NSW dairy industry overview 2015
Summary

The purpose of this report is to provide an overview of the NSW dairy industry (as at May 2015) and highlight the opportunities and challenges for the industry.

The NSW dairy industry is worth about $497 million in gross value of production in a total state value for agriculture of $12,128 million. The NSW industry is based largely (~70%) on the production of milk for domestic consumption, mainly fresh bottled milk.

NSW has the widest differences among dairy regions of any Australian state, as highlighted in the variety of feedbase systems. These differences even out the quality and quantity of milk supply during extreme weather events, making them a distinct advantage during bad weather.

The NSW dairy industry has undergone a decade-long period of consolidation and rationalisation throughout the supply chain. Milk pricing has fluctuated from year to year as a result of competition between the major processors in negotiating supermarket supply contracts, the ‘milk price war’ between the two major supermarket chains, and a lack of processing capacity to deal with milk supply over and above the needs of the liquid milk market.

With the entry of the Murray Goulburn Co-operative into the NSW domestic liquid milk market in 2013, there has been more competition for milk supply and a stabilisation of milk price at the farm gate, as the main processors look to secure their supply in a tight market.

Global demand for dairy products is increasing and is expected to continue to grow, driven by increasing demand in China, South-East Asia and the Middle East. The NSW industry has already begun to capitalise on this opportunity with a successful trial of fresh milk exports to China in mid 2014.

Despite indications of strong demand for dairy products globally, NSW dairy farmers must continue to manage their businesses to account for a range of external risks in order to remain viable. Dairy production systems in NSW will need to be adaptable and resilient in the face of the likely market volatility affecting milk price, labour supply, climate and input costs. Farm incomes are under pressure from milk pricing competition, increasing input costs slowing of and productivity growth in recent times.

Challenges to growth in NSW include managing a dairy business in an increasingly uncertain and volatile environment, the influence of processors and the milk marketplace, managing pasture-based farms in a changing climate, declining herd fertility, and access to resources and markets in an increasingly urbanised south-eastern Australia, all of which increase risk.

The NSW DPI is responding to these challenges by developing programs and resources to help build resilient, sustainable dairy farms and rural communities. Current projects include:

- running the Dairy Farm Monitor Project to provide accurate, reliable information on profitability and productivity, collecting data from 30 farms
- the roll-out of the Dairy Base program across the NSW dairy industry
- identifying factors affecting cost of production in NSW relative to other regions, and developing projects to help farmers manage costs and improve profit
- increasing awareness and adoption of technology, particularly robotic milking, on Australian dairy farms.
# NSW Dairy Industry Overview 2015

## NSW Department of Primary Industries, September 2015

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<td><strong>Private providers</strong></td>
<td>20</td>
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<tr>
<td><strong>NSW Dairy Food Safety Consultative Committee</strong></td>
<td>20</td>
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<tr>
<td><strong>NSW Farmers Association Dairy Committee</strong></td>
<td>20</td>
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<tr>
<td><strong>Dairy Connect</strong></td>
<td>20</td>
</tr>
<tr>
<td><strong>Dairy Research Foundation</strong></td>
<td>21</td>
</tr>
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<td>References</td>
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</tr>
</tbody>
</table>
Key facts

The dairy industry, covering farming, manufacturing and export, is Australia’s third largest rural industry, worth $13 billion, with a farm gate value of $4 billion. In 2013–14, Australia was the 4th largest exporter of dairy products globally.

Australia’s 6700 dairy farmers produce around 9.5 billion litres of milk a year. The Australian dairy industry directly employs 43 000 Australians on farms and in factories.\(^2\)

The NSW dairy industry is worth about $497 million in gross value of production in a total state value for agriculture of $12 128 million.

NSW is Australia’s second largest producer of dairy products, accounting for 13% of the total. Annual milk production in 2015 is forecast to be 1.08 billion litres, an increase of 5% over the previous year.

There are 710 dairy farm businesses in NSW, with an average annual production of 1.5 million litres per farm. The average milking herd size is 275 cows, producing 5500 litres per cow each year.

The NSW industry is based largely on the production of milk for the domestic liquid milk trade, with almost 70% of milk produced in NSW used for drinking. The other 30% is used for the manufacture of cheese, ice cream, yoghurt and other fresh products.

The NSW dairy industry plays a key role in balancing the fresh milk market on the populous eastern seaboard. Bulk milk from farms in the central and northern parts of the state may be moved north to Brisbane or south to Sydney, according to supply and demand.

There are over 100 small dairy processors in NSW, who process over 100 million litres of milk a year for mostly local niche markets.
**Current situation**

**NSW dairy industry**

The NSW dairy industry is worth about $497 million in gross value of production\(^3\) in a total state value for agriculture of $12 128 million (Table 1). NSW dairy farmers produce over 1 billion litres of milk annually, around 70% of which is supplied to the domestic liquid milk market.

Milk production in NSW peaked in 1999–2000 (immediately before deregulation) at 1395 million litres. Supplying the drinking milk market means that farmers generally need to supply year-round, with relatively even production across the year. In contrast, the manufacturing milk market allows farmers to batch- or seasonally calve and thus take advantage of peak feed supply. The year-round, flat production system is a higher-cost model than the batch- or seasonal-calving model, which is more common in the southern states. This greater cost is due to the need to provide a high-quality diet to milkers year-round, regardless of seasonal conditions and the availability and cost of purchased feeds. NSW farmers tend to be more reliant on purchased feed to maintain milk production during times of pasture shortages, and they also have a higher labour requirement throughout the year.

Table 1 – Summary of NSW and national dairy industry statistics (as at May 2015).\(^4\)\(^5\)

<table>
<thead>
<tr>
<th>Measure</th>
<th>NSW</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered dairy farms</td>
<td>713</td>
<td>6314</td>
</tr>
<tr>
<td>Total dairy herd</td>
<td>197 000</td>
<td>1 690 000</td>
</tr>
<tr>
<td>Average dairy herd size</td>
<td>277</td>
<td>268</td>
</tr>
<tr>
<td>Annual milk production</td>
<td>1.05 billion L</td>
<td>9.24 billion L</td>
</tr>
<tr>
<td>Average annual milk production per cow</td>
<td>5500 L</td>
<td>5471 L</td>
</tr>
<tr>
<td>Gross value of production</td>
<td>$497 million</td>
<td>$4280 million</td>
</tr>
<tr>
<td>Estimated total farm employment</td>
<td>2300</td>
<td>20 300</td>
</tr>
<tr>
<td>Ratio of manufacturing to drinking milk</td>
<td>30/70</td>
<td>75/25</td>
</tr>
<tr>
<td>Average price paid</td>
<td>$0.51¢/L</td>
<td>$0.51¢/L</td>
</tr>
</tbody>
</table>

Although the number of farms in NSW has declined markedly since 1999–2000 (from 1725 to 710), production per cow and average number of cows milked has increased (from 4927 to 5002 L per cow and from 155 to 277 cows, respectively)\(^5\).

The NSW dairy herd is located in a number of different regions within the state, ranging from the subtropical North Coast to the temperate and often irrigated Riverina (Figure 1).
Figure 1 – Locations of licensed dairy farms in NSW and relative milk flows by Local Land Service region (as at July 2014).

Table 2 – NSW annual milk production and farm numbers by region (as at July 2014).

<table>
<thead>
<tr>
<th>Dairy Australia region</th>
<th>NSW Local Land Service region</th>
<th>Number of farms</th>
<th>Milk produced &amp; sold (L) 2013–14</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Coast</td>
<td>North Coast</td>
<td>227</td>
<td>178 698 686</td>
</tr>
<tr>
<td>North Coast / Inland Central</td>
<td>Hunter</td>
<td>145</td>
<td>176 280 250</td>
</tr>
<tr>
<td>Inland Central</td>
<td>Northern Tablelands</td>
<td>1</td>
<td>6 839 005</td>
</tr>
<tr>
<td></td>
<td>North West</td>
<td>14</td>
<td>22 773 308</td>
</tr>
<tr>
<td></td>
<td>Central West</td>
<td>15</td>
<td>59 744 922</td>
</tr>
<tr>
<td></td>
<td>Central Tablelands</td>
<td>8</td>
<td>25 586 702</td>
</tr>
<tr>
<td></td>
<td>Greater Sydney</td>
<td>12</td>
<td>36 500 000</td>
</tr>
<tr>
<td>Southern</td>
<td>South East</td>
<td>183</td>
<td>296 283 871</td>
</tr>
<tr>
<td></td>
<td>Riverina</td>
<td>12</td>
<td>28 511 819</td>
</tr>
<tr>
<td></td>
<td>Murray</td>
<td>96</td>
<td>221 210 595</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>713</strong></td>
<td><strong>1 052 429 158</strong></td>
</tr>
</tbody>
</table>

Source: Dairy Australia, NSW Food Authority, NSW Department of Primary Industries.
NSW has the widest differences among dairy regions of any Australian state (Table 2). There are at least four clear climatic zones for dairying in NSW: the coastal strip has a northern subtropical region, a central temperate region and a southern cooler temperate zone; and the inland dairying zones have hot dry climates and a high reliance on irrigation, mostly from the Murray–Darling Basin.

Coastal feedbase systems rely largely on natural rainfall, which is supplemented by irrigation in dry periods. This provides a comparative advantage over farms that rely on irrigation, as there are energy cost savings associated with less pumping. However, feed quality (metabolisable energy) and quantity (tonnes of dry matter per hectare) are more difficult to manage, and in recent years extremes of very wet weather followed by very dry conditions have limited pasture and crop growth.

Regions reflect differences not only in feedbase, but also among processors and their business structures. The NSW dairy industry was historically characterised by the numerous cooperatives established to service the needs of regional dairy farmers. Their role was to process raw milk into various products for marketing, and distribute the profits to the members. The largest farmer-owned cooperative operating in NSW, Dairy Farmers, was sold to National Foods, now Lion Dairy & Drinks, in 2007. One of the other main cooperatives, Bega Cheese, became a publicly listed company in 2011. This left Norco Co-operative as the last remaining major one still operating in NSW, until the Murray Goulburn Co-operative (MGC) entered the NSW market in 2013.

**Milk processing sector in NSW**

The NSW dairy industry now has two Australian cooperatives processing milk – Norco and MGC – alongside a New Zealand cooperative, Fonterra, at Wagga Wagga, which operates Riverina Fresh. Table 3 outlines the major milk processors operating in NSW and the raw milk use in products and markets from NSW regions.

Market forces and the business decisions made by milk processors have resulted in substantial losses of manufacturing capacity and of the opportunity to deal with milk supply surplus to the liquid milk market. Processors with the capability to process milk into other products have been able to maintain a reasonable price for their suppliers. The NSW dairy industry changed dramatically in 2013 with the arrival of MGC in the domestic liquid milk market. MGC secured an unprecedented 10-year contract with Coles to supply liquid milk in the eastern states, in its first major move into the trade. In late 2014, MGC completed the construction a new high-speed factory in western Sydney to process and bottle milk. As a result, there has been more competition for milk supply and a higher milk price at the farm gate as the main processors look to secure their supply in a tight market.

MGC shareholders have accepted a proposal from the board for a capital restructure through an initial public offering of a unit trust to be listed on the Australian Stock Exchange. The restructure is designed to raise $500 million in capital for expansion of the business, while ensuring that its supplier base maintains 100% control of the cooperative. NSW suppliers who are new to MGC were offered the opportunity to increase their shareholdings before the offering.

In 2014, Dairy Connect NSW, Norco and Peloris Global Sourcing successfully trialled fresh milk exports to China. Dairy products in Chinese markets are in high demand and attract premium prices for high-quality products such as Australian fresh milk. This opportunity creates an alternative market for the NSW dairy industry to the traditional domestic drinking milk market. Although it is not yet clear whether dairy farmers will benefit directly from the high retail prices paid for drinking milk in China, they are likely to benefit from the strong demand for their raw milk by processors in an already tight NSW market. A recent entrant to the NSW liquid milk market is the A2 Milk Company, which opened a new processing facility in western Sydney in 2012. A2...
milk has become the fastest growing product on the basis of sales in the fresh milk market, and now holds around 8% of fresh milk sales nationally.

Table 3 – NSW milk processors and their NSW business (as at May 2015).

<table>
<thead>
<tr>
<th>Type</th>
<th>Product mix*</th>
<th>Main collection regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bega ASX-listed company</td>
<td>Cheese</td>
<td>Southeast NSW</td>
</tr>
<tr>
<td>Dairy Farmers Supply co-op</td>
<td>Fresh milk</td>
<td>Hunter, Southern NSW</td>
</tr>
<tr>
<td>Fonterra NZ co-op</td>
<td>Fresh milk &amp; products</td>
<td>Riverina–Murray</td>
</tr>
<tr>
<td>Lion Dairy &amp; Drinks</td>
<td>Multinational company</td>
<td>Hunter, Inland Central, Southern NSW</td>
</tr>
<tr>
<td>Murray Goulburn Integrated co-op</td>
<td>Fresh milk, cheese &amp; powders</td>
<td>Mid-North Coast, Hunter, Inland Central, Southern NSW</td>
</tr>
<tr>
<td>Norco Integrated co-op</td>
<td>Fresh milk &amp; ice cream</td>
<td>Northern NSW, Mid-North Coast, Hunter</td>
</tr>
<tr>
<td>Parmalat Multinational company</td>
<td>Fresh milk</td>
<td>Mid-North Coast, Hunter, Southern NSW</td>
</tr>
</tbody>
</table>

*Use of NSW milk.

Figure 2 illustrates the changes in the NSW dairy industry since 2012, with the main share of farms shifting from Dairy Farmers and Norco to MGC and Parmalat by 2015.

In reality, the drinking milk needs of Queensland and NSW processors are increasingly managed across the three eastern states, as indicated in Figure 3. Following deregulation in 2000, the Australian dairy industry became national, as the flow of milk now demonstrates. Figure 3 also provides indicative costs of significant milk movements across and within NSW.
In the north, the NSW dairy industry is linked to the southern Queensland drinking milk market through processor sourcing strategies.

Servicing Australia’s largest metropolitan market, in Sydney, the NSW dairy industry also services a major growth corridor from the Central Coast and North Coast to the Gold Coast.

In the south, the NSW dairy industry is linked to the northern Victorian exporting region, as milk is used for manufacturing long-life products such as cheese and milk powder.

Increasingly, Victorian milk is being diverted to augment NSW and southern Queensland supplies in servicing the fresh drinking milk market.

Figure 3 – Trade of raw milk and relative cost of freight between Queensland, NSW and Victoria.

The NSW dairy industry has a number of competitive advantages including:

- cost-competitive year-round production compared with Queensland
- regions with scope to expand efficiently
- scope for the development of large-scale farming operations
- proximity to grain-growing regions and feed supplies
- well developed capacity to process liquid milk
- proximity to the largest Australian metropolitan domestic market, in Sydney, and coastal growth corridors connecting Newcastle and southern Queensland.
**NSW dairy farm profitability**

The Dairy Farm Monitor Project (DFMP) aims to provide the NSW dairy industry with valuable farm-level data relating to profitability and production. The project’s 2013–14 annual report was the third one so far. Following a difficult and challenging year for NSW dairy farmers in 2012–13, farm profitability improved in 2013–14. Data collected from 30 farms across the state reveal that farmers received higher milk prices, but the dry seasonal conditions and higher feed prices pushed costs of production up. The milk price reached an average of $7.12/kg milk solids (MS), or 52¢/L, on the back of strong competition for milk, higher export prices and the entry of MGC into the NSW market. The average earnings before interest and tax across all farms was $0.89/kg MS (6¢/L), up from $0.51/kg MS (4¢/L) in the previous year.

Farms north of Sydney and east of the Great Dividing Range had a lower profit than those to the south.

**North**

Across the north, farms experienced very dry conditions, with rainfall 30% below the long-term average. Some areas had their driest summer on record. A significant rain event in November 2013 provided some respite, but the next good rainfall did not occur until March 2014.

Milk prices rose by 5% over 2012–13 to $7.17/kg MS (52¢/L). However, costs of production also rose by 5%, mainly owing to higher purchased feed costs, and so returns were only slightly better overall than in the previous year. Farms in the north fed more purchased feed per cow and paid more per tonne – up to $443/t dry matter for concentrates. Despite these challenging conditions, average whole-farm earnings before interest and tax increased to $67 136, while the average return on assets fell to 0.8%. Five of the 16 farms in this group recorded negative earnings and a negative return on assets, and 9 recorded a negative return on equity.

Liabilities per milking cow increased considerably, indicating a higher level of borrowing on average. Equity levels dropped from 84% in 2012–13 to 79% in 2013–14.

**South**

In contrast, although the south also experienced a drier season, with rainfall 15% below average, it generally experienced more favourable seasonal conditions for most of the year, with less impact on fodder growth.

Milk prices rose by 11% over 2012–13 to $7.12/kg MS. The cost of production increased by 4% on 2012–13, with generally higher prices for purchased feed. Purchased concentrates increased from an average of $311/t dry matter in 2012–13 to $377 in 2013–14. Overall, earnings before interest and tax increased to an average of $287 671 per farm, and 13 of the 14 farms recorded positive returns on assets and on equity. This significant improvement on 2012–13 allowed farmers to spend on maintenance, building livestock numbers, debt reduction and capital expenditure. The average equity improved from 70% to 72%.

**Farmer confidence**

Confidence has improved markedly across both regions, with three-quarters of farmers expecting their returns to improve in 2014–15, and more than 60% expecting to increase production. Farmers identified labour, succession planning, seasonal conditions and input costs as the top issues over the next 12 months, and labour, succession planning and milk prices over the longer term.

**Australian dairy industry**

The dairy industry, covering farming, manufacturing and export, is Australia’s third largest rural industry, worth $13 billion, with a farm gate value of $4 billion. Australia’s 6700 dairy farmers produce around 9.5 billion litres of milk a year. The Australian dairy industry directly employs...
43,000 Australians on farms and in factories, while more than 100,000 Australians are indirectly employed in related service industries. Since deregulation in 2000, there has been continued consolidation in the farm sector, seen as a reduction in the number of farms and an increase in herd size and production per cow (Figure 4).

Figure 4 – Australian milk production vs indices of farms and cows milked.

Dairy farming is conducted in every state of Australia. NSW, Queensland and WA supply mainly the domestic drinking milk market, and Victoria is a key exporter. Australia’s milk is used to make cheese (30%), skim milk powder and butter milk powder (27%), drinking milk (27%), and whole milk powder (11%).

Nearly 60% of manufactured product (in milk-equivalent terms) is exported, and the remaining 40% is sold on the Australian market. In contrast, around 95% of drinking milk is sold on the domestic market.

The control of the Australian fresh milk market is spread between three major processors, Lion Dairy & Drinks, MGC and Parmalat. The manufacturing market has more competitors, but MGC and Fonterra are dominant (Figure 5).

During 2015, Parmalat purchased Harvey Fresh (WA) and Longwarry Food Park (Victoria), and United Dairy Power slipped into receivership, selling the Caboolture Cheese brand to MGC and some processing assets to MGC and Burra Foods.

New and established manufacturers, including Camperdown Dairy International, Bannister Downs and Hope Dairies, are working towards more export-focused powdered and liquid milk facilities.
Global dairy industry

Demand
The global dairy market is expected to continue to grow, driven by increasing demand in China, South-East Asia and the Middle East. Although these markets have local milk supplies, they are unable to keep up with increasing demand. A range of factors are influencing this increased demand, including growing populations, rising incomes, lower levels of dairy consumption, and the perception that imported products are safer and more trusted. Australia is in a good position geographically to supply these markets and has a positive reputation as a producer of high-quality and safe products.

Supply
Global dairy production has increased by more than 50% in the past three decades. The largest dairy exporters are NZ, the EU and the USA (Figure 6). Exporting companies trade their products internationally on an online auction platform called Global Dairy Trade. This platform indicates international commodity prices, which influence Australia’s farm gate pricing on account of Victoria’s export focus. Over the past 18 months, Global Dairy Trade has seen a halving of average auction prices. Prices are expected to flatten out and improve in late 2015.
Australia has many export opportunities, owing to its proximity to major growth markets in North Asia, South-East Asia and the Middle East. However, a range of factors influence its competitiveness, including free trade agreements which provide competitors with a strategic advantage. Dairy Australia estimates that Australian dairy exports attract in excess of $200 million in direct tariff charges each year in destination markets. This has a direct impact on revenue and profitability for Australian farmers.  

In April 2015, the EU removed dairy production quotas for member states. It is anticipated that more product will be available for export, including to key Australian markets such as the Middle East and South-East Asia. In addition, Australia is seeing increased competition for market share from the USA, which has traditionally focused on its neighbours Mexico and Canada.

Table 4 shows Australia’s key export market and values in 2011–12.

<table>
<thead>
<tr>
<th>Country</th>
<th>Volume (t)</th>
<th>% of total</th>
<th>Value – A$ million</th>
<th>Country</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>114 709</td>
<td>15%</td>
<td>$518</td>
<td>Japan</td>
<td>19%</td>
</tr>
<tr>
<td>China*</td>
<td>108 895</td>
<td>14%</td>
<td>$389</td>
<td>China*</td>
<td>14%</td>
</tr>
<tr>
<td>Singapore</td>
<td>89 710</td>
<td>12%</td>
<td>$241</td>
<td>Singapore</td>
<td>9%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>47 849</td>
<td>6%</td>
<td>$176</td>
<td>Indonesia</td>
<td>6%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>46 787</td>
<td>6%</td>
<td>$163</td>
<td>Malaysia</td>
<td>6%</td>
</tr>
<tr>
<td>Thai and</td>
<td>34 307</td>
<td>4%</td>
<td>$127</td>
<td>New Zealand</td>
<td>5%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>33 197</td>
<td>4%</td>
<td>$124</td>
<td>Thailand</td>
<td>4%</td>
</tr>
<tr>
<td>Philippines</td>
<td>32 552</td>
<td>4%</td>
<td>$116</td>
<td>South Korea</td>
<td>4%</td>
</tr>
<tr>
<td>South Korea</td>
<td>27 349</td>
<td>4%</td>
<td>$102</td>
<td>United Arab Emirates</td>
<td>4%</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>26 763</td>
<td>3%</td>
<td>$96</td>
<td>Philippines</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Including Hong Kong and Macau.

Industry history and context

In 1788, seven dairy cows and two bulls arrived in NSW from England. By the 1900s, most towns in Australia had access to fresh milk supplied by local dairy farms. As the population has grown, diets have changed and the pressure for more food to be produced on less land has increased. Many small family farms have been replaced by commercial farms.

Before deregulation in July 2000, the Australian dairy industry comprised the regulated fresh milk market and the unregulated manufacturing milk sector. Separate dairy marketing authorities in each state controlled the price of fresh milk. Deregulation removed this price control. It also removed the Commonwealth Domestic Market Support Scheme, which provided payments to dairy farmers for manufacturing milk by way of levies on fresh milk sales and manufactured products sold domestically.

Following deregulation, the Dairy Structural Adjustment Program was established to provide assistance payments to dairy farmers. The program was administered by the Dairy Adjustment Authority, which made quarterly payments, funded by a levy on retail milk sales, spread over 8
years. Average payments per farm varied from around $100 000 in Victoria and Tasmania to more than $230 000 in NSW.25

Deregulation brought lower and more volatile milk prices to NSW dairy farmers; coupled with a prolonged drought, this situation forced farmers to develop more adaptable and resilient farming systems. Current milk pricing in NSW is now closely influenced by supply and demand, world prices and exchange rates.

**Relevant legislation**

**Food safety**

The NSW Food Authority regulates the NSW dairy industry to ensure that all dairy products produced and sold in NSW are safe for human consumption. All businesses involved in the dairy value chain (including farmers, factories, transporters and cold stores) are required to hold a licence with the Authority. All such businesses must comply with the *Food Act 2003*, the *Food Regulation 2010* and the *Food Standards Code*, Standard 4.2.4, *Primary Production and Processing Standard for Dairy Products*, and must be routinely audited or inspected.

The export of milk and milk products is regulated by the Australian Department of Agriculture. Dairy factories and dairy stores that wish to export their product overseas must comply with the *Export Control (Milk and Milk Products) Orders 2005*.

**Animal welfare**

Australian government regulations require that farmers deliver an acceptable standard of care for their animals. State and territory animal welfare agencies manage these regulations.

The *Australian Animal Welfare Strategy* was created to ensure consistency of legislation across states and territories for animal welfare. Codes of practice for the welfare of animals have been reviewed, with input from industry and the wider community, to produce *Australian Animal Welfare Standards and Guidelines*. Standards are legislated minimum requirements and are enforceable; Guidelines are advisory and non-legislative.

**Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock**

To protect the welfare of animals being transported and to provide consistent regulation around Australia, the dairy industry, other industry bodies, animal welfare scientists, governments and welfare groups have developed the *Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock*.

On 14 June 2013, the *Prevention of Cruelty to Animals (Land Transport of Livestock) Standards 2013 No. 1* was implemented in NSW. The Standards are listed in Schedule 1 of the *Prevention of Cruelty to Animals Regulation 2012* as relevant Standards under Part 4 of the Regulation.

**Australian Animal Welfare Standards and Guidelines – Cattle**

The dairy industry is now working with other industry bodies, animal welfare scientists, governments and welfare groups to develop *Australian Animal Welfare Standards and Guidelines for Cattle*. The Standards support cattle welfare on farm. The new Standards and Guidelines are based the existing *Model Code of Practice for Welfare of Animals: Cattle*.

**National Livestock Identification System**

The National Livestock Identification System (NLIS) supports the identification and tracing of livestock. It enhances Australia’s ability to respond quickly to a major food safety or disease incident in order to maintain access to key export markets.
NLIS Cattle, introduced in NSW on 1 July 2004, involves the electronic identification of cattle and the centralised recording of movements on a national database. It uses approved NLIS ear tags or rumen boluses to track all movements of cattle between properties.

**Current issues affecting the industry**

As markets for milk become increasingly volatile, NSW dairy businesses will need to continue to evolve and develop production and management systems and appropriate business models to adjust to these markets and maintain competitiveness.

The industry now faces uncertainty from forecast hotter and drier conditions in some regions, hotter and wetter conditions in other regions, and increased incidence of extreme weather events and greater rainfall variability. Changes due to water reform, especially in the Murray–Darling Basin, are likely to affect water availability and prices in the future.

In addition to climate variability, NSW dairy farmers will need to manage their businesses to account for a range of external risks affecting product sales and input costs, including international commodity prices, global supply and demand, and exchange rates. Dairy production systems in NSW will need to be adaptable and resilient in the face of the likely volatilities in milk price, labour supply, climate and input costs.

An Australia-wide decline in support for agricultural research, development, education and extension at both the national and state government levels has shifted the responsibility to industry. The sustainability and independence of this model for industry and the public good are currently being tested.

Knowledge as a key input for future growth and survival of the dairy industry will require both appropriate educational facilities and access to accurate, relevant and robust information to support well educated and informed advisers to train the service providers of the future.

The NSW dairy industry faces continuing challenges in relation to natural resource management, including the need to:

- substantially improve water use efficiency and water quality on and off farm in response to water availability and pricing
- prioritise natural resource management in the context of catchment-wide resilience and targets – the location of dairy farms in locations subject to variable climate, together with the impact of climate change, means that changes to farm practices will be needed in order to contribute to catchment health and resilience
- formulate on-farm responses to national and international agendas in relation to energy use, greenhouse gas emissions and climate change
- produce creative responses from the dairy industry to resolve land and water use conflicts in relation to issues such as coal seam gas extraction and urban encroachment.

**Future growth, trends and opportunities**

The NSW dairy industry appears to have a great opportunity to grow and thrive through the growing domestic market and burgeoning global demand for dairy. However, while there has been modest growth in milk production in the first half of 2015, the gap between demand and supply is growing.

The growing middle class in China, India and Asia in general will create increasing demand for dairy products from Australia. Continued interest from investors in these markets highlights the opportunities that exist for the NSW dairy industry to service these growing and geographically close markets.
Industry bodies, processors and investors are considering options to capitalise on these market opportunities, such as the potential to construct multiple powder plants along the east coast and inland and to develop the fresh milk market that was established in 2014. These options create an alternative market for the NSW dairy industry and are likely to result in sustained competition for raw milk among processors. However, as the Growing the NSW Dairy Industry report highlights, the outlook on export returns is potentially lower than the current average NSW farm gate price, which is heavily based on local fresh milk supply. The report suggests that the best prospects for significant growth in the medium term will come from large-scale production facilities in more competitive regions. Productivity gains may be achieved by focusing on improved pasture production, animal nutrition and cost management.

Challenges to growth

Managing a dairy business in an increasingly uncertain and volatile environment

Since the deregulation of the Australian dairy industry in 2000, NSW dairy farmers have gone from a very stable regulated market to one characterised by volatility and uncertainty. Over the past 3 years, the major processors operating in NSW have demonstrated a limited capacity to cope with oversupply. Transport logistics favour larger producers who are closer to the processor hubs in Sydney or northern NSW and Queensland.

Fluctuations in pricing on the international commodity market have also restricted farmers’ ability to plan for growth in regions supplying milk destined for export markets, such as the Riverina.

Processors and the milk marketplace

The marketplace volatility and uncertainty, combined with higher input prices, especially for electricity and purchased feed, and poor seasonal conditions, contributed to a shortage of milk in the northern milk pool in 2014. This increased milk prices to around $7.30/kg MS, or 52¢/L.

Managing pasture-based farms in a changing climate

Rainfall is becoming more variable and weather events are becoming more extreme relative to previous decades. Most NSW coastal regions have experienced major floods over the past 5 years, along with the driest and warmest summer for 30 years. The incidence of frosts in NSW is declining markedly, although severe late frosts in recent years have hit grain and forage crops. Climatic variability affects dairy farm operations in two key areas:

- Managing the feedbase to ensure that the quality and quantity of home-grown fodder meet the needs of the herd. This necessitates:
  - suitable pasture and crop species
  - access to water for irrigation
  - farm infrastructure – feed pads, feed wagons and fodder conservation equipment.
- Managing dairy cows in a warming climate, in which heat harms cow health and welfare, milk production and milk quality. This necessitates:
  - infrastructure to cool cows, such as shade shelters, sprinklers, stock water access and a revision of farm layout
  - breeds of cows more adapted to higher heat loads
  - feed conversion efficiency.

Declining herd fertility

Herd fertility has been declining in the NSW, Australian and international dairy industries over the past 10 years. In Australia, the key measure of herd fertility is the 6-week in-calf rate for seasonal- and batch-calving herds, or the 100-day in-calf rate for year-round calving herds. The
Dairy Australia InCalf project studied the reproductive performance of 74 herds in Victoria and Tasmania. Its key finding was that in-calf rates had declined by about 1% per year over the past 10 years.

Data supplied by Dairy Express show a similar trend in NSW year-round calving herds, although reproductive performance is harder to measure in NSW. The average inter-calving interval has increased to 63 weeks (nearly 15 months). Although this is an indirect measure of reproductive performance, it does indicate that cows are taking longer to conceive and are milking for longer. This trend will lower lifetime milk production and hence profitability.

Many factors influence herd fertility, so there are no simple answers to reversing the decline. Dairy Australia, through the ‘Dairy Moving Forward’ reproduction steering group, has developed an investment strategy to address the top-priority issues.

**Access to resources and markets in increasingly urbanised regions in SE Australia**

The location of the majority of NSW dairy farms is the result of a historical combination of rainfed pastures in coastal areas supported by a maritime climate and close proximity to market. Such locations are now affected by:

- very high land values that reflect a demand from affluent buyers seeking lifestyle blocks; such demand inflates land values beyond their true agricultural value
- urban encroachment from expanding metropolitan areas onto fertile agricultural land
- competition for and access to water at a cost that does not reflect its value for production purposes
- sourcing labour in a competitive market characterised by low unemployment
- mining and coal seam gas expansion in rural areas
- pressure from animal welfare groups and consumer demands on food provenance and an expectation that farmers are committed to a ‘social licence to farm’.

**Increased risk**

The complexity of production requirements in an environment that is experiencing a changing climate coupled with an inflexible marketplace has created more risk in dairy farming than ever before. This risk is more pronounced where farmers are carrying high debt.

The DFMP analysis shows an average debt of $4700/ha or $3800 per cow. The average asset investment is $20,000/ha of usable area. Equity levels are reasonably good at around 75% on average.

For a business to succeed and to be sustainable, all aspects of it must operate efficiently in a complex economic, social, environmental, production and marketing environment. To thrive and prosper in such a demanding environment, NSW dairy farmers need to be astute business managers, manage labour, appreciate community expectations, and thoroughly understand their business profitability, their cost of production and the drivers that affect profit and sustainability.

**NSW Government response to challenges**

A number of organisations are working towards developing and maintaining the NSW dairy industry as a profitable, sustainable and adaptable industry in an increasingly uncertain environment. These agencies and their functions are outlined below.

**DPI Agriculture – a branch of NSW DPI**

DPI Agriculture leads the NSW Government’s commitment to sustainable production of food, fibre and bioenergy on the basis of the best available science to meet the needs of the community. It focuses on the following priority goals:
• To develop and adopt technologies and management systems to improve the productivity and sustainability of agriculture and forest systems.
• To coordinate the delivery of research, development, education and extension services across providers nationally through the Primary Industries Standing Committee.
• To manage the integrated Research, Development and Extension Framework.
• To develop opportunities for farmers and foresters to participate in the low-carbon economy.
• To contribute to the development of strategic regional land-use plans and the NSW Aquifer Interference Policy.
• To identify and map strategic agricultural land.


NSW DPI employs a dairy team, consisting of a manager, a technical specialist and two dairy development officers. The team has several roles:

• To gather industry intelligence concerning the dynamics of the NSW dairy industry.
• To develop resources, including decision support tools, to permit the assessment of risks associated with continued profitable production and opportunities for expansion.
• To work in the areas of industry where market failure exits, focusing on those areas that will derive the most benefit at the least cost.
• To develop and maintain collaborative relationships with industry in order to identify research needs and diagnostic requirements.
• To maintain links with the dairy industry so as to enable the development of appropriate policies.
• To support development-led innovation in the pathway from research to market.
• To provide the dairy industry with well designed programs which help build resilient, sustainable dairy farms and rural communities.

Current projects and activities the team are working on include:

• delivering the DFMP to provide accurate, reliable information on profitability and productivity
• developing training and resources in farm business management via a range of media
• identifying profitable and sustainable dairy businesses and the management decisions behind them, to share with the broader industry
• identifying factors affecting costs of production in NSW relative to other regions, and developing projects to help farmers reduce costs and improve profits.

NSW DPI employs a development officer in robotic milking systems. The officer’s role is to increase awareness and successful adoption of robotic milking technology on Australian dairy farms by leading innovation and developing collaborative networks and knowledge.

Education and training providers

NSW DPI has a long and proud history of training and education in the dairy industry. Courses have been run at Tocal Agricultural College since 1980, when dairy apprenticeships and traineeships were begun. Tocal also offers a range of education opportunities for the dairy industry, including Certificate II to Diploma qualifications, both face to face and online, short courses, and a range of publications.

TAFE NSW has also offered training in the dairy industry for almost as long as Tocal.

The National Centre for Dairy Education (NCDE) delivers vocational education and training for the dairy industry nationally, working with registered training organisations, including Tocal and several TAFE institutes.
The NCDE also offers advanced manufacturing-focused training through the Gilbert Chandler Centre in Werribee, Victoria. Like Tocal, the Centre offers Certificate II to Advanced Diploma qualifications on a full-time, part-time or flexible basis. The courses cover agriculture (specialising in dairy production), and management, food technology and food processing.

**DPI Biosecurity and NSW Food Authority**

Australia’s reputation for safe, high-quality agricultural products creates a strategic advantage for products in export markets. The NSW Food Authority plays a key role in upholding this reputation by regulating businesses to keep food safe for human consumption, enforcing food safety and labelling laws, and advising on handling food safely. See [www.foodauthority.nsw.gov.au/industry/](http://www.foodauthority.nsw.gov.au/industry/) for more information.

**Local Land Services**

In late 2012, the NSW Government announced changes to the structure and delivery of services to NSW farmers. Central to those changes is a new organisation termed the Local Land Service (LLS). LLSs bring together agricultural production advice, biosecurity, natural resource management and emergency management into a single organisation.

NSW is covered by 11 LLS regions, managed by 11 local boards: Central Tablelands, Central West, Greater Sydney, Hunter, Murray, North Coast, Northern Tablelands, North West, Riverina, South East and Western. Dairy farms are present in all LLS regions except the Western. Each LLS is tasked with adding value to local industries, enhancing natural resources, protecting industries from pests and disease, and helping communities respond to emergencies such as flood, fire and drought.

LLSs bring together staff with a wealth of locally relevant experience and expertise in:

- agricultural production
- biosecurity, including animal and plant pest and disease prevention, management, control and eradication
- preparedness for, response to and recovery from emergencies affecting primary production or animal health and safety
- animal welfare
- chemical residue prevention, management and control
- natural resource management and planning
- travelling stock reserves and stock watering places
- control and movement of stock
- other related services and programs.

National industry bodies

Dairy organisations and service providers
National dairy organisations and their relationships are shown in Figure 7. Some of the organisations are described below.

Figure 7 – National dairy organisations.

Dairy Manufacturing Sector
- Australian Dairy Products Federation (ADPF)
- Dairy Innovation Australia

Farmer/Agripolitical Sector
- Australian Dairy Farmers Ltd (ADF)
- State farmer organisations
- Australian Dairy Industry Council (ADIC)

Service Sector
- Dairy Australia
- Regional Development Programs (RDPs)
- National Centre for Dairy Education (NCDE)
- State agencies (agriculture and natural resources)
- Dairy Futures CRC
- Universities
- Private providers

Dairy Australia
Dairy Australia is an industry-owned national service organisation. Its role is to help farmers adapt to a changing operating environment and achieve a profitable, sustainable dairy industry. It works across the supply chain from the farm to manufacturing to domestic and overseas markets. It identifies and then invests in the best opportunities for collective action in activities that farmers and companies cannot do efficiently themselves.

Dairy Australia is funded by farmer-paid levies based on fat and protein content. The Australian Government matches expenditure on the industry’s R&D activities that meet established criteria. For the current 2012–16 planning cycle, Dairy Australia’s strategic priorities are to:

- improve farm margins and growth opportunities
- promote and protect dairying’s value and integrity
- coordinate an integrated supply chain response to climate change and natural resource management
- grow skills and capability.

Regional development programs
There are eight dairying regions in Australia, each with its own conditions and requirements. Dairy Australia set up regional development programs (RDPs) in the mid 1990s to cater to these varying requirements. Although RDPs receive funding and support from Dairy Australia, they are independent entities that act on what is best for their region.
Three RDPs operate in NSW:

- The Subtropical RDP covers the area from north of Kempsey to the Queensland border in NSW and to the Atherton Tableland in Queensland.
- Dairy NSW covers the coastal regions south of Kempsey to the Victorian border on the coast and inland areas north from Wagga Wagga.
- Murray Dairy covers the southern Riverina area of NSW and includes the irrigation areas of northern Victoria.

RDPs fund projects that focus on local issues and deliver benefits for the local farmers. They operate mainly through local farmer groups, who develop the projects and help run them and disseminate results. RDPs can also source funds from sources other than Dairy Australia.

**Dairy Futures Cooperative Research Centre**

The Dairy Futures Cooperative Research Centre is a large-scale partnership among dairy farmers, pasture and cattle breeding companies, government and researchers. Partners include Dairy Australia, DEPI Victoria, Heritage Seeds, Genetics Australia, MGC, Agriseeds, PGG Wrightson, Barenbrug and several universities. Investment ranges from new genetic technology to activities that best position each innovation to capture value at the farm, factory and community levels. Programs focus on improving pastures and cattle and on education. Improvements in pasture cultivars and breeding dairy cattle are expected to deliver $320 million in value for dairy farmers.

**Private providers**

A wide range of service providers interact with the dairy industry in NSW. These include veterinarians for animal health, private consultants for nutritional and agronomic advice, irrigation specialists, milking equipment providers, farm business advisors and animal breeding specialists. In addition, milk processing companies and cooperatives employ field officers or milk supply officers to provide advice and support for dairy farmers.

**NSW Dairy Food Safety Consultative Committee**

The NSW Food Authority’s consultative approach to food regulation is supported by industry consultative committees, which exist for all industry sectors covered by a regulatory food safety scheme.

The NSW Dairy Food Safety Consultative Committee was established in November 2014 following the identification of appropriate industry representatives to advise the Food Authority on dairy food safety and the management of food safety across the NSW dairy industry supply chain. Its primary objective is to support the Food Authority’s goal of ensuring the production and sale of dairy products that are safe for human consumption.

**NSW Farmers Association Dairy Committee**

NSW Farmers advocates on behalf of dairy members through representation on industry bodies and lobbying to ensure that the industry remain vibrant and profitable. Members are given access to the latest R&D information to ensure that they remain at the forefront of the industry.

**Dairy Connect**

Dairy Connect is a not-for-profit organisation which aims to represent and act on behalf of the NSW Dairy industry; to protect, support, promote and advocate for the interests of dairy farmers, milk vendors, processors and manufacturers; and to develop an enhanced strategic outlook for the whole of the NSW dairy industry.

Dairy Connect has approval from the NSW Farmers Association Dairy Committee and the Amalgamated Milk Vendors Association, and more broadly from processors and manufacturers.
**Dairy Research Foundation**

The Dairy Research Foundation, located at the University of Sydney's Camden campus, has been operating since 1959. It aims to advance dairy science and improve technical practices in the industry. One of its main roles is to inform the dairy and general community of the work undertaken by the University. An annual dairy research symposium is held at Camden to present the latest research, developments, findings and products.

**References**