feed barley delivered to its storages, GrainCorp is the owner of Barrett Burston Malting (BBMalt), which recently built a malt house at Pinkenba at the Port of Brisbane. Through BBMalt, GrainCorp offers competitive contracts in order to source the first new-season malting barley harvested in southern Queensland and northern NSW. Go to <http://www.graincorp.com.au/grain-marketing/sell-to-us/australian-growers> to find out more.

Growers can also sell malting or feed in the cash market or at a forward price. While marketing pools are available to growers in other states that have sizeable export surpluses of feed and malting barley, they are not offered to growers in Queensland and northern NSW.

Specification sheets outlining delivery standards are usually available from July each season and include all relevant information.<sup>4</sup> They are available from GrainCorp, your local grain trader or from Grain Trade Australia (GTA) by visiting [www.graintrade.org.au/commodity\\_standards](http://www.graintrade.org.au/commodity_standards)

## 15.3 Malting varieties

Malting barley varieties in Australia are accredited by Barley Australia, and they undergo rigorous testing to ensure they meet malting standards for both domestic and international markets. Barley Australia is the peak industry body for maltsters in Australia and works with plant breeders to help ensure Australian growers have a range of sought-after malting varieties to choose from.

Commander<sup>(D)</sup>, Gairdner<sup>(D)</sup> and Navigator<sup>(D)</sup> have been the preferred varieties for the domestic malting industry in northern NSW and Queensland in 2013. Regardless of variety, malting barley has a maximum allowable protein level of 9% and grades 1 and 2 have a maximum of 12%. The maximum for grade 3 is 12.8%.

Excessive protein as well as high screening and low hectolitre weights are the most common reasons for malting barley being excluded from premium malting grades.

### 15.3.1 Varietal selection

Delivery of malting varieties will depend on segregations in your region and must meet the GTA quality standards/specifications for malting barley. Growers should note that malt-accredited varieties may not have the best yield potential or disease resistance for their situation. All varieties are acceptable in the feed market.<sup>5</sup> Some of the quality traits required by international malt markets are different from those required by domestic brewers, and therefore, not all varieties may be acceptable in international markets. Table 1 provides an indication of buyer preferences and it is updated online at <http://www.barleyaustralia.com.au/preferred-varieties>.

Table 1: Customer preferences for malting barley varieties

Variety	Year accredited	Market demand		Main production by state				
		Export brewing	Domestic brewing	Vic.	NSW	SA	Qld	WA
Baudin <sup>(D)</sup>	2003	High	Low	✓	✓	✓		✓
Buloke <sup>(D)</sup>	2008	High	Low	✓	✓	✓		✓
Commander <sup>(D)</sup>	2009	Low	High	✓	✓	✓	✓	

<sup>4</sup> DAFF (2012) Barley planting, nutrition and harvesting. Department of Agriculture, Fisheries and Forestry Queensland, <http://www.daff.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/barley/planting-nutrition-harvesting>

<sup>5</sup> DAFF (2103) Barley planting and disease guide 2013. Department of Agriculture, Fisheries and Forestry Queensland, [http://www.daff.qld.gov.au/\\_data/assets/pdf\\_file/0018/53019/barley-planting-disease-guide.pdf](http://www.daff.qld.gov.au/_data/assets/pdf_file/0018/53019/barley-planting-disease-guide.pdf)

Variety	Year accredited	Market demand		Main production by state				
		Export brewing	Domestic brewing	Vic.	NSW	SA	Qld	WA
Fairview <sup>(b)</sup>	2011	Low	Medium	✓				
Fitzroy <sup>(b)</sup>	2005	Low	Low		✓			
Flagship <sup>(b)</sup>	2008	Medium	Low	✓	✓			
Flagship <sup>(b)</sup>	2008	High	Low			✓		
Gairdner <sup>(b)</sup>	1998	High	High	✓	✓	✓	✓	✓
Hamelin <sup>(b)</sup>	2004	Low	Low					✓
Schooner <sup>(b)</sup>	1983	Low	Low	✓	✓	✓		
Stirling <sup>(b)</sup>	1982	Low	Low					✓
Vlamingh <sup>(b)</sup>	2006	Medium	Low					✓

Table 2 shows buyer preferences for malting varieties from northern NSW and Queensland. See: [http://www.daff.qld.gov.au/\\_data/assets/pdf\\_file/0018/53019/barley-planting-disease-guide.pdf](http://www.daff.qld.gov.au/_data/assets/pdf_file/0018/53019/barley-planting-disease-guide.pdf)

Table 2: Customer preferences for malting barley varieties in northern NSW and Queensland

✓✓, Well accepted into market; ✓, limited acceptance; ✗, not accepted or not yet classified in the market

Variety	Domestic maltsters		Export
	Qld	NSW	
Gairdner <sup>(b)</sup>	✓✓	✓✓	✓✓
Commander <sup>(b)</sup>	✓✓	✓✓	✓✓
Fitzroy <sup>(b)</sup>	✓	✓	✗
Grimmett <sup>(b)</sup>	✓	✓	✗
Navigator <sup>(b)</sup>	✗		✗
Hindmarsh <sup>(b)</sup>	✗	✗	✓

A further nine malting varieties are currently under evaluation and are due to be released in 2014 and 2015. Some of these varieties are likely to be approved for use in the northern region.<sup>6</sup>

### 15.3.2 Planting and growth

A soil test prior to planting is advised to ensure malting barley has enough nitrogen (N) available to maximise yield but not so much that grain protein exceeds the maximum level. Growers should target a protein range of 10–11% (dry basis). Malting barley requires adequate levels of phosphorus (P) at planting, but only requires ~40% of the N needed to grow Prime Hard wheat. Growers wishing to deliver malting barley are advised to plant their crop as early as possible using good-quality treated seed sown into good moisture conditions. A plant population of 100–120 plants/m<sup>2</sup> is recommended.<sup>7</sup>

Delay application of N and base rates on yield potentials of individual paddocks.

After sowing, the major environmental risks in producing malting-quality barley are:

- moisture stress pre-heading (i.e. August–September), which can reduce yield
- late spring frosts, which can reduce yield and decrease grain size

<sup>6</sup> Barley Australia (2013) Varieties under evaluation. Barley Australia March 2013, <http://www.barleyaustralia.com.au/varieties-under-malt-evaluation>

<sup>7</sup> DAFF (2103) Barley planting and disease guide 2013. Department of Agriculture, Fisheries and Forestry Queensland, [http://www.daff.qld.gov.au/\\_data/assets/pdf\\_file/0018/53019/barley-planting-disease-guide.pdf](http://www.daff.qld.gov.au/_data/assets/pdf_file/0018/53019/barley-planting-disease-guide.pdf)



- moisture and/or heat stress post flowering, which will reduce yield, decrease grain size and increase protein
- harvest rains and high humidity after ripening, which will reduce quality and may cause pre-harvest sprouting<sup>8</sup>

Malting barley varieties have very little dormancy, making them susceptible to germination before harvest. This process is known as pre-harvest sprouting and reduces seed viability and lowers grain quality. Pre-harvest sprouting is caused by rainfall and high humidity after physiological maturity. It requires the seed to be wet for 20–30 h. This increases the seed moisture content, and once it reaches 40–50%, the seed begins to germinate. Enzymes including  $\alpha$ -amylase begin breaking down the starch and protein in the grain into sugars and amino acids. If this continues, the seed can sprout in the head. If the moisture content is <40%, wind can dry the seed and stop it sprouting. However, some damage may have occurred to the endosperm. It may show reduced viability, its falling number (a measure of starch damage) may be high, and it may not make malting grade.<sup>9</sup>

### 15.3.3 Harvest and storage

Harvest as soon as possible once barley dries down to 12% moisture. Current receival standards generally require delivered grain to have no more than 12.5% moisture. Storage of grain with higher moisture content is undesirable.<sup>10</sup> During harvest, take care not to over-thresh barley, as it will damage the grain.

Because of its susceptibility to grain insect attack, barley is more difficult than most other cereals to store for longer than 3 months. This is in part because malting barley can only be treated with phosphine, dichlorvos, fenitrothion or methoprene for insect control. The Australian barley industry has an agreed position that malting barley is not to be treated with the fumigants chlorpyrifos-methyl (Reldan), pirimiphos methyl or carbaryl. In 2011, the fumigant sulfuryl fluoride was approved for use on malting barley.<sup>11</sup> Check with the end-user prior to treatment to ensure a particular pesticide is acceptable to targeted markets.

Check with your local GrainCorp depot before delivering malt, as not all depots have segregation for each malting barley variety.

## 15.4 Feed varieties

Feed barley is traded through major traders and private merchants or direct to domestic end-users, such as stockfeed manufacturers, feedlot owners and other farmers. Prices for feed barley tend to be higher during winter than during the harvest period.

Quality requirements for the feed-grain market include a plump grain with high energy (starch) and low screenings. Price dockages are made for level of screenings and hectolitre weight. These are also important specifications in the malt industry.<sup>12</sup> Specification sheets outlining delivery standards are usually available from July each

<sup>8</sup> DAFF (2103) Barley planting and disease guide 2013. Department of Agriculture, Fisheries and Forestry Queensland, [http://www.daff.qld.gov.au/\\_data/assets/pdf\\_file/0018/53019/barley-planting-disease-guide.pdf](http://www.daff.qld.gov.au/_data/assets/pdf_file/0018/53019/barley-planting-disease-guide.pdf)

<sup>9</sup> Industry & Investment NSW Staff (2010) Barley growth & development. PROCROP Series, Industry & Investment NSW. [http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0003/516180/Procrop-barley-growth-and-development.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0003/516180/Procrop-barley-growth-and-development.pdf)

<sup>10</sup> Industry & Investment NSW Staff (2010) Barley growth & development. PROCROP Series, Industry & Investment NSW. [http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0003/516180/Procrop-barley-growth-and-development.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0003/516180/Procrop-barley-growth-and-development.pdf)

<sup>11</sup> GTA (2011) Australian grains industry post harvest chemical usage recommendations and outturn tolerances 2011/12. Australian Government Department of Agriculture, Fisheries and Forestry National Residue Survey. Grain Trade Australia, [http://graintrade.org.au/sites/default/files/file/Storage\\_and\\_Handling/Outturn%20tolerances%202011-12%20Final%2019%20Dec11.pdf](http://graintrade.org.au/sites/default/files/file/Storage_and_Handling/Outturn%20tolerances%202011-12%20Final%2019%20Dec11.pdf)

<sup>12</sup> DAFF (2011) Barley malting, feed varieties and sowing times. Department of Agriculture, Fisheries and Forestry Queensland, <http://www.daff.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/barley/malting.-feed-varieties-and-sowing-times>

season and include all relevant information.<sup>13</sup> They are available from GrainCorp, your local grain trader or from GTA by visiting [www.graintrade.org.au/commodity\\_standards](http://www.graintrade.org.au/commodity_standards)

Feed no. 1 and no. 2 grades generally have no protein minimum or maximum. Feed barley comes in two forms: two-row barley and six-row barley. Six-row varieties are rarely grown and are suitable for feed only; they are mostly used for grazing or on-farm use. Accredited feed varieties are presented in Table 3.

### 15.4.1 Planting and growth

Use adequate fertiliser but do not over fertilise, as this will encourage excessive vegetative growth and could result in lodging. Phosphorus, zinc and sulfur levels are important as well as N levels. Plant into good soil moisture and maintain plant populations. The recommended population for maximum yield potential is 100 plants/m<sup>2</sup> or 1,000,000 plants/ha. Plant populations <800,000 plants/ha are likely to have reduced yield potential and provide less weed competition. See Table 4 for barley variety mean yields over three years.

### 15.4.2 Harvest and storage

Harvest at 12% moisture and store in cool, dry conditions. Unlike malting barley, fumigants registered for use on other cereals can be used on feed barley, which gives growers and bulk handlers more options for insect control.

Table 3: Accredited feed barley varieties

Variety	Year Released	Production				
		Vic.	NSW	SA	Qld	WA
Barque <sup>(b)</sup>	1997	✓	✓	✓		✓
Binalong <sup>(b)</sup>	2002		✓		✓	
Capstan <sup>(b)</sup>	2002	✓	✓	✓		✓
Cowabbie <sup>(b)</sup>	2005		✓			
Dash <sup>(b)</sup>	1995	✓			✓	✓
Fathom <sup>(b)</sup>	2012	✓	✓	✓	✓	✓
Fleet Australia <sup>(b)</sup>	2006	✓	✓	✓		✓
Grout <sup>(b)</sup>	2005	✓	✓	✓	✓	✓
Hannon <sup>(b)</sup>	2007	✓	✓	✓		✓
Kaputar <sup>(b)</sup>	1993		✓		✓	
Keel <sup>(b)</sup>	1999	✓	✓	✓	✓	✓
Lockyer <sup>(b)</sup>	2007	✓	✓	✓	✓	✓
Mackay <sup>(b)</sup>	2002		✓		✓	
Maritime <sup>(b)</sup>	2004	✓		✓		✓
Mundah <sup>(b)</sup>	1996	✓		✓		✓
O'Connor <sup>(b)</sup>	1988		✓			✓
Oxford <sup>(b)</sup>	2010	✓	✓	✓	✓	✓
Roe <sup>(b)</sup>	2007	✓	✓	✓	✓	✓
Skiff <sup>(b)</sup>	1988		✓		✓	✓

<sup>13</sup> DAFF (2012) Barley planting, nutrition and harvesting. Department of Agriculture, Fisheries and Forestry Queensland, <http://www.daff.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/barley/planting-nutrition-harvesting>

Variety	Year Released	Production				
		Vic.	NSW	SA	Qld	WA
Tantangara <sup>(b)</sup>	1995	✓	✓		✓	
Tilga <sup>(b)</sup>	1997		✓			
Tulla <sup>(b)</sup>	2003		✓			
Yambla <sup>(b)</sup>	1988	✓	✓			
Yarra <sup>(b)</sup>	2005	✓	✓	✓		✓

Table 4: Northern region barley variety yields 2009–2011

Variety	Mean yield (t/ha)
F Shepherd <sup>(b)</sup>	5.7
F Oxford <sup>(b)</sup>	5.3
M Commander <sup>(b)</sup>	5.2
F Westminster <sup>(b)</sup>	5.2
F Henley <sup>(b)</sup>	4.8
Hindmarsh (food) <sup>(b)</sup>	4.6
F Grout <sup>(b)</sup>	4.1
F Mackay <sup>(b)</sup>	4.0
M Fitzroy <sup>(b)</sup>	4.0
M Gairdner <sup>(b)</sup>	3.9
M Grimmett <sup>(b)</sup>	3.8

## 15.5 Further reading

Barley Australia: [www.barleyaustralia.com.au](http://www.barleyaustralia.com.au)

DAFF Queensland—Barley planting guide: [http://www.daff.qld.gov.au/\\_data/assets/pdf\\_file/0018/53019/barley-planting-disease-guide.pdf](http://www.daff.qld.gov.au/_data/assets/pdf_file/0018/53019/barley-planting-disease-guide.pdf)

GTA—Barley receival standards: [http://www.graintrade.org.au/sites/default/files/file/Commodity%20Standards/2013\\_2014/Section%2002%20-%20Barley%20Standards%20201314%20Final.pdf](http://www.graintrade.org.au/sites/default/files/file/Commodity%20Standards/2013_2014/Section%2002%20-%20Barley%20Standards%20201314%20Final.pdf)

GRDC—Wheat and barley leaf symptoms: The back pocket guide: <http://www.grdc.com.au/uploads/documents/GRDC-Wheat-Barley-BPG-2011.pdf>

NSW Department of Primary Industries—Winter crop variety sowing guide 2014: <http://www.dpi.nsw.gov.au/agriculture/broadacre/guides/winter-crop-variety-sowing-guide>