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m^olk
Milk South Africa
Melk Suid-Afrika

mpo
MELKPRODUSENTE-ORGANISASIE
MILK PRODUCERS' ORGANISATION

samp^{ro}

Suid-Afrikaanse Melkprosesseerdersorganisasie
South African Milk Processors' Organisation

Melk SA bevorder 'n gesonde Suid-Afrikaanse suiwelgemeenskap

Die MPO en SAMPRO spreek gemeenskaplike
uitdagings deur Melk SA aan.

Melk SA voeg sedert 2002 waarde by tot 'n groeiende
SA suiwelbedryf deur sy inisiatiewe en projekte.

Melk SA werk met nasionale en internasionale
instellings saam en geniet erkenning as die amptelike
sambreel-organisasie van die SA suiwelbedryf.



Milk SA foreword

The purpose of this publication is to provide information on the structure and performance of the dairy industry, with a view to promoting optimal development to the benefit of the South African dairy industry and consumers.

Milk South Africa (Milk SA) is proud to present this publication, made possible especially through the contributions of the persons or entities sharing their information via statutory regulations. The South African Milk Processors' Organisation (SAMPRO), the Milk Producers' Organisation (MPO), and the Milk SA work group comprises messrs Nico Fouché, De Wet Jonker, Alwyn Kraamwinkel, and Bertus van Heerden.

Executive summary

Global economic growth is projected at -4,9% in 2020, 1,9 percentage points below the April 2020 World Economic Outlook (WEO) forecast. The COVID-19 pandemic has had a more negative impact on activity in the first half of 2020 than anticipated and the recovery is projected to be more gradual than previously estimated.

Global growth for 2021 is projected at 5,4%. This will leave 2021 gross domestic product (GDP) some 6,5 percentage points lower than the pre-COVID-19 projections. The Food Price Index of the Food and Agricultural Organization (FAO) of the United Nations indicates that global food prices for August are lower, when compared to the opening prices in January 2020. International prices of all the major dairy products are also lower than the January prices.

The joint OECD-FAO Agricultural Outlook 2020-2029 report finds that, over the next ten years, supply growth is going to outpace demand growth, causing real prices of most commodities to remain at or below their current levels.

International calculated standardised unprocessed milk producer prices (R/ℓ) in July 2020, inclusive of South Africa, are higher than in January 2020, mainly driven by rand depreciation over this period. Unprocessed milk production in the major dairy exporting countries is notably higher in the first six months of 2020, compared to the same period the previous year.

The sales quantities for seven of the nine dairy products measured by Nielsen increased over the 12-month period from July 2018 to June 2019 versus July 2019 to June 2020, with maas and prepacked cheese increasing the most, by 12,7% and 11%, respectively. The sales quantities of both fresh milk and flavoured milk, however, decreased over this period. The average retail price of all nine dairy products for the 12-month period from June 2019 to June 2020 increased, with one product increasing by an amount less than inflation. Unprocessed milk production for the first eight months of 2020 is 0,63% less than the same period in 2019.

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INTERNATIONAL SITUATION



Global economic growth

Global growth is projected at -4.9% in 2020, 1.9 percentage points below the April 2020 World Economic Outlook (WEO) forecast. The COVID-19 pandemic has had a more negative impact on activity in the first half of 2020 than anticipated, and the recovery is expected to be more gradual than previously estimated.

Global growth for 2021 is projected at 5.4%. This will leave the 2021 gross domestic product (GDP) some 6.5 percentage points lower than the pre-COVID-19 projections of January 2020. The adverse impact on low-income households is particularly acute, imperilling the significant progress made in reducing extreme poverty in the world since the 1990s.

Consumption and services output have dropped markedly

In most recessions, consumers dig into their savings or rely on social safety nets and family support to smooth spending, and consumption is affected relatively less than investment. However, this time, consumption and services output have also dropped markedly. The pattern reflects a unique combination of factors: voluntary social distancing, COVID-19 lockdowns needed to slow

transmission and allow health care systems to handle rapidly rising caseloads, steep income losses, and weaker consumer confidence. Firms have also cut back on investment when faced with precipitous demand declines, supply interruptions, and uncertain future earnings prospects. Thus, there is a broad-based aggregate demand shock, compounding near-term supply disruptions due to lockdowns.

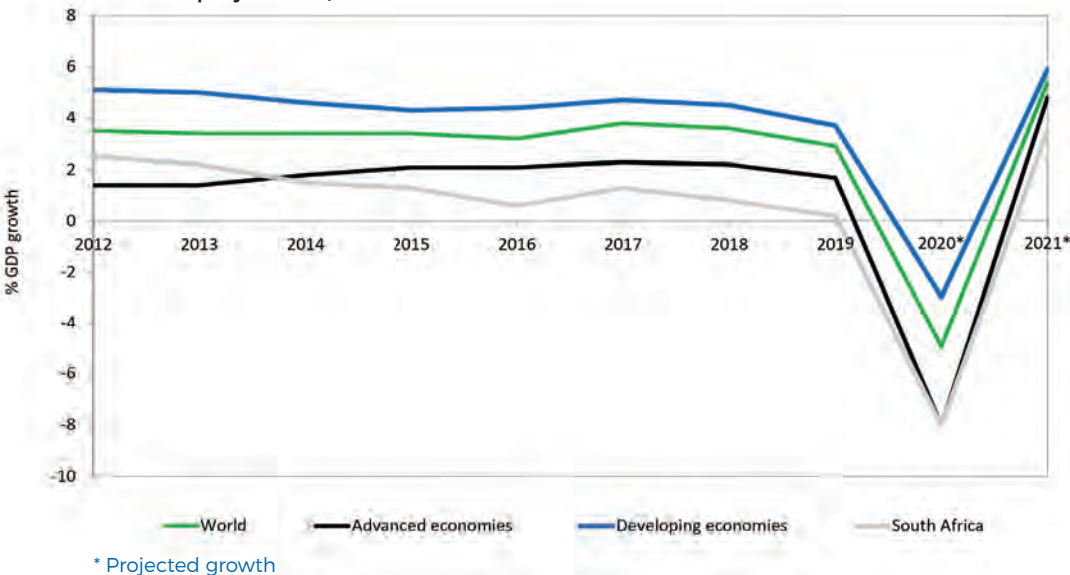
Contraction in global trade

The synchronised nature of the downturn has amplified domestic disruptions around the globe. Trade contracted by close to -3.5% (year-on-year) in the first quarter, reflecting weak demand, the collapse in cross-border tourism, and supply dislocations related to shutdowns (exacerbated in some cases by trade restrictions).

Weaker inflation

Average inflation in advanced economies has dropped about 1.3 percentage points since the end of 2019, to 0.4% (year-on-year) as of April 2020, while in emerging market economies, it has fallen 1.2 percentage points, to 4.2%. Downward price pressure from the decline in aggregate demand,

Figure 1: International economic growth and expected growth, 2012-2021 (source: IMF 2020* and 2021* projections)



together with the effects of lower fuel prices, seems to have more than offset any upward cost-push pressure from supply interruptions so far.

Global food prices lower than opening prices in January 2020

The FAO Food Price Index averaged 96,1 points in August 2020, up 1,8 points (2,0%) from July and 2,1 points (2,2%) from June, higher than its level in the corresponding months the previous year. The August value, the highest since February 2020, represented an increase for the third consecutive month. While a weaker US dollar provided support to international prices of most agricultural commodities, the price increases in August were more pronounced for sugar and vegetable oils, with cereal prices also firming, though more modestly. By contrast, meat and dairy values remained steady near their July levels.

The FAO Dairy Price Index averaged 102,0 points in August, almost unchanged from July and up 1,7 points (1,7%) from the corresponding month the previous year. Quotations for both cheese and full-cream milk powder (FMP) fell, due to reduced demand for spot supplies on expectations of ample export availabilities in Oceania in the new production season. By contrast, price quotations for butter increased as a result of tightening export availabilities in Europe because of a rise in internal demand, while the August hot spell

reduced milk production, which was already in its seasonal decline. Meanwhile, quotations for skimmed milk powder (SMP) increased, underpinned by steady global import demand for medium-term deliveries and reduced milk production in Europe.

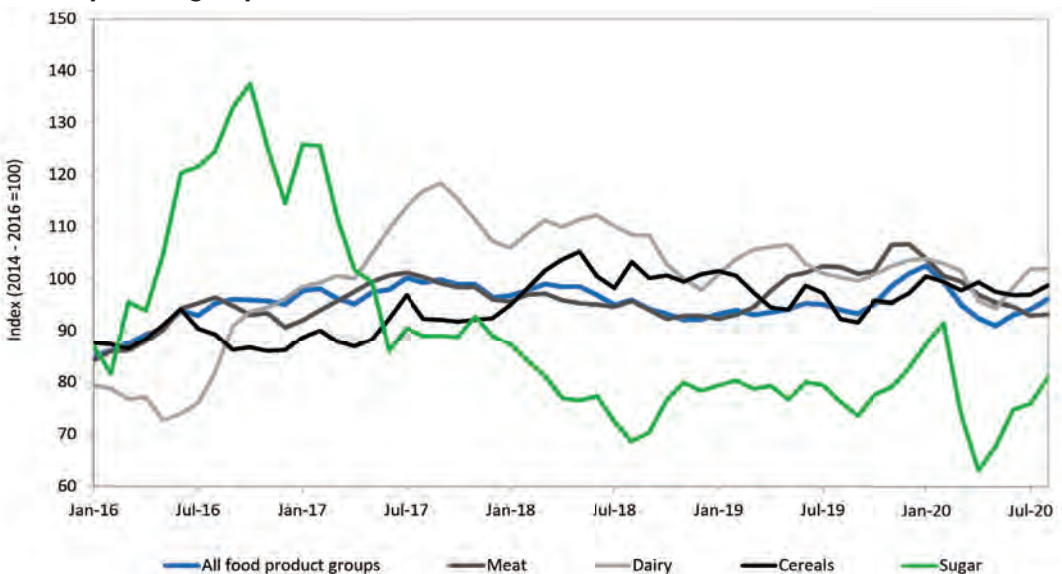
International dairy product prices

At the beginning of 2016, the narrow price band in which dairy products typically traded changed into a divergent, wider price band. The wider price band continued through 2017 and 2018 and is still evident today. The main driver behind this phenomenon is new research that was published towards the end of 2015 and beginning of 2016, indicating that a high animal fat diet is beneficial. The research took a negative stance towards plant fats and introduced several high animal fat diets, with Banting probably the most well known: essentially a low carbohydrate and high animal fat diet. This development created an increased demand for animal fats that resulted in an explosion in the prices of butter, cheese, and FMP.

The start of 2020 saw hardened dairy product prices due to robust import demand, with tight export availability being reinforced by the seasonal decline in production in Oceania.

For the first eight months of 2020, the trading price range for butter was between US\$4 269 (R71 463) and US\$3 438 (R59 228),

Figure 2: Food and Agriculture Organization (FAO) food price indices of internationally traded product groups, 2016–2020 (source: FAO Food Price Index, 2020)



a 24% variance between the highest and lowest prices. The butter price peaked in May 2020 and then dropped to its lowest level in August 2020. For the first eight months of 2020, the trading price range for skimmed milk powder (SMP) was between US\$3 031 (R45 555) and US\$2 488 (R46 202), a 22% variance between the highest and lowest prices. The SMP

price peaked in February 2020, with the August price pegged at US\$2 809 (R48 352). For the first eight months of 2020, the trading price range for cheddar was between US\$4 500 (R83 565) and US\$3 531 (R60 843), a 27% variance between the highest and lowest prices. The cheddar price peaked in April 2020 and then dropped to its lowest level thus far for 2020, in August. For the

Figure 3a: International FOB dairy product prices, US\$/t, Jan 2010–Aug 2020 (source: USDA)

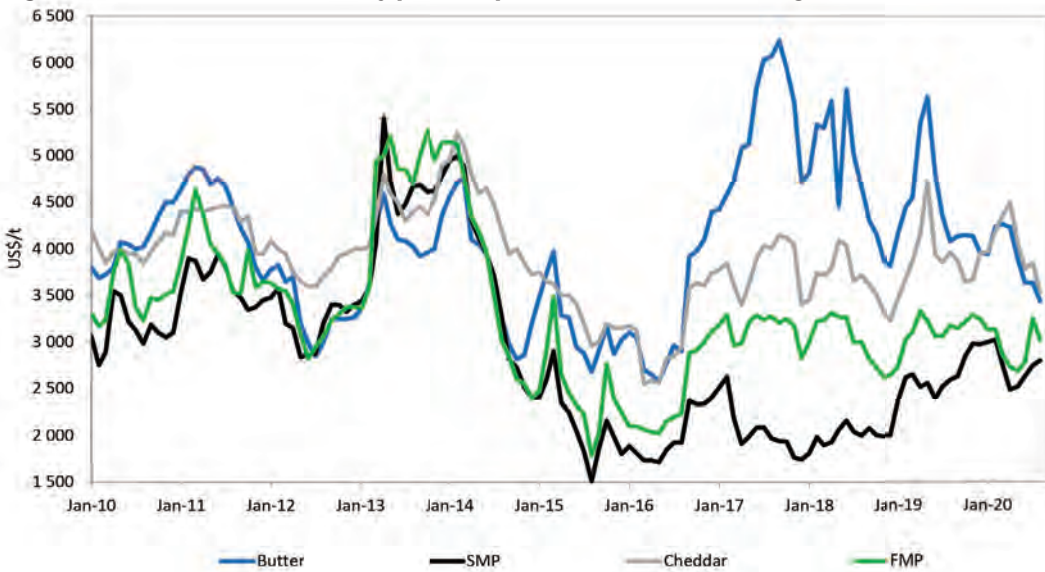
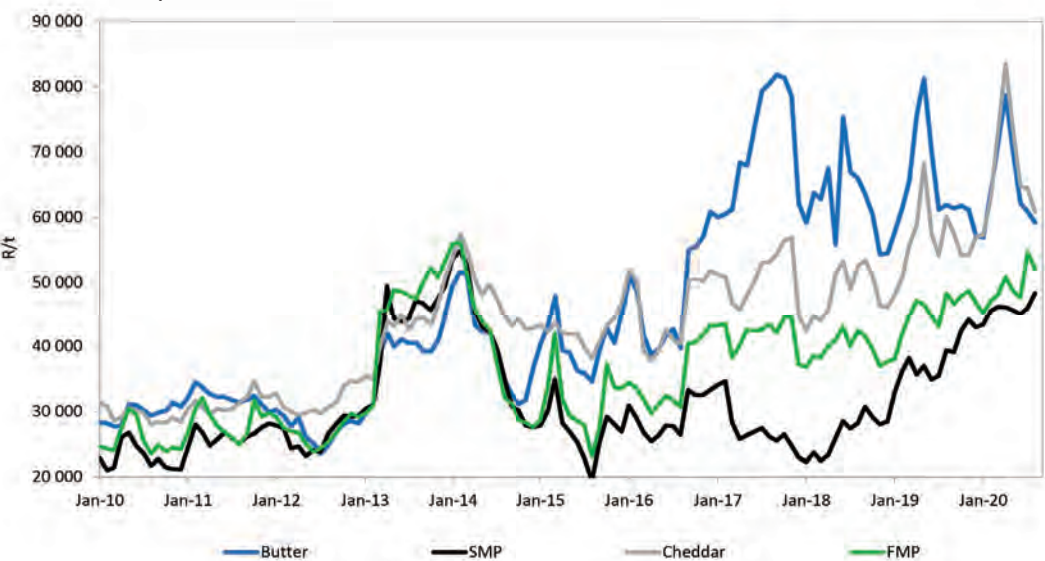


Figure 3b: International FOB dairy product prices, R/t, Jan 2010–Aug 2020 (source: USDA, Reserve Bank)



first eight months of 2020, the trading price range for FMP was between US\$3 263 (R54 623) and US\$2 694 (R48 788), a 21% variance between the highest and lowest prices. The FMP price peaked in July 2020, with the lowest level in May 2020.

International unprocessed milk producer prices

As a result of the COVID-19 crisis, the selling price of cheese, among other things, has started to fluctuate enormously in the United States (US). This is expressed in the Class III milk price, which is based on milk that is processed into cheese. Although a good indicator of the development of milk prices paid in the US, it must be emphasised that the Class III milk price is not equal to the average milk price farmers receive. The main difference is that there is a regional pooling of the different classes of milk (Classes I, II, III, and IV). However, because of the extreme rise in cheese prices in the US, this indicator is somewhat distorted.

The calculated average monthly milk prices for Europe in July 2020, was €0,32 (R5,27) per litre of standardised milk. The average milk price is expected to also rise slightly in the coming months.

In New Zealand, producer prices started firm in January 2020, at €33,93 per 100 kg milk (R489,61 per 100 kg), but, since then, the price is on a downward trend, with the June price at

the lowest level, €28,71 per 100 kg milk (R491,22 per 100 kg milk). The decrease in the euro price is quite significant at 15%, while the rand price remained at almost the same level, illustrating the effect of the depreciated rand.

World production of unprocessed milk

According to the Agricultural Outlook 2020–2029 report published by the Organisation of Economic Co-operation and Development (OECD) and the FAO, world production of unprocessed milk (cow's milk 81%, buffalo milk 15%, and goat's, sheep's, and camel's milk 4%, combined) grew by 1,3% in 2019 to about 852 million tonnes. In India, the largest milk producer in the world, production increased by 4,2% to 192 million tonnes, although this had little impact on the world dairy market, as India trades only marginal quantities of milk and dairy products.

Milk production in the three major dairy exporters, New Zealand, European Union (EU), and the US, increased slightly. As domestic consumption of dairy products in these three countries is stable, the availability of fresh dairy products and processed products for export increased. In the People's Republic of China (hereafter, "China"), the world's largest importer of dairy products, milk production increased by 3,6% in 2019. Its dairy imports, especially of FMP and SMP, nevertheless increased in 2019 due to increasing demand.

Table 1: International calculated standardised unprocessed milk producer prices, 2015–2020 (R/ℓ) (source: LTO Nederland. Based on 4,2% fat-corrected milk. For a detailed definition of LTO-standardised calculated price, see milkprices.nl. Exchange rates: Reserve Bank monthly middle rates)

Country	Jan 2015	Jan 2016	Jan 2017	Jan 2018	Jan 2019	Jan 2020	Jul 2020
Belgium	3,85	4,55	4,60	4,32	5,17	5,05	5,36
Germany	3,72	4,72	4,18	5,04	5,14	4,76	5,82
Denmark	3,82	4,51	4,45	5,06	5,17	4,83	5,93
France	4,38	5,55	4,42	4,89	5,51	5,19	6,51
Great Britain	4,69	5,29	4,08	5,04	5,32	5,05	5,23
Ireland	3,95	4,41	4,09	5,20	5,11	4,76	5,74
Netherlands	3,84	4,90	4,41	5,23	5,65	5,15	5,97
New Zealand	3,26	3,66	4,38	4,49	4,74	5,05	5,37
United States	4,47	5,55	5,23	4,21	4,90	5,63	9,82
South Africa*	4,45	4,11	4,65	5,00	4,15	4,35	5,15

*Based on MPO price survey

Figure 4: Global milk production per species, 2012–2018 (source: IDF Bull. 501/2019)

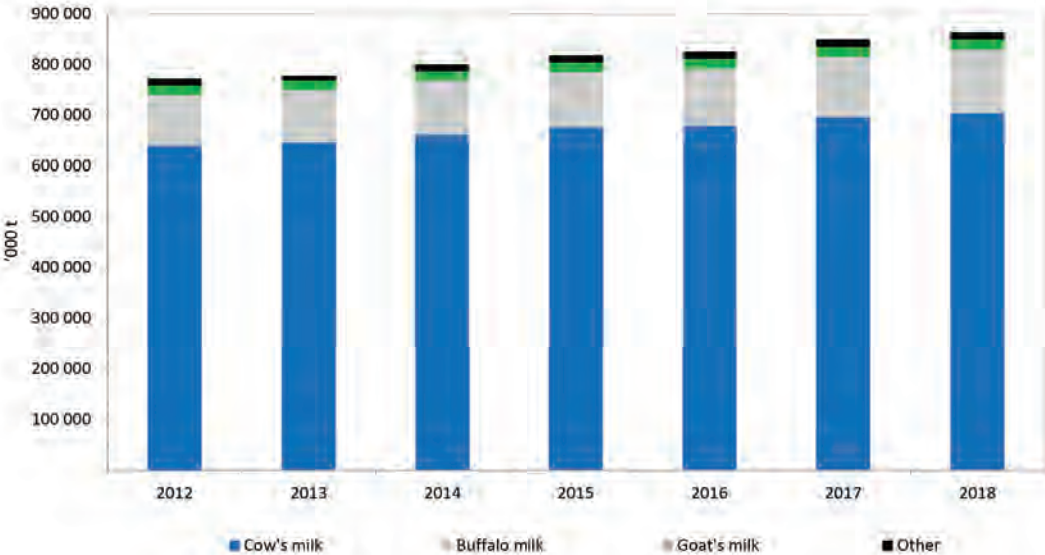


Figure 5: Cattle cow's milk production per region, 2010–2018 (source: IDF Bull. 501/2019)

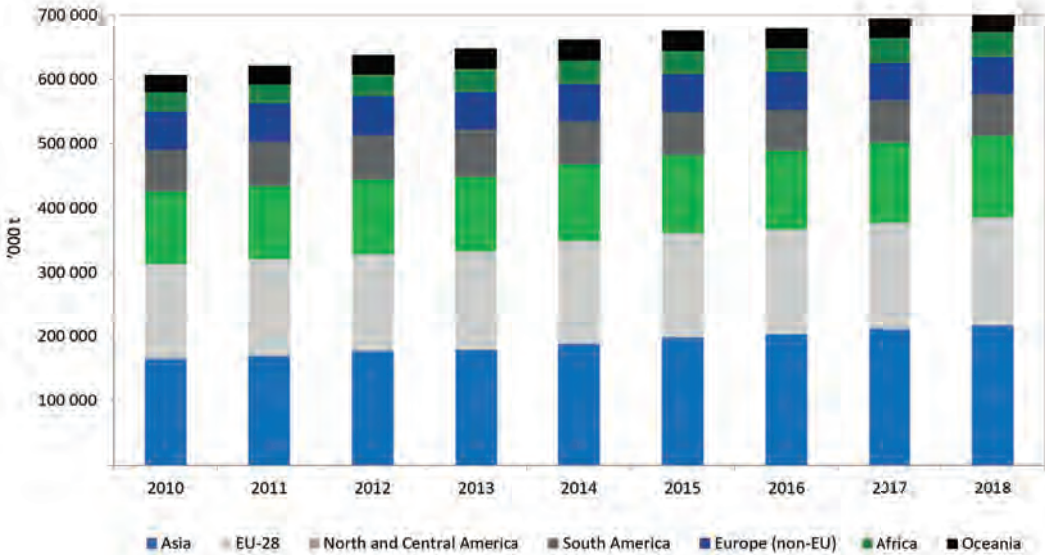


Table 2: Milk production growth: 2016 compared to 2015, 2017 compared to 2016, 2018 compared to 2017, 2019 compared to 2018, and 2020 compared to 2019 (first six months) (source: CLAL, 2020)

Country	2016/2015	2017/2016	2018/2017	2019/2018	2020/2019
Australia	-6.2%	+0.0%	+2.7%	-6.6%	+5.4%
European Union	+0.3%	+2.2%	+1.8%	+0.5%	+1.9%
New Zealand	-2.0%	+1.7%	-0.6%	-0.7%	-0.2%
United States	+1.6%	+1.7%	+1.1%	+0.4%	+1.8%
Uruguay	-10.3%	+6.3%	+6.3%	-4.2%	+4.9%
Argentina	-12.8%	-1.6%	+6.8%	-1.8%	+9.3%

World production of unprocessed milk is forecast to grow at 1.6% per annum over the projection period (to 997 million tonnes by 2029, faster than most other main agricultural commodities). In contrast to the previous decade, the projected growth of cow herds (0.8% per annum) is slightly higher than the projected average yield growth (0.7%), as cow herds are expected to expand faster in countries with low yields. It is expected that India and Pakistan, important milk producers, will contribute more than half of the growth in world production of unprocessed milk over the next ten years, and will account for more than 30% of world production in 2029. Production in the second largest milk producer, the EU, is expected to grow more slowly than the world average, due to environmental restrictions and limited domestic demand growth.

Manufacturing of dairy products

According to the Agricultural Outlook 2020–2029 report, published by the OECD and the FAO, the fight against the global COVID-19 pandemic is causing unprecedented uncertainties in global food supply chains, with potential bottlenecks

in labour markets, input industries, agriculture production, food processing, and transport and logistics, as well as shifts in demand for food and food services. In the short term, the economic and social impacts of the pandemic interrupts the generally positive medium-term outlook for global agricultural production and food consumption.

The joint OECD–FAO Agricultural Outlook 2020–2029 report finds that, over the next ten years, supply growth is going to outpace demand growth, causing real prices of most commodities to remain at or below their current levels. Fluctuations in the driving factors of supply and demand could lead to strong price variations around this general path. At the same time, a decrease in disposable incomes in low-income countries and households, caused by the COVID-19 pandemic, is expected to depress demand in the early years of this outlook and could further undermine food security.

The European domestic consumption is declining as changes in diet lead to lower per capita consumption. The picture is similar in the US (–2.0%) and, to a lesser extent, in Canada (–0.6%), also due to the fall in consumption.

Table 3: Major dairy companies, 2018 (source: IFCN, 2019)

Rank	Company name	Country	Dairy turnover US\$ billion	Market share %
1	Nestlé	Switzerland	24.2	5.8
2	Lactalis	France	19.9	4.8
3	Danone	France	17.6	4.2
4	Dairy Farmers of America	United States	14.7	3.5
5	Fonterra	New Zealand	13.7	3.3
6	Friesland Campina	Netherlands	13.6	3.3
7	Arla Foods	Denmark/Sweden	11.7	2.8
8	Saputo	Canada	10.8	2.6
9	Yili	China	9.9	2.4
10	Mengniu	China	8.8	2.1
11	Dean Foods	United States	7.5	1.8
12	Unilever	Netherlands	7.0	1.7
13	DMK	Germany	6.5	1.6
14	Kraft Heinz	United States	6.2	1.5
15	Meiji	Japan	5.8	1.4
16	Sodiaal	France	5.8	1.4
17	Savencia	France	5.5	1.3
18	Müller	Germany	5.1	1.2
19	Agropur	Canada	5.1	1.2
20	Schreiber Foods	United States	5.0	1.2

The market for butter and other milk fats is largely dominated by India, which alone accounts for just under half (48%) of the world's dairy fat production. Indian butter and ghee output grew another 3.7% in 2018. The butter volumes produced by the EU, the world's second largest producer, are over 50% lower than Indian volumes. In 2018, European butter output increased by 0.8%, slightly more than in 2017 (0.6%), leading to less pressure on the fat price. In the US, after five years of relative stability, butter production went up again by 2.4%. In New Zealand, by far the main exporter of butter and butter oil, the output increased by 3.5%, in line with the long-term pace. Australia faced a strong decrease (-18.6%), due to lower milk collection and processors' focus on other products.

Total global cow's milk cheese production is estimated above 23 million tonnes, excluding processed cheese to avoid double counting, and should be close to 24 million tonnes by the end of 2019. Last year, cheese production grew by 2.1%, almost in line with the average annual growth of 2.2% recorded since 2010.

The world's two leading cheese producers are the EU, where raw milk is used primarily for cheese production and who account for 44% of global cow's milk cheese output, and the US, whose cheese accounts for 27% of global production. In 2018, cheese output increased by

1.4% in the EU and 3.0% in the US. Within the EU, cheese processing increased strongly in Ireland (14.2%), Italy (4.6%), and Poland (3.1%). Other major contributors (Brazil, Turkey, and Argentina) lag far behind, with annual volumes ranging from 579 to 755 thousand tonnes. In Russia, after a production boom in 2014 and 2015, in order to offset the import ban from 2014, cheese production returned to a more usual growth rate of 1.9%.

Turkey is now the fourth top cheese producer in the world and is challenging Brazil for third place. While Turkey maintained a strong growth of 9.6%, in line with their annual average development since 2010, Brazil saw their cheese production decline by 2.1% in 2018, from the record level reached in 2017.

“Total global cow's milk cheese production is estimated above 23 million tonnes, excluding processed cheese to avoid double counting, and should be close to 24 million tonnes by the end of 2019.”



Consumption of dairy products

Per capita consumption of dairy products reduced slightly in 2016, falling to 111.1 kg/capita/year from 111.3 kg/capita/year in 2015, but recovered ground in 2017, with consumption increasing to 112.2 kg/capita/year and increasing further to 113.7 kg/capita/year in 2018. The breakdown of dairy consumption is: informal 46%, fresh milk and milk products 17%, butter 15%, cheese 14%, WMP 4%, SMP 3%, and other 1%.

Liquid milk consumption was stagnant in 2017 and remained stagnant in 2018.

In China, liquid milk demand hardly increased and, therefore, demand growth in the remaining emerging markets (such as India, Turkey, Brazil, and Mexico) was no longer sufficient to compensate for the decline in the saturated markets of the EU and the US, where competition from plant-based beverages is building. Consumer preference to the liquid dairy category

Figure 6: World population and per capita consumption of dairy products, 2005, 2008-2018 (source: IDF Bull. 501/2019)

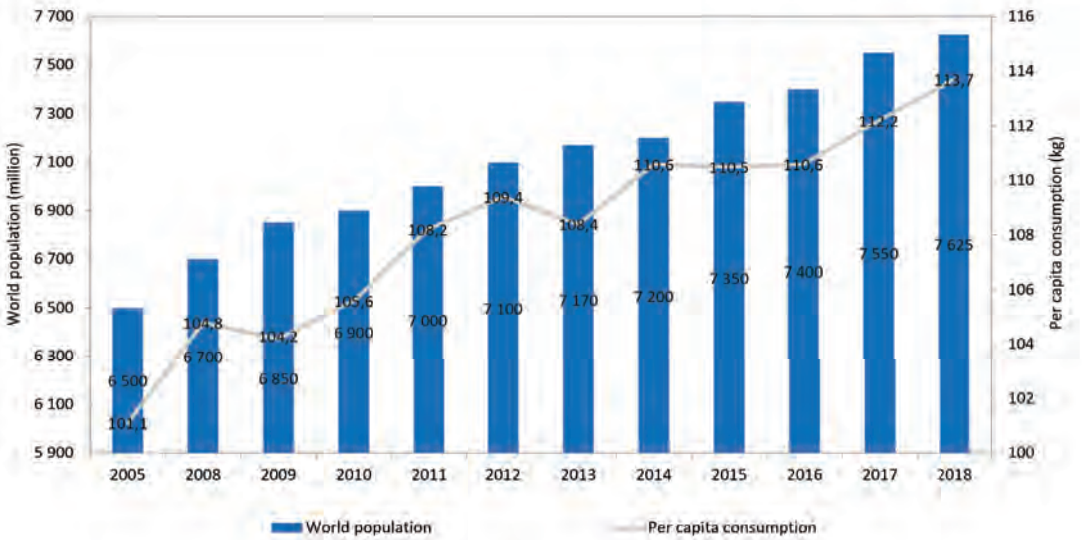


Figure 7: Annual increase in dairy demand, 2009-2018 (source: IFCN Conference, 2019)

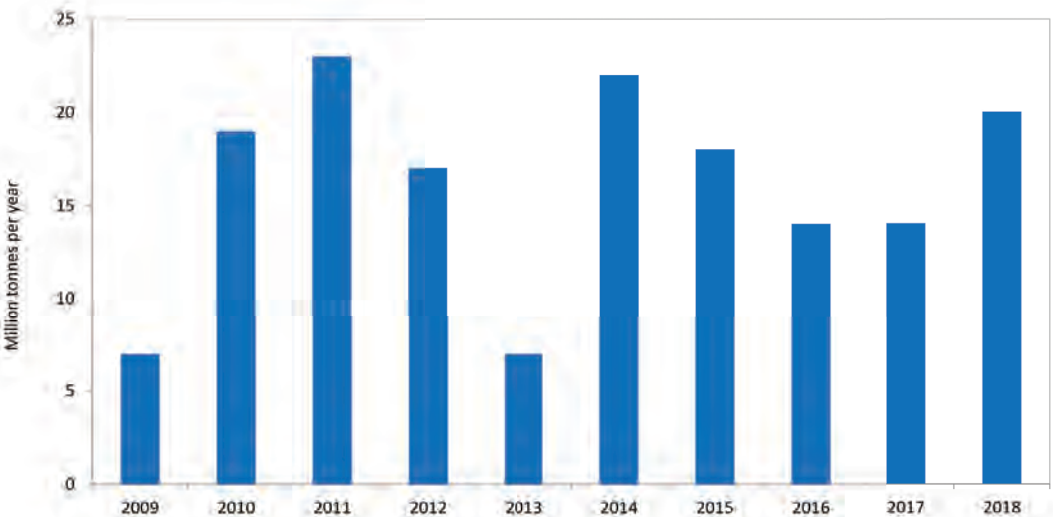


Figure 8: Percentage breakdown of global dairy consumption, 2018 (source: IDF Bull. 501/2019)

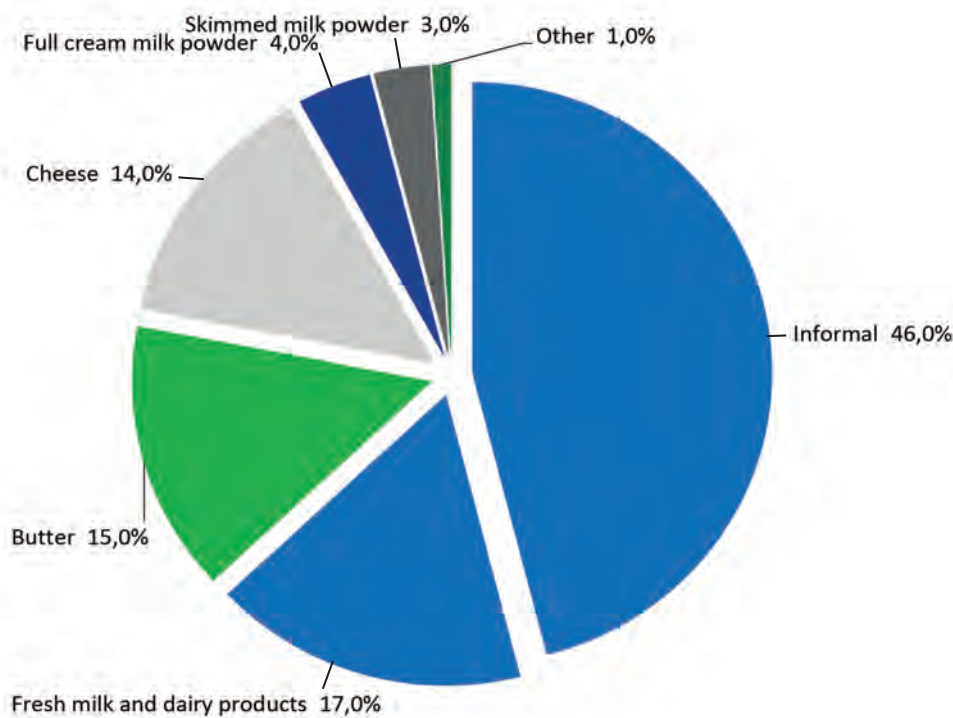
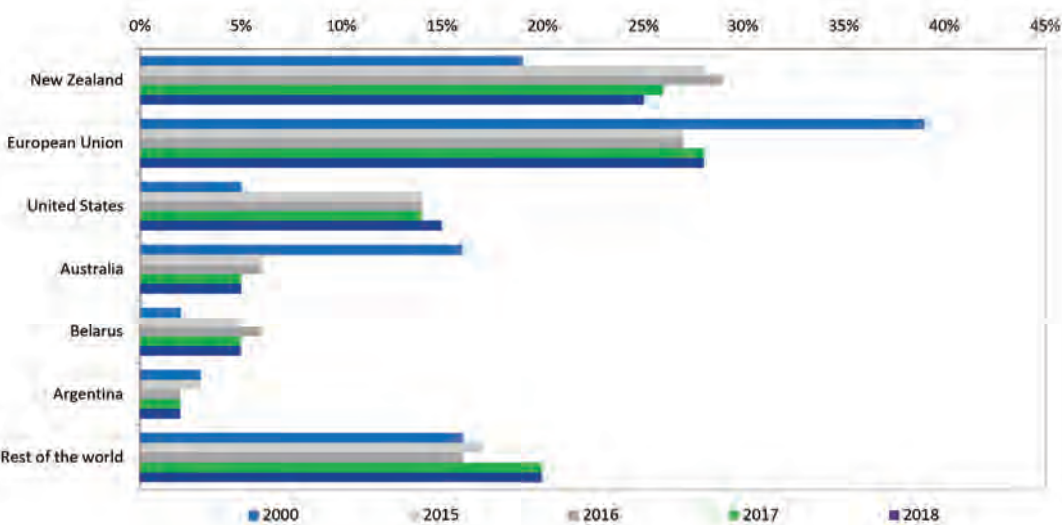


Figure 9: Share of key exporting countries in total trade in dairy products (milk equivalent basis), 2000, 2015, 2016, 2017, and 2018 (source: IDF Bull. 501/2019)



is increasingly shifting towards fermented drinks. Yoghurts, yoghurt drinks, and other fermented drinks still experience steady demand growth in all the key markets, up 2.1% in 2018.

The highest levels of annual liquid milk consumption (over 100 kg/capita) were recorded in Australia and New Zealand, as well as several northern European countries, followed by North America at approximately 70 kg/capita. Europe is also home to the world's biggest butter consumers on an annual basis, up to 8 kg/capita in France and 6 kg/capita in Germany. These countries are followed by Oceania and India. The world's leading cheese consumers are North America, Israel, and Europe; in a number of European countries, annual per capita cheese consumption largely exceeds 20 kg.

International dairy trade

World trade of dairy products increased by 5%, year-on-year, to 77.8 million tonnes of milk equivalents in 2018. The trade in cheese increased by only 1.1%, milk and cream by only 0.8%, FMP showed strong growth of 4.4%, butter

and butter oil increased by 7.1%, and SMP by 10.6%.

This development was underpinned by strong supply in the exporting regions (including stock) and a positive global economic climate, which supported demand, especially in milk-deficient regions like Africa and Asia. The EU remained the world's largest exporter, with a 28% share and leading position in cheese and SMP, followed by New Zealand with a 25% share of total dairy trade, leading in WMP, butter, and butter oil. The highest growth in exports was recorded by the US (13% in 2018), amounting to a 15% share of world dairy product exports. The role of Australia dropped back, due to a lower than normal milk pool.

“World trade of dairy products increased by 5%, year-on-year, to 77.8 million tonnes of milk equivalents in 2018.”



Table 4: Average herd size, selected countries, 2018 (source: IFCN 2019 for international data, MPO survey 2019 for South African data)

Country	Average number of cows in herd (cows in herd = cows in milk plus dry cows)
Saudi Arabia	7 139
South Africa	459
New Zealand	416
Australia	274
Czech Republic	239
United States	241
Denmark	204
Israel	186
Argentina	149
United Kingdom	148
Uruguay	136
Canada	92
Uganda	2
Kenya	2
India	2

Table 5: Unprocessed milk production for the top 10 milk-producing countries and South Africa, 2018 (source: IFCN, 2019)

	Country	Milk produced (million tonnes)
1	India	201
2	United States	95
3	Pakistan	48
4	Brazil	33
5	Germany	33
6	China	29
7	France	25
8	New Zealand	25
9	Turkey	18
10	Russian Federation	17
	South Africa	3,4

International primary sector

There are 118 million dairy farms globally, with more than 59% of these in South Asia. With an average per farm population of five, this implies that 590 million people live on dairy farms. Globally, the average dairy farmer milks three cows. Larger dairy farms are found in Saudi Arabia, New Zealand, South Africa, Argentina, the US, and Canada. In South Africa, the average number of cows in a herd was 459 in 2018. Average herd sizes (cows in herd) for various countries are shown in Table 4. After increasing to 125 million in 2013, dairy farm numbers are now decreasing at a rate of 1.4% per year.

In 2018, 61% of all dairy animals were kept by household farms, 22% kept on family farms, and 17% kept on larger commercial farms. Household farms are the dominant type in South Asia and Africa. In Latin America, East Asia, and the EU, family farms predominate, with the larger commercial farms the dominant type in Oceanic countries and the US. South African dairy farms also fall into the commercial farm category.

“Globally, the average dairy farmer milks three cows. Larger dairy farms are found in Saudi Arabia, New Zealand, South Africa, Argentina, the US, and Canada.”

Cost of milk production

This section is based on the analysis of typical dairy farms within the International Farm Comparison Network (IFCN). The IFCN is a network of dairy experts in many countries who strive to create a better understanding of milk production world-wide.

Scientists from 100 countries contributed to the work of the IFCN in 2019. The organisation analysed the production and cost of 136 typical dairy farms in 54 countries and published the results in the IFCN Dairy Report 2019. The comparison of farms is based on the actual income and cost figures for 2018. The MPO's participation in the work of the IFCN is partially sponsored by Milk SA.

The IFCN cost comparisons are based on full economic cost. Farm-produced feed is valued

MORE INFO

World production 2018

864 million tonnes


[96% = cow's milk + buffalo milk]




SA produces
0,4% of
global milk
production




Main producing countries (2018 change)

 **INDIA** (↑ by 7,8%)

 **RUSSIA** (↑ by 1,4%)

 **CHINA** (↑ by 1,2%)

 **US** (↑ by 1%)

 **BRAZIL** (↑ by 0,5%)

Figure 10: Estimated unprocessed milk production cost (US\$/100 kg energy-corrected milk) per average farm in participating countries, 2018 (source: IFCN, 2019)

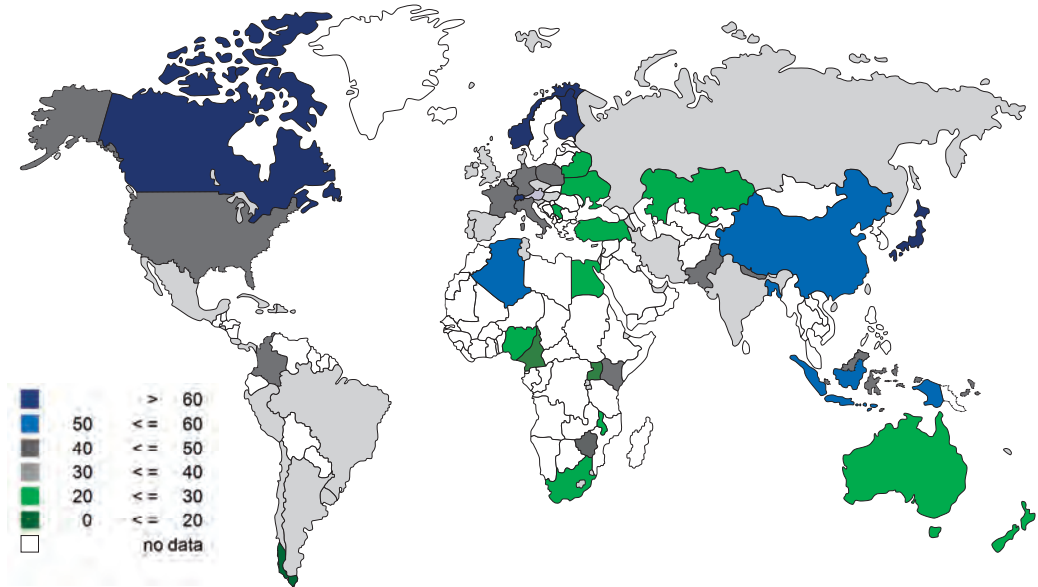
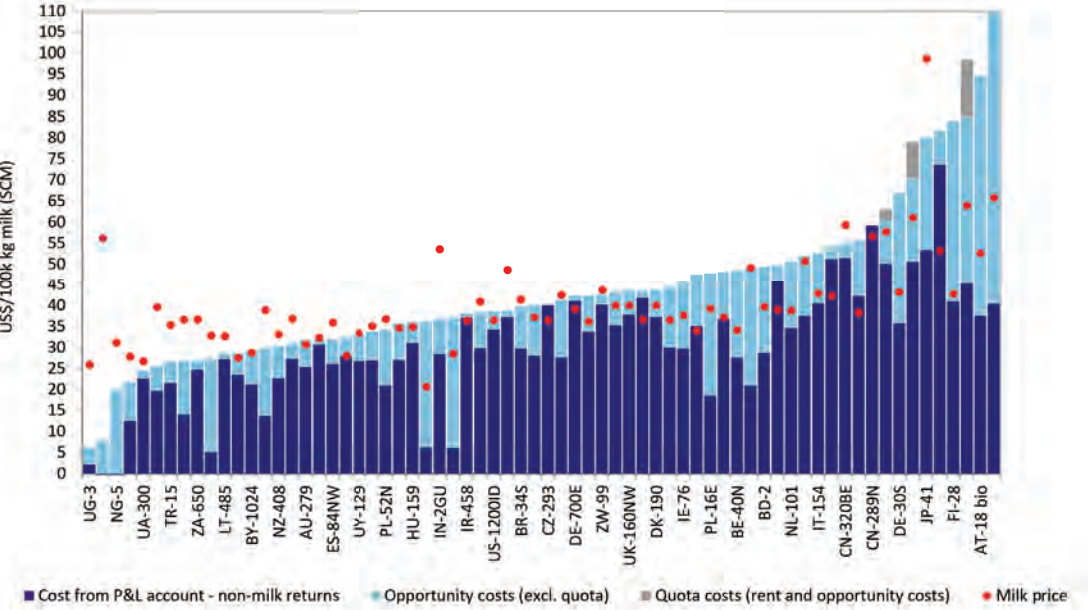


Figure 11: Estimated cost of unprocessed milk production per farm in US\$/100 kg energy-corrected milk for average farms in IFCN analysis, 2018 (source: IFCN, 2019)



P&L – profit and loss account
Country by international country code and herd size, ZA 800 = ZA 800-cow herds.

at a farm-gate price and not at production cost levels, and the farmer's own labour and management time is valued at comparable industrial rates. The inclusion of opportunity costs creates a bias towards countries with very little or no opportunity costs for labour and without a viable market for feed. The average cost level of the 136 farms evaluated by the IFCN in 2018, stood at US\$40,40 (R534,90) per 100 kilograms of solid-corrected milk (100 kg SCM), which is at the same level as 2017.

“Farm-produced feed is valued at a farm-gate price and not at production cost levels, and the farmer's own labour and management time is valued at comparable industrial rates.”

In the four regions comprising Europe, North and Latin America, Central and Eastern European countries, and Asia and Oceania, the cost of production from 2017 to 2018 only decreased in North and Latin America. In Europe, the cost of milk production increased from US\$38 (R503,12) per 100 kg SCM to US\$43 (R569,62) per 100 kg SCM; in Central and Eastern European countries, from US\$31 (R410,44) per 100 kg SCM to US\$35 (R463,40) per 100 kg SCM; and in Asia and Oceania, China increased from US\$50 (R662) per 100 kg SCM to US\$56 (R741,44) per 100 kg SCM, India increased from US\$40 (R529,60) per 100 kg SCM to US\$41,5 (R549,46) per 100 kg SCM, and in New Zealand from US\$30 (R397,20) per 100 kg SCM to US\$30,40 (R402,50) per 100 kg SCM. In the US, the cost of milk production decreased from US\$39,90 (R528,28) per 100 kg SCM to US\$35 (R463,40) per 100 kg SCM.

Feed is the highest single cost component, contributing about 60% to total cost. Feed costs and the efficient management of feeding practices have a big impact on total costs and play a huge role in determining cost competitiveness.

Milk production costs for typical dairy farms, as analysed by the IFCN, are shown in Figure 11. In countries with very low milk production costs, low opportunity costs of labour and lower feed prices

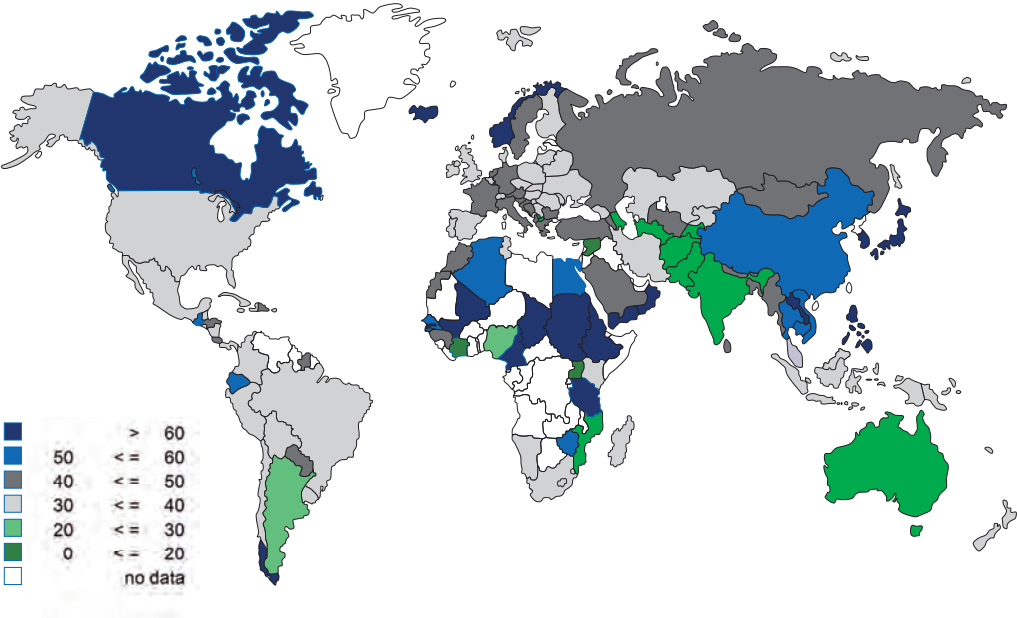
are the main drivers of cost competitiveness. In most of these cases, milk is produced for own use and not for the market.

NEED TO KNOW

The cost of milk production section is based on the analysis of typical dairy farms within the International Farm Comparison Network (IFCN). The IFCN is a network of dairy experts in many countries who strive to create a better understanding of milk production worldwide.



Figure 12: Estimated producer milk prices of unprocessed milk in various regions (US\$/100 kg SCM), 2018
 (source: IFCN, 2019)



Producer milk prices

The key drivers of milk prices are the total milk supply, increased trade in dairy products between countries, growing demand for milk, and, in the case of prices in individual countries, exchange rates.

The IFCN World Milk Price Indicator in 2018 decreased by 5.9%, compared to 2017. It reached an annual average level of US\$33.49 (R442.22) per 100 kg solid-corrected milk (SCM). This is a drop of US\$2.10 (R27.80) per 100 kg SCM. At country level, prices ranged widely, for example, US\$19.00 (R251.56) per 100 kg SCM in Azerbaijan to US\$102 (R1 350.48) per 100 kg SCM in Yemen.

The downward trend in the milk price was mainly driven by the 47% drop in butter prices, from US\$5 750 (R76 130)/t to US\$3 900 (R51 636)/t in the second half of 2018. In two thirds of the EU-15 countries, an increased milk price was observed, compared to 2017. The biggest growth was seen in Portugal, at 9%, and the lowest in Ireland, at 1%. The price in Ireland in 2018 was US\$38.4 (R473.86) per 100 kg SCM. Milk price decreases occurred in Germany, the Netherlands, Luxembourg, Belgium, and Sweden.

“The downward trend in the milk price was mainly driven by the 47% drop in butter prices, from US\$5 750 (R76 130)/t to US\$3 900 (R51 636)/t in the second half of 2018.”

In the US, the milk price decreased by 8% in 2018, from US\$40.50 (R536.22) per 100 kg SCM to US\$37.30 (R493.85) per 100 kg SCM. After the price recovery in Argentina during 2017 to US\$34.50 (R456.78) per 100 kg SCM, the price dropped again in 2018, reducing to US\$27.00 (R357.48) per 100 kg SCM, almost to the same level as the 2016 price.

In Pakistan, the milk price decreased by 8% to US\$37.80 (R500.47) per 100 kg SCM in 2018, compared to the previous year. In comparison, the Chinese milk price increased slightly by 1.6% to US\$62.5 (R827.50) per 100 kg SCM, which is the same level as in 2016.



MORE INFO

LOWEST and HIGHEST cost countries in the world

Top 5 lowest cost

UGANDA

NIGERIA

CAMEROON

EGYPT

UKRAINE



Top 5 highest cost

SWITZERLAND

JAPAN

FINLAND

AUSTRIA

CHINA



Figure 13: Milk production density (l/km²) per district, 2016 (source: MPO from October 2016 statutory survey)

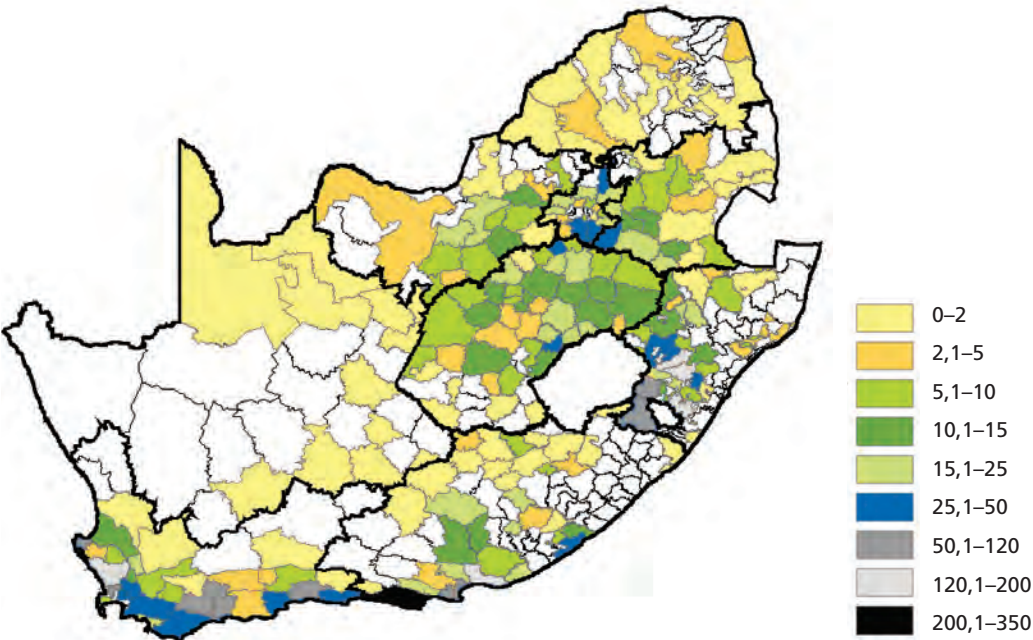
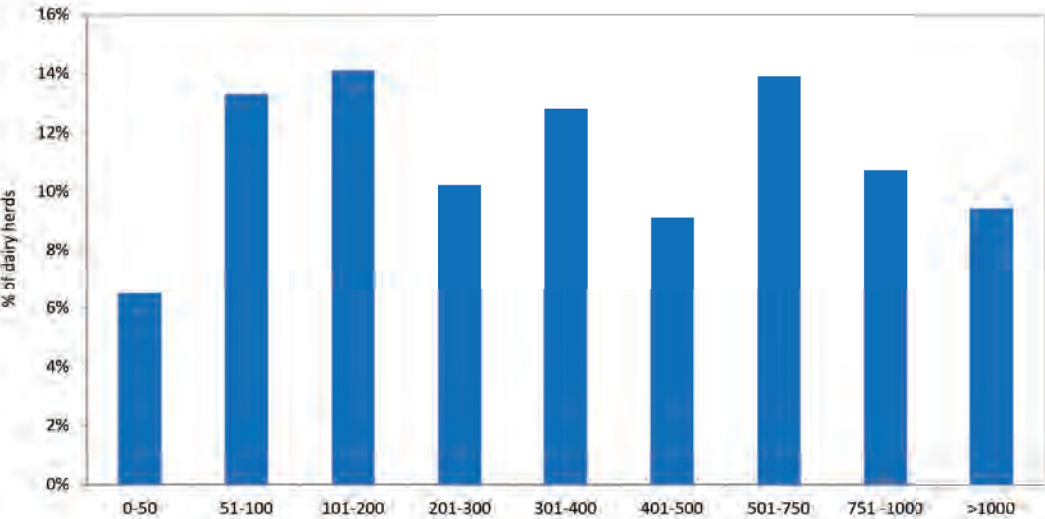


Figure 14: Size distribution of dairy cows per herd, 2019 (source: MPO from October 2019 statutory survey)



SOUTH AFRICAN SITUATION



The COVID-19 pandemic that caused major disruptions in most markets had a limited effect on the South African dairy market. Some specific dairy products were affected, but the major dairy products performed well, under the circumstances. The value chain, starting at input suppliers right through to the retail segment, succeeded in satisfying market demand. Where consumer demand shifted away from some dairy products to other dairy products because of the restriction on human movement, the role players downstream from the farmer were nimble and dynamic enough to channel unprocessed milk towards those dairy products. The end result is that all the milk was absorbed in the market and utilised toward nutrition.

South African primary dairy sector

Structure of the primary dairy sector

The number of milk producers in South Africa decreased from 2 686 in January 2011 to 1 119 in July 2020. The number of producers per province is shown in Table 6. Since 2011, the number of producers has decreased by 59%. The largest percentage decrease in producer numbers occurred in Limpopo.

The trend towards higher production in the pasture-based areas has continued. The concentration of milk production per district is shown in Figure 13. Milk production per province, according to the MPO's estimates, considering

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Number of producers (↓59%)

Jan 2011

2 686

Jul 2020

1 119

Milk production (↑26%)



2011

2 720 000 t

2019

3 433 000 t

Milk production per producer (↑291%)



2011

1 013 t

2019

2 949 t

Table 6: Number of unprocessed milk producers per province, 2011-2020 (source: MPO)

Province	Jan '11	Jan '12	Jan '14	Jan '15	Jan '16	Jan '17	Jan '18	Jan '19	Jan '20	Jul '20
Western Cape	683	647	529	533	502	481	419	402	379	367
Eastern Cape	314	283	264	262	251	244	212	201	206	194
Northern Cape	28	21	25	14	14	7	7	6	4	4
KwaZulu-Natal	323	322	281	267	253	247	221	212	208	208
Free State	601	535	389	328	280	249	206	165	145	135
North West	386	352	233	222	181	165	135	117	100	93
Gauteng	127	126	109	100	97	98	84	83	65	65
Mpumalanga	201	164	117	94	93	87	69	56	50	47
Limpopo	23	24	14	14	12	15	12	11	7	6
TOTAL	2 686	2 474	1 961	1 834	1 683	1 593	1 365	1 253	1 164	1 119

Figure 15: Cow density per district (cows/km²), 2016 (source: MPO from October 2016 statutory survey)

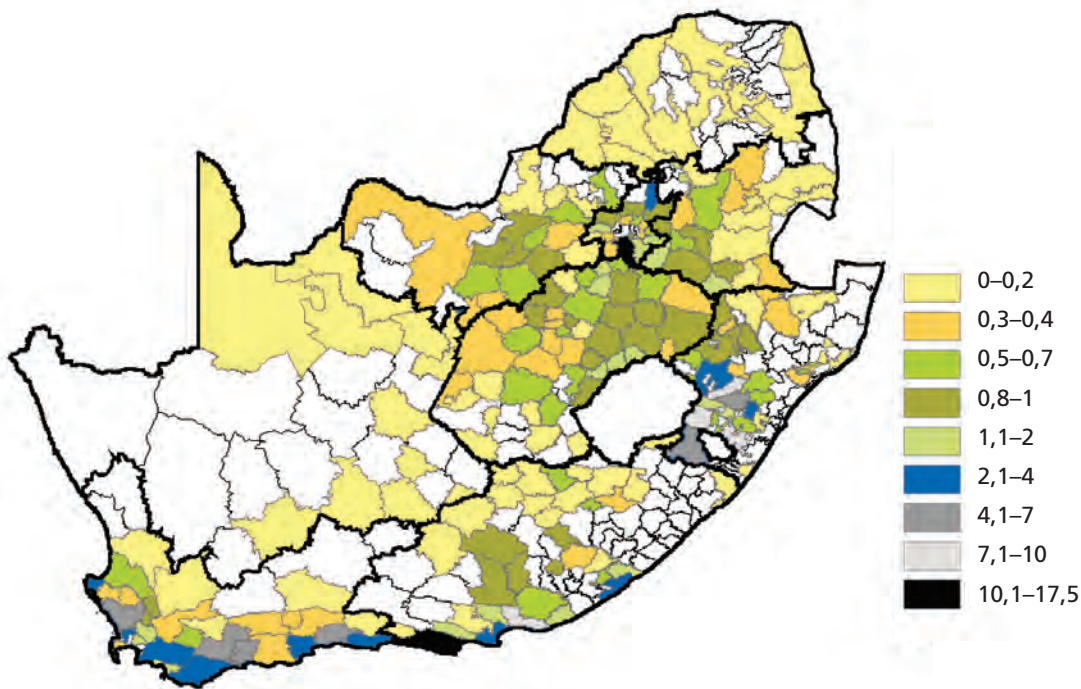
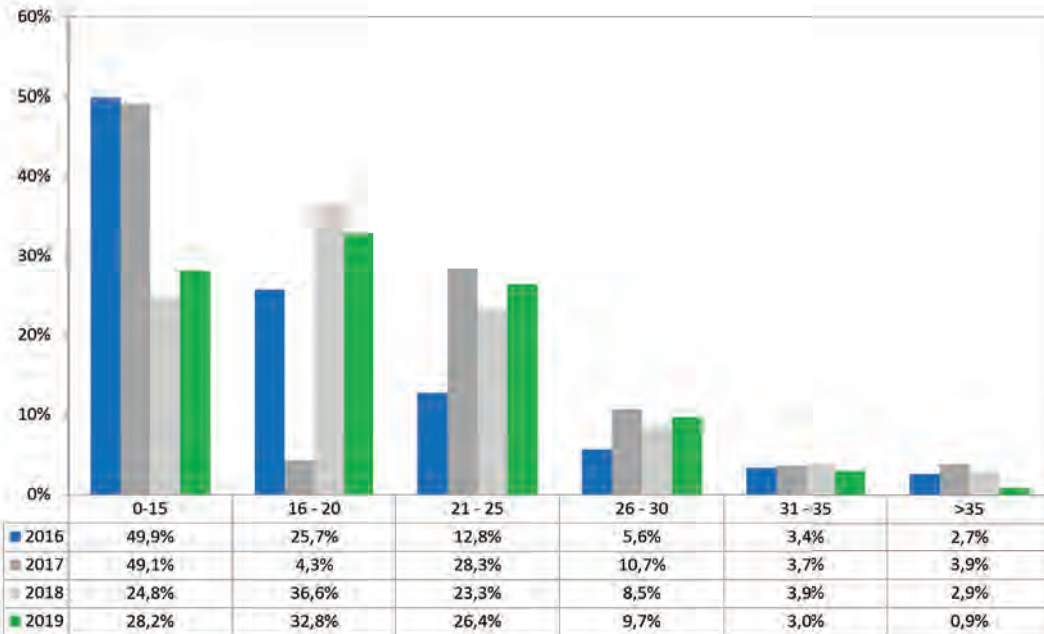


Figure 16: Distribution of herds based on daily production per cow in herd, 2016-2019 (source: MPO from October 2019 statutory survey)



Average daily yield (litres) per cow in a herd, for yield category

the results of the October 2019 statutory survey, is shown in Table 7.

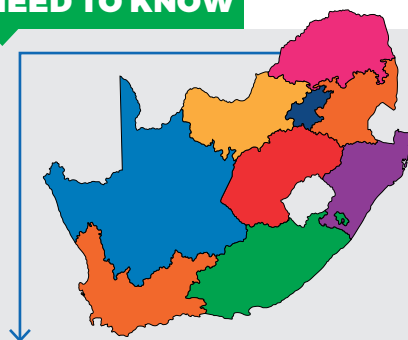
The number of cows varies widely among producers. The percentage distribution of herd size is shown in Figure 14 on page 20.

The average number of cows in milk per producer in the different provinces is shown in Table 7, and the concentration of cows per district in Figure 15.

Average milk production per cow per day was 15,1 ℓ in 2019. Ninety-nine per cent of the unprocessed milk was delivered to the market. The balance was used for on-farm consumption. The distribution of herds on a production basis is shown in Figure 16.



NEED TO KNOW



Milk production per province, 2019 (%)

Western Cape	30,3
Eastern Cape	29,1
Northern Cape	0,0
KwaZulu-Natal	28,1
Free State	5,9
North West	2,3
Gauteng	2,0
Mpumalanga	1,8
Limpopo	0,5

Table 7: Unprocessed milk production per province, and cows in herd per producer, specific month in specific year (source: MPO from October 2019 statutory survey)

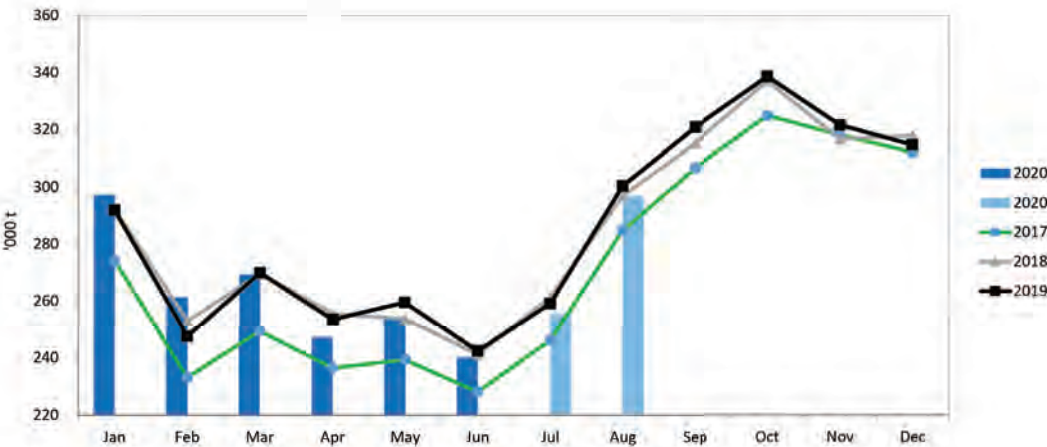
Province	Percentage distribution of milk production		Number of cows in herd per producer, 2019
	Sep 2009	Oct 2019	Mean
Western Cape	27,1	30,3	401
Eastern Cape	25,0	29,1	762
Northern Cape	0,4	0,0	170
KwaZulu-Natal	19,8	28,1	672
Free State	14,0	5,9	302
North West	5,3	2,3	198
Gauteng	3,4	2,0	240
Mpumalanga	4,5	1,8	269
Limpopo	0,3	0,5	265
TOTAL	100,0	100,0	439

Milk production

Annual milk production shows a steady linear upward trend over time. The total milk to market for 2019 is 3 433 000 t, 0.65% up on the previous year. Monthly milk purchases in 2017 to July 2020 are shown in Figure 17. Unprocessed milk production for the first eight months of 2020 is 0.63% less than the same period in 2019.

The growth in the intake of unprocessed milk for 2019 was subdued, due to farm economics being under pressure and adverse climatic conditions prevailing over certain parts of South Africa. The cost-price squeeze farmers experienced, thanks to both sides of the equation being unfavourable, deepened the level of negative farm economics.

Figure 17: South African monthly unprocessed milk purchase trend 2017-2020
(source: Milk SA)



*Estimate based on Milk SA sample

Figure 18: Annual unprocessed milk purchases, 2009-2019 (source: Milk SA)

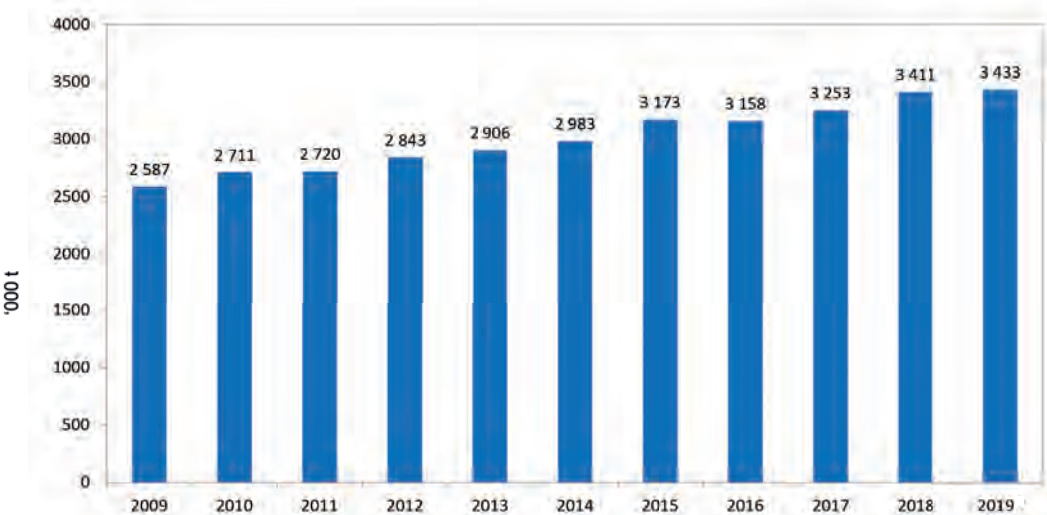


Table 8: Farm requisite price indices, base 2010 = 100 (source: DAFF)

Period	Machinery and implements	Material for fixed improvements	Intermediate goods and services	All farming requisites
2012	123,0	115,5	126,3	125,4
2013	132,2	122,5	134,9	134,0
2014	142,5	129,5	142,9	142,3
2015	150,2	138,9	147,4	147,3
2016	162,6	149,1	155,7	156,2
2017	169,1	155,6	162,5	162,9
2018	177,1	164,4	168,5	169,2
2019	183,0	171,9	174,2	175,1
CAGR* 2012–2019	5,8%	5,9%	4,7%	4,9%
Jan '15	145,9	137,9	144,2	144,1
Apr '15	148,7	146,7	146,1	146,5
Jul '15	150,4	138,5	148,5	147,9
Oct '15	159,4	138,9	149,8	150,4
Jan '16	157,8	144,5	152,0	152,0
Apr '16	161,2	154,5	154,5	155,3
Jul '16	161,8	148,7	156,9	157,1
Oct '16	171,8	148,7	159,3	160,3
Jan '17	164,8	150,0	159,9	160,0
Apr '17	166,1	163,7	158,7	159,8
Jul '17	166,7	154,1	163,0	163,0
Oct '17	178,9	154,8	168,5	169,0
Jan '18	171,0	156,5	165,8	166,0
Apr '18	169,3	170,0	162,9	164,0
Jul '18	179,2	166,2	170,8	171,6
Oct '18	186,5	164,6	175,2	175,5
Jan '19	178,3	163,5	171,8	172,1
Apr '19	176,9	179,9	169,3	170,7
Jul '19	186,1	173,7	175,2	176,4
Oct '19	190,7	170,4	180,6	181,3
Jan '20	179,6	169,6	178,6	178,3
CAGR* Jan '15–Jan '20	1,04%	1,04%	1,08%	1,07%

*Compound annual growth rate

Figure 19: Composition of the South African liquid products market on a volume basis, 2019 (source: Milk SA)

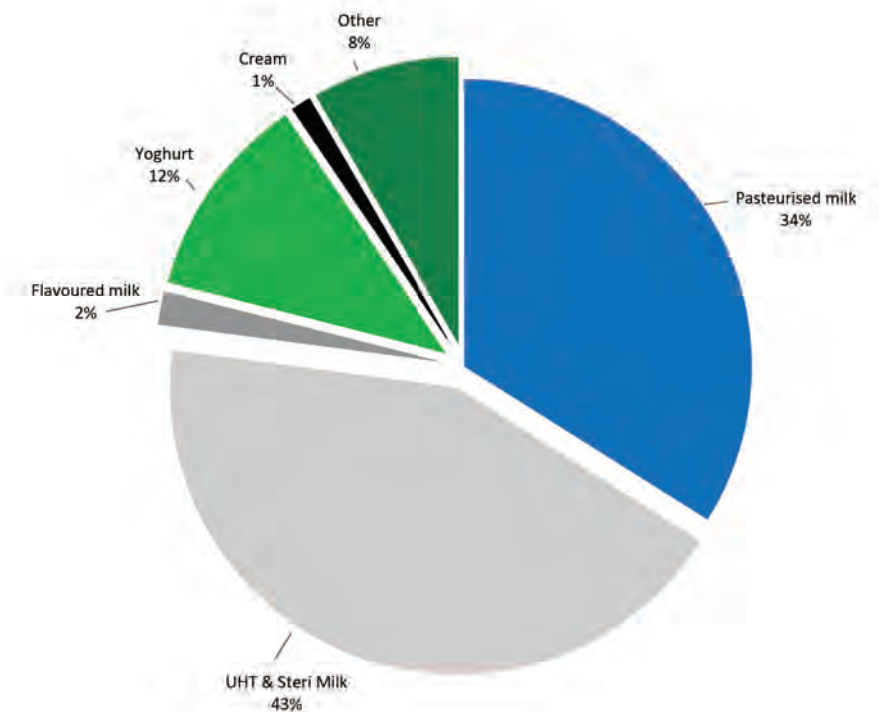
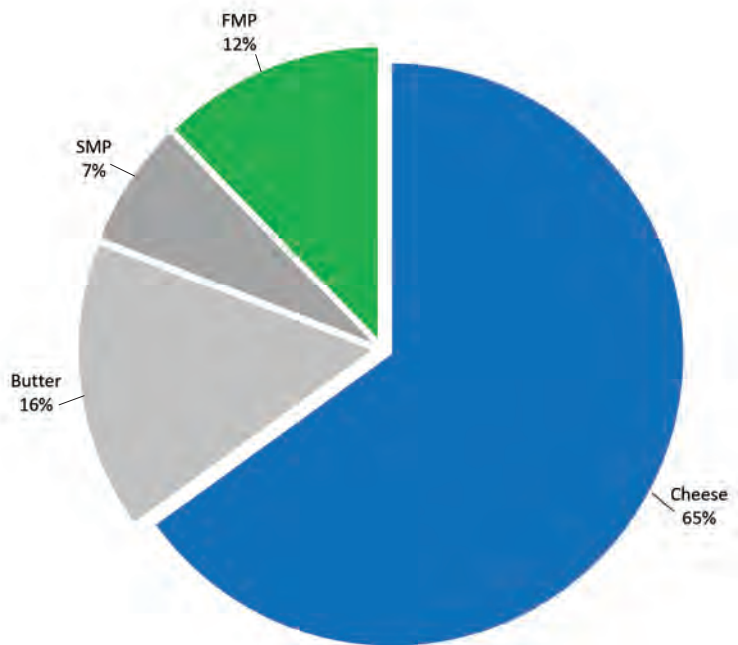


Figure 20: Composition of the South African concentrated products market on a mass basis, 2019 (source: Milk SA)



South African secondary dairy sector

Structure of the secondary dairy sector

The South African secondary dairy industry consists of a few large processors operating nationally, a growing number of processors who operate in more than one region, a large number of smaller processors who operate in specific areas, and a number of milk producers who sell their own produce to retailers and consumers – known as producer-distributors (PDs). The number of PDs and milk buyers per province is shown in Table 9.

The number of producer-distributors decreased by 59% from January 2009 to July 2020. Milk processors decreased by 30% over the same period.

Production and consumption

The South African dairy market in 2019 is divided into 62% liquid and 38% concentrate products. Pasteurised liquid milk and ultra-high temperature (UHT) processed milk are the major liquid products, while hard cheese is the major concentrated product. The estimated composition of the markets for liquid and concentrated products is shown in Figures 19 and 20.

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Number of producers-distributors
(↓59%)

Jan 2009

170

Jan 2020

69

Number of milk processors
(↓30%)



Jan 2009

190

Jan 2020

133

Dairy market composition

2019 **62% liquid**
38% concentrate



Table 9: Number of producer-distributors (PDs) and milk buyers per province (indicated according to position of head office), as registered with Milk SA, Jan '09-Aug '20
(source: Milk SA)

Province	Jan 2014		Jan 2015		Jan 2016		Jan 2017		Jan 2018		Jan 2019		Jan 2020	
	Proc	PD	Proc	PD	Proc	PD	Proc	PD	Proc	PD	Proc	PD	Proc	PD
Eastern Cape	12	16	12	15	13	14	12	13	8	9	9	7	9	7
Free State	16	11	15	11	13	10	13	9	12	7	12	7	12	6
Gauteng	51	21	51	21	48	21	46	22	42	17	39	15	40	15
KwaZulu-Natal	16	9	16	9	18	10	21	10	20	8	20	7	19	7
Limpopo	5	8	4	7	4	8	4	9	4	10	3	10	4	10
Mpumalanga	5	10	6	9	6	9	6	8	5	9	4	8	4	8
North West	16	5	16	4	16	4	14	4	11	3	11	3	10	1
Northern Cape	1	9	1	9	1	8	1	8	1	7	2	6	2	3
Western Cape	40	25	39	25	39	24	38	23	35	18	31	14	33	12
Total	162	114	160	110	158	108	145	106	138	88	131	77	133	69

Milk processors refer to producers of processed milk and manufacturers of other dairy products.
Producer-distributors (PDs) refer to producers who sell their own produce to retailers and consumers.

Imports and exports

Total dairy product imports and exports are shown in Figure 21 and Figure 22. In 2019, 75 600 tonnes of products were imported and 45 100 tonnes exported. The total composition

of imports and exports in 2019 is shown in Figure 23 and Figure 24. On a mass basis, milk and cream were the most important products imported and exported.

Figure 21: Dairy product imports and exports, 2010-2019 (source: SARS data, as supplied by SAMPRO)



Figure 22: Dairy product imports and exports on milk-equivalent basis, 2010-2019 (source: SARS data, as supplied by SAMPRO)

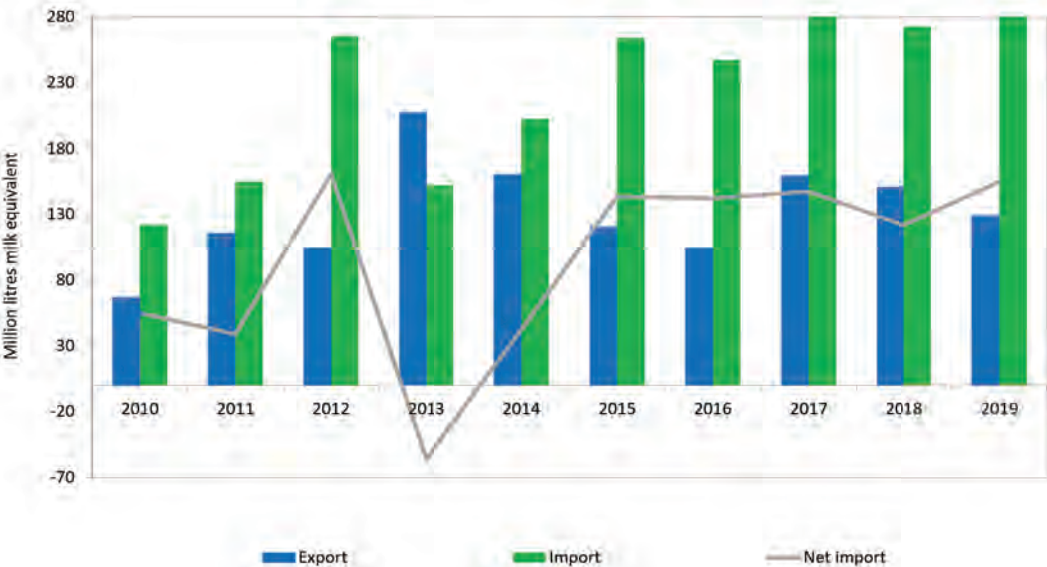


Figure 23: Percentage composition of imports on a mass basis, 2019 (source: SARS data, as supplied by SAMPRO)

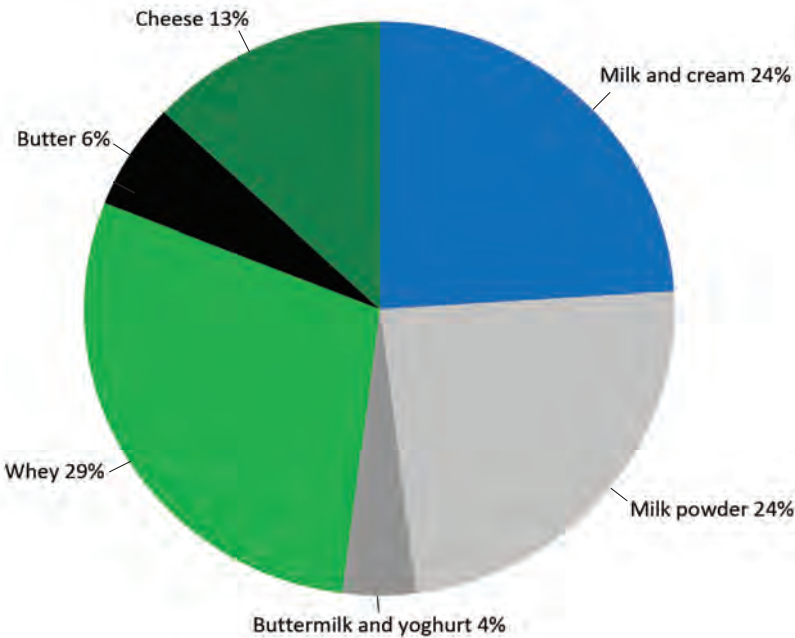


Figure 24: Percentage composition of exports on a mass basis, 2019 (source: SARS data, as supplied by SAMPRO)

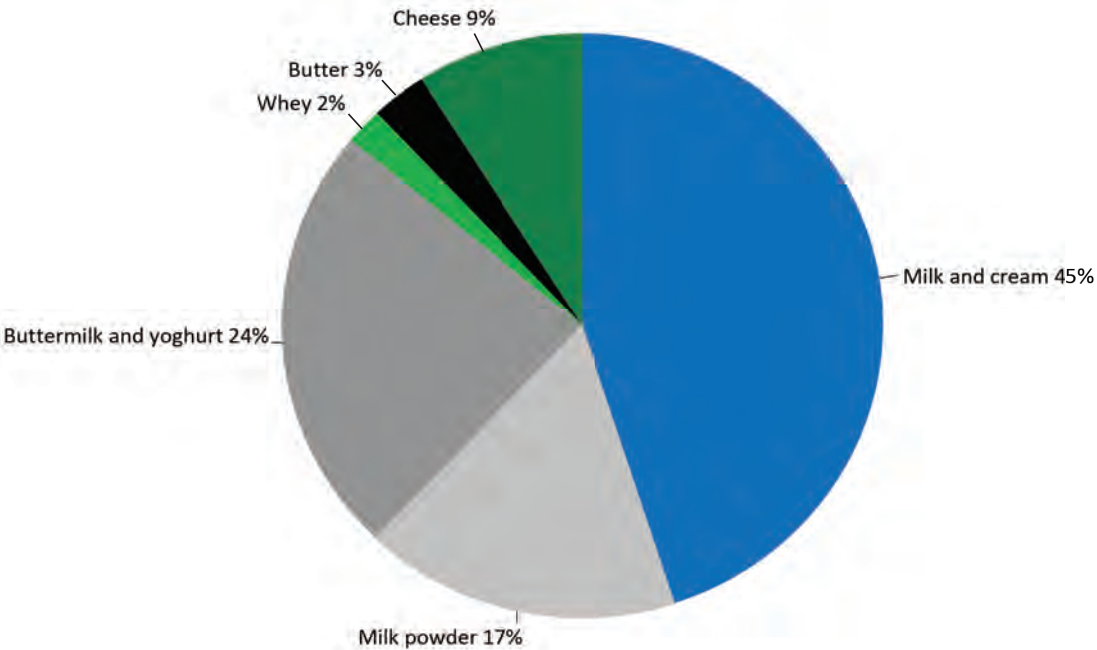


Figure 25: Price index of unprocessed milk on farm level, dairy products at processor level, and milk and eggs at consumer level, Jan 2012-Aug 2020 (source: Stats SA)

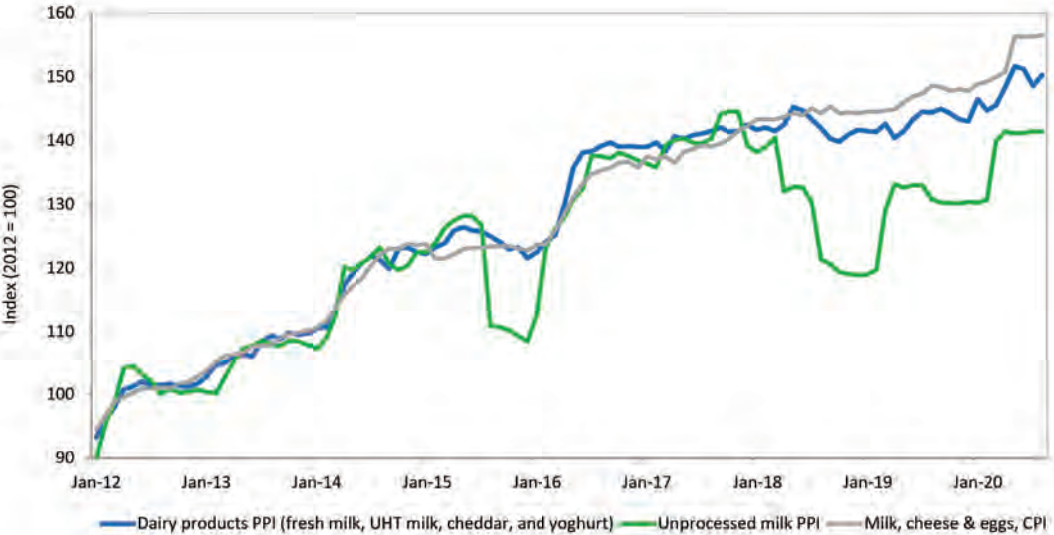


Figure 25 shows the trend in the price indices of unprocessed milk at farm level, dairy products at processor level, and milk, cheese, and eggs at consumer level. For most of the period, prices follow the same general trend, but since the end of 2017, the indices for unprocessed milk (farmer prices) developed a different trend and the magnitude of negative price changes for this index resulted in the index significantly lagging behind the other indices.

Tables 10 to 13 indicate trends of retail sales (quantity and average price) of nine dairy products and eight other generally used food products (consisting of four starch products, one fat product, and three beverages), as reported by Nielsen South Africa and collated by SAMPRO. The Nielsen Company provides information based on monthly surveys of the retail sales of milk and other dairy products. Non-retail sales, such as sales to wholesalers and industrial buyers, which form significant parts of the total sales of dairy products, are not part of the Nielsen surveys.

The sales quantities of both fresh milk and flavoured milk decreased in all five of the different periods. Sales quantities of all other seven dairy products increased in all of the five different periods. The sales quantity of maize

meal and short-life juice of the eight general food products measured, decreased in all five periods. The average retail price of all nine dairy products for the 12-month period from June 2019 to June 2020 increased, with one product increasing by an amount less than inflation. The average retail price of all eight general food products for the 12-month period from June 2019 to June 2020 increased, with the exception of tea, which decreased marginally. Two of the general food products increased by an amount less than inflation.

The sales quantities for maas and pre-packed cheese over the 12-month period from July 2018 to June 2019 versus July 2019 to June 2020, increased the most, by 12.7% and 11%, respectively. The average retail price of the two products, maas and pre-packed cheese, increased by only 3.1% and 5.2%, respectively, for the 12-month period June 2019 to June 2020. The sales quantities for coffee and margarine over the 12-month period from July 2018 to June 2019 versus July 2019 to June 2020, increased the most for the general food products, by 8.2% and 7.5%, respectively. The average retail price of the two products, coffee and margarine, increased by 4.6% and 6.0%, respectively, for the 12-month period June 2019 to June 2020.

Table 10: Changes in quantities of retail demand of specific dairy products (source: Nielsen as supplied by SAMPRO)

Product	Sales in the month of Jun '20 versus sales in the month of Jun '19	Sales in the 3 months from Apr '20–Jun '20 versus sales in the 3 months from Apr '19–Jun '19	Sales in the 6 months from Jan '20–Jun '20 versus sales in the 6 months from Jan '19–Jun '19	Sales in the 9 months from Oct '19–Jun '20 versus sales in the 9 months from Oct '18–Jun '19	Sales in the 12 months from Jul '19–Jun '20 versus sales in the 12 months from Jul '18–Jun '19
Fresh milk	-9,4	-9,3	-7,4	-5,5	-4,0
Ultra-high temperature treated milk	9,8	12,6	8,3	3,4	0,01
Flavoured milk	-11,8	-11,9	-10,6	-8,6	-6,7
Yoghurt	17,3	18,1	11,5	10,2	10,0
Maas	5,5	11,2	10,7	10,9	12,7
Pre-packaged cheese	18,3	22,4	16,8	13,0	11,0
Cream cheese	10,0	12,4	5,1	2,5	1,7
Butter	16,3	15,4	8,1	4,9	3,5
Cream	14,4	22,7	8,9	3,6	1,2

Table 11: Changes in the average retail prices of specific dairy products (source: Nielsen as supplied by SAMPRO)

Product	Jun '20 versus May '20 (1 month ago)	Jun '20 versus Mar '20 (3 months ago)	Jun '20 versus Dec '19 (6 months ago)	Jun '20 versus Sep '19 (9 months ago)	Jun '20 versus Jun '19 (12 months ago)	Jun '20 versus Dec '18 (18 months ago)	Jun '20 versus Jun '18 (24 months ago)
Fresh milk	0,7	1,0	2,3	2,9	4,2	7,9	6,3
Ultra-high temperature treated milk	2,1	6,6	8,7	4,1	7,8	17,8	18,7
Flavoured milk	2,1	3,3	14,3	2,6	5,3	13,8	13,1
Yoghurt	-1,5	-0,7	7,0	1,7	0,6	4,9	3,6
Maas	-1,9	0,0	3,9	2,5	3,1	6,2	2,1
Pre-packaged cheese	0,7	2,4	4,5	3,3	5,2	5,6	6,7
Cream cheese	3,3	6,5	7,5	8,4	8,4	14,2	11,3
Butter	0,4	-3,8	8,9	5,6	7,3	5,6	1,9
Cream	1,2	0,9	1,0	2,8	6,7	9,1	14,8

Table 12: Changes in quantities of retail demand of other products (source: Nielsen as supplied by SAMPRO)

Product	Sales in the month of Jun '20 versus sales in the month of Jun '19	Sales in the 3 months from Apr '20–Jun '20 versus sales in the 3 months from Apr '19–Jun '19	Sales in the 6 months from Jan '20–Jun '20 versus sales in the 6 months from Jan '19–Jun '19	Sales in the 9 months from Oct '19–Jun '20 versus sales in the 9 months from Oct '18–Jun '19	Sales in the 12 months from Jul '19–Jun '20 versus sales in the 12 months from Jul '18–Jun '19
Instant cereal	6,8	9,7	9,3	7,8	5,9
Bread	-2,1	1,8	3,4	3,1	2,7
Rice	-8,0	-3,3	4,6	5,3	5,6
Maize meal	-14,2	-6,4	-1,9	-2,2	-2,3
Margarine	5,2	14,0	12,6	9,7	7,5
Tea	11,5	15,8	13,7	9,3	5,9
Coffee	9,6	12,2	13,2	11,4	8,2
Short-life juice	-16,5	-13,4	-9,8	-7,5	-6,1

Table 13: Changes in the average retail prices of other products (source: Nielsen as supplied by SAMPRO)

Product	Jun '20 versus May '20 (1 month ago)	Jun '20 versus Mar '20 (3 months ago)	Jun '20 versus Dec '19 (6 months ago)	Jun '20 versus Sep '19 (9 months ago)	Jun '20 versus Jun '19 (12 months ago)	Jun '20 versus Dec '18 (18 months ago)	Jun '20 versus Jun '18 (24 months ago)
Instant cereal	-1,0	0,2	6,9	3,9	6,0	7,3	11,0
Bread	1,1	2,7	5,4	3,8	2,0	6,5	10,7
Rice	5,9	11,9	21,9	19,8	20,2	24,7	24,8
Maize meal	2,6	3,8	10,1	12,4	16,6	32,9	38,7
Margarine	0,6	6,9	7,5	5,9	6,0	6,5	6,7
Tea	-2,5	-1,4	5,8	0,5	-0,4	3,8	3,8
Coffee	-1,0	-4,7	8,8	1,5	4,6	-0,5	9,7
Short-life juice	3,5	2,2	8,1	3,5	5,9	14,7	12,8

ACRONYMS AND ABBREVIATIONS

CAGR	Compound annual growth rate	OECD-FAO	Organization for Economic Co-operation and Development and the Food and Agricultural Organization of the United Nations
DALRRD	Department of Agriculture, Land Reform and Rural Development	PD	Producer-distributor
EU	European Union	SAMPRO	South African Milk Processors' Organisation
FAO	Food and Agricultural Organization of the United Nations	SARS	South African Revenue Service
FMP	Full-cream milk powder	SCM	Solid-corrected milk
FOB	Free on board	SMP	Skimmed milk powder
IDF	International Dairy Federation	t	Tonnes (a metric tonne, equal to 1 000 kilograms)
IFCN	International Farm Comparison Network	UHT	Ultra-high temperature
IMF	International Monetary Fund	UK	United Kingdom
LTO	Nederland Land- en Tuinbouw Organisatie (Dutch Federation of Agriculture and Horticulture)	US	United States
Milk SA	Milk South Africa	USDA	United States Department of Agriculture
MPO	Milk Producers' Organisation	WEO	World Economic Outlook
		WMP	whole milk powder