



Global Organic Milk Production Market Report

June 2018

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Scope of research

It outlines the state of the current global organic milk production market and the key factors differentiating from the conventional milk production market.

Market research

The aim of the research was to compare organic and conventional milk market to understand:

- Production volume
- Cost premium
- Farm-gate price premium
- Retail price premium

Approach undertaken

The following activities were conducted to obtain research and findings to support this document:

- Engagement with 148 stakeholders from dairy associations, certification organisations, producers, processors, and dairy market analysts across 35 countries, to understand the current organic milk supply as well as the expected growth
- Desktop research

Executive Summary

The term “Certified Organic” is often used to verify production systems and to market to consumers according to many production standards as defined by organic associations, governmental regulatory bodies, and certifying bodies.

The certified global organic milk market accounts for less than one percent of global dairy milk production. There are three major producers - the US, China, and Germany.

KPMG’s 2018 Global Organic Milk Production Market Report identifies that the global market for certified organic milk is relatively small at 0.9 percent of the global market for conventional milk. Organic milk attracts premium price both at the farm gate from 27 to 44 percent and at retail from 9 to 53 percent. The quantum of this premium varies significantly between countries.

The 2018 report also identifies the increased cost of organic dairy farming compared to conventional dairy farming. It attributes this increased cost to factors associated with adhering to the standards and principles of organic farming, in particular low farming intensity and the need for higher cost organic inputs such as feeds.

Based on this year’s report, there are a number of challenges that the organic dairy industry needs to address to position itself for growth. These include meeting organic standards over time and across different jurisdictions, availability and cost of organic inputs, and competition for retail premium from alternative products such as plant-based and specialty dairy drinks.

Snapshot of Global Milk and Organic Milk Production

Total Global Milk

In 2017, total global milk production was

798.5 billion litres

97% of all milk produced was bovine-derived



Comprised of: Cow milk

Buffalo milk

83%

14%



Developed countries consume more than 300 kilograms of milk products per capita each year, compared to less than 30 kilograms per year per capita in some developing countries.

Global milk production has grown at a compound annual growth rate (CAGR) of 1.9% over the past five years.



Certified Organic Milk

Certified organic milk accounts for approximately



0.9% of global dairy milk production.

0.6% of milk production in Australia is organic.

USD4.3 billion

The global value of organic milk production is estimated at.

USA, China, and Germany are the largest producing countries.



Organic milk by-products, such as yoghurt, also earn a premium retail price compared to equivalent conventional milk by-products.

Organic dairy farming costs are

1.3–1.6 x higher than conventional dairy farming costs.



AT FARM GATE, the premium price that organic milk earns compared to conventional milk varies from 27% to 44%, depending on the country.



AT RETAIL, the premium price that organic milk earns compared to conventional milk varies from 9% to 53%, depending on the country.

What is milk?

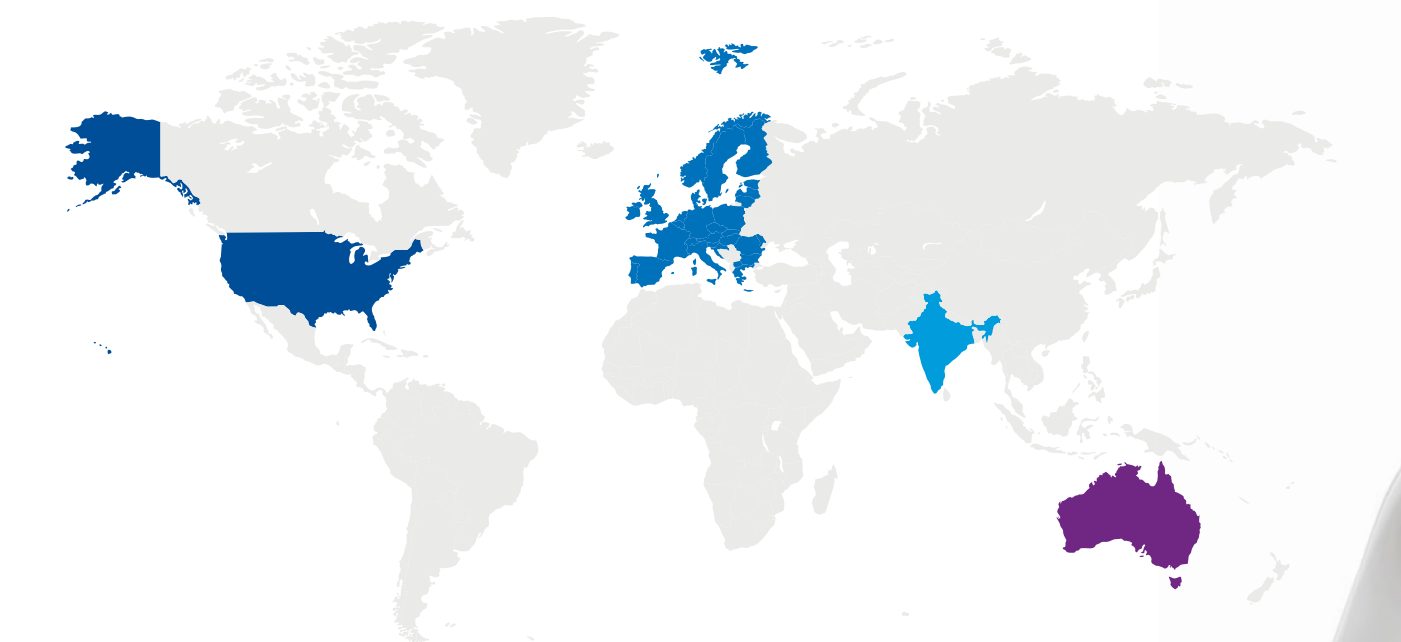
While the term “milk” is consistently defined across major economies as a product derived from animals, the term is not well regulated and both animal and plant-based suppliers use the term.

In light of this, several national and regional dairy industry organisations have made efforts to restrict products labelled as “milk” to designate only those derived from animals.

The focus of our report is on animal-derived dairy products sourced predominantly from cow, buffalo, goat, and camel.

TABLE 1: Dairy industry on milk labelling

USA	EU	India	Australia
Legal challenges against the plant-based industry have noted that the Food and Drug Administration (FDA) had not enforced its own definition of the term “milk”. Previous dairy industry court challenges based on consumer confusion have not been successful.	The European Court of Justice has ruled that purely plant-based products cannot in principle be marketed with designations such as “milk”, “cream”, “butter”, “cheese” or “yoghurt”, which the European Union (EU) reserves for animal products.	Concerns have been raised by the dairy industry about plant-based soy or almond-based beverage makers classifying their product as “milk”.	Different farmer representative groups have challenged “milk” labelling in relation to consumer confusion for plant-based products without clear outcomes.



What is organic?

The term “organic” refers broadly to agricultural practices that cover resource usage and animal welfare. Organic practices frameworks have been established by several international organisations and many countries in order to formalise and certify “organic” producers.

There are currently 88 countries that have national standards, with some of these national standards recognised internationally. National certifying bodies are accredited to certify businesses against domestic and international requirements.

The term “Certified Organic” is often used to verify production systems and to market to consumers according to many production standards as defined by organic associations, governmental regulatory bodies, and certifying bodies.

Most organic certifying bodies have adopted similar sets of criteria comprising feed, land, animal healthcare and welfare, administration, and processing, with key provisions allowed for country-specific agricultural environment.

While many countries have dairy industry segments that could satisfy organic principles, in developing countries these segments are often small-scale, highly fragmented, have unknown levels of consistency, and are not commercial. For these reasons, this report examines organic milk production only in countries that adhere to standards defined by an organic accrediting organisation.

Evolution of organic standards

Organic standards are evolving to address challenges faced in specific markets. This evolution is aimed at guaranteeing fairer competition for farmers and operators, preventing fraud and unfair practices, and improving consumer confidence in organic products.

Examples of Collaboration Arrangements

International Harmonisation

Parts of the industry are calling for a common international standard under the standard setting framework of the International Standardisation Organisation (ISO).

Equivalence Programs

Countries agree on the differences and similarities of their organic certification processes, allowing equivalence if certain requirements are met. For example, EU exports can retain organic certification in the US given no antibiotics have been used.

Mutual Recognition

Recognition of other countries’ organic certification assessment procedures despite differences.

TABLE 2: Key organic dairy certification provisions

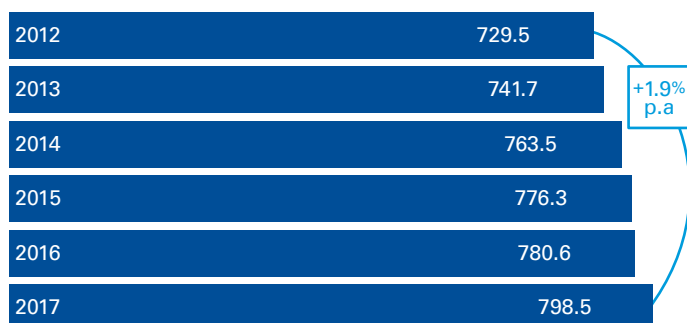
Waste Objective • Dairy waste water to be retained on site and must not pollute natural waterways • Sewage sludge not to be used on feed crops Land management Objective • No or restricted use of chemicals in fertilisers and pesticides • Crops and pastures to be planted with untreated organic seed • Farm land for pasturing and housing dairy cattle to be organically certified Exceptions • The number of allowed organic pesticide additives in China is twice that of the EU • Australian standards allow for derogations reflecting the reality of farming, i.e. conventional feed allowed in drought declared areas Water use Objective • Preservation of water quality and water systems • Local ecosystems to be considered for on-site water harvesting • Recycled water not to introduce pollutants or excessive nutrients to farm	Processing Objective • Prohibition of unapproved genetically manipulated enzymes, preservatives, thickeners, and emulsifiers • Processing facilities to be organically certified • To retain integrity, organic processors are to prevent contact between organic and non-organic substances throughout processing Administration Objective • Organic management plans to formally detail practices and procedures required to adhere to standards • Traceability and product identification throughout the supply chain • Minimum 95 percent of the product must be organic to be labelled "Certified Organic" Exceptions • US labelling rules include that a "100% organic" claim can be made if all ingredients including processing aids are organic. The "made with organic" claim can be made when at least 70 percent of the product is organic. Products with less than 70 percent organic ingredients can only mention "organic" in the ingredient list	Welfare Objective • Regular access to pasture • Shelter for protection against the sun, wind, and rain • When confined, access to adequate space, water, fresh air, sunlight, and ventilation • No or restricted use of hormones, and antibiotics • No use of genetic modification • Pro-active management of cattle health • Promotion of biodiversity and protection of existing primary ecosystems Exceptions • China allows for the use of hormones for veterinary purposes • Europe allows for the use of antibiotics for veterinary purposes • There are varying levels of required pasture access across standards, i.e. US requires minimum 120 days, Australia requires daily access, and China & Europe do not explicitly state required access Feed Objective • Feed primarily sourced from the farm or from an organic source. Exceptions • Feed additives for animal nutrition do not need to be derived from raw organic materials in China
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Organic milk production

Global milk production has been growing at 1.9 percent per annum over the last 5 years with bovine milk accounting for ~97% of total volume

FIGURE 1: Global milk production (2012 - 2017)

Litres, billion



Source: OECD-FAO; KPMG Analysis

FIGURE 2: Global milk production by source of supply (2017)

Litres, billion



Source: OECD-FAO; KPMG Analysis

FIGURE 3: Global organic milk production by countries (2017)

Country	Production volume ranking	Production volume (Litres, billion)	Share of total organic (%)	Organic share in country (%)	2012-2017 CAGR
USA	1	1.17	16.4%	1.2%	3.6%
China	2	0.88	12.4%	2.2%	N/A
Germany	3	0.83	11.6%	2.6%	4.9%
France	4	0.62	8.7%	2.5%	6.0%
Denmark	5	0.56	7.8%	11.1%	3.6%
Austria	6	0.46	6.5%	13.3%	2.6%
Italy	7	0.42	5.9%	3.8%	16.4%
United Kingdom	8	0.41	5.7%	2.8%	-0.7%
Sweden	9	0.36	5.1%	13.7%	0.5%
Switzerland	10	0.23	3.2%	5.8%	2.0%
New Zealand	15	0.07	1.0%	0.3%	N/A
Australia	20	0.05	0.7%	0.6%	N/A
Others	N/A	1.06	14.9%	N/A	N/A
Total	N/A	7.1	100%	0.9%	N/A

Source: KPMG Analysis

Organic cost premium

Organic milk is more costly to produce compared to conventional milk. This is because there are increased costs associated with adhering to the standards and principles of organic farming.

The increased cost of organic milk differs depending on factors such as the local cost of sourcing organic inputs, land use, size of operations, and the milk production of each organic cow.

The cost of organic dairy farming is estimated to be 1.3 to 1.6 times higher than the cost of conventional dairy farming.

The drivers of the cost premium of Organic milk can be broken up into the following three categories:

1. Input cost premium

Maintaining organic dairy cows attracts additional costs. A variety of inputs are required to be organically source.

Feed supplies – the cost per unit of organic feed is between 45 percent and 82 percent higher in key production markets.

Land rent – land use per cow is between 7 percent and 71 percent higher for organic farms in key production markets, increasing land rent costs

Land management – increased quantity and quality of certified organic fertiliser and seeds must be used on organic farms. The cost per unit of organic fertiliser is between 33 percent and 50 percent higher in key production markets.

2. Scale constraints

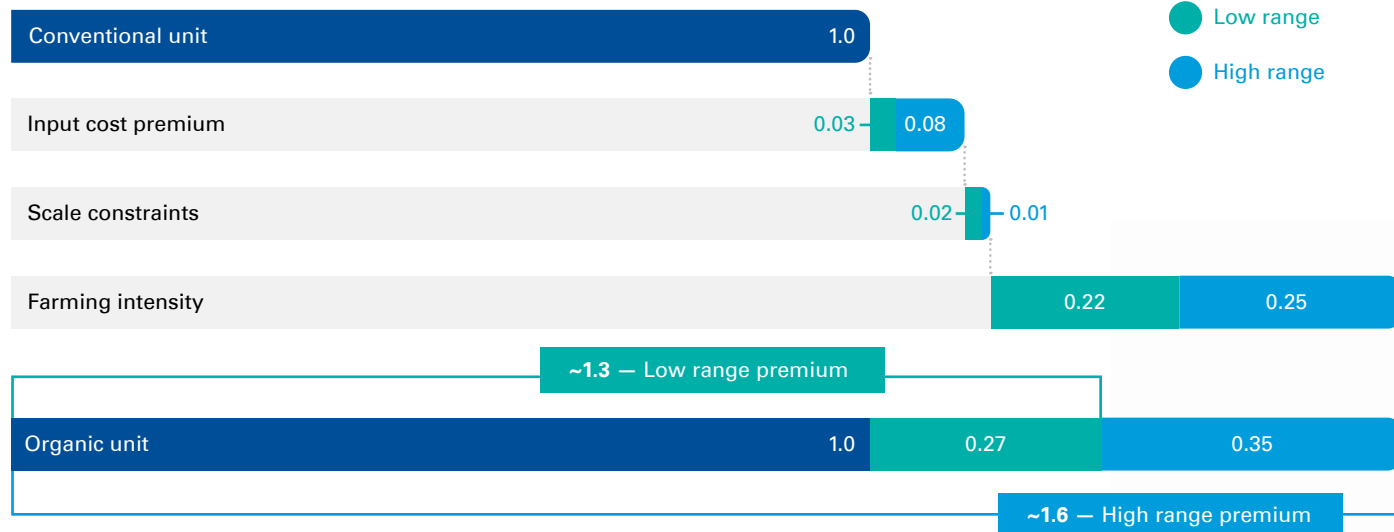
In key production markets, organic dairy farms are between 35 to 90 percent smaller compared to conventional farms. Hence, organic dairy farms have reduced economies of scale compared to conventional farms.

3. Farming intensity

Less milk is produced per cow on organic farms compared to conventional farms. The reduced yield of organic cows ranges from 8 percent to 34 percent in key production markets.

FIGURE 4: Conventional & organic milk farming cost comparison

Index of conventional milk farming unit cost



Source: KPMG analysis

Organic price premium

Globally, organic milk commands premium pricing both at farm gate and retail.

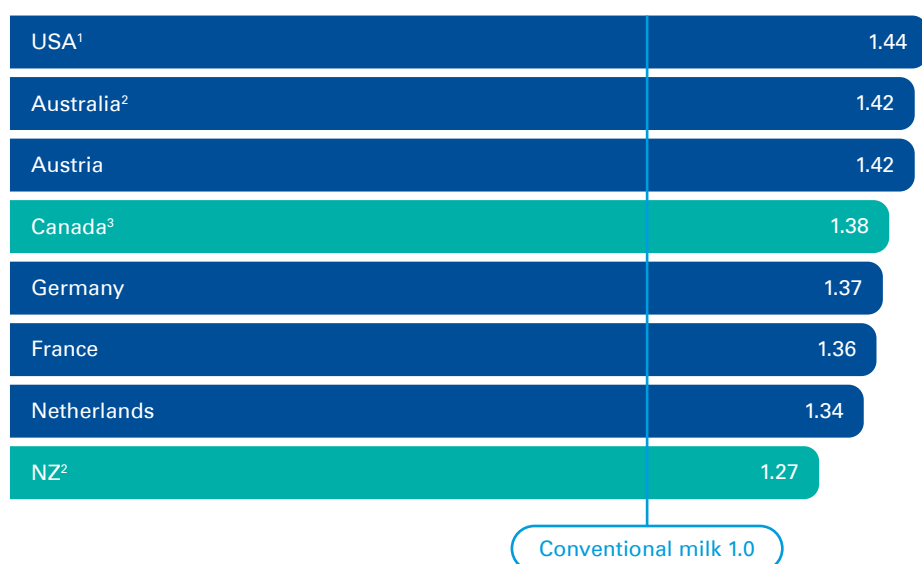
Farm gate pricing

At the farm gate, a survey across eight major dairy producing markets found that organic milk received a price premium over conventional milk that ranged from 27 percent to 44 percent (see figure 5). How the premium is derived varies by market, with some regions fixing the price paid for a unit of organic milk to the unit price of conventional milk. In other regions, organic milk producers negotiate price directly with processors in a conventional market process.

Farm gate prices for organic milk have by large been less volatile than conventional milk prices. However, as organic milk production grows in line with demand, organic milk prices are expected to follow similar behaviour as conventional milk pricing. For instance, organic milk pricing has begun to display greater levels of volatility in markets, such as the US, where supply is meeting demand.

FIGURE 5: Organic milk farm gate price premium (2017)

Indexed to conventional milk unit price



● Unfixed—Priced independently of conventional milk farm gate price

● Fixed—Organic milk price fixed as a set premium (\$ or %) to conventional farm gate price

Notes: 1) Premium calculated using data from North-eastern states of the US only; 2) Calculated using weighted average of identified organic farm gate prices; 3) Premium calculated using data from the state of British Columbia only
Sources: FranceAgriMer; Ministry of Agriculture, Food, and Consumers (Germany); Friesland Campina; AgrarMarkt; Northeast Organic Dairy Producers Alliance; BC Milk Marketing; Industry SMEs

Retail pricing

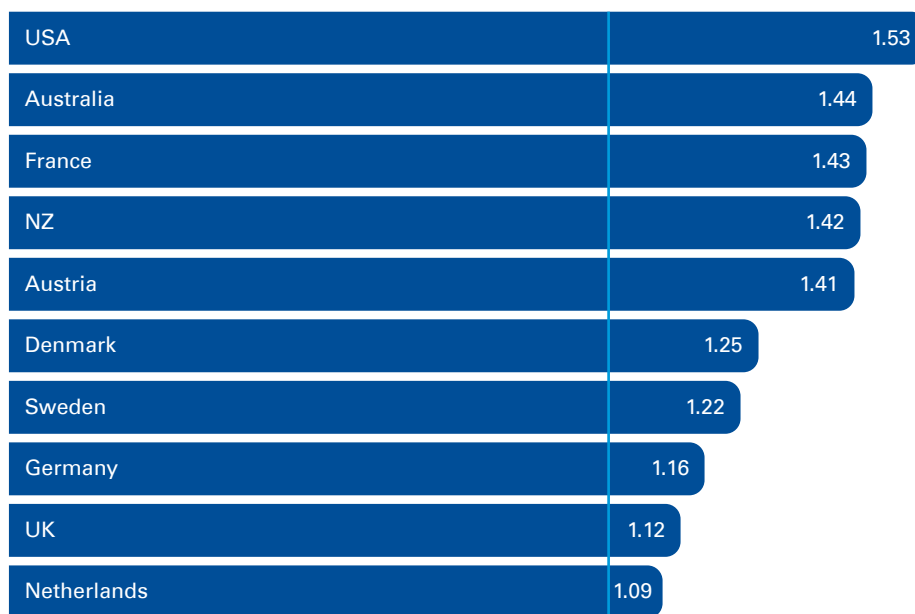
At retail, organic milk attracts a premium price over conventional milk, with this premium varying from approximately 9 percent to 53 percent for 1 litre, depending on country (see figure 6). As unit size increases, conventional milk products are discounted at a greater rate than organic products.

Notes: 1) Prices of non-private label 1 litre milk have been used as benchmark for all selected countries with the exception of 0.5 gallon used for the US at the time of price measurement.

Sources: Retail outlets May 2018.

FIGURE 6: Organic milk retail price premium (2018)

Indexed to branded conventional milk unit price¹



Conventional milk 1.0

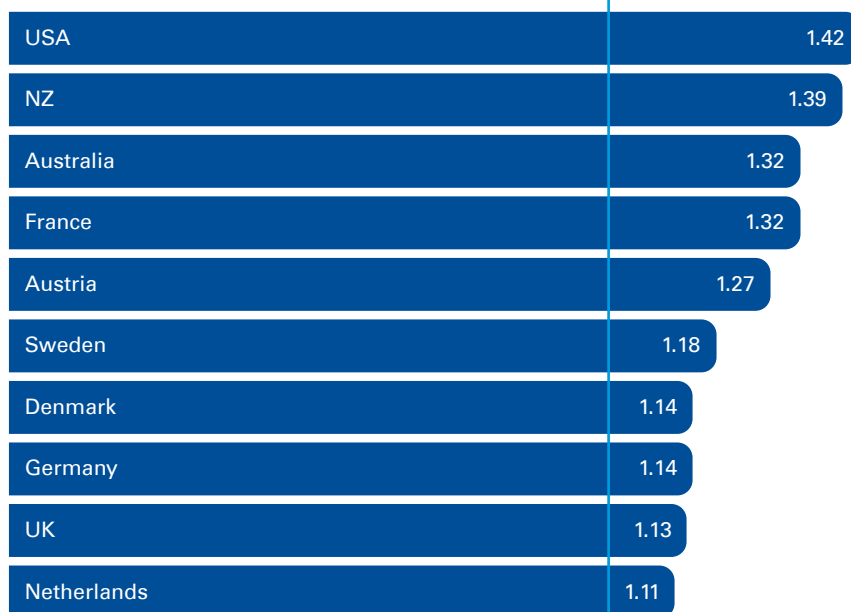
Like organic drinking milk, organic yoghurt attracts a premium price over conventional yoghurt, ranging from 11 percent to 42 percent, depending on the country.

Notes: 1) Dependent on the market, prices of most commonly available non-private label products between 0.5 and 1 kilogram have been used as benchmark.

Sources: Retail outlets May 2018.

FIGURE 7: Organic yoghurt retail price premium (2018)

Indexed to conventional yoghurt unit price¹



Conventional yoghurt 1.0

What does the future hold for supply?

There are several key challenges impacting the growth of the organic dairy sector including satisfying organic standards, availability and cost of organic inputs, and competition from alternative products.

Satisfying organic standards:

- Transition from conventional to organic farming requires 3-5 years. This can create a time lag between costs and rewards and can be a barrier to conversion to organic farming.
- Standards may not reflect farming conditions. For instance, they may not provide exceptions for real life farming conditions such as drought or natural disaster.

- Organic milk producers and processors may face additional challenges when exporting to other markets in the form of multiple organic certifications.

Availability and cost of organic inputs:

- Organically produced feed attracts a price premium that organic dairy farmers must consider. This challenge is further exacerbated by increased competition of supply from other organic grocery products, i.e. cereals and breads.
- Organic fertiliser and seed may also attract a price premium or be limited in availability

Competition from alternative premium products:

- Animal-free and suitable for lactose-intolerant consumers, plant-based products such as soy milk and almond milk are growing increasingly popular.
- Other alternative premium dairy products compete with organic milk such as A2, vitamin-enhanced, Jersey, and grass-fed dairy products
- To enable production uplift, producers need confidence in the sustainability of attractive returns. This will be underpinned by continued demand and premium for key organic dairy products.

Contributions and acknowledgements

We would like to thank all country Chairpersons, Partners and dairy industry specialists across the KPMG global network, in particular, Argentina, Austria, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany,

Holland, Ireland, Italy, Japan, Mexico, Poland, Russia, South Korea, Spain, Sweden and Vietnam for providing warm introductions and research support in the development of this report.

We would also like to acknowledge contributions from many organisations around the world who have helped to develop and validate our understanding of their organic dairy industries and current production levels.

Types of organisations	Number of organisations	Countries
Government agencies	3	USA, Ireland, Switzerland
Dairy associations	42	USA, Portugal, Switzerland, Austria, New Zealand, South Africa, Cyprus, Pakistan, Czech Republic, Serbia, Denmark, Lebanon, Egypt, Norway, Finland, Poland, Germany, Russia, India, Slovakia, Sweden, China, Bulgaria, Viet Nam, Ireland, Italy, Luxembourg, Belgium, South Africa
Dairy producers	28	USA, Australia, Netherlands, United Kingdom, New Zealand, Thailand, France, Austria, Finland, Germany, Ireland, Denmark, China, India
Dairy consultancies	8	Austria, Czech Republic, Switzerland, Italy, South Africa, Switzerland, Netherlands, Mexico
Organic certifying bodies	17	New Zealand, India, Poland, Belgium, Russia, France, Pakistan, Germany, Portugal, Sweden, China, Switzerland, Turkey, Ireland, USA
Total	98	35

References

Report Section	Key Facts and Statistics	Reference - Source
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What is Organic?	Organic Collaboration Arrangements	Australian Government Department of Agriculture and Water Resources, Improving Access to Premium Markets for Organic Products, 2017
What is Organic?	Table 2: Key Organic Dairy Certification Provisions	Australian Government Department of Agriculture and Water Resources, National Standard for Organic and Bio-Dynamic Produce, 2016 Australian Certified Organic (ACO), Australian Certified Organic Standard, 2017 National Association for Sustainable Agriculture Australia (NASAA), NASAA Organic & Biodynamic Standard, 2016 Parliament and Council of the European Union, Regulation (EU) No. 834/2007, 2007 United States Department of Agriculture (USDA), National Organic Program, 2018 People's Republic of China, The National Standard of the People's Republic of China - Organic Product, 2011 Europe China Research and Advice Network (ECRAN), Comparison of the Organic Standard in China and the EU, 2010
Organic Milk Production	Milk Production Quantities	Food and Agriculture Organisation of the United Nations, OECD, Agriculture and Fisheries, 2018

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June 2018. NSW N16655LOBS