Queensland **the Smart State**

Prospects

for Queensland's Primary Industries

2007–08

Forecasting, analysis & trends

September 2007

Queensland Government
Department of Primary Industries and Fisheries

Prospects

for Queensland's Primary Industries

2007–08

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General disclaimer

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Important changes in this edition of *Prospects*

Prospects is now in its seventh year, after its official launch in June 2001. In this September 2007 edition, we are pleased to introduce some significant changes to improve its coverage of Queensland's primary industries and its usefulness to users.

Total value of Queensland's primary industries

The most significant change in this issue of *Prospects* is the way the value of Queensland's primary industries is reported.

Previously, the measure used to value Queensland's primary industry commodities in *Prospects* was gross value of production (GVP).

From this issue onwards, the **total value of Queensland's primary industry commodities** reported in *Prospects* will comprise two components, which are separately reported. These are:

- a forecast gross value of production figure

  and

- a forecast of value added in first-stage processing for the commodities listed below.

Forecast value of first-stage processing

First-stage processing forecasts are provided for:

- meat processing
- sugar processing
- milk and cream processing
- fruit and vegetable processing
- flour mill product and feed processing
- seafood processing
- log sawmilling and timber dressing and plywood and veneer manufacturing
- lifestyle horticulture services
- cotton ginning.

This change will have an impact on the gross value of production figures for 2005–06 and 2006–07 for the lifestyle horticulture and forestry industries, as some of the value previously captured under *gross value of production* is now represented under *first-round processing value added* in Table 1 (page 6).

In previous editions of *Prospects*, the lifestyle horticulture industry was defined as 'businesses involved in the production of non-food horticulture products and planting stock for fruit, vegetable and forest industries', including:

- ornamental (plants and bulbs), fruit and forestry plants
- cut flowers and foliage
- turf grass

and a range of services including:

- landscape design, contracting and maintenance (including arboriculture) services
- wholesale and retail sales of lifestyle horticulture products and services
- parks, gardens, golf course and indoor plant establishment and maintenance
- technical horticultural advice, information dissemination and project management.

In this edition of *Prospects*, in Table 1 (page 6), *lifestyle horticulture* has been replaced with *amenity horticulture*, which includes nurseries, cut flowers and turf. The remainder of the value of the industry is captured under 'lifestyle horticulture services' in the 'first-round processing value added' section of Table 1.

Similarly, since September 2004, *Prospects* has used the turnover of log sawmilling and timber dressing activity in Queensland as an indicator of gross value of forest industry activity. In this edition of *Prospects*, gross value of production relates to the value of the log timber produced from Queensland's plantations and native forests **before** it reaches a sawmill or primary timber processing plant. The value added component of the forestry industry has been recorded under the heading 'log sawmilling and timber dressing and plywood and veneer manufacturing' in the 'first-round processing value added' section of Table 1 (page 6).

Comparisons with previous years

In 2005–06, the Australian Bureau of Statistics (ABS) used a new methodology for gathering agricultural data. ABS's final gross value of production estimates for 2005–06 are due for release in March 2008 and, if available in time, these figures will be updated in the June 2008 edition of *Prospects update*. Due to this break in the series, ABS advises that figures from 2005–06 should not be compared to previous years.

Maps showing main production regions

In this edition of *Prospects*, maps are included that indicate the *main* production areas for particular commodities. The maps are based on ABS 2001 Agricultural Census data, which are the most current location data. The maps will be updated when new ABS Agricultural Census data are released. The maps show where the top 80% of production by volume occurs for each commodity by Statistical Local Area (SLA). Entire SLAs are highlighted to indicate the location, rather than the physical area of production.

Productivity growth driven by innovation

DPI&F is the leading public sector agency supporting agricultural innovation in Queensland. This is complemented by significant contributions from CSIRO, the university sector and industry.

In this edition of *Prospects*, we highlight the many ways DPI&F is using innovation to drive growth in primary industries including:

- commercialisation of vaccines to reduce the impact of bovine respiratory disease in feedlot enterprises (page 12)
- research into micro-organisms in the stomachs of cattle to ensure the most effective and efficient bacteria are present when cattle are on a variety of feeds (page 13)
- breeding programs to improve productivity and quality of Queensland's mangoes (page 28)
- developing the grains industry through plant breeding programs that integrate recent developments in molecular biology, biotechnology, physiology, agronomy and virtual plant modelling (page 44)
- using science to manage and sustain Queensland's wild fisheries resources (page 49)
- advanced bio-science research supporting the expansion of Queensland's hardwood plantations (page 52).

Special feature articles

This edition of *Prospects* includes a special report on the economic effects of the equine influenza outbreak on Queensland's economy (page 53).

Other feature articles recognise:

- Judy Plath, the 2006 winner of DPI&F's Elaine Brough Award (page 36)
- Paul Grundy, the Australian Cotton Industry Awards Young Achiever of the Year 2007 (page 39).

Summary of key findings

Total value of Queensland's primary industries

In 2007–08, the total value of Queensland's primary industry commodities (including gross value of production and first-stage processing) is forecast at $12.235 billion, which is 1% higher than 2006–07 and 2% lower than 2005–06.

Key points

Gross value of production ('farm gate')

In 2007–08, the gross value of production of Queensland's primary industry commodities at the 'farm gate' is forecast at $9.425 billion, which is 2% higher than 2006–07 and 3% lower than 2005–06.

Livestock industries

The outlook for all of Queensland's livestock industries in 2007–08 is positive, with gross value of production forecasts generally higher (or at least equal to) forecasts for the previous year. Indeed, the forecasts for some livestock industries are the highest ever reported in *Prospects*.

Livestock disposals

The gross value of production of Queensland's **cattle and calf** industry in 2007–08 is forecast at $3.73 billion, which accounts for almost 40% of the total 'farm gate' value of Queensland's primary industry commodities. This is the highest gross value of production forecast to date. Cattle and calf slaughterings are expected to be higher than DPI&F's final estimate for 2006–07 with a slight fall in prices.

- The gross value of production of **pigs** in Queensland in 2007–08 is forecast at $210 million. Pig production is forecast to fall by 10% in 2007–08 because of a lack of water and high feed costs.
- The gross value of **poultry** production in 2007–08 is forecast at $255 million, which is the highest forecast to date. Increased production is being driven by increased demand from a growing population.
- Higher **sheep and lamb** prices in 2007–08 are expected to push sheep and lamb gross value up to $55 million, which is the highest forecast since 2003–04.

Livestock products

- The gross value of **milk** production in Queensland in 2007–08 is forecast at $230 million, which is the highest forecast since the beginning of the drought in 2002–03.
- **Wool's** gross value of production in 2007–08 is forecast at $120 million, which is higher than the previous few years due to higher world prices.
- The gross value of **egg** production is forecast at $100 million, which is the same as the last few years.

Crops

Fruit and nuts and vegetables:

- The total gross value of Queensland's **fruit and nut** production is forecast at $1.095 billion in 2007–08, which is the highest forecast to date.
- **Vegetable** gross value of production is forecast to fall to $770 million, which is 5% lower than 2006–07.

Lifestyle horticulture:

- The **total value of Queensland's lifestyle horticulture industry** is forecast at $1.2 billion in 2007–08, which is slightly lower than 2006–07, and marks the second consecutive fall in GVP after many years of industry growth.
- The total production value of nurseries, turf, cut flowers and foliage is forecast at $545 million. **Nursery and turf production** gross values are forecast at levels similar to 2006–07, while the gross value of production of **cut flowers and foliage** is forecast at $105 million, which is 9% lower than 2006–07.
- On the service side, total value is forecast at $660 million. **Retail nursery and landscape** gross values are lower than 2006–07 and are forecast at $155 million and $435 million respectively. **Grounds and maintenance** and **indoor plant hire** gross values are forecast to increase on the previous year, with gross values of $299 million and $44 million respectively.

Cereal grains:

- With the increased demand for feedgrains, and historically high world prices, wheat, barley, grain sorghum and maize gross value of production forecasts for 2007–08 are all higher than the previous year.
- **Wheat** gross value of production is forecast at $250 million, which is 4% higher than 2006–07.
- **Barley** gross value of production is forecast at $40 million, which is 60% higher than 2006–07.
- **Grain sorghum** gross value of production is forecast at $340 million, which is 84% higher than 2006–07.
- **Maize** gross value of production is forecast at $50 million, which is twice as high as 2006–07.

Other crops:

- The gross value of Queensland's **sugarcane** production is forecast at $730 million in 2007–08, which is 32% lower than 2006–07, due to a fall in world sugar prices.
- **Cotton** gross value of production is the lowest ever forecast at $50 million, which is 58% lower than 2006–07. Plantings are expected to be down 63% on the previous year due to the continuing dry conditions.

Fisheries

The gross value of **fisheries** production in 2007–08 is forecast at $265 million, which is 4% higher than DPI&F's revised estimate of $255 million for 2006–07.

Forestry

Total forest industry value is forecast at $570 million, which is 5% higher than 2005–06. Of this, the gross value of the primary activity, **forest growing**, or **forestry and logging**, is forecast at $210 million, which is 5% higher than 2006–07.

First-round processing

In 2007–08, the value of first-round processing (or value added production) is forecast at $2.81 billion, which is 2% lower than 2006–07 and 1% higher than 2005–06.

- The value of **meat processing** is forecast at $1.01 billion, which accounts for 36% of the total value of first-round processing.
- In 2007–08, the value of **lifestyle horticulture services** (which includes retail nursery, green life-related landscape, grounds and maintenance and indoor plant hire) is forecast at $660 million.
- The forecast value of **sugar processing** in 2007–08 is $305 million.
- The value of **log sawmilling and timber dressing and plywood and veneer manufacturing** is forecast at $360 million in 2007–08.

Introduction

Department of Primary Industries and Fisheries (DPI&F) has a vision of *profitable primary industries for Queensland* and supports strategic development across the sector.

DPI&F delivers outcomes that maximise the economic potential of Queensland's primary industries on a sustainable basis. There is a focus on improving industry competitiveness, productivity, innovation and export earnings. Such outcomes drive growth and improve profitability.

Queensland's primary industries sector accounts for more than $7 billion in exports, making it Queensland's second largest exporter behind the mining sector. The department is a major contributor to the government's efforts to further develop a robust and diverse decentralised economy.

About *Prospects*

Prospects has a circulation of approximately 2500, with copies distributed to members of parliament, industry associations, agribusinesses, banks, law firms, local councils, government departments, educational institutions, primary producers and other businesses along the value chain.

The annual edition of *Prospects* now contains the department's:

- initial gross value of production (GVP) forecasts for 2007–08
- gross value of production estimates for 2006–07 and 2005–06
- initial forecasts for 2007–08 for first-stage processing for the industries outlined previously.

Prospects is available on the DPI&F website at www.dpi.qld.gov.au/prospects/

About *Prospects update*

Initial gross value of production forecasts and first-stage processing forecasts for the financial year are published in the annual edition of *Prospects*. These forecasts are then updated as the year unfolds. Changes to the forecasts are reported in the subsequent December and March editions of *Prospects update* with final forecasts for the financial year provided in the June edition of *Prospects update*.

We welcome your feedback. Please send your comments and suggestions to us at:

Prospects
Policy and Investment Advice
Innovation and Biosecurity Investment
Department of Primary Industries and Fisheries
GPO Box 46
Brisbane Qld 4001

or contact the DPI&F Business Information Centre on 13 25 23.

Content and procedure

In this publication, gross value of production refers to the output of primary industry operations. Most non-commercial activities, such as home vegetable and flower gardening and hobbyist beekeeping, are not included due to a lack of data. This in no way diminishes the importance of these activities to the economy and society.

Gross values of commodities produced are calculated by multiplying the output from each primary industry activity by the average wholesale market price paid to producers. Production output resulting from primary industry activity is largely determined by the availability of resources (e.g. irrigation water), market factors, incidences of pests and diseases, and weather conditions. The market price reflects the prices paid at the point of first sale of the produce concerned. This is often referred to as the 'farm gate' price, although in many instances that point of sale is beyond the 'farm gate' (e.g. saleyard, mill door).

First-round processing activity is estimated using a methodology that assumes a constant ratio of farm output to the first processing round of value added production, and is derived using 2001–02 as a reference year (currently the only available statistics for Queensland manufacturing industries).

This methodology was chosen for its simplicity, consistency and transparency. Technology and processing margins tend to remain relatively constant over time. However, with the release of the next ABS Queensland manufacturing statistics, ratios will be updated where necessary. It is possible that some reported values are an underestimate, resulting from technology improvements since 2001–02. Likewise, industries currently processing a greater proportion of output than in 2001–02 could also lead to underestimates. Furthermore, overestimates could be expected where processing margins have tightened in relative terms since 2001–02.

Value added refers to the additional value created at a particular stage of production. Value adding that occurs beyond the first round is not included in this analysis. For some industries, there is a significant number of rounds of processing and value adding beyond the first round. For instance, timber is processed in numerous downstream industries, including wooden structural component, pulp, paper and paperboard and paper product processing.

Economists use the value added method as a way to avoid double counting (i.e. the counting of the same input twice). The sum of the value added in each of the different stages of production equals the value of the final product, the product that leaves the production process and is not further incorporated in some new product. Final products include consumer goods and fixed capital equipment. In a microeconomic context, value added is simply measured as the value of the output produced minus the costs of the intermediate goods.

The estimates and forecasts contained in this edition of *Prospects* were based on information available in August 2007 and consultation with industry experts and DPI&F staff. Forecasts reflect the situation of primary industries shaped by prevailing climatic conditions, but generally assume that further developments will be subject to 'average' conditions.

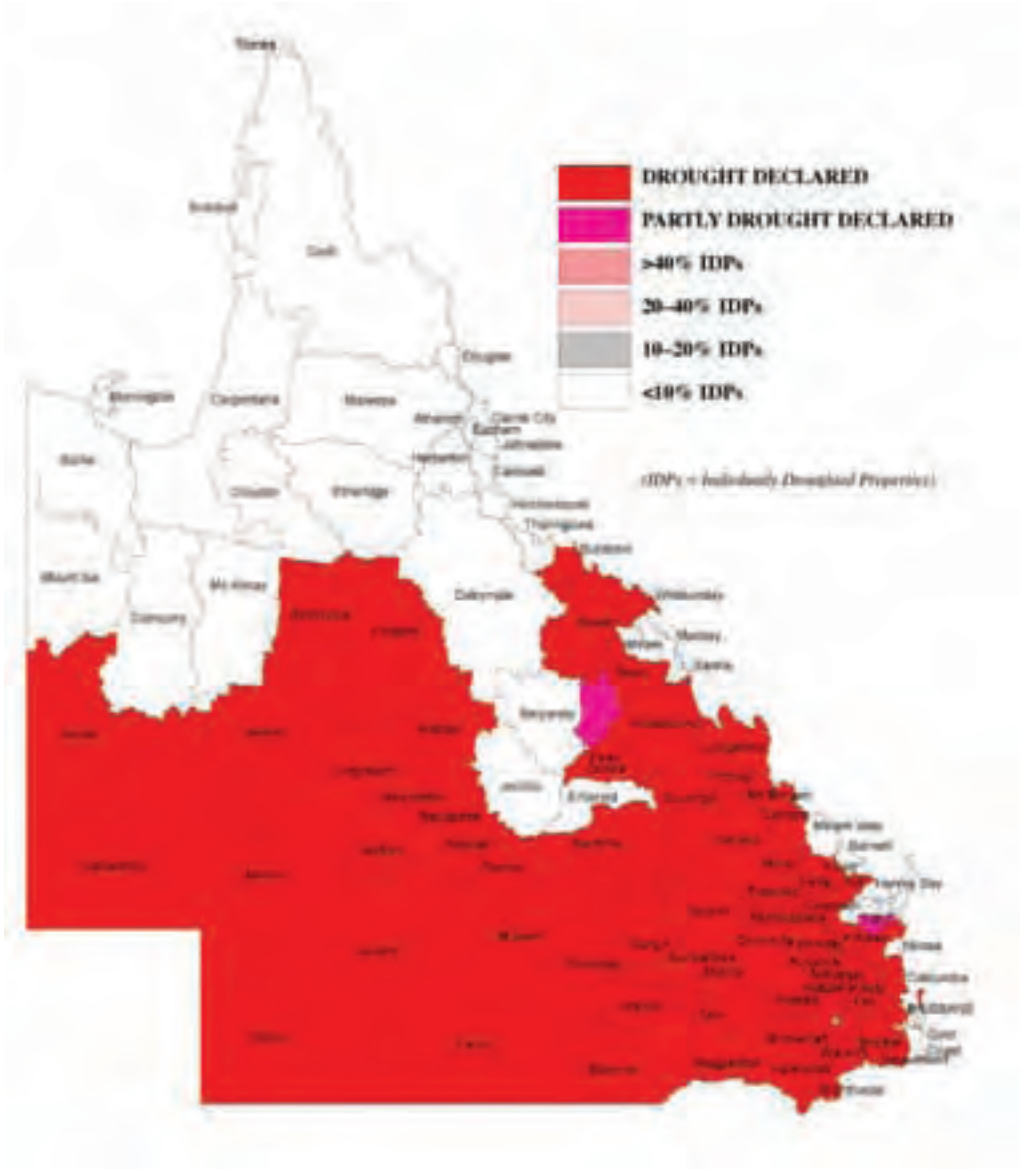
The prices of all overseas-traded commodities are responsive to changes in the exchange rate of the Australian dollar relative to the currencies of our trading partners. Prices to primary producers, and therefore gross unit values, could change depending on whether exchange rates increase or decrease.

Drought situation

As at 31 August 2007, there were 82 shires and 2 part shires drought declared under state processes, which is equivalent to 62.2% of the land area of the state. There were also 17 Individually Droughted Properties (IDPs) in a further five shires.

Generally, the southern two thirds of the state (with the exception of some coastal areas) remain drought declared.

Figure 1. Drought situation in Queensland as at 31 August 2007



Source: www.longpaddock.com.au

Climate forecast for spring/summer/autumn of 2007–08

Compared to the same time last year, there has been an improvement in the seasonal outlook for Queensland. Based on a 'rapidly rising' Southern Oscillation Index (SOI) phase at the end of August 2007, there is a 40% to 70% chance of getting median rainfall for September to November, with the highest rainfall probabilities (60% to 70%) found throughout Central Queensland. The exception is for the extreme far south-west of the state where there is only a 20% to 40% chance of getting median rainfall.

Based on these probabilities, there is a reasonable chance of getting some useful rainfall. For example, during September to November, Kingaroy has a 70% chance of getting at least 140 mm; Jondaryan has a 70% chance of getting at least 120 mm; Roma has a 70% chance of getting at least 100 mm; Emerald has a 70% chance of getting at least 90 mm; and St George has a 70% chance of getting at least 60 mm.

When using any probability-based forecast, the probability of something occurring is just that—a probability. If there is a 70% chance of recording more than 100 mm, there is also a 30% chance of recording less than 100 mm.

As for the rest of the spring and summer outlook, it would help if the SOI went into a 'consistently positive' SOI phase and remained there for a number of months. The last time the SOI was in a 'consistently positive' phase for more than one month was September 2000 to March 2001.

The Madden Julian Oscillation (MJO) is a band of low air pressure originating off the east coast of central Africa, travelling eastward across the Indian Ocean and northern Australia roughly every 30 to 60 days. Research has shown the MJO to be a useful indicator of the timing of potential rainfall events but not the amount that may fall. Towards the end of winter, the MJO is typically associated with monsoonal bursts over India and eastern Asia, and tropical storms, cyclones and typhoons in the South China Sea and northern western Pacific Ocean. We would usually expect to see a greater impact on northern Australian rainfall as we enter spring and summer.

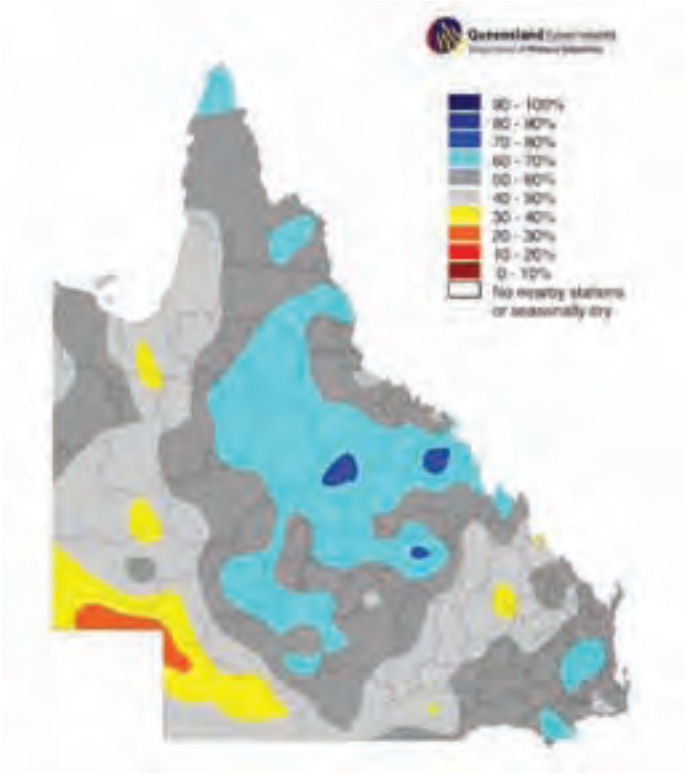
According to the Bureau of Meteorology in their 'ENSO Wrap-up', the past three months have seen conditions in the Pacific Ocean fluctuate. Since late July, though, there has been a gradual strengthening of La Niña indicators.

For example, eastern equatorial Pacific Ocean temperatures have continued to cool, trade winds have been mostly close to normal and the SOI has had a rise in value since July. However, for a La Niña to fully develop there needs to be further changes in our climate indicators. This would include consistently stronger than average south-east trade winds, positive SOI values (+7 or higher for several months) and further cooling of the eastern equatorial Pacific Ocean.

For our general seasonal outlook, it would also be helpful if ocean temperatures off the eastern and northern Australian coastline became warmer than normal.

While the climate models used by the Bureau of Meteorology predicted an increased chance of a La Niña developing, they also suggested the event is likely to be moderate and last only a few months. It is also now late in the year for a La Niña to develop, as (historically) most La Niña events are established before the end of winter.

Figure 2. Probability of exceeding median rainfall for September–October based on rapidly rising phase during July–August 2007



Source: www.longpaddock.com.au

Global demand for Australian commodities

In April 2007, the International Monetary Fund (IMF) forecast global gross domestic product (GDP) growth in 2007 of just under 5%, which is well above the long-term average of 3.5%. According to the Chairman of the Reserve Bank of Australia, 'there does not seem to be a high likelihood of the world economy slowing abruptly in the near term'.

While continuing worldwide economic growth is underwriting demand for commodities, the agricultural sector is still handicapped by distorted markets. The 40% improvement in Australia's terms of trade since 2003 was caused by price rises for resources leaving behind those for manufactures—but it did not apply across agriculture. The hoped-for breakthrough in the Doha round of global trade negotiations has not happened, partly due to the unwillingness of the European Union (EU) and the United States (US) to give sufficient ground on agricultural support measures and trade distortion. Although Australia has been negotiating numerous bilateral trade agreements, these do not offer the same opportunity for agricultural exporters as a global agreement could.

The Australian dollar reached more than US90c in October 2007. This puts continued pressure on agricultural exporters whose prices are typically denominated in US dollars and increases the import competition on the domestic market. The Australian Bureau of Agricultural and Resource Economics (ABARE) works on the assumption of an exchange rate of US80c per Australian dollar for 2007–08.

Table 1. Gross value of production, first-round processing and total primary industries estimates and forecasts 2005–06 to 2007–08

Commodity GVP (a)	2005–06 (c)	2006–07 (c)	2007–08 (d)	% change
	$m	$m	$m	%
Livestock disposals				
Cattle and calves	3675	3625	3730	3%
Sheep and lambs (c)	50	45	55	22%
Pigs	220	210	210	0%
Poultry	230	240	255	6%
Other livestock (c)	10	10	10	0%
Total livestock disposals	4185	4130	4260	3%
Livestock products				
Wool (c)	110	110	120	9%
Milk (all purpose)	210	200	230	15%
Eggs (c)	100	100	100	0%
Total livestock products (e)	420	410	450	10%
Total livestock	4605	4540	4710	4%
Horticulture				
Fruit and nuts				
Bananas	300	400	450	13%
Pineapples	40	40	65	63%
Mangoes (c)	60	80	65	-19%
Mandarins	75	90	95	6%
Strawberries (c)	120	120	140	17%
Avocados	45	75	65	-13%
Macadamias (c)	55	40	25	-38%
Apples	35	35	45	29%
Table grapes	n/a	n/a	40	n/a
Other fruit and nuts (c)	55	95	105	11%
Total fruit and nuts	785	975	1095	12%
Vegetables				
Potatoes	35	40	40	0%
Tomatoes (c)	165	200	205	3%
Capsicums & chillies (c) (f)	80	100	95	-5%
Other vegetables (c)	460	470	430	-9%
Total vegetables	740	810	770	-5%
Total fruit and vegetables	1525	1785	1865	4%
Amenity horticulture				
Nurseries (c)	645	375	375	0%
Turf (c)	90	65	65	0%
Cut flowers and foliage (c)	130	115	105	-9%
Total amenity horticulture	865	555	545	-2%
Total horticulture	2390	2340	2410	3%

Commodity GVP (a)	2005–06 (c)	2006–07 (c)	2007–08 (d)	% change
	$m	$m	$m	%
Other field crops				
Sugarcane (g)	1000	1075	730	-32%
Cotton (raw) (h)	395	120	50	-58%
Other crops	350	260	360	38%
Total other crops	1745	1455	1140	-22%
Cereal grains				
Wheat	275	240	250	4%
Barley	45	25	40	60%
Grain sorghum	140	185	340	84%
Maize	35	25	50	100%
Other cereal grains	15	15	10	-33%
Total cereal grains	510	490	690	41%
Total crops	4645	4285	4240	-1%
Total agriculture	9250	8825	8950	1%
Fisheries (c) (i)				
Trawl	100	85	85	0%
Non-trawl	85	105	105	0%
Aquaculture	65	65	75	15%
Total fisheries	250	255	265	4%
Forestry and logging (c) (j)	190	200	210	5%
Total primary industries (farm gate)	9690	9280	9425	2%
First round processing value added (h)				
Meat processing (c)	985	980	1010	3%
Sugar processing (c)	420	450	305	-32%
Milk and cream processing (c)	115	110	130	18%
Fruit and vegetables processing (c)	150	175	185	6%
Flour mill and feed processing (c)	95	95	130	37%
Seafood processing (c)	25	20	25	25%
Log sawmilling and timber dressing and plywood and veneer manufacturing (c)	330	345	360	4%
Lifestyle horticulture services (c)	615	665	660	-1%
Cotton ginning (c)	45	15	5	-67%
Total primary industries (first round processing)	2780	2855	2810	-2%
Total primary industries	12470	12135	12235	1%

(a) See glossary for definition of *gross value of commodities produced*.

(b) ABS final estimates, unless otherwise indicated. Note: (b) does not appear in this table as ABS has not yet released final estimates for 2005–06.

(c) DPI&F estimates.

(d) DPI&F forecasts.

(e) Excludes minor commodities, such as honey, beeswax, mohair.

(f) ABS estimate includes chillies.

(g) Gross value of Sugarcane at mill door.

(h) Includes value of cotton seed and lint.

(i) Includes catches from Commonwealth-managed (including Torres Strait, Gulf of Carpentaria and east coast 'tuna' fisheries) and state waters.

(j) ABARE estimates.

(h) See glossary for definition of *value added*.

Volume of production index

The volume of production index for Queensland's major agricultural commodities from 1996–97 to 2007–08 is detailed in Table 2.

In 2007–08, the production index for agriculture is forecast to be 102. This indicates that Queensland's agricultural production in 2007–08 is forecast to be 2% higher (on average) than in the base year of 1996–97.

On average, the volume of agricultural production in 2007–08 is forecast to be 1% higher than in 2006–07.

Table 2. Volume of production index for Queensland's major agricultural commodities 1996–97 to 2007–08

Volume index (a)	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08 (f)
Wheat	100	70	98	96	58	46	30	56	59	65	42	46
Grain sorghum	100	69	106	130	115	124	93	129	116	110	69	138
Barley	100	48	75	59	27	40	35	61	42	44	17	32
Major cereal grains	100	68	98	104	72	69	49	79	75	76	47	72
Sugarcane	100	103	100	99	77	80	95	92	93	95	89	86
Cotton lint and seed	100	116	149	151	172	119	55	103	174	137	38	33
Major other field crops	100	105	112	111	100	89	84	94	112	104	76	74
Major fruit	100	112	108	128	159	151	151	158	160	132	183	185
Major vegetables	100	96	96	100	104	108	98	127	104	126	120	108
Major fruit and vegetables	100	105	102	114	132	130	125	143	133	129	152	147
Crops	100	96	106	111	100	93	84	101	104	102	84	88
Cattle and calves + live exports	100	115	125	130	140	133	136	131	135	132	140	139
Pigs	100	108	113	111	108	113	123	132	128	124	127	103
Poultry	100	110	108	113	111	116	123	127	138	135	152	156
Sheep and lambs	100	116	119	133	143	111	84	66	68	69	72	59
Major livestock disposals	100	114	122	126	134	129	132	129	132	130	138	134
Milk (all purposes)	100	103	104	106	95	93	90	85	78	76	70	64
Wool	100	92	111	99	106	77	54	49	55	49	48	45
Eggs	100	121	118	135	141	129	136	146	163	148	201	196
Major livestock products	100	101	108	107	104	91	82	78	78	74	75	70
Livestock	100	110	118	121	126	119	119	115	118	115	121	117
Total Agriculture (b)	100	102	111	115	111	112	99	107	112	108	101	102

(a) Base of each index is 1996–97 = 100.

(b) Excludes lifestyle horticulture due to insufficient data.

(f) Forecast.

Source: Compiled by DPI&F from ABS and DPI&F data.

The indices of different commodities and groups of commodities were calculated using a simple Laspeyres Index with 1996–97 as the base year. The year 1996–97 was chosen as the base year because it is considered to be a year where average production levels were recorded for most of Queensland's major agricultural commodities.

Livestock disposals

Cattle and calves

Forecast

In 2007–08, the gross value of production of Queensland's cattle and calf industry (including cattle and calves sold for slaughter plus net live exports) is forecast at $3.73 billion, which is 3% higher than 2006–07 and 1% higher than 2005–06.

Analysis

Cattle and calves sold for slaughter

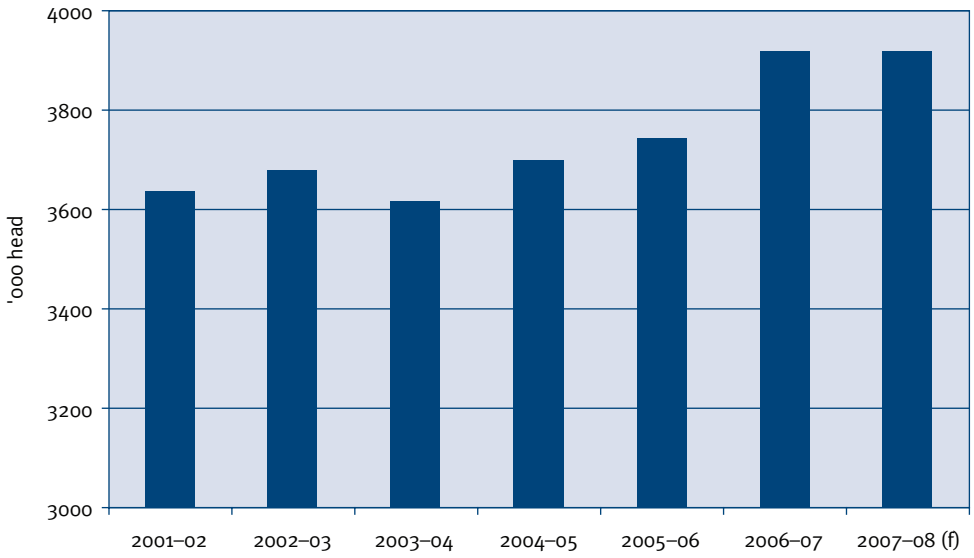
In 2007–08, the gross value of cattle and calves sold for slaughter is forecast at $3.638 billion.

In 2006–07, cattle and calf slaughterings in Queensland were estimated at approximately 3.9 million head[1], which is a 5% increase on the previous year, while total Australian cattle and calf slaughterings were estimated at near-record levels, increasing 7.7% or 650 000 head to 9.1 million head[2].

In 2007–08, cattle and calf slaughterings in Queensland are forecast at 3.9 million head, which is the same as ABS's estimate for 2006–07. Prices are expected to fall slightly as the Australian dollar continues its climb and US beef makes its return to the Japanese and Korean markets.

As Figure 3 illustrates, cattle and calf slaughterings in Queensland have been increasing over the past few years and are expected to remain high in Queensland in 2007–08.

Figure 3. Cattle and calf slaughterings in Queensland 2001–02 to 2007–08



(f) Forecast.

Source: ABS and DPI&F

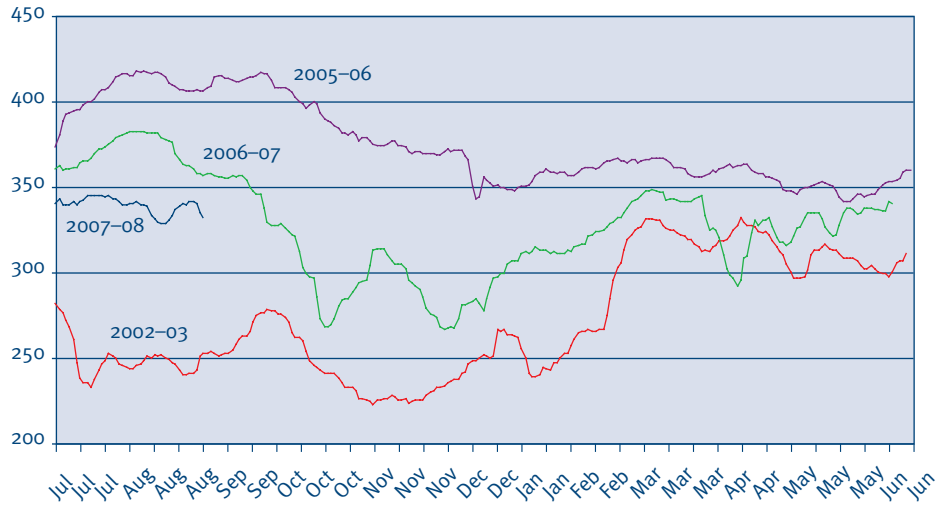
1 Source: ABS unpublished data.

2 Source: MLA Australian Cattle Industry Projections 2007 mid-year update.

According to Meat and Livestock Australia (MLA), the strong Australian dollar has led to a significant decline in both export returns and cattle prices. This has been coupled with lower export demand from Korea and Japan and a flat US import market.

As Figure 4 illustrates, prices in 2006–07 were lower than 2005–06, corresponding with an increase in cattle and calf slaughterings. In the first few months of the 2007–08 financial year, prices are lower again than the previous two years but considerably higher than the 2002–03 drought year.

Figure 4. Eastern Young Cattle Indicator (EYCI)



Source: MLA

As the volume of production index (Table 2) illustrates, Queensland's cattle and calf production and live exports are expected to be similar to 2006–07 and 2000–01, and higher than the remaining years since 1997–98.

Looking further ahead: prices expected to stay low in the short- to medium-term

While there is a positive global trade outlook, further falls are anticipated in Australian beef and cattle prices over the short- to medium-term as US competition in north Asia is restored and the Australian cattle herd and supplies build again.

The return of the US to Japan and Korea has been slower than anticipated, but a negative price impact has been felt nonetheless.

MLA predicts that cattle and beef supplies will fall significantly below their year-ago level to the end of December 2007, in anticipation of drought-breaking spring rains and lower year-on-year cattle prices. The fall in beef supplies combined with strong restocker demand would normally result in an increase in cattle prices. However, the pressure of the high Australian dollar and the anticipated return of US beef to Korea by the December quarter of 2007 are expected to keep prices at or below 2006 rates and to decline further in 2008.

If grain prices decrease, demand from Japan strengthens and US import prices lift, an improvement is anticipated in returns to lot feeders, processors and exporters, despite a fall in national slaughter numbers.

While all industries are vulnerable to price fluctuations, Australia's beef industry is in a susceptible position with the majority (93%) of Australia's beef production going to four markets—the domestic market, Japan, Korea and the US.

Cattle herd reduced due to drought, but industry poised to expand once the drought breaks as producers rebuild herds

MLA estimates the Australian cattle herd fell by 600 000 head (2%) to 27.9 million head in 2006–07 due to an increase in slaughterings because of the drought. The decline, however, was mainly in New South Wales.

Increased cattle turnoff, higher death rates and a decline in branding rates contributed to the decrease in cattle numbers. The northern herds have been maintained over the past year as seasonal conditions have been more favourable than in the drought-affected southern parts of Australia.

In contrast to this, the 2002–03 drought resulted in a 4.3% decline in the cattle herd (or 1.2 million head). According to MLA's industry projections mid-year update, this is because in 2002–03, the drought affected both northern and southern Australia, whereas the current drought has mainly affected southern cattle producing regions.

MLA expects cattle turnoff in the first half of 2007–08 to be constrained by the fall in cattle numbers and the pressure to rebuild herds, particularly in southern states. Prices are expected to fall slightly and to decline further in 2008.

The incentive to expand the Australian cattle herd is strong, as prices are historically high and many properties are understocked following years of drought. The beef cattle industry is poised to expand, and when seasonal conditions improve, producers are expected to retain or secure additional breeding stock and rebuild their herds. In addition, higher breeding-herd productivity is expected due to the younger age structure of the herd.

This is likely to result in a fall in cattle slaughter numbers in Australia as a whole, as southern producers retain cattle for herd rebuilding. In contrast, MLA believes slaughter numbers in Queensland in 2007–08 will be similar to 2006–07.

MLA expects the Australian cattle herd to grow by 3.1% in 2007–08 to 28.8 million head.

In 2005–06, Queensland accounted for 44% of Australia's meat cattle herd with an estimated 11.5 million head.

Feedlots

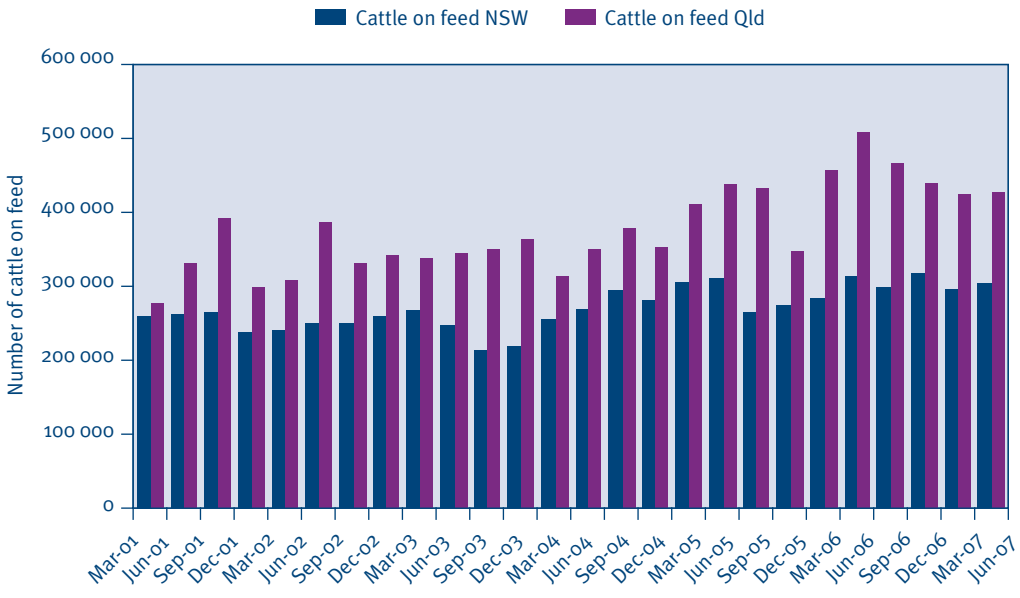
Australia's feedlot industry is an important value adding component of the beef cattle industry. The industry enjoyed significant growth in the 1990s after the deregulation of the Japanese beef market. Indeed, continued growth in the sector has been attributed to expanded export production and increased domestic demand for consistent quality beef.

Most of Australia's feedlots are located in South Queensland and New South Wales, where there is access to cattle, grain and other roughage. As at June 2007, Australia's total feedlot capacity was more than 1.124 million head. Queensland accounts for almost half (45%) of Australia's feedlot capacity with space for more than half a million head of cattle. Together, Queensland and New South Wales account for more than 80% of total feedlot capacity in Australia.

In the June quarter of 2007, the number of cattle on feed in Queensland was 427 933. This was down 16% (or 78 713 head) from the June 2006 quarter, when the number of cattle on feed in Queensland reached an all-time high of 506 646 head (Figure 5).

The strong Australian dollar, high feed costs and lower demand from Japan and Korea (as the US slowly re-enters north Asian markets) have put pressure on the feedlot sector. The feedlot industry predicts a 25% fall in the number of cattle on feed by the end of 2007, mainly because of high feedgrain prices.

Figure 5. Cattle in Queensland and New South Wales feedlots (March quarter 2001 to June quarter 2007)



Source: ALFA/MLA quarterly feedlot surveys

Commercialised vaccines

In the early 1990s, DPI&F researchers recognised the importance of developing a vaccine for Bovine Respiratory Disease (BRD), the most significant disease of feedlot cattle in Australia. Numerous vaccines were available for some of the infectious agents associated with BRD in the USA but could not be imported because of quarantine restrictions.

The capacity of the Australian beef feedlot sector exceeds 1.1 million head, and 50% of the industry is based in Queensland. It is also the most rapidly growing part of the beef industry.

The successful development of a prototype vaccine by DPI&F researchers resulted in field trial testing in the late 1990s. At this time, the major manufacturers of animal vaccines in Australia were approached by DPI&F to gauge their interest in licensing the vaccine for full commercialisation. None of these manufacturers were interested because the size of the Australian market was not considered attractive. Later, a start-up company called Q-Vax was awarded a licence to commercialise the vaccine using the trade name Rhinogard.

Rhinogard was the first vaccine to be registered for BRD in Australia; since 2001, Q-Vax have sold more than 4.5 million doses. The benefit to the feedlot sector has been estimated at $20 per head, or an annual benefit of $90 million to the national industry. DPI&F receives a royalty of 5% of gross sales—approximately $130 000 in the 2006–07 financial year.

DPI&F have continued to develop new vaccines to reduce the economic impact of BRD in feedlot enterprises with support from MLA. These vaccines use recombinant DNA technology to more effectively prevent infection with more than one agent.

In 2007, pen trials began to assess the safety and efficacy of these new biotechnology vaccines. These trials were the first of their type to be approved by the Office of the Gene Technology Regulator, and were also approved by the Australia Pesticides and Veterinary Medicines Authority as part of a preliminary registration process. In late 2007, negotiations will begin to find a commercialisation partner to deliver this next generation of vaccines.

Improving the profitability of Queensland's beef industry

DPI&F scientists are using molecular biology and biotechnology to improve the productivity of Queensland's beef industry and to lower greenhouse gas emissions from livestock.

Using sophisticated molecular techniques, scientists are researching the micro-organisms in the stomachs of cattle to ensure the most efficient and effective bacteria are present when cattle are on a variety of feeds like feedlot rations or native pastures. Micro-organisms determine the amount of energy the animals get from their feed, so maximising their efficiency means stock grow faster and may be sent to sale earlier, increasing profitability.

The research is already providing world-first, in-depth descriptions of the changes in microbial populations in the stomachs of feed-lot cattle. This new information will underpin future research and innovations in feedlot nutrition and management.

While the immediate impact of this is still to be quantified, funding is being sought from Meat and Livestock Australia to continue work that, if successful, will result in bacteria that can be used in a probiotic drench for feedlot cattle. The benefits will be in terms of the animals eating more, gaining weight faster and therefore meeting market weight earlier, as well as reduced feeding costs and incidence of acidosis. A plan for the commercial development of this work has been drawn up as part of the initial project.

The second, but equally vital, aim of this work is to lower livestock methane emissions by suppressing the activity of methane-producing micro-organisms and replacing them with alternative populations of bacteria that don't produce methane. Methane expelled by sheep and cattle accounts for between 10% and 14% of Australia's total greenhouse gas emissions.

This means the beef, wool, lamb and dairy industries of regional Australia reduce their environmental impact and increase sustainability, and increase the cost effectiveness of production as between 4% and 15% more energy will be available for production from the same amount of feed.

DPI&F's work in this area benefits from a wide collaborative network including:

- Department of Natural Resources and Water
- Environmental Protection Agency
- University of New England
- University of Queensland
- Griffith University
- CSIRO Livestock Industries
- AgResearch, New Zealand
- Lincoln University, New Zealand
- United States Department of Agriculture
- Agriculture and Agri-food Canada
- Michigan State University
- University of Illinois.

Live-cattle exports

Live-cattle exports comprise a small percentage of the beef cattle trade in Queensland.

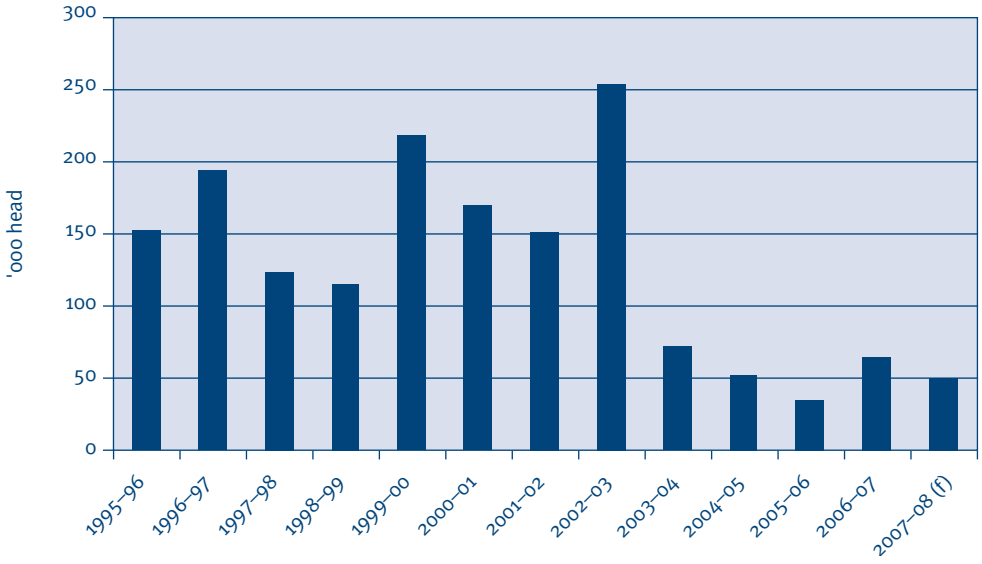
In 2007–08, the gross value of live-cattle exports is forecast at $45 million.

Preliminary estimates for 2006–07 valued Queensland's live-cattle exports at $48 million. This is higher than DPI&F's final forecast for the year, due to a large jump in exports from Queensland to Indonesia in June 2007.

In 2002–03, live-cattle exports from Queensland accounted for almost a quarter of Australia's live-cattle exports, reaching a peak of 253 853 head (see Figure 6). Since then, the appreciation of the Australian dollar, competition from cheaper South American beef and Indian buffalo meat in key live-export markets, and increasing freight costs have impacted negatively on the live-cattle export trade.

In addition, the live-cattle export industry has not been able to compete with high prices on offer from the domestic slaughter trade and, as a result, cattle formerly destined for live export were diverted to fattening properties and feedlots for the meat-processing market.

Figure 6. Queensland live-cattle exports 1995–96 to 2007–08



(f) Forecast.

Source: ABS unpublished data and DPI&F.

Queensland's grazing property values

The following information was sourced, with permission, from Herron Todd White (HTW).

Property sales have slowed significantly across most of the central and southern regions during the first half of 2007. Purchasers are cautious because of continued rainfall uncertainty, a high Australian dollar, slightly weaker cattle prices and interest rates that are predicted to rise again before the end of the year. Despite this lack of confidence, underlying property values remain firm, with the market 'taking a breather' while climate and financial market conditions are less than ideal. In comparison, North Queensland property sales and valuations have remained strong.

South Queensland

Despite sporadic rainfall across the Darling Downs and South Queensland over the winter, a lack of widespread soaking rain has dried up sales of cropping properties. Even properties with irrigation licences are slower to move, with water storages still generally at low levels.

Central Queensland

High vendor expectations have forced many properties to be passed in recently, and sales are not expected to increase substantially in the near future. An exception is the Alpha region, which has experienced good sales recently as well-established grazing families expand their operations.

North Queensland

Sales of larger grazing properties in Far North Queensland have remained strong due to increasing interest from timber plantations companies. There are now three major players in the area operating managed investment schemes that have purchased properties for between $4 million and $14.5 million.

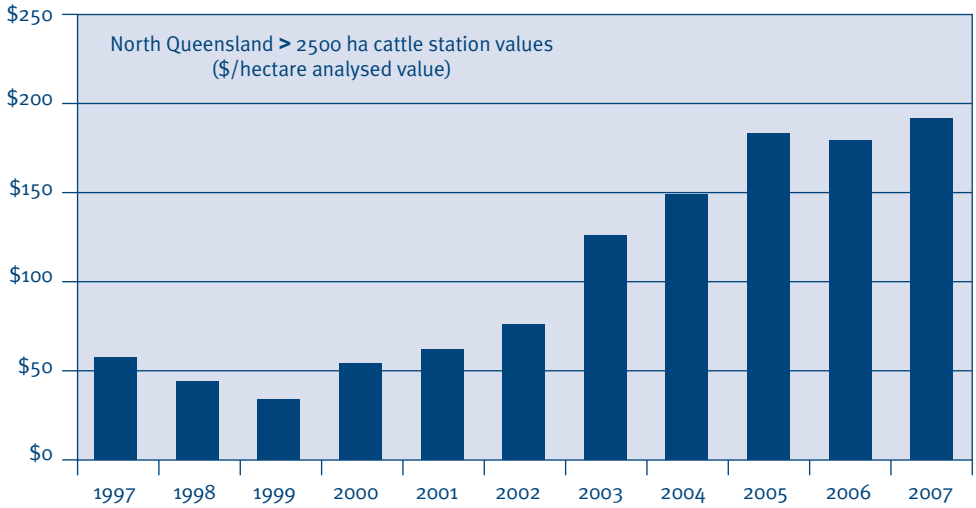
North Queensland grazing property value rates have returned an increase for the 2007 year to date. The average price is $192/ha bare/improved. This has risen 7.2% from the 2006 average of $179/ha. North Queensland cattle stations have experienced an annual compounding growth rate of 13% since 1997.

Acquisitions this year have not favoured any particular country type; both lighter forest and downs country has been turning over. Established grazing families have made some strategic acquisitions to expand and diversify their geographical distribution of holdings.

In 2007, many of the larger companies appear to be investing internally to improve productivity of existing properties rather than acquiring additional grazing land and incurring the larger expense associated with acquisitions. The positive land values have not followed the lead of the cattle market, which is an indication of the continued confidence in the North Queensland cattle station market. The broader cattle market for Queensland reveals a differing trend than North Queensland cattle stations over the past ten years.

Figure 7 shows a softening in the cattle market index of 9% at 175 points in the year to date, from a peak in 2004 of 195 points. This trend has been influenced by broader geographical concerns, such as the drought in the southern districts and New South Wales, combined with the higher costs of feedgrains placing a squeeze on feedlot margins.

Figure 7. North Queensland cattle station values ($/hectare)

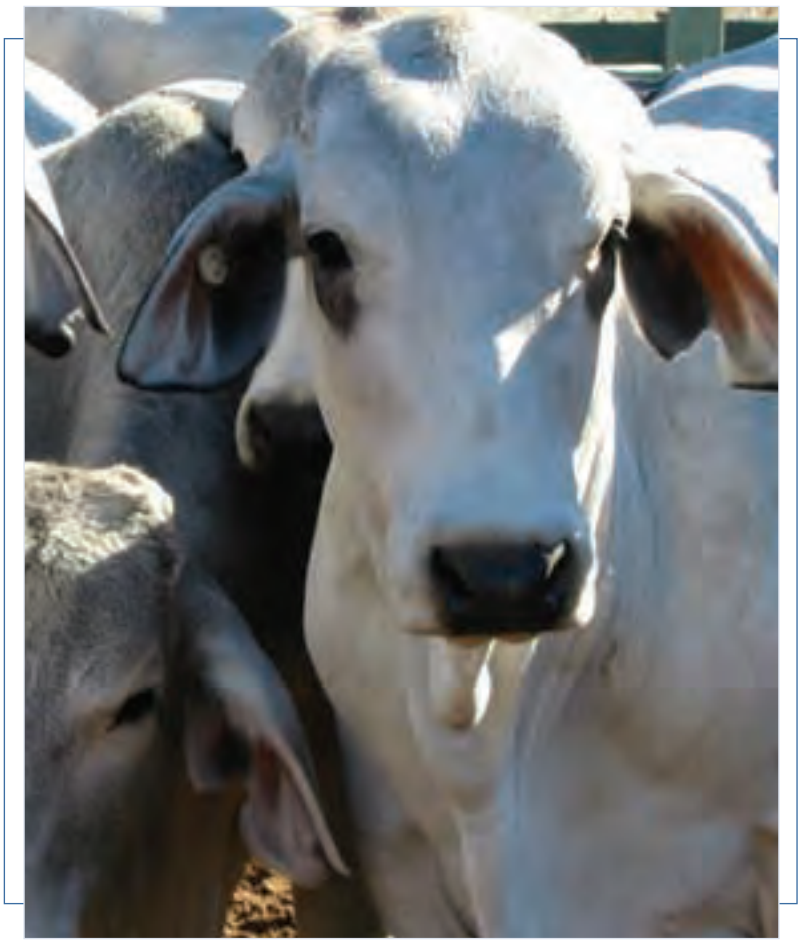


Source: HTW

The Queensland Cattle Market Index (QCMI) and North Queensland cattle station market share some concerns about the profitability of Queensland cattle enterprises, including:

- the rising Australian dollar, which reduces the price competitiveness of Australia's export product on the global exchange market
- the rising input prices in fuel, wages, and feed supplementation
- the increasing threat of interest rate rises.

It would appear that long-term confidence in returns to grazing property in North Queensland is stronger than the shorter-term measure of the QCMI. The rising global demand for beef will benefit the cattle market.



Pigs

Forecast

Queensland's gross value of pigs sold for slaughter in 2007–08 is forecast at $210 million. This is the same as DPI&F's final forecast for 2006–07 and 5% lower than 2005–06.

Analysis

ABS and Australian Pork Limited (APL) slaughter data suggest that the gross value of production for 2006–07 was $235 million, rather than $210 million as indicated in the June 2007 edition of Prospects update.

Pig production is expected to decrease by about 10% from this level in 2007–08, due to the scarcity of water and the increased cost of feed. The average price of pig meat is forecast to remain steady.

Discussion

The pig industry is a medium-priority water user and has therefore been unprotected from cuts in water allocations due to the drought. Reduced water means reduced pig production capacity, as animal-health requirements limit the ability to save water. Around 65% of the cost of pig production is attributed to feedgrain. There has been a significant increase in the three major feedgrain prices (wheat, sorghum and barley) in 2006–07, and prices are expected to remain high until grain supplies are replenished.

The higher cost and scarcity of inputs limits the number and weight of pigs that can be produced. This will mean that continued conditions will require producers to down-scale production by de-stocking, whereby sows will be sold, fewer piglets raised and more pigs sold at lower weights.

The increased cost of production has not been accompanied by an increase in price for pig meat. This is due to the ready availability of cheap imports from Canada, Denmark and the United States. Import quantities have been increasing steadily since 2003.

The profit margin for pig production is at its lowest in 20 years. The declining margin is placing increasing financial pressure on pig producers, and given the current unfavourable conditions, it is highly possible that some producers will leave the industry this year. Queensland currently has around 260 producers; the majority are concentrated in the Darling Downs and others are spread throughout the Burnett region and Central Queensland.

Poultry

Forecast

The gross value of Queensland's poultry production in 2007–08 is forecast at $255 million, which is 6% higher than 2006–07 and 11% higher than 2005–06.

Analysis

An estimated 93 million chickens were produced in Queensland in 2006–07 (based on initial ABS livestock slaughter data). This number is expected to increase to about 95 million in 2007–08 due to increased demand from a growing Queensland population.

The average gross unit value per chicken is also expected to increase due to rises in the cost of feedgrain. The cost of poultry production has gone up by about 10% in the last year, with the cost of feedgrain up by about $80 per tonne.

Discussion

Compared to other livestock industries, the poultry industry has remained relatively unaffected by the current drought conditions. This is mainly due to higher feed conversion rates and higher efficiencies in water usage. The industry has also been assisted by an absence of international competition, due to restrictions on the importation of chicken meat into Australia. The increases in feed cost have mostly been absorbed into consumer price rises.

The institutional makeup of the industry also improves its ability to manage the increased costs of production and restrictions on inputs. Chicken meat is produced by contract growers who provide shelter and labour for the production of chickens. However, ownership of the chickens remains with the processors, who also pay for inputs, such as feed and water. Therefore, it is difficult to separate the production from the processing side of the poultry industry. The price used in the calculation of gross value of production is the price of a whole chicken ready for the market.

Avian influenza will continue to be a concern for the industry; however, there are currently no reports of avian influenza in animals or humans in Australia. Commercial poultry farmers in Australia have implemented comprehensive plans dealing with disease-prevention measures.

For a discussion of egg production, see page 25.

Sheep and lambs

Forecast

Sheep and lamb slaughterings gross value of production in 2007–08 is forecast at $55 million, which is 22% higher than 2006–07 and 10% higher than 2005–06.

Analysis

The increase in gross value of production is explained by higher sheep and lamb prices during 2007–08.

Queensland sheep and lamb slaughterings are forecast to be similar to those in 2006–07, despite slightly higher slaughterings during the previous year caused by drought conditions and limited feed for livestock. It is also expected that high prices for lambs and wool will encourage some landholders to increase their flock size during 2007–08, assuming average seasonal conditions.

MLA and ABARE forecast an increase in average prices for sheep and lambs during 2007–08, partially due to limited supply, as landholders throughout eastern Australia restock after the drought of recent years. Reasonable winter rainfall received through most of South Australia, Victoria and New South Wales is expected to influence landholders to retain sheep for flock rebuilding. Higher sheep and lamb prices are also attributable to continued strong demand from both export and domestic markets. Over the medium term, global sheep and lamb supply is expected to be tight and demand to remain strong. However, early 2007–08 saleyard prices have been variable, with some reductions in mutton prices and variability in lamb prices. Despite forecast price increases, the strong Australian dollar and competition from other meats is expected to constrain sheep and lamb prices over the 2007–08 year to some extent.

The forecast higher prices are expected to benefit Queensland sheep producers who have not destocked as much as their southern counterparts during the drought. This will allow sheep and lambs to be sold for slaughter while increasing flock size at the same time.

During recent years, Australian domestic consumption of lamb has increased due to economic growth and successful marketing campaigns. However, ABARE suggests that further growth of lamb consumption per person is likely to be constrained during 2007–08 due to forecast higher prices. Some consumer substitution is expected from lamb to beef, pork and poultry.

Exports of lamb, mutton and live sheep are expected to decrease during 2007–08 due to limited supply. However, MLA predicts that overseas demand for Australian lamb will remain strong despite the higher prices and higher Australian dollar.

For a discussion on wool, see page 24.

Livestock products

Although *Prospects* generally discusses only the larger primary industry sectors, special mention should be made of the beekeeping industry. While the direct commodity production of the industry is relatively small (the GVP in 2001–02 was $5.1 million, representing less than 1% of Queensland's gross value of primary industry production), it has particular importance to cropping industries. In particular, bees provide significant pollination services, either paid or as a by-product of the honey/pollen collection process. The value of pollination is reflected in the gross values of the cropping industries that bees service, but these services are difficult to value, primarily because of a lack of data about the extent of reliance on feral honeybees. Australia is the last country that is free of the bee parasite varroa mite. If it were to be introduced, the importance of pollination by managed hives would increase significantly as feral bee numbers drop.

An emerging concern internationally is the Colony Collapse Disorder (CCD) decimating hives in the United States. Although an article in the Scientific American linked CCD with imported package bees from Australia, Australian experts dismiss this link. CCD has not been observed in Australia or other countries that also buy Australian package bees.

Milk

Forecast

Queensland's gross value of milk production in 2007–08 is forecast at $230 million, which is 15% higher than 2006–07 and 10% higher than 2005–06.

The increase in price per litre is offsetting the ongoing forecast decline in production. It is expected that with continuing high international demand and prices, and the overall decline of milk production across Australia due to the impact of drought, further price increases could be expected before the end of 2007. If this occurs, the gross value of Queensland milk may increase by another $10 to $15 million before the end of 2007–08.

Analysis

Queensland milk production is forecast to fall from 555 million litres in 2006–07 to 511 million litres in 2007–08, which is an 8% decline. Forecast production by region is detailed in Table 3.

Table 3. Queensland milk production estimates and forecasts by region 2005–06 to 2007–08

	2005–06 million litres (e)	2006–07 million litres (e)	2007–08 million litres (f)	change from 2006–07 to 2007–08 (%)
South East Queensland	486	440	404	-8
Far North Queensland	88	82	76	-7
Central Queensland	36	33	31	-7
Total Queensland	609	555	511	-8

(e) Estimate.

(f) Forecast.

Source: Dairy Australia.

While climatic conditions have started to improve in Far North Queensland, drought conditions have continued to worsen across the central and southern Queensland dairying zones.

In recent months, conditions in many regions have been the worst experienced. Grain, fodder and roughage are in extremely short supply and prices remain high, affecting all dairying regions across the state.

In recent months, many feed sources have been unavailable and a number of dairying operations have had to resort to using sugarcane or interstate hay for fibre and importing fodder, such as palm kernel extract.

The industry is changing farm management systems to cope with less water and climatic uncertainties. However, these systems are more expensive, still being developed and less reliable, with milk returns not compensating for the added costs.

The vast majority of the southern region is now under severe water stress. A number of dairying operations have ceased operations recently due to stock water failure and the inability to access fodder at workable prices. Irrigation allocations have been set at zero again for a number of schemes and others have been reduced severely. This will have an ongoing impact on fodder availability over coming months.

With the deterioration in conditions across the central and southern dairying regions over recent months, dairy farm and cattle numbers and milk production have continued to decline. The current average decline over recent months compared to the same month for the previous year has been close to 9%.

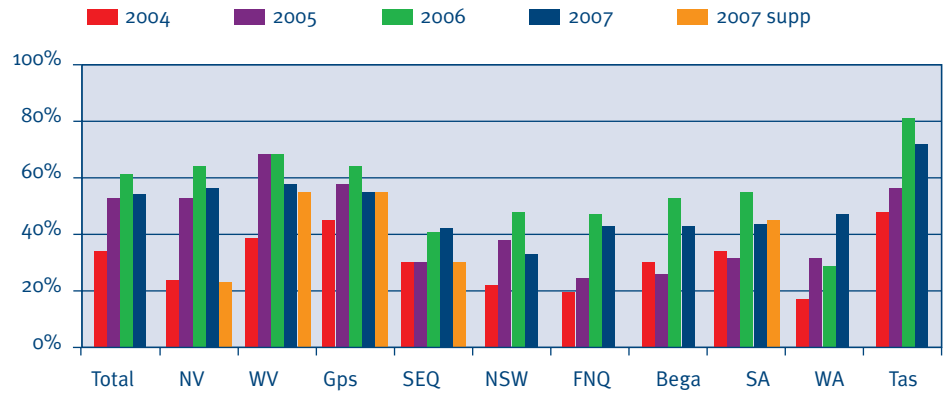
Producers across the central and southern regions are concerned about receiving a significant break from the drought over the next four months, as they need to recharge depleted water reserves and access more affordable fodder.

Even with significant rain, it would take at least two months for dairy farms to experience fodder supply relief. Dairy farms, cattle numbers and milk production are therefore expected to continue to decline over the coming months.

All major processors have recently announced further farm gate price increases; they began late last year when a drought levy was introduced to support a higher farm gate price. Over the last eight months, these increases have ranged from approximately 6 cents per litre to more than 9 cents per litre. The average farm gate price is currently estimated to be about 42 cents per litre to 44 cents per litre.

On the positive side, due to the upward trend in milk prices, there is some guarded optimism among those intending to stay in the industry, although this is lower than in 2006, as shown in Figure 8.

Figure 8. Farmers feeling positive about industry future (% of farms)

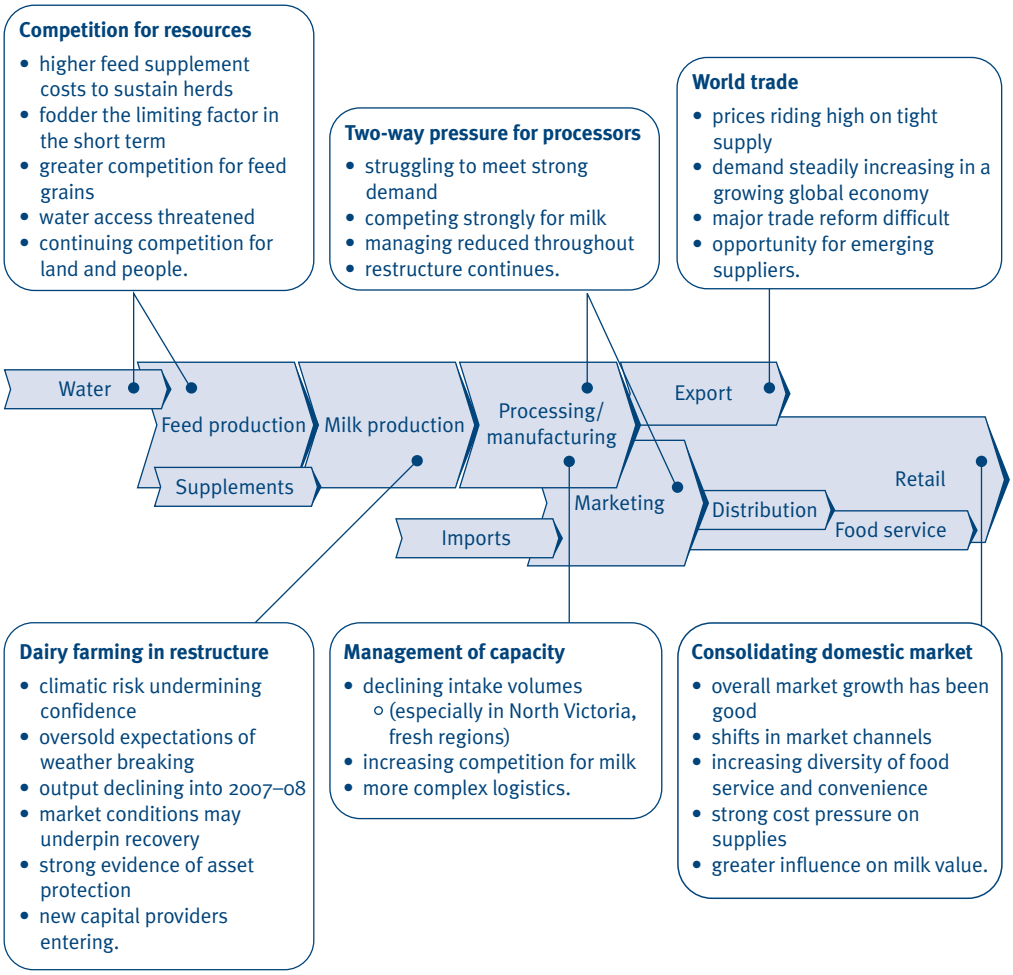


(supp) Supplementary.

Source: Dairy Australia.

Dairy Australia (2007) identifies the core changes being experienced by the Australian industry in relation to the Australian Dairy Industry Value Chain in Figure 9.

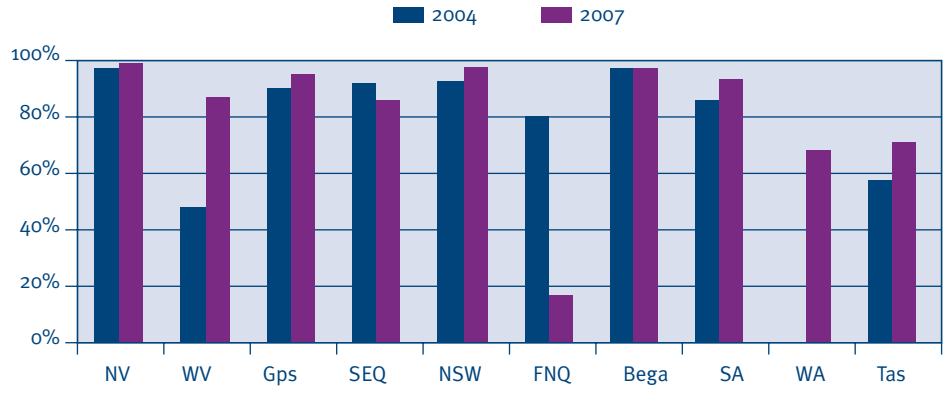
Figure 9. The Australian Dairy Industry Value Chain



Source: Dairy Australia

As at June 2007, almost 90% of dairy farmers were affected by drought Australia-wide, with as many as 1500 workers being affected by reduced hours or staff reductions.

Figure 10. Farmers reporting they were affected by drought (% of farms)



Source: Dairy Australia

It will be another difficult twelve months for the industry in South East Queensland and the state in general. Another poor spring/summer season will greatly compromise the ability of the industry to supply milk to consumers in South East Queensland, leading to further price increases for the consumer.

Dairy 2007: situation and outlook

Industry opportunities and challenges

Dairy Australia, in its *Dairy 2007: Situation and Outlook* report, summarises the factors affecting short-term levels of returns from the global dairy market:

Opportunities (demand side)

- Continuing economic growth throughout Asia, particularly China and Russia, supports an increased demand for dairy.
- Prevailing oil prices continue to boost demand for dairy in Africa (cheese) and Middle East (butter).
- Dairy consumption (particularly cheese) in new EU member states has increased.
- Prices of non-dairy substitutes are rising.

Opportunities (supply side)

- Constraints on growth in New Zealand are being compounded by high land prices and competition for resources.
- The US dairy industry is facing increasing feed costs and decreasing cow numbers.
- EU countries are currently limited by milk quotas.
- EU expenditure on export subsidies is at record lows.
- Emerging suppliers continue to face challenges that inhibit their export potential.

Challenges (demand side)

- Buyer resistance has increased, particularly in more price sensitive ingredient markets.
- Higher prices are prompting substitution of dairy products with other sources of protein.

Challenges (supply side)

- Increased EU quotas are increasing production.
- EU directs more milk to export products (such as milk powders and butter) to take advantage of high prices.
- Improved production in New Zealand on strong increases in milk prices will begin to address product shortages and rebuild inventories.

Wool

Forecast

Wool gross value of production (including the value of skins) is forecast to be $120 million, which is 9% higher than both 2006–07 and 2005–06.

Analysis

The gross value of production is forecast to increase due to higher world prices.

The Australian Wool Innovation Production Forecasting Committee's June 2007 report forecasts Queensland shorn wool production at 21 million kilograms in 2007–08. This is slightly higher than their final estimate for the 2006–07 season.

Total Australian shorn wool production is forecast by this committee to be significantly reduced in 2007–08, due to lower sheep numbers resulting from destocking through the drought. However, as discussed in the Sheep and Lamb Disposals section, the Queensland sheep flock appears not to have reduced in size like the southern states. This explains the similarity of the wool production forecast for 2007–08 to the previous year. In addition, rain throughout pastoral Queensland may increase the average fleece weight contributing to the slightly larger production forecast.

Winter rainfall has assisted pasture growth in most sheep production areas of Queensland; however, rain was patchy and further rainfall will be required to lift the drought declaration off many areas. However, as a result of the winter rainfall, it is expected that some landholders may build their flock size through 2007–08. Any increase in sheep numbers on shorn wool production will not be realised until the following year.

Greasy wool prices rose rapidly during 2006–07 due mainly to concerns by end-users of the effect of the drought on Australia's longer term supply of quality wool. Global demand for wool remains strong, despite recent confusion with Chinese quota limits on Australian wool imports. The June 2007 ABARE *Australian Commodities* forecast average for the Eastern Market Indicator is 885 c/kg, rising 2.4% from the final 2006–07 average estimate of 864 c/kg, and rising 24% on the 2005–06 average.

The further increases in average wool prices in 2007–08 are fuelled by lower wool production in Australia due to destocking during the recent years of drought, and continued strong demand for wool internationally. However, it is expected that some substitution away from wool will occur to cotton and synthetic fibres as a result of the high wool prices and the high Australian dollar relative to the US dollar.

Eggs

Forecast

In 2007–08, the gross value of Queensland's egg production is forecast at $100 million, which is the same as 2006–07 and 2005–06.

Analysis

The forecast gross value of egg production in 2007–08 is the same as the previous years. Volume of production has been increasing at a low rate over the past few years and this trend is expected to continue.

Discussion

Unlike the poultry industry, all Queensland egg producers are independently owned and operated. The majority of producers are located on the Darling Downs and they vary in size to cater for the large number of markets that exist for eggs (from farmers' markets to supermarkets). The prices for eggs vary across these markets but have been generally increasing, which will absorb some of the high feed costs. Due to quarantine protocols, Australia can only import processed egg products, so there is no international competition on the domestic market.

Many egg producers have diversified their business by growing their own grains and producing meat chickens. Due to drought conditions, this small-scale production of grain has not been profitable, and producers have generally been forced to buy their feed on the expensive grain market.

Cage egg production represents approximately 80% of commercial egg production in Queensland. In 2000, new cage standards were agreed upon by all jurisdictional ministers at the Agricultural Resource Management Council Australia New Zealand (ARMCANZ). These standards are due to be in force in each state by 2008; however, New South Wales, South Australia and Western Australia are yet to implement the legislation. Although Queensland producers have slowly been adapting to these standards, it is possible that the enforcement date will be extended to enable implementation in a uniform and consistent manner across all jurisdictions. When these standards are enforced, it is expected that some producers will leave the industry rather than invest in more expensive cages. However, large producers have expressed their intentions to increase production capacity.

Crops

Horticulture crops

Fruit and nuts

Forecast

The total gross value of Queensland's fruit and nut production in 2007–08 is forecast at $1.095 billion, which is 12% higher than 2006–07 and 39% higher than 2005–06.

Analysis

The gross value of **banana** production is forecast at $450 million in 2007–08, which is 13% higher than 2006–07. While still affected by supply variation due to the replanting of large areas following Cyclone Larry, production volumes are steadily returning to normal. At the time of writing in mid-August, production is relatively low due to lingering effects from Cyclone Larry on production cycles, and cool weather in June. However, industry expectations are that good prices will be maintained, a trend evident before the cyclone.

The gross value of **strawberry** production is forecast at $140 million in 2007–08, which is 17% higher than 2006–07 and 2005–06. Prices have remained high, and although they are expected to fall in the near future, prospects for 2007–08 are positive.

The gross value of **mandarin** production in 2007–08 is forecast at $95 million, which is 6% higher than 2006–07. Dry weather reduced the crop and that was compounded by rain damage to late Imperials, but prices have been higher than anticipated.

Prices for mid-season varieties in July were low as Imperials were imported from southern states, due to an apparent preference by supermarkets for that variety. As at mid-August, a reasonable season for Murcotts is expected with strong export markets (mainly to China). However, if good rains are not received soon, production forecasts may be downgraded.

The gross value of **mango** production is forecast at $65 million in 2007–08, which is 19% lower than 2006–07. Mangoes show a biennial bearing pattern, and 2007–08 is expected to be a 'low' year. However, following a cool winter, there are signs of higher than expected flowering so production may be better than originally expected. Subsequent weather conditions could have a significant effect on fruit set, and at the time of writing in mid-August, it is too early to be fully confident of predictions.

The gross value of **avocado** production is forecast at $65 million in 2007–08, which is 13% lower than 2006–07. Avocado prices fell sharply towards the end of the 2006–07 financial year, and increased production in 2007–08 is expected to be offset by continuing low prices.

The gross value of **pineapple** production is forecast at $65 million in 2007–08. This is $25 million and 63% higher than DPI&F's final forecast for 2006–07. We now believe that we have been underestimating the value of the market for fresh pineapples due to increasing sales of sweet hybrids. It is likely that the gross value of pineapple production in 2006–07 was closer to $60 million. This means that the fresh fruit segment now makes up two thirds of the value of pineapple production.

The rapid increase in the production of hybrids and consequent increase in sales of fresh fruit has meant diversification of supply chains, complicating data collection on volumes traded, so some caution is needed in interpreting these data. It appears that imported pineapples have had minimal market impact, and there is considerable potential for the value of the fresh pineapple industry to increase further in the near future.

The gross value of **apple** production is forecast at $45 million in 2007–08. This is 29% higher than DPI&F's revised forecast of $35 million for 2006–07 but the same as DPI&F's original forecast for the year. The 2007–08 forecast is based on expectations of similar yields to 2006–07 and maintenance of current good prices.

The gross value of **macadamia** nut production is forecast at $25 million, which is 38% less than 2006–07. This has resulted from rapidly increasing world production and the high Australian dollar leading to massive falls in prices. World production is set to continue to increase significantly, and while lower prices may stimulate consumption, the industry is working to develop new markets and further increase demand.

The gross value of **table grape** production is forecast at $40 million in 2007–08. Production is expected to be similar to that in 2006–07; at this stage we can only assume that prices will also be similar. Production is, however, down 10% on that reported by the Australian Bureau of Statistics for 2004–05.

Table grapes are a new crop for *Prospects* this year, the industry having grown rapidly in recent years. The main varieties are Menindee seedless, Flame Seedless and Red Globe. Queensland table grapes are early season, with 90% harvested between October and December. The major production areas are around Emerald, Mundubbera and St George, with recent expansion into the Burdekin and Mareeba districts.

Developing superior mangoes

Mangoes are an important fruit crop in Queensland, and Queensland's mango industry has significant potential for domestic and export market development. However, in order to survive and prosper against increasing international competition, the industry must make continual improvements to its productivity and product differentiation. Responding to this challenge, DPI&F scientists have adopted an integrated approach to mango industry development, with mango breeding an integral part.

Traditional breeding is a long-term activity with a new variety taking up to 25 years to develop. A major focus for DPI&F is to increase the efficiency and effectiveness of the breeding program. DPI&F breeding programs released several successful mango varieties. In the early 1990s, R2E2 was released and is now the second most popular variety in Australian domestic and export markets.

In late 1990s, DPI&F and a mango grower partner released two varieties to OneHarvest, a Queensland-based food company with global commercialisation rights. OneHarvest registered the trademark Calypso as the marketing name for these mangoes. The company is negotiating production sites in the northern hemisphere to supply the mango all year round. OneHarvest predicts that 20% of 2007–08 Calypso production will be exported.

Since 1994, DPI&F has participated in the Australian National Mango Breeding Program to continue developing new mango varieties. In the 1990s, 1800 hybrids were developed and evaluated, and six elite lines were selected for their potential as commercial varieties. These are undergoing regional evaluation in the major Australian mango districts and are likely to be the source of the next new Australian mango.

To improve the efficiency of breeding and allow faster development of new varieties, DPI&F's Mango Genomics Initiative is developing molecular markers to investigate the genetics of mango flavour, skin colour, disease resistance and the links between preferred fruit flavour and the flavour components in mango. The genomics initiative is also investigating tree architecture genes and molecular markers to improve production and harvesting through dwarf trees. Molecular markers will be critical tools in ensuring rapid development of world class mango varieties.

To position mangoes as a 'health food for the future', DPI&F is also studying the health effects of purified components and whole fruit extracts, particularly to assess their potential to protect against cancer and cardiovascular diseases. Mangoes contain a large number of unique potentially health-benefiting compounds (phytonutrients). Their presence can be used to promote the nutritional value of current varieties as well as guiding the selection of future varieties that have enhanced levels of these compounds.

DPI&F anticipates breeding a suite of mango varieties—for example, a red-fleshed 'super' mango for the wellbeing market; a new, more productive Kensington Pride for the domestic market; next generation mangoes that can fit within the Calypso brand; and novel products for niche export markets.

The consumer preference and sensory analysis data that DPI&F scientists are producing will be used to develop targeted product specifications and ensure that DPI&F-bred mangoes are attractive and great tasting as well as profitable to produce.

Vegetables

Forecast

In 2007–08, Queensland's gross value of vegetable production is forecast at $770 million, which is 5% lower than 2006–07 and 4% higher than 2005–06.

Analysis

Unseasonable winter weather has made 2007 a tough growing year in the Dry Tropics. The second wettest June on record and one of the coldest Julys ever has had a significant impact upon vegetable production in the region. Water shortages in the south are continuing to exert an influence on production volumes; however, producers with access to water have been able to make up some of this shortfall.

Tomato GVP for the 2007–08 financial year is forecast at $205 million, which is 3% higher than 2006–07 and 24% higher than 2005–06. One-in-20-year adverse conditions in Australia's southern tomato production regions led to significantly higher tomato prices towards the end of the 2006–07 financial year. While expected to remain firm, prices will moderate from recent high levels as production comes back on line in southern Australia. Area planted in the north remains unchanged, however unseasonably cold and wet conditions will result in a lower and more variable production volume.

The gross value of **capsicum** production in Queensland is forecast at $95 million, which is 5% lower than 2006–07 and 19% higher than 2005–06. The yield and quality of production will be reduced in northern regions due to poor weather conditions. Late winter rains will increase the area planted in southern regions. Prices are expected to rise slightly in response to lower volumes of production.

Queensland's gross value of **mushroom** production is forecast at $55 million, which is 10% higher than 2006–07 and 22% higher than 2005–06. Assuming a return to average seasonal conditions, the quality of wheat straw available for compost is expected to be higher in 2007–08. Higher quality compost increases the productivity of mushroom production and the volume harvested is expected to increase as a result.

Queensland's gross value of **potato** production is forecast at $40 million, which is the same as 2006–07 and 14% higher than 2005–06. Water shortages are continuing to influence the volume of potato production in South Queensland. Anecdotal evidence suggests producers lacking secure water supplies are moving into vegetables with a short rotation, such as lettuce. Plantings in the north occurred later than usual due to unseasonably high rainfall. Queensland producers have not escaped the frost that impacted much of Australia's potato producing regions. Losses probably won't be as severe as anticipated, but production in the north will be down. Potatoes are therefore likely to be in limited supply over the Christmas period. Fresh market prices are expected to remain firm due to the reduced supply.

Lettuce production in Queensland in 2007–08 is forecast at $40 million, which is the same as 2006–07 and 11% lower than 2005–06. Lettuce prices have risen significantly from the low point experienced last year. Higher prices are expected to ease over the coming financial year. Continued water shortages have constrained production for many growers. However, anecdotal evidence suggests higher prices have led to increased lettuce plantings where water is available.

The gross value of **beans** produced in Queensland is forecast at $40 million, which is 11% lower than 2006–07 and 2005–06. Unseasonably cold and wet climatic conditions are expected to result in reduced bean yield and quality in the first half of the financial year. Assuming normal summer rains, production is anticipated to increase to more usual volumes. The significantly higher price currently being received for beans is expected to moderate as production volumes recover.

The gross value of **sweet corn** is forecast at $40 million, which is 33% higher than 2006–07 and 2005–06. Cold and wet conditions in the north are expected to result in production volumes similar to that following Cyclone Larry.

Watermelon production in Queensland in 2007–08 is forecast at $35 million, which is 13% lower than both 2006–07 and 2005–06. Cold and wet conditions in the north are expected to result in a significant decline in the volume produced throughout this region. A lack of water has reduced the area planted by some producers in the south; however, producers with access to water are expected to increase overall volumes of production.

The gross value of **rockmelons** is forecast at $35 million, which is 22% lower than 2006–07 and 2005–06. Cold and wet conditions in the north are expected to result in a significant decline in the volume produced throughout this region.

Lifestyle horticulture

Forecast

The gross value of production (GVP) in lifestyle horticulture industry for 2007–08 is forecast at $1.2 billion, marginally below DPI&F's final forecast for industry activity in 2006–07. This is the second consecutive year that value of the lifestyle horticulture industry is forecast to decline, following a number of years of strong growth.

- The total production value of nurseries, turf, cut flowers and foliage is forecast at $545 million. **Nursery and turf production** gross values are forecast at levels similar to 2006–07, while the gross value of production of **cut flowers and foliage** is forecast at $105 million, which is 9% lower than 2006–07.
- On the service side, total value is forecast at $660 million. **Retail nursery and landscape** gross values are lower than 2006–07 and are forecast at $155 million and $435 million respectively. **Grounds and maintenance** and **indoor plant hire** gross values are forecast to increase on the previous year with gross values of $299 million and $44 million respectively.

Readers should note that DPI&F will soon be undertaking a new comprehensive survey of the Queensland lifestyle horticulture industry in conjunction with Queensland Treasury. This survey will build on the original survey conducted in 2001 and will help to improve the regular forecasts of activity in this industry provided in *Prospects*.

Discussion

As outlined in the June 2007 edition of *Prospects update*, the ongoing drought and the continuing roll-out of urban water restrictions in the major population centres of South East Queensland have stifled lifestyle horticulture industry activity, particularly since the introduction of Level 3 water restrictions in June 2006.

A recent review of total garden market sales in Australia reported that Queensland was the only state in which the lifestyle horticulture did not record positive growth over the last year. This outcome was primarily attributed to the water restrictions in urban areas of South East Queensland and the ongoing negative publicity regarding the use of town or reticulated water on gardens.

Despite recent rainfall in South East Queensland, Level 6 water restrictions are still expected to be introduced by the end of 2007. The most recent Bureau of Meteorology (BOM) forecasts indicate the likelihood of a weak La Niña event in 2007–08. While this suggests a slightly better than even chance of above-average summer rain in the south-east, it does not imply high rainfall events needed to replenish aquifers and water supplies.

It is likely that the introduction of Level 6 restrictions will have a further negative impact on lifestyle horticulture industry activity (even if only via further negative public perceptions about using town water on gardens), as consumers continue to strive to meet the Queensland Water Commission's 'Target 140' initiative throughout the warmer months of the year.

The industry is currently collaborating with a number of state government agencies to promote alternative water sources (such as tanks or grey water), as well as more water efficient gardening practices to counter negative public perceptions of gardening. Clearly, there are also opportunities for the industry to take advantage of the increasing consumer interest in retro-fitting gardens to make them more water efficient.

Many industry participants are concerned, however, that the industry has permanently lost market share of consumer discretionary and leisure spending, and that the demand for lifestyle horticulture products and services will not fully recover to pre-drought levels once historic rainfall patterns are restored in South East Queensland. Recent research conducted in Victoria appears to support this view.

Demand and expenditure patterns are also changing with increased consumer preference for hard-scapes (landscape construction activities, such as the construction of structures, fences, retaining walls, drainage and irrigation, hard surfaces) rather than green life (ornamental plants and turf). There is also a distinct consumer demand shift towards more water-efficient plants and horticulture services, and away from more traditional plants and turf grass.

Total nursery sector activity gross value (production and retail) is forecast at $545 million in 2007–08, which is 2% lower than 2006–07.

DPI&F has separated production and retail nursery GVP data in this edition of *Prospects,* based on information provided by the nursery sector. However, it is expected that the new survey of the lifestyle horticulture industry referred to earlier will improve future analysis of the different segments of the nursery sector once the new data become available.

Production sectors

The gross value of **nursery production** is forecast at $375 million in 2007–08, which is the same as 2006–07, and is expected to remain stable in 2007–08.

Continued demand for seedlings and other planting stock by the horticulture, forestry and land rehabilitation industries continues to sustain many production nurseries in South East Queensland by offsetting the ongoing difficult trading conditions in the market for ornamental plants.

The gross value of **turf production** is forecast at $65 million in 2007–08, which is the same as 2006–07, suggesting that the demand for turf has stabilised following a number of years of decline. The turf production sector has experienced very difficult trading conditions over the last few years and the gross value of production has virtually halved since the peak of $125 million in 2003–04 and 2004–05.

The gross value of production of **cut flowers and foliage** is forecast at $105 million in 2007–08, which is a decline of 9% since 2006–07. Ongoing difficult trading conditions for native flower exports to the key Japanese market continue to influence overall sector expectations.

Exports of cut flowers continue to be negatively impacted by the sustained high value of the Australian dollar against the Japanese yen, resulting in decreased demand and reduced margins for producers. The exit of industry members as a result of the drought reported in the June 2007 edition of *Prospects update* is expected to continue into 2007–08, albeit at a more modest rate. The native cut flower sector is intending to improve their marketing, product promotion and industry development programs over the next twelve months in an effort to address the current problems in the Japanese market.

The domestic cut flower and foliage market remains steady with suggestions of perhaps a slight increase in volumes, although prices generally remain unchanged. A drop in the production of *traditional* flower types during the past quarter, due to the longer than usual cold period this winter, has been largely offset by slightly higher prices within the market due to the reduced supply. Overall, this segment of the cut flower and foliage sector is expected to remain unchanged throughout 2007–08.

Service sectors

The value of **retail nursery activity** is forecast at $155 million in 2007–08, which is 5% lower than 2006–07. Consumer demand for ornamental plants continues to decline as consumers postpone or abandon green life purchases. Recent good rainfall in South East Queensland provides some early indications of more positive trading conditions throughout spring; therefore, the retail segment expectations may improve as 2007–08 progresses.

The value of **green life-related landscape** sector activity is forecast at $435 million in 2007–08, which is 3% lower than 2006–07 and $115 million below the peak recorded in 2005–06 before the onset of the water restrictions in South East Queensland.

Industry evidence indicates that some large commercial developers are continuing to delay or substitute the green life landscaping components of major projects due to concerns about the significant water-related costs involved in establishing large areas of plants and turf.

The demand for domestic green life-related landscape installation and maintenance also continues to decline as consumers switch discretionary expenditure to other areas. As reported in the June 2007 issue of *Prospects update*, activity in this segment will continue to remain depressed until South East Queensland experiences substantial rainfall.

The **grounds and maintenance** and **indoor plant hire** sectors are expected to post modest growth in 2007–08, up by 5% and 10% respectively, compared to 2006–07. Underlying strong population growth and expanding urban infrastructure (such as commercial property, housing developments and public open space) continue to be the main drivers of these sectors of the lifestyle horticulture industry.

Table 4. Lifestyle horticulture value 2006–07 to 2007–08

Main industry sectors	2006–07	2007–08 (f)	2007–08 compared with 2006–07
	$m	$m	% change
Production sectors:			
Production nursery	375	375	0
Turf production	65	65	0
Cut flowers and foliage	115	105	-10
Service sectors:			
Retail nursery	161	155	-5
Landscape (green life-related activity only)	448	435	-3
Grounds and maintenance	285	299	5
Indoor plant hire	40	44	10
Total lifestyle horticulture	1220	1203	-1.2

Note: Industry sectors derived from the 2001 survey undertaken by DPI&F.

Other crops

Sugarcane

Forecast

The gross value of Queensland's sugarcane production in 2007–08 (i.e. from the 2007 harvest) is forecast at $730 million. This is 32% lower than DPI&F's final estimate of $1.075 billion for 2006–07.

While total sales of the Queensland sugar industry, in raw-sugar equivalent, are expected at $1.114 billion, this section concentrates on the cane farming segment. With industry deregulation, there has been some move to changed pricing options for sugarcane. Nevertheless, the assumption used here is that there is no overall departure from the 65% grower share in the old uniform cane-payment formula.

Analysis

The industry is facing a difficult year. Drought and frosts reduced crop estimates in southern regions of Queensland and winter rains delayed the harvesting season in the north to the extent that some mills had the latest start in their history. Industry expectations are for a 32 million tonne cane crop, which is 3% lower than the final estimate for 2006–07.

Sugarcane smut has been confirmed in an increasing number of regions, but thus far its impact on yields has been marginal. The Honourable Tim Mulherin, MP, Minister for Primary Industries and Fisheries commissioned a review of the spread of, and the appropriate response to, sugarcane smut in January 2007. Based on scientific advice and industry information, Dr David Watson found that the industry is best served by an orderly replacement of susceptible stands with resistant varieties, and that the government's contribution should concentrate on facilitating the release of more resistant varieties.

Based on the New York sugar market and exchange rate forecasts, early-season price expectations for the Queensland industry were in the range of A$250–270 per tonne of raw sugar. In practice, actual sugar prices received should be higher due to the increasing use of hedging and forward selling. For example, in November 2006, CSR reported to have hedged 40% of their crop into 2008 at $369. The declining market caused CSR's average price expectation for the 2007–08 season to be reduced to 'marginally below $300' in September 2007 from the earlier $300–$330 per tonne range.

Queensland Sugar Limited is developing a number of pricing options in addition to conventional pool pricing, and these are made available to canegrowers through their sugar mills. In the Mackay and Proserpine regions, canegrowers can (within specific limits) price some part of their crop through such options that are more closely related to market developments. While the new pricing options can potentially offer higher returns, they also carry a larger risk than pooled prices. Hence, their use is more suited for canegrowers who are knowledgeable about the sugar market and are willing to take some risk.

Global industry situation

Sugar prices have slumped from their 25-year high in mid-2006 and the price is likely to continue being under pressure. Peter Baron, Executive Director of the International Sugar Organization (ISO) expects the market to be oversupplied until 2009, and has 'doubts that the price has hit a bottom'[3]. While the ISO forecast a global surplus of 7.2 million tonnes for 2006–07 in February, this estimate grew to 9.1 million in May. The expected 2.4% growth in world demand is in line with the 10-year average of 2.3%.

The growth in production is coming from Brazil and India. The latter produced 16 million tonnes of sugar just a few years ago; in 2007, it will produce over 28 million tonnes and a crop of up to 33 million tonnes is expected for the following year. This has led to a huge build-up of stocks in India, which is weighing over the market. However, this stock may not find its way into ships for export, as India's infrastructure for export of sugar is not well-developed, and a domestic ethanol mandate may have an effect. Despite this, the government of India has announced a subsidy for exports, an announcement that is receiving scrutiny as to its World Trade Organisation (WTO) compliance.

3 www.moneycontrol.com/india/news/market-edge/intl-sugar-prices-may-lose-further-ground-/07/45/300531

This extra sugar from India will contribute to an expected further growth in oversupply in the 2007–08 marketing year; the US Department of Agriculture (USDA) forecast 163.3 million tonnes global production in raw value in May 2007, which is 2 million tonnes above their revised 2006–07 estimate. Consumption is expected to grow 513 000 tonnes to 149.4 million tonnes. Overall, exports are forecast to grow by 2.1 million tonnes to 50.8 million tonnes, while ending stocks are to grow by 6.1 million tonnes to 45 million tonnes. The EU is expected to become a net importer in 2007–08.

Russia may relinquish its position as the world's largest sugar importer, as the Russian government has started a program to revitalise their domestic sugar industry. Beet plantings are up in 2007, and a proposal to increase the seasonal import tariff, in concession to the domestic industry, is being considered at the end of September. A bilateral deal with the Ukraine may see the Ukraine replacing Brazil as the main source of Russian sugar imports.

Although the domestic US sugar market is slightly under-supplied in the USDA's estimates for fiscal year 2008 (1 October 2007 to 30 September 2008), this is expected to change radically after 2008 when Mexico gains free access under the North American Free Trade Agreement (NAFTA). In anticipation, recent legislation prepared the ground for the diversion of sugar surpluses to biofuel production. A similar way to dispose of sugar is also being considered in the EU.

Sweet success for sugar champion

Isis-based BSES officer Judy Plath has won the Department of Primary Industries and Fisheries' 2006 Elaine Brough Award.

The agricultural scientist's work has been instrumental in assisting the sugar industry to become more sustainable and prosperous.

Judy won the award for her dedication and positive vision for the future of the sugar industry and her work in the grains and horticulture industries.

Employed as a Rural Water Use Efficiency and Change Management Extension Officer with BSES and as a FutureCane industry champion, Judy has achieved great success in partnership with sugar growers in Childers and Maryborough.

As a member of the Isis Target 100 team, Judy has worked hard to ensure the sugar industry is able to adapt to change, improve sustainability and increase productivity and profit for growers.

The Isis Target 100 team has also tasted success with the soybean industry, which has increased from 500 tonnes of stockfeed quality beans in 2004 to a 2000-tonne harvest worth over $650 000 in 2006—70% of which is food-grade quality.

The team also has worked in partnership with Bean Growers Australia to develop a local navy bean industry to supply the SPC baked beans market.

Judy used her bursary to leverage funds from other agencies and take a group of growers on a major study tour to the United States to study the production of high-quality food-grade soybeans. The tour was designed to improve growers' understanding of the soybean industry and how to broaden the consumer base by developing other soybean products.

Cotton

Forecast

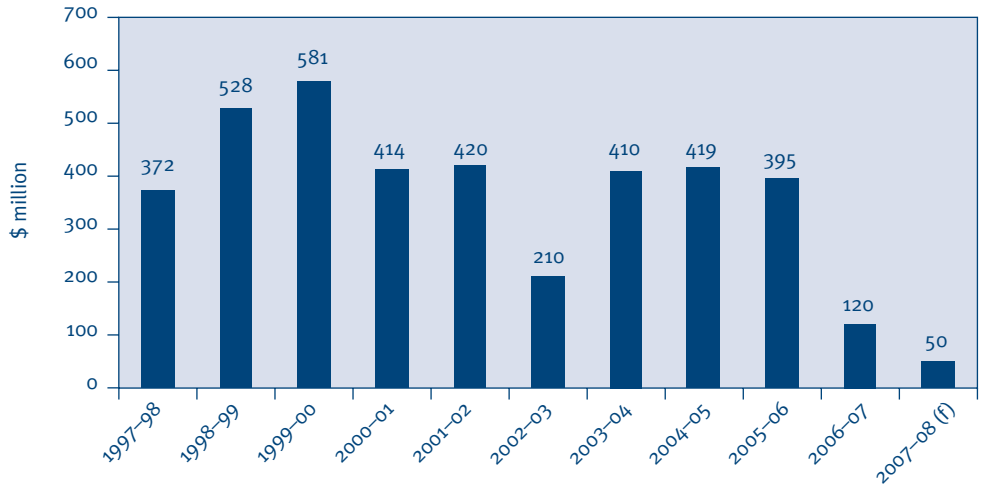
In 2007–08, the gross value of cotton production (including the value of seed) in Queensland is forecast at $50 million, which is 58% less than in 2006–07 and 87% lower than 2005–06.

The production of Queensland cotton has been falling steadily since 2005–06 with lint production in 2007–08 forecast to fall by another 66% to 95 000 bales. Plantings are expected to be down 63% from the previous year due to the continuing drought conditions. However, for those who do plant cotton and achieve high yields, the returns will be lucrative. Cotton prices have been soaring on the futures markets, as the US reports the lowest cotton harvest on record and China's domestic stocks dwindle.

Analysis

The gross value of production is forecast to be the lowest in 10 years, as the ongoing drought causes water supplies to dwindle, limiting the industry's ability to irrigate and plant. The significant decline in GVP in 2002–03 was also due to drought-related water scarcity, which highlights the risk associated with producing such a water-intensive crop under highly variable water conditions.

Figure 11. Gross value of cotton production 1997–08 to 2007–08



(e) Estimate.
(f) Forecast.

Source: DPI&F.

Industry challenges and opportunities

Water scarcity will be the main issue affecting cotton production in 2007–08. Last season, most cotton-growing areas only received about 25% of normal summer rainfall, which has resulted in lower soil moisture and water reserves. No water will be allocated for cotton irrigation in most areas, as dams are at very low levels, and river and overland flows are virtually dry. Figure 12 shows the current dam levels, which are lower than at the same time last year, apart from Fairbairn Dam. Low water security in towns has directed water away from cotton irrigation. In August, Australia's largest cotton farm, Cubbie Station, sold a 200 megalitre allocation to the Balonne Shire Council in order to secure water for St George until the end of the year.

Some cotton farmers have opted to use remaining water on a winter crop (mainly wheat) rather than wait until cotton's September–October planting period and risk losing it to evaporation. Unless there is significant rainfall in the catchments to restore dam levels and overflows to a point where irrigation activities can recommence, the area planted to cotton will be low. Producers will tend not to plant unless there is guaranteed water to ensure high yields.

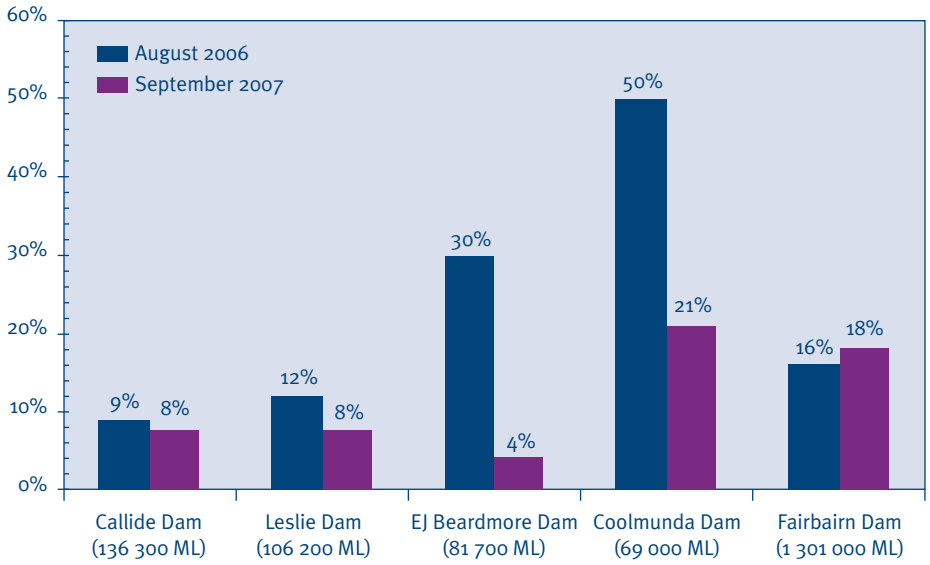
It is anticipated that the higher relative price and lower water requirements of alternative crops such as sorghum, oats and chickpeas will reduce area planted to cotton. The reduction in cotton production has implications for the infrastructure of the industry and rural communities. As ginning facilities are under-utilised and employment dwindles, the capacity of the industry to produce as much in the future may decline.

Water-use efficiency is of great importance to Queensland cotton growers. Water-efficient practices being used by Queensland producers include collecting and recycling water a number of times, lining dams and channels to reduce evaporation, and converting to overhead sprinklers and drip irrigation.

In August 2007, the Australian Government announced a $12 million funding package to improve flood water management and irrigation efficiency in the cotton industry. The main benefits of the package are deemed to be improved measurement and monitoring of evaporation and seepage losses from on-farm storages and the development of best management practices. The package should assist in improving the ability of producers to manage drought conditions in the future.

As well as improving water-use efficiency through management practices, the Cotton Research and Development Corporation, the Cotton Catchment Communities Cooperative Research Centre, and Monsanto have undertaken preliminary trials that have indicated the potential for genetically-modified crops to provide greater water-use efficiency and yield responses, even under water-stress conditions. It is hoped that a drought-resistant crop will be available on the market within the next 10 years.

Figure 12. Status of major water storages in Queensland's cotton growing regions



Source: Queensland Sunwater

Biloela scientist wins Australian Cotton Industry Award

Senior research scientist Paul Grundy has been named 'Young Achiever of the Year' at the Australian Cotton Industry Awards held in Narrabri on 7 August 2007.

The award, sponsored by Elders, recognises people under 35 with the commitment and vision to contribute to the future of the cotton industry.

Paul credits his success to his varied and challenging role within DPI&F.

'I've been fortunate to work as a part of some pretty diverse and talented teams that involve a range of external industry partners,' he said.

Paul worked for more than seven years as an entomologist at DPI&F's Biloela Research Station, focusing on research, extension and field applications of integrated pest management tools.

He has extensive expertise in management strategies for silver leaf whitefly and has played an instrumental role in managing industry outbreaks.

He also conducted work examining the potential use of 'attract and kill' technology to help prevent the development of Helicoverpa resistance to Bollgard cotton.

Over the last few seasons, Paul has been involved in research into cotton in the Burdekin and recently took on leadership of a significant new project funded by the Cotton Catchment Communities CRC to develop benchmarks for cotton production in the region.

Other major field crops

The gross value of production of **chickpeas** in 2007–08 is forecast at $40 million, which is $5 million higher than 2006–07 despite lower average prices.

The area planted to chickpeas in Queensland is forecast to increase by 40% in 2007–08 from the previous year's drought-affected crop. Early winter rainfall in Central Queensland influenced some farmers to plant late-sown dryland chickpeas. Both the early-sown and late-sown crop in Central Queensland will have benefited from rain in mid-August, with yields in this region expected to be slightly above average. South Queensland chickpeas were late planted into ground with little soil moisture. Reasonable August rain has improved the potential for average yields from this region.

The larger area planted to chickpeas has increased the production forecast for 2007–08 to over 77 000 tonnes despite variable yield expectations across the state. This production forecast is 50% higher than the estimated production in 2006–07.

In 2007–08 the average price for chickpeas is forecast to be $535 per tonne, which is a decrease of 17% from the average price in the previous year. The lower price is partially due to very large plantings of chickpeas in New South Wales.

Peanuts gross value of production in 2007–08 is forecast to be $40 million, which is more than double the final DPI&F forecast of $15 million for 2006–07.

The increase in GVP is due to a forecast increase in area planted by 58% (given average seasonal conditions) over the moisture-affected crop in the previous year. Some regions will be more dependent on rainfall in the coming months for a 2007–08 peanut crop than other regions. Winter rain has provided a reasonable outlook for peanuts in South Queensland and North Queensland, while additional rain will be required for other plantings throughout the state.

Yields will be variable statewide, depending on rainfall and irrigation entitlements. Given average seasonal conditions, Queensland production of peanuts is forecast to be over 50 000 tonnes.

In 2007–08, peanut prices are forecast to remain at the high levels of 2006–07 influenced by the world peanut market. Chinese demand for peanuts is growing rapidly, with markets in Europe, the US and Australia all growing, although more slowly. Poor 2006–07 peanut crops in many countries has limited available supply, as has the influence of the US ethanol industry, which has encouraged growers in Argentina to plant maize rather than peanuts. It is forecast that the average peanut price will be around $765 per tonne.

In 2007–08, the gross value of production of **soybeans** is forecast to be $10 million, which is double the value in 2006–07.

The forecast increase in GVP is due to an increase in area planted to soybeans in 2007–08 compared to the previous year. Assuming that further rainfall is received in addition to rain in mid-August, production of soybeans is forecast to be over 20 000 tonnes. Water availability will be the main determinant of area planted and the subsequent production.

It is expected that the price increases during the 2006–07 year will be sustained during this 2007–08 year, with the average soybean price forecast to be $565 per tonne on a delivered Brisbane basis.

Winter cereal grains

Wheat

Forecast

The gross value of production of wheat in 2007–08 is forecast to be $250 million, which is 4% higher than 2006–07 but 9% lower than 2005–06.

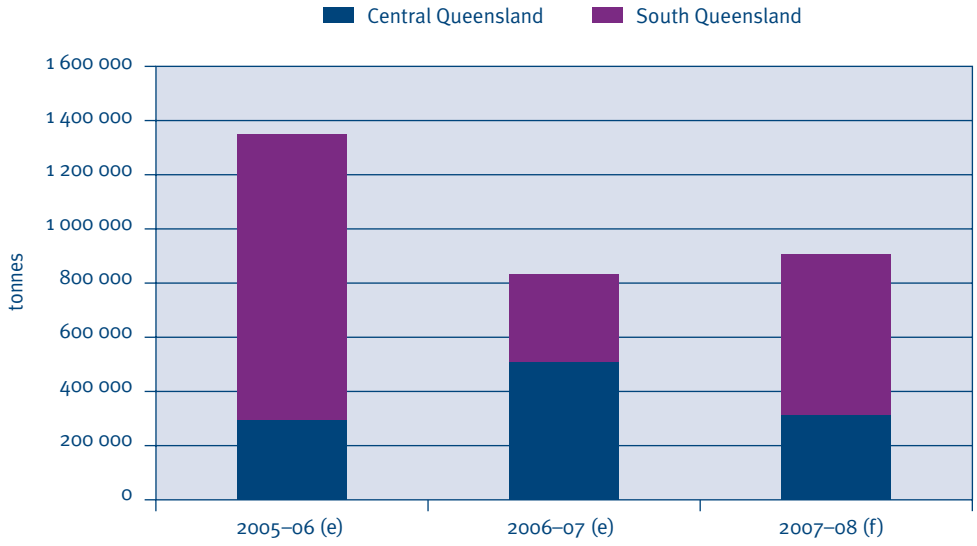
Analysis

Gross value of wheat production is forecast to increase in 2007–08 over the 2006–07 season, due a slightly larger area planted to wheat and therefore higher production.

Area planted to wheat in Central Queensland is slightly lower than the previous year, while area planted in South Queensland is larger but still lower than in good seasons. Some Central Queensland crops were dry planted, then received average rainfall after planting, while other crops were late planted after this rain. The majority of South Queensland crops were planted with limited planting rain into soil with little subsoil moisture. Yields are variable across the state, due to differences in subsoil moisture at planting and patchy rainfall during early crop growth. Reasonable rainfall received in mid-August across most of Queensland's wheat growing regions has relieved the moisture stress affecting parts of the crop and has sustained the average yield forecast.

Figure 13 shows the slightly higher forecast production in 2007–08 over 2006–07; however, the production by region is more significantly different, with South Queensland contributing a larger percentage of the forecast crop, as is traditional in more normal seasons.

Figure 13. Queensland wheat production by region 2005–06 to 2007–08



(e) Estimate.

(f) Forecast.

Source DPI&F.

International wheat prices have been very strong due to high world demand for grain, production concerns in many grain producing countries, and ethanol production from maize in the United States. Domestic wheat prices are expected to remain higher than historical average prices, due to these international influences and low grain stocks domestically. It is forecast that the average Queensland wheat price will be $273 per tonne delivered Brisbane or equivalent at other centres.

Barley

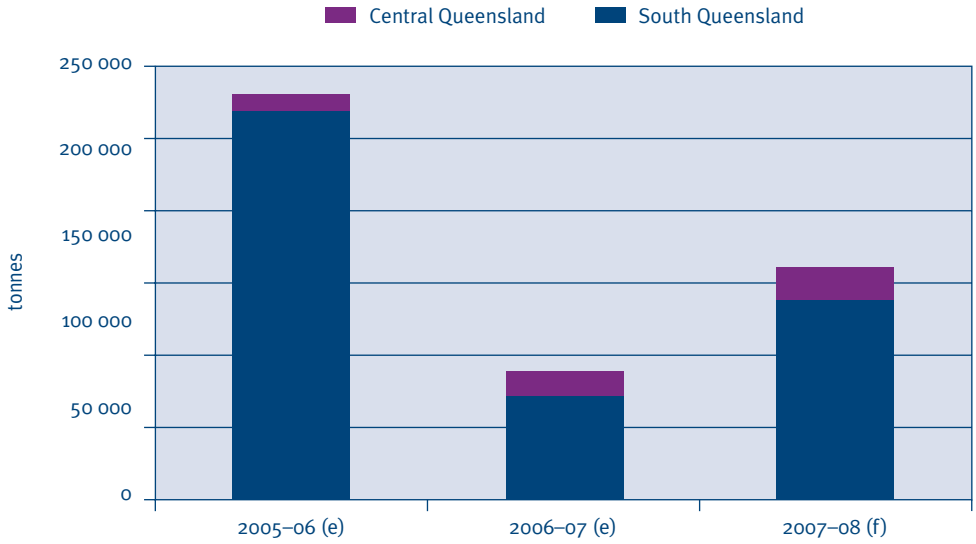
Forecast

In 2007–08, the gross value of barley production is forecast at $40 million, which is 60% higher than the final estimate for 2006–07 but 11% lower than 2005–06.

Analysis

Barley production is forecast to be 83% higher than the final estimate for the previous year. The area planted to barley in both South and Central Queensland is forecast to be 70% more than the final area estimates for the 2006–07 drought-affected crop. However, as shown in Figure 14 the current forecast of 136 400 tonnes is well below the 2005–06 season and also below the five-year average to 2005–06 of 190 000 tonnes.

Figure 14. Queensland barley production by region 2005–06 to 2007–08



(e) Estimate.

(f) Forecast.

Source DPI&F.

Barley yields are expected to be variable across the state due to differences in subsoil moisture before planting and patchy rain during early crop growth. Crop yield expectations were falling throughout South Queensland due to lack of in-crop rainfall; however, reasonable rain in mid-August has saved a large portion of the crop. Nevertheless, the August rainfall came too late for some crops in more marginal areas, which have been grazed or baled, as the yield had declined sufficiently to be uneconomical to continue the crop through to harvest.

Barley prices remain historically high due to low grain stocks domestically, strong domestic and global demand for feedgrains, and grain production concerns in other countries. It is forecast that the average price for barley during 2007–08 will be $277 per tonne on a delivered Brisbane equivalent. This high price is supporting the increase in gross value of barley production. Average prices for feed barley may increase further if seasonal conditions throughout eastern Australia result in a significant reduction of the national grain crop.

Summer cereal grains

Grain sorghum

Forecast

In 2007–08, sorghum gross value of production is forecast at $340 million, which is 84% higher than 2006–07 and more than double the value in 2005–06.

Analysis

The forecast higher GVP for grain sorghum reflects an increase in production due to a greater area planted and better yield.

The area planted to grain sorghum in 2007–08 is forecast to increase by 40% from the previous season. Driving this larger area forecast is the high grain prices due to worldwide demand for feedgrains and grain for ethanol production. Based on the forecast area and yield, production is forecast to be around 1.38 million tonnes, which is double the final estimate of grain sorghum production in the drought-affected 2006–07 season.

However, the larger area planted to grain sorghum and the forecast higher yield and production across Queensland depends on further rainfall before sowing and during crop growth. Rain received in South Queensland has increased the soil moisture profile of some fallow areas; however, due to the previous lack of soil moisture across most of Queensland's cropping areas, further rain is required to achieve the forecast area planted and yield.

The average grain sorghum price for the 2007–08 year, while still high, is forecast to be 9% lower than the high prices in 2006–07. The average grain sorghum price is forecast to be $246 per tonne delivered Brisbane in 2007–08, influenced by both lower national supply and higher national demand for feedgrains. Domestic supply of feedgrains has been reduced due to poor wheat, barley and sorghum crops in the last few seasons throughout eastern Australia, which has reduced the stocks of grain on hand by end-users and at bulk grain warehouses. In addition, domestic demand for feedgrains has continued to grow, from both the intensive animal production industries and by future grain ethanol production plants. International supply of feedgrains has also been lower due to poor crops in many countries and the large volume of maize being consumed by fuel ethanol production in the United States. It is expected that international and domestic demand for feedgrains will maintain the high grain sorghum prices throughout 2007–08.

Maize

Forecast

Maize gross value of production for 2007–08 is forecast at $50 million, which is double the value forecast for 2006–07 and 43% higher than the 2005–06 estimate.

Analysis

The area planted to maize in 2007–08 is forecast to increase over the drought-affected crop area in the previous year, assuming average seasonal conditions and irrigation entitlements. Rain received in August across Central and South Queensland has provided some soil moisture for the maize crop; however, further rain will be required for planting and during crop growth.

Production of maize in 2007–08 is also forecast to increase due to the larger area planted. It is forecast that production of maize will be around 197 000 tonnes.

The average price for maize is forecast to ease slightly to $265 per tonne due to increased forecast supply of other feedgrains in 2007–08. However, high demand for all feedgrains by end-users throughout eastern Australia will continue to support the maize price in 2007–08 above the long-term average maize price.

Developing the grains industry

In the next decade, demand analyses indicate an unprecedented opportunity for trade and expansion of Queensland's intensive livestock and biofuels industries. For Queensland's primary producers and agri-industry to capitalise on this growth opportunity, production of feedgrains must be increased significantly and reliability of production improved. Trends to higher world grain prices enhance this opportunity. In Queensland, feedgrain production is currently valued at $300 million per year with sorghum contributing $200 million. On the other hand, climate change threatens future production potential.

Feedgrain use in Australia is estimated to increase from 10.7 million tonnes in 2005–06 to 11.5 million tonnes in 2006–07. The largest increase in feedgrain requirements is expected to occur in Victoria and Queensland (Australian Bureau of Agricultural and Resource Economics report to client, 2007).

DPI&F is well-positioned to support this expansion through its Integrated Sorghum Improvement Program, which has underpinned the development of this industry over the past 30 years. The program has achieved a benefit-to-cost ratio of 20:1 since its inception in 1975, and has returned a benefit to Australia on average of $14 million per annum.

The DPI&F research program involves a core plant-breeding program that integrates recent developments in molecular biology, biotechnology, physiology, agronomy and virtual plant modelling. While much of the research capacity resides within DPI&F, significant links have been forged with key plant scientists at the University of Queensland. In delivering technologies, partnerships formed with commercial seed companies underpin licensing of germplasm to the private sector. All current commercial hybrids contain some material from this program and contribute royalties.

Part of the DPI&F program involves international research and development collaboration with key centres in the USA to discover genes associated with drought tolerance in sorghum. DPI&F scientists have successfully transferred the genes responsible for the 'stay-green' drought tolerance characteristic from an Ethiopian sorghum to Australian lines using conventional breeding techniques. The near complete sequencing of the sorghum genome and physiological studies on stay-green will hasten discovery and application of the responsible genes. Due to the genetic similarity among the world's major cereals, the genes for stay-green identified in sorghum may help improve the drought resistance of wheat, barley, maize and rice crops.

Virtual plant modelling technologies are another key plank of the research program. They enable prediction of the consequences of genetic and management manipulation of sorghum crops, and are being used to help design the novel plant type and management system combinations required for industry expansion. The models have been developed jointly with the University of Queensland and in collaboration with key centres in Europe. The software platforms developed have been licensed to public and commercial users globally.

The growth potential from industries dependent on feedgrains and the associated socioeconomic flow-on could generate up to $300 million per annum return for Australia on strategic research and development investment, with benefits flowing via economic development in regional areas. The combination of advanced scientific skills in genetics, physiology, and modelling required for this research and development is available in Queensland. This positions Queensland to lead this new approach internationally while generating substantial economic benefits nationally.

Fisheries

Forecasts

The gross value of production of Queensland's fisheries (including Commonwealth-managed fisheries) is forecast at $265 million in 2007–08, which is 4% higher than 2006–07.

Wild-harvest fisheries

Forecasts for 2007–08 suggest that the value of Queensland-managed wild-harvest fisheries will be maintained at about $190 million. This is due to the declining terms of trade for fishing businesses, difficulties in obtaining and retaining skilled labour and changes in management arrangements impacting on access arrangements in a range of fisheries.

In 2006–07, the GVP for Queensland-managed wild-harvest fisheries was about $190 million, which is a slight increase on previous years due to rises in the prices being offered to commercial fishermen for tropical rock lobster, mud crab, blue swimmer crab and (live) coral trout. At the same time, harvest weight declined by about 14% compared to the previous two years.

Analysis

Overview

The Queensland-managed commercial fishing industry remains in a transition phase due to both internal and external factors and their effects on the fishing industry. The factors include:

- fuel price increases, which directly impact on the profitability of individual fishing businesses
- a lack of availability (and willingness) of labour to work in the commercial fishing industry
- the introduction of a series of fishery, marine park and other management arrangements designed to meet ecological and biodiversity objectives, and constrain where, when and how commercial fishers can operate their businesses
- unquantifiable, but generally negative, effects of drought and ephemeral short- and long-term effects of cyclones on fishery performance
- the strong Australian dollar, reducing both export prices and the price of imported seafood
- seafood imports into Australia set a low base price at which product can be sold.

The effect of these changes has caused some of the commercial fishing sectors to have less confidence in the future compared to previous years. At the same time, the number of establishments in the processing and wholesaling sector of the industry continues to decline.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* requires that fisheries be accredited before the export of any harvested product. The Commonwealth Department of Environment and Heritage has given approvals to all twenty-six of Queensland's export-oriented fisheries.

The Commonwealth Government adjustment scheme for the Great Barrier Reef Marine Park (GBRMP) is almost completed. All sectors of the fishing industry have used the scheme, and the transition of the industry is ongoing. To date, in excess of $150 million has been allocated for structural adjustment packages for fishing and related operations.

A new price series was implemented in July 2006 in conjunction with the Queensland Seafood Marketers Association. The organisation provides *typical* prices paid to commercial fishers at wharf for key species by grade for each quarter by region. As a result of this arrangement, and due to changes in the market compared to previous years, the price estimates used for crabs, tropical rock lobster and (live) coral trout have been increased substantially. Most of the other prices used for the 470 species landed have remained relatively static.

Prices offered to fishers are unlikely to change, unless the value of the Australian dollar changes. A weakening of the Australian dollar would increase the price paid for exported product relative to the price for imported product, and potentially increase the price offered to fishers for product consumed within Australia.

Trawl-caught species

There are three distinct sectors in the trawl fishery in Queensland waters—the East-Coast Trawl Fishery managed by Queensland, and the Torres Strait and Northern Prawn Fisheries not managed by Queensland. This section only considers the East-Coast Trawl Fishery, which stretches from Cape York to the New South Wales border.

It is expected that the trawl harvest of prawns in 2007–08 will continue to decline as boat numbers reduce from about 480 in 2004–05 to slightly more than 400 in 2007–08. This decline has not been offset by an increase in daily harvest of the trawl product. In addition, prices being offered for various species of prawn have not changed in the last few years, but for some species have declined slightly.

On the other hand, scallop harvest in 2007–08 is forecast to be less than the 2006–07 harvest due to two factors:

- the quality of the scallops (i.e. scallop size is smaller than previous years)
- the import of scallops from overseas, especially China, which is holding down the price being offered to fishers.

The reduction in the prawn harvest is not caused by the lack of availability of 'trawl' species; recent studies indicate that, from a biological perspective, the stocks of 'trawl' species are in robust health and are harvested at a sustainable level. For example, mean daily harvest of prawns by the otter trawl (T1) fleet remains consistent across the years at about 250 kg/day.

Line-caught species

The main line-fishing sector in Queensland is based on the Great Barrier Reef (GBR) and is known as the Reef Line Fishery. A second and much smaller fishery, the Rocky Reef Fishery south of the GBR, produces less than 10% of the Reef Line Fishery harvest, and will not be considered here. There is some crossover with Spanish mackerel harvest between the two fisheries, but with about 90% of the harvest typically caught in the Reef Line Fishery, it will be included in that sector.

The coral-trout quota will be close to filled in 2007–08. Catches of other reef species, such as Spanish mackerel and red-throat emperor and the 'other species' groups, appear to be more seriously affected by the economic and other factors currently operating in the Reef Line sector, especially the prices being offered for those species. The likelihood of filling these quotas in 2007–08 continues to be low, although more interest is being shown in Spanish mackerel harvest at this stage.

The Reef Line sector focuses on two different types of market. Coral trout is exported, with the live fish trade the main focus. Compared with other reef species, coral trout are a high value fish, especially in the live form, with fishers being paid seven to nine times the price compared with other species harvested from this fishery.

The other species harvested, including Spanish mackerel, red-throat emperor and the category 'other species' are almost completely for the domestic market. The domestic market requires most of the product to be in fillet form, which places it in direct competition with imports of similar product from overseas. Given the labour intensity of filleting, domestic operators are at a cost disadvantage compared with most overseas competitors.

The strong Australian dollar creates opportunities for our competitors to develop overseas niche live fish markets to their advantage and to import finfish into Australia. This competition reduces prices paid to domestic fishers and forces the processors to present the Australian product in a fillet form in order to compete with the overseas product with a similar level of convenience.

Net-caught species

Net fishing in Queensland has three main locations: Gulf of Carpentaria (GOC), GBRMP and the southern area. In 2007–08, production in the net fishery in the GBRMP is expected to remain at the current level of about 6000 tonnes. Overall, Queensland's net fishery production for 2006–07 was almost 20% lower than the previous two years. Given there was minimal price increase offered to fishers compared to previous years, GVP also declined by about 20%.

Production from GOC in 2006–07 was about 20% below the previous two years, probably due to climatic factors. Assuming that next year is reasonably normal in terms of rainfall, production is expected to increase above the present level.

Performance of the GBRMP net fisheries in 2006–07 was slightly down compared to the previous two years. Net boat numbers continued to decline to around 320. Both mean daily catch and the number of days fished per boat remain within the normal range. Performance in 2007–08 is anticipated to decline further from the current level, due mainly to the level of prices being offered and as more boats limit their activity in the area.

Production from the southern net fishery in 2006–07 was also about 15% below the base indicator, largely due to a decline in the mullet harvest. There has been a halving of the price being offered for *winter* mullet, due to major increase in production of mullet roe in South America and China and their entry into Australia's overseas markets for roe. At this stage, some fishers are attempting to compensate by harvesting as much mullet as possible, which in turn has decreased price being offered for *meat* mullet. Given a return to reasonably normal seasons, production is expected to return to the base indicator level in 2006–07.

As most of the net-caught product is destined for the local and wider Australian market, imports of finfish from Africa, South-East Asia, USA and Europe limit the price offered to fishers for locally-caught fish. Imports of 'white' fish fillet into Australia set a base price for locally-caught product from the net fishery, as consumers substitute imports for local product when the price is lower. The need to present local product in fillet form also adds to costs and limits the potential to increase the price paid for Queensland-caught fish.

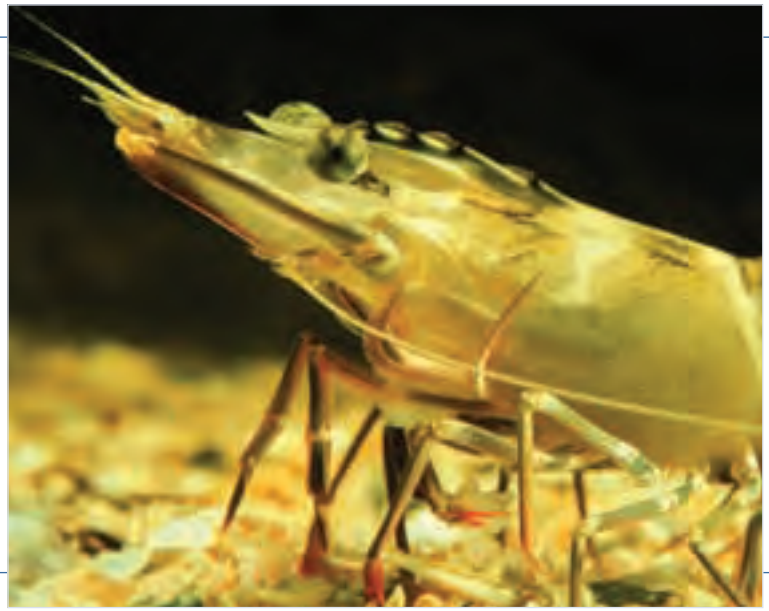
As stated last year, the reduction in the harvest of net species cannot be interpreted as a reason for concern for fish stocks. Recent studies indicate that, from a biological perspective, most of the species harvested by net fishers are in robust health and are being harvested at a sustainable level.

Earlier comments about the effect of the strong Australian dollar, fuel prices and access to labour apply equally in these fisheries. In addition, significant areas important for the netting of fish have been closed to fishing under various management arrangements.

Pot-caught species

The GVP of the commercial harvest of mud-crab and blue swimmer-crab harvest in 2006–07 increased mainly as a result of a substantial increase in price being offered to fishers. At the same time, production of these species each declined by about 30% compared to previous years. This was the result of a decline in the number of boats harvesting these crabs and a reduction in the number of days fished per boat. Mean daily catch per boat remained the same. Most of these two species are sold on the Australian market. There appears to be no direct competition from imports into Australia. In 2007–08, it is anticipated that their production will not decline from the 2006–07 level, and that the current price being offered to fishers will be maintained.

The spanner-crab fishery is quota-managed, and it is expected to fill the quota of about 2000 tonnes in 2007–08. The quota for 2006–07 was essentially filled. Most of the spanner crabs are exported. This fishery generally produces to the available quota, driven by the price achieved for the product overseas. Increased fuel prices, and the resultant decrease in profitability, may cause some realignment of the level of quota among individual businesses in this fishery.



Aquaculture

Forecast

The gross value of production of aquaculture is forecast at an all-time high of $75 million in 2007–08. This is the highest on record, and is 15% higher than 2006–07.

Analysis

The value of aquaculture in Queensland has reached record levels, with further increases expected in both barramundi and marine prawn production.

The increase in gross value forecast is mainly due to the continued strong expansion in the barramundi sector, with production increasing by 10% to 15% per year over the last three years. Prices are being maintained even with this expansion.

The marine prawn sector should increase on the relatively poor year in 2006–07, due to extended periods of cold weather in the last growing season and an increased ponded area predicted to be in production in 2007–08. There is continued strong demand for large Australian prawns, and prices are expected to firm before Christmas. The majority of imported prawns are smaller in size and are not affecting demand for the larger prawns.

Freshwater fish, such as Murray cod and silver and jade perch, are expected to continue to expand, while redclaw is expected to decline following a run of dry seasons.

Oyster production continues to decline with a marked decrease in the availability of spat, both locally and interstate, to allow oyster lease area to be stocked to anywhere near capacity.

Sustainable management of Queensland's fisheries

Sustainability is a major issue for fisheries businesses and regional, Indigenous and coastal communities in areas with little alternative employment opportunities. International, federal and state resource managers need reliable, on-going information about the size of the resource and the rate at which it is harvested. Ineffective monitoring jeopardises sustainability and threatens business and community profitability.

DPI&F's Fisheries Genetics Research Program provides a new package of methods for monitoring fisheries resources. The methods go significantly beyond the standard applications of DNA analyses, and can provide estimates of the numbers of breeding individuals in a population and other information that was previously thought to be unattainable, such as ages of individual fish.

This work puts Queensland and Australia at the forefront of scientific fisheries management. The Gene-tag research program has been exported to North America where at least two North American fish stocks (rock cod and sturgeon) are being monitored using this method. New research programs are planned for the:

- offshore snapper and shark fisheries in northern Australia
- Queensland's mud crab fishery
- Northern Australian bêche-de-mer fisheries
- Torres Strait's Spanish mackerel fishery.

DPI&F's Fisheries Genetics Program has secured highly competitive research funding over the last 10 years, and the research group is a sought-after collaborative partner.

Forestry

Readers should note that DPI&F has revised its estimates and forecasts of the gross value of the Queensland forest industry in this issue of *Prospects*.

Previously, the reported turnover of log sawmilling and timber dressing activity in Queensland (Australian and New Zealand Standard Industrial Classification 231, as defined and measured by the Australian Bureau of Statistics in their Survey of Manufacturing) was used in *Prospects* as an indicator of the gross value of forest industry activity in Queensland. Although these data provided a good estimate of total forest industry activity, they did not allow a breakdown of the forest growing and first-stage processing sectors of the Queensland forest industry. They also contained some elements of double counting.

Consequently, DPI&F is now using data produced by the Australian Bureau of Agricultural and Resource Economics (ABARE) in its Australian Wood and Forest Products Statistics publication about the value of log production (gross value of logs delivered to the mill door or wharf gate) to generate an estimate of the gross value of the forest growing sector in Queensland. This, together with estimates of the value added (that is, the value added to intermediate inputs) of the log sawmilling and timber dressing sector (or first-stage processing sector) derived from the ABS Survey of Manufacturing, provide a more accurate measure of total Queensland forest industry activity compared with the previous estimates.

Forecast

The total value of Queensland's forest industry is forecast at $570 million in 2007–08, which is 5% higher than 2005–06.

The forest growing sector gross value is forecast at $210 million in 2007–08, which accounts for about one-third of total forest industry, with the first-stage processing value forecast at $360 million.

Discussion

Building activity, in particular dwelling or residential building activity is the main underlying driver of the demand for sawn timber. Dwelling investment in Queensland recorded its fourth consecutive quarter of strong growth in the March quarter 2007, rising by almost 3%. Dwelling investment in Queensland has now risen by 12.2% over the last twelve months. The Queensland dwelling construction industry is clearly currently outperforming the rest of Australia, where dwelling investment rose by 1% in the March quarter and by 5.3% in annual terms.

The Queensland Treasury Office of Economic and Statistical Research (OESR) predicts that the Queensland dwelling sector will remain strong over the next twelve months as increasing wages, a tight labour market and continuing population growth will sustain high levels of new building activity in Queensland. Furthermore, low housing rental vacancy levels and improving yields for dwelling investment are also expected to reinforce growth in the Queensland dwelling sector over 2007–08.

Taking the above factors into account, OESR forecasts that new dwelling investment will grow by 4.25% in Queensland over 2007–08. Furthermore, market analyst BIS Shrapnel predicts a strong 9.6% increase in national building commencements over the same period. OESR also reports that the Queensland economy is forecast to grow by 5% during 2007–08, compared with 3.75% nationally. Queensland's population is also predicted to continue to grow strongly, with an estimated average increase of 78 500 people per year over the next decade. The strengthening dwelling investment on Australia's eastern seaboard, and the fact that the Queensland economy is forecast to continue to outperform the rest of Australia (with the exception of Western Australia), will therefore continue to underpin demand growth for Queensland forest products over the next 12 months.

Forestry Plantations Queensland (FPQ) was created as a statutory body (corporation sole) in May 2006 by the *Forestry Plantations Queensland Act 2006* as part of a number of reforms to the commercial management of Queensland's state-owned forest resources. FPQ is Queensland's principal forest grower, supplying more than 70% of the domestically produced log timber used each year by Queensland's forest industry. FPQ sold 1.98 million cubic metres of log timber during 2006–07 to the processing sector of the Queensland forest industry to produce a broad range of products.

The Department of Natural Resources and Water (NRW) Forest Products Group is a commercially-focused business unit that assumed responsibility for managing commercial native forest resources (native hardwoods and cypress pine, as well as quarry materials) in state-owned native forests, from April 2006, as part of the Queensland Government's forestry reform agenda outlined above. The NRW Forest Products Group is also a significant supplier of log timber to the Queensland forest industry, selling around 300 000 cubic metres of native hardwood and cypress log timber each year.

The supply of log timber from FPQ's plantations is committed under medium- to long-term sales agreements, and consequently resource availability will continue to limit the rate of further growth in the Queensland forest industry. The processing sector is continuing to maximise log recovery as well as ensuring that existing log timber resources are directed to higher-value uses. However, in the longer term, additional investment in plantation resources will be required in Queensland or the rising demand for log timber will have to be increasingly met from imports.

FPQ reports that while timber sales remained buoyant throughout 2006–07, forest product prices were impacted by strong competition from both interstate and international producers, as well as aggressive discounting in the structural timber market. FPQ also expects that plantation timber sales will continue to grow throughout 2007–08, although the administered pricing regimes incorporated in the organisation's long-term sales contracts, as well as competition price pressures in the timber products market, are expected to continue to impact on timber prices over 2007–08.

The privately-owned hardwood plantation segment of the Queensland forest industry has also rapidly expanded over the last seven years. DPI&F estimates that the privately-owned plantation estate in Queensland now exceeds 60 000 hectares, although further research needs to be undertaken in this area to generate more reliable data. Reflecting the national trend, the growth in the hardwood segment is being driven by investment through a number of plantation forestry managed investment schemes (MIS).

The Australian Agribusiness Group (AAG) reports that a total of $190 million of investment funds was raised for agribusiness projects in Queensland in 2006–07, which is $60 million more than the previous year. This funding generated a total of 11 900 hectares of new agribusiness projects in Queensland in 2006–07. Nationally, about 60% of the MIS funds raised in 2006–07 were directed towards forestry plantation projects, although it is likely that this percentage is even higher in Queensland. Recent Australian Government taxation policy initiatives designed to support new investment in MIS plantation forestry investment are likely to underpin further expansion of this segment in 2007–08.

DPI&F is working to encourage new investment in private plantation forestry projects in Queensland. Key strategies include promoting Queensland as a potential plantation region for investment and identifying potential trade opportunities, removing regulatory and technical impediments to private plantations, supporting the delivery of technical information and advice through Queensland's three Private Forestry Development Committees, and investing about $4 million of state-sourced funds to undertake targeted research and development projects to improve the capacity of the forest industry in Queensland.

Biosciences build hardwood plantations

Queensland's subtropical and tropical hardwood plantation timber industry is poised for major expansion. This is due to the increased interest from Managed Investment Scheme (MIS) companies looking to invest in hardwood plantations as a result of the phasing-out of logging from native forests on state lands.

DPI&F's hardwood research has supported the industry to expand significantly in Queensland, with the current planted area 43 000 hectares (5% of the total Australian hardwood plantings). It is anticipated that a further 5000 to 10 000 hectares will be planted in 2007, depending upon the availability of planting material.

Advanced bioscience research being undertaken by DPI&F is looking at genetic variation in pathogen susceptibility, the development of molecular markers for wood quality traits, quantitative genetics to improve breeding selection, physiological-based plant growth modelling and genotype-by-environment interactions.

DPI&F released the first generation of improved Corymbia hardwood clones in 2006, with trees showing excellent growth across a wide range of sites, significant frost tolerance, increased pest and disease tolerance and good wood properties. The Corymbia clones have shown suitability to produce valuable products at both the thinnings (age 5 to 10 years) and the final crop (age 20 years) stages.

However, extreme shortages of planting material are severely hindering industry expansion. Research is urgently needed to further improve propagation technologies for the new hybrids, to make this material available for planting. The major economic benefit in the future will be derived from increasing the available quantities of improved hybrid planting stock for industry.

If industry has access to increased quantity and quality of planting stock, major short- and long-term economic benefits are predicted for Queensland, specifically in the Burnett and Wide Bay, Gladstone and Miriam Vale, Mackay and Innisfail regions. Increased plantations could create up to 130 new jobs in plantation regions and raise regional and economic output by $14 million a year.

DPI&F is forging strong partnerships to broaden its capacity and to benefit from a greater knowledge base. Working with the University of the Sunshine Coast, DPI&F is supporting propagation and floral biology sciences and pest and disease research. Working with Southern Cross University, the department has sourced gene expression studies to identify wood quality markers. In 2006, DPI&F established the Subtropical Forest Health Alliance, bringing together industry, universities and research and development agencies into a coordinated platform.

Special feature—the economic effects of the equine influenza outbreak on Queensland's economy

The Australian horse industry is an expansive and complex industry, with an extensive range of inputs and outputs. The diverse nature of the industry has made estimating its contribution to the Australian economy problematic, and hence the industry is not included in *Prospects* estimates.

A study for the Rural Industries Research and Development Corporation (RIRDC) by the Centre of International Economics (CIE) conducted in 2001 estimated that the contribution (in GDP terms) of the horse industry to the Australian economy is around $6.3 billion per year, with this increasing to $8 billion if the value of volunteer labour is included. Anecdotal information indicates that the Queensland industry accounts for around 20% of the national industry, thereby suggesting a direct economic contribution of the horse industry to the Queensland economy of around $1.3 billion and $1.6 billion if volunteer labour is included.

Table 5 summarises the major industry segments and their economic contribution.

Table 5. Major industry segments and economic contribution

	Australia ($b)	Queensland ($b)	Queensland ($m per week)
Breeding industry	0.9	0.2	3.4
Thoroughbred racing	0.8	0.2	2.9
Harness racing	0.2	0.0	0.9
Wagering	1.9	0.4	7.1
Horse maintenance costs	1.9	0.4	7.3
Events	0.4	0.1	1.4
Businesses	0.3	0.1	1.1
Education and R&D	0.0	0.0	0.1
Total	6.3	1.3	24.3

Source: CIE

The outbreak of equine influenza[4] (EI) in Queensland, which caused the industry to come to a complete standstill, is estimated to have had a significant economic impact on the Queensland economy. The weekly direct impact is estimated at $8.6 million—the sum of the forgone weekly contribution of the breeding industry ($3.4 million), thoroughbred racing ($2.9 million), harness racing ($0.9 million) and events ($1.4 million). The contribution of horse racing to the Australian economy estimated by the RIRDC report is well above the figure of around $263 million suggested by Australian Bureau of Statistics figures for 2004–05. It is assumed that the wagering industry is not impacted due to substitution to trans-Tasman races, greyhounds, other forms of gambling and unaffected Australian race centres (although it is likely that these are not perfect substitutes). Horses still need to be fed and looked after, and therefore 'horse maintenance costs' are unlikely to be negatively affected (if anything, this segment could potentially be positively impacted). The remaining two industry segments (businesses, and education and R&D) are assumed to not be impacted by this outbreak.

It should be noted that this analysis does not take into account a range of factors including seasonality (particularly important for breeding where economic losses are likely to be greatest at the start of the breeding season), and assumes that the weekly *value* of those industry segments that are impacted are entirely impacted (it could be only a proportion is impacted). Nor does this analysis take into account externalities imposed on other agricultural activities (including cattle) as a result of the ban on horse movements. There are reports that cattle may be losing condition if they cannot be moved to better feed in some parts of Queensland.

In terms of direct employment impacts, casual employees are particularly hard hit. According to ABS statistics (Sports and Physical Recreation Services 8686.0 2004–05), casual employment makes up around two thirds of the 16 544 persons employed in the national industry in the horse and dog racing industry alone (this does not include other major horse industry sectors, i.e. breeding, horse maintenance, etc).

4 Equine influenza is a highly contagious viral disease of all horse species (including ponies, donkeys and mules). Most susceptible animals will show signs of the disease but will recover completely within a few weeks. Humans are not affected by this disease.

Notes

- Estimates of the gross values of Queensland agricultural production are calculated and published at the state level by the Australian Bureau of Statistics (ABS). Presently, ABS publishes estimates for most agricultural commodities twice a year. A preliminary estimate for a particular financial year is published approximately four months after the end of that year. The second (final estimate) is published approximately 12 months after the preliminary estimate.
- Estimates of the gross value of Queensland's fishery production are available from the Queensland Fishery Service, DPI&F.
- Estimates of the gross value of Queensland's forestry production are available from Forest Products Queensland.
- All estimates provided in this publication are in nominal dollar values unless otherwise stated.

Glossary

- *Crops*. Field and horticulture crops.
- *Fisheries*. Trawl and non-trawl fishing and aquaculture.
- *Forestry*. Log sawmilling and timber dressing
- *Gross value of commodities produced (GVP)*. GVP is a measure of economic output. In this publication, GVP relates to the output of primary industry commercial operations only. The GVP is the value of recorded production at wholesale prices realised in the market place (e.g. cattle sold at saleyards, sugarcane at the mill door, fruit and vegetables at the wholesale market), and is derived by multiplying the output from each primary industry by the average wholesale price paid to producers.
- *Value added production*. Value added is simply measured as the value of the output produced minus the costs of the intermediate inputs.
- *Livestock disposals*. Cattle, sheep, pigs, poultry and other live animals sold for slaughter, plus live exports minus live imports.
- *Livestock products*. Eggs, milk and wool.
- *Market place*. Generally, the metropolitan market in each state and territory. Where commodities are consumed locally, or where they become raw material for a secondary industry, these points are presumed to be the market places. Commodities exported overseas are generally valued at free-on-board prices.