

SECTION A

Introduction

A.1 Crop overview – bread, noodle and winter wheats

Bread and noodle wheats (*Triticum aestivum*) are the dominant types of wheat planted throughout New South Wales (NSW), Queensland and Australia. They fall into a number of classifications that have different receival standards, from Australian Prime Hard, with high quality requirements, through to Feed, which has limited quality requirements.

Northern region conditions are conducive to the production of high-quality grain. The breeding and development of new varieties reflects this. Flour milled from Australian Prime Hard wheat is used to produce high-protein, Chinese-style, yellow, alkaline noodles and Japanese ramen noodles of superior brightness, colour and eating quality. Australian Prime Hard flour is also suitable for the production of high-protein, high-volume breads and wonton dumpling skins. Australian Prime Hard wheat can be blended with lower protein wheats to produce flours suitable for a wide range of baked products.

Forage wheats are commonly of the winter type and have the major advantage of adaptability to a wide range of sowing times. The winter habit delays maturity in early sowings, thus extending the period of vegetative growth. Maturity varies once vernalisation or cold requirements have been met. Winter wheats are commonly sown in late March or early April.¹



Figure 1: Bread and noodle wheats dominate production in New South Wales and Queensland.

A.2 Production

Wheat is the largest grain crop in Australia. Australian wheat farmers produce ~16 million tonnes (t) of wheat each year, 70% of which is exported. In world terms, Australia is the fourth largest exporter, contributing around 11% of world trade.

¹ DEEDI (2012) Queensland 2012 wheat varieties. GRDC/Department of Employment, Economic Development and Innovation Queensland, <http://www.grdc.com.au/uploads/documents/NVT-Qld-2012-wheat-variety-guide.pdf>

Asia, the Middle East and the Pacific regions are the principal export destinations, while the domestic market is the largest single market and is growing rapidly.

Wheat is the main crop grown in NSW, the second-highest producing state in Australia. Around 4 million ha² was planted and 8.6 million t of grain produced in NSW in 2011–12.³

In Queensland, on average 80,000 ha of wheat is sown annually, producing around 1.2 million t of grain. About half of Queensland's production is destined for export, and a quarter each for domestic milling and the domestic feed grain industries.⁴



Figure 2: Wheat growing in the northern grains region (Photo: Penny Heuston)

More information

<http://www.bom.gov.au/climate/data/>

A.3 The northern grains region

Australia's northern grains region encompasses cropping land between the Murray River in the south and Clermont/Biloela in central Queensland. The region is characterised by rainfall that ranges from high to low, from summer- to winter-dominated, but is often variable in nature. Rainfall ranges between slightly winter-dominant in the south and summer-dominant in the north, with high rates of evaporation where the rainfall is summer-dominated.

Pre-crop fallowing for moisture is the usual practice. Many of the region's farmers use no-till or minimum till, coupled with stubble retention, for managing the fallows. Cropping patterns are diverse, incorporating long fallows for summer–winter cropping and, *vice versa*, short fallows for summer–summer or winter–winter cropping, no fallows (double- or opportunity-cropping) and pasture phases.

² ABS (2006) 1301.0. Year Book Australia—The Australian wheat industry. Australian Bureau of Statistics, <http://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/1301.0Feature%20Article212006?opendocument&tabname=Summary&prodno=1301.0&issue=2006&num=&view=>

³ ABS (2013) 7121.0. Agricultural Commodities, Australia, 2011–12. Australian Bureau of Statistics, <http://www.abs.gov.au/ausstats/abs@.nsf/mf/7121.0>

⁴ Queensland Government (2009) Wheat quality and markets in Queensland. Fact Sheet, Department of Employment, Economic Development and Innovation Queensland, http://www.daff.qld.gov.au/_data/assets/pdf_file/0006/53799/Wheat-FactSheet-Quality-Markets-Qld.pdf

i More information

www.abares.gov.au
<http://www.grdc.com.au/Resources/Publications/2012/11/GRDC-Farm-Practices-Survey-2012>

Principal grain crops are wheat, barley, sorghum and chickpea, with minor crops being faba bean, maize and sunflower, canola, lupin and field pea.

Additional statistics on grain cropping in the northern region can be found in the ABARES 'Australian Crop Report' series (www.abares.gov.au) and the 2010 GRDC 'Farm Practices Baseline Report' (Kearns and Umbers 2010).⁵

The northern grains region is the largest source of Australia's premium hard, high-protein wheat for export and domestic use. Demand for feed grains from the region's important livestock industries is a key driver of grain production.

The northern grains region has relatively diverse seasonal rainfall and production variability compared with the southern and western regions. Both summer and winter crops are important for profit. Yield depends, to a significant degree, on conservation of soil moisture from summer-dominant rainfall. The northern region has the highest diversity of crop production, including maize, sorghum and tropical pulses as well as wheat, barley, winter-growing pulses and oilseeds.⁶

Wheat can be grown in almost all areas of the region where cropping is possible. The level of production is sensitive to seasonal conditions and the price of wheat. The average area planted to wheat during the 1990s in NSW was 2.4 million ha with an average yield of 2.0 t/ha.

Winter wheats are commonly used in the mixed farming zones. Winter wheats need to experience a certain period of cold temperatures, 0°–10°C, to trigger a switch from vegetative growth to flowering (anthesis). This cold requirement is known as vernalisation.

The winter wheat varieties need different periods of vernalisation, so it is important to consider this when selecting a variety. The vernalisation requirement means that winter wheats adapt to varying sowing times and so can be used for the dual purpose of grazing and grain. They can be sown from February to early April for grazing, depending on the vernalisation requirement of the variety.

The vast majority of wheat varieties grown in the northern region are spring wheats. Spring wheats grow and develop in response to increasing temperature and photoperiod (daily hours of light). They do not have a vernalisation requirement to initiate flowering and so are grown in the warmer regions NSW.

It is important to sow spring wheats at the recommended time to minimise the risk of frost damage during flowering and to maximise yield. Recommended sowing times are published each year by the NSW Department of Primary Industries (NSW DPI) and Department of Agriculture, Fisheries and Forestry Queensland (DAFF)/Grains Research and Development Corporation (GRDC).⁷

A.4 Keywords

Wheat, northern grains region, winter cereals, crop rotation, fallow weed control, cereal diseases, root-lesion nematodes, water-use efficiency, nitrogen-use efficiency, soil testing, crown rot, protein, bread, noodles, crop nutrition and fertiliser, paddock preparation, planting, varieties, plant physiology, crop insects, harvest, storage, frost, marketing.

⁵ D Herridge (2011) Managing legume and fertiliser N for northern grains cropping. (Revised 2013) GRDC, <http://www.grdc.com.au/GRDC-Booklet-Managing-Fertiliser-N>

⁶ GRDC www.grdc.com.au

⁷ NSW DPI Agronomists (2008) Wheat growth and development. PROCORP Series, NSW Department of Primary Industries 2008, http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0006/449367/Procrop-wheat-growth-and-development.pdf