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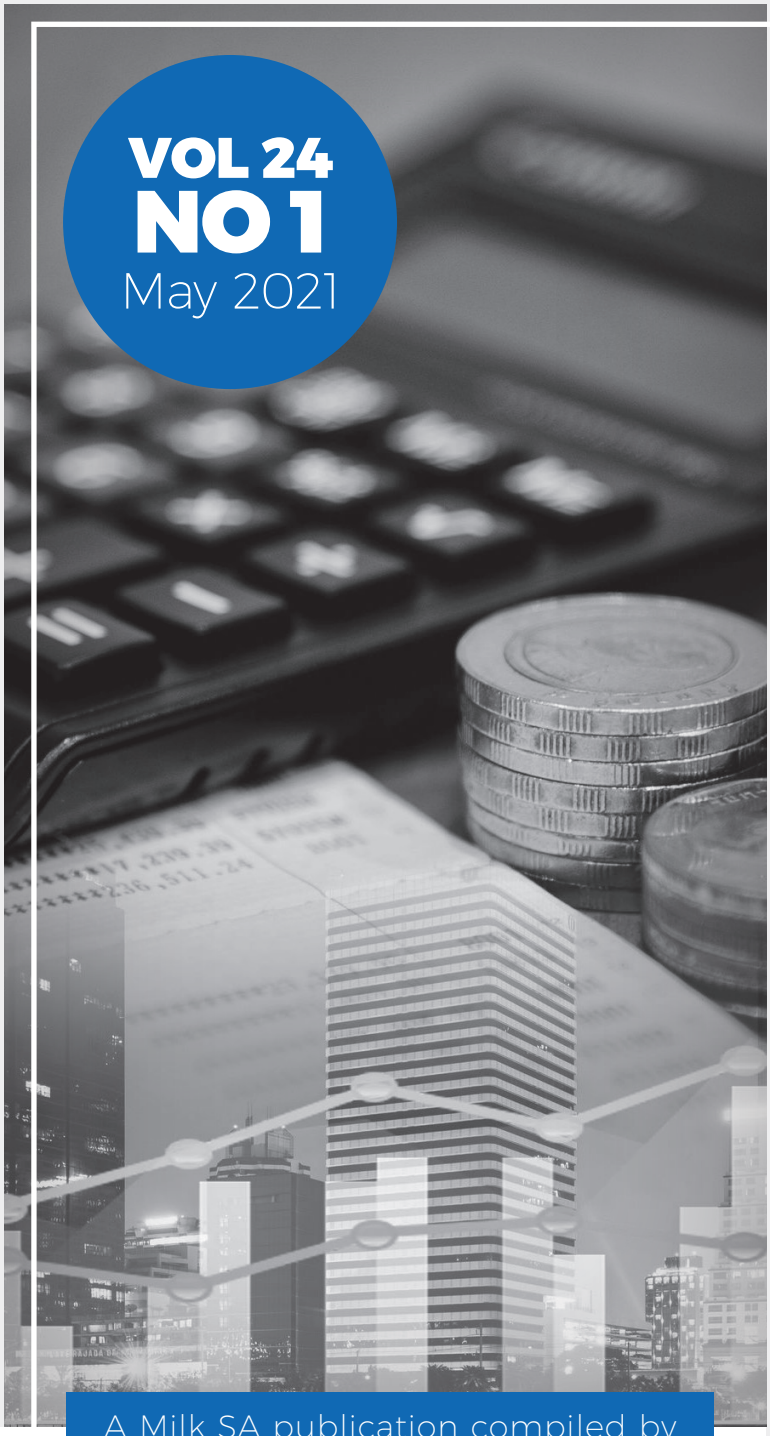

A Milk SA publication compiled by the Milk Producers' Organisation

Milk South Africa
Melk Suid-Afrika

MELKPRODUSENTE-ORGANISASIE
MILK PRODUCERS' ORGANISATION

Suid-Afrikaanse Melkprosesseerdersorganisasie
South African Milk Processors' Organisation

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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 for the benefit of the South African dairy industry and consumers.

Milk South Africa (Milk SA) is proud to present this publication, which was made possible through the contributions of the persons or entities sharing their information via statutory regulations. The SA 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

The estimated 3,5% contraction of the global economy for 2020 is better than that projected in the previous World Economic Outlook report (October 2020), due to a stronger than expected recovery, on average, across regions in the second half of 2020. The 2021 growth forecast of 5,5% is reflecting additional policy support in a few large economies and expectations of a vaccine-powered strengthening of activity later in the year, which outweighs the drag on near-term momentum due to rising infections in some regions.

The Food Price Index of the Food and Agricultural Organization (FAO) of the UN indicates that global food prices increased by 11% from January 2020 to January 2021, while the index for dairy products increased by 7% over the same period. Comparing January 2021 with January 2020, skimmed milk powder (SMP) increased by 6,1%, butter prices by 17%, cheddar prices by 2,4%, and full-cream milk powder (FMP) by 6,4%.

The *OECD-FAO Agricultural Outlook 2020–2029* report, a collaborative effort between the Organisation for Economic Co-operation and Development (OECD) and the FAO, 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.

Comparing the average unprocessed milk price in Europe from January 2020 to December 2020, the price, in terms of euros, basically moved sideways, and from March 2020, at lower levels than 2019. In January 2020, the price was €0,34 (R5,62) and in December 2020, €0,35 (R6,27) per litre. In rand terms, however, the price increased by 12%, illustrating the effect of the depreciated rand. Over the same period, the average unprocessed milk price in South Africa increased by 15%, from R4,50 to R5,19. In South Africa, the production of unprocessed milk registered a negative growth of 0,16% in 2020.

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Compiled by Bertus van Heerden for Milk SA.

Milk Producers' Organisation
PO Box 1284 | Pretoria | 0001
Tel +27 (0)12 843 5600
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INTERNATIONAL SITUATION

Global economic growth

After an estimated 3,5% contraction in 2020, the global economy is projected to grow at 5,5% in 2021 and 4,2% in 2022. The estimate for 2020 is 0,9 percentage points higher than that projected in the International Monetary Fund's October 2020 survey, entitled *World Economic Outlook: A long and difficult ascent*. This reflects the stronger than expected recovery, on average, across regions in the second half of the year. The 2021 growth forecast is reflecting additional policy support in a few large economies and expectations of a vaccine-powered strengthening of activity later in the year, which outweighs the drag on near-term momentum due to rising infections. The upgrade is particularly large for the advanced economy group, reflecting additional fiscal support – mostly in the United States (US) and Japan – together with expectations of earlier widespread vaccine availability, compared to the emerging market and developing economy group.

Global trade

Consistent with the recovery in global activity, global trade volumes are forecast to grow about 8% in 2021, before moderating to 6% in 2022. Services trade is expected to recover more slowly than merchandise volumes, however, which is consistent with subdued cross-border tourism and business travel until transmission declines everywhere.

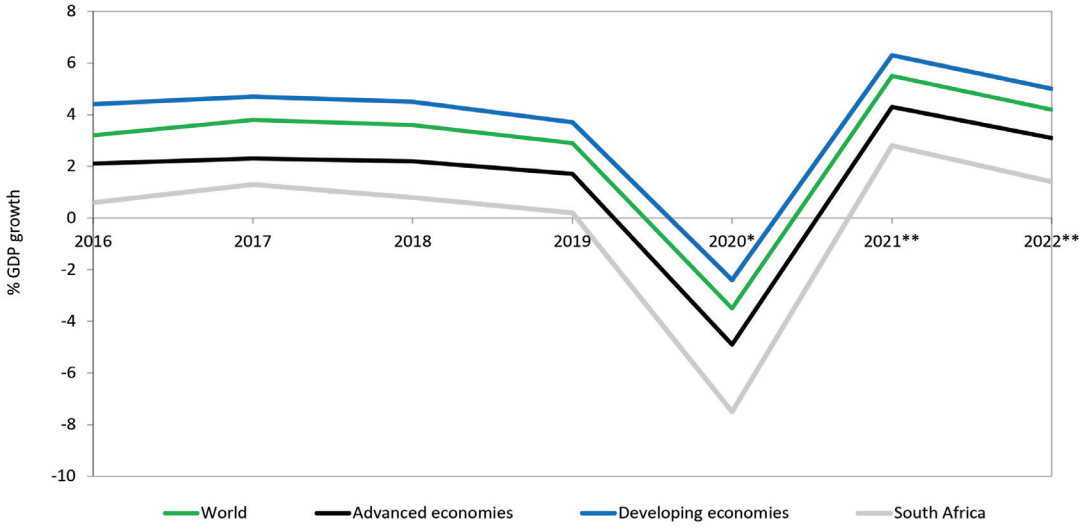
Inflation

Even with the anticipated recovery in 2021–2022, output gaps are not expected to close until after 2022. Consistent with persistent negative output gaps, inflation is expected to remain subdued during 2021–2022. In advanced economies, it is projected to remain generally below central bank targets, at 1,5%. Among emerging markets and developing economies, inflation is projected at just over 4%, which is lower than the historical average of the group.

Advanced economies

In general, advanced economies have been able to provide expansive fiscal support to households and firms (direct tax and spending measures, as well as equity injections, loans, and guarantees), and central banks have reinforced this with expanded asset purchase programmes, funding-for-lending facilities, and, for some, interest rate cuts. Reflecting

Figure 1 International economic growth and expected growth, 2016–2022 (source: IMF, 2020* estimate, 2021**, and 2022** projections)



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the strong policy support and the anticipated widespread availability of vaccines in the summer of 2021, the projected output loss compared with the pre-COVID-19 forecast is relatively smaller for advanced economies than other countries.

Emerging markets and developing economies

Emerging markets and developing economies are also projected to trace diverging recovery paths. Considerable differentiation is expected between China – where effective containment measures, a forceful public investment response, and central bank liquidity support have facilitated a strong recovery – and other economies. Oil exporters and tourism-based economies within the group face particularly difficult prospects considering the expected slow normalisation of cross-border travel and subdued outlook for oil prices. As noted in the IMF's October 2020 world economic outlook survey, the pandemic is expected to reverse the progress made in poverty reduction over the past two decades.

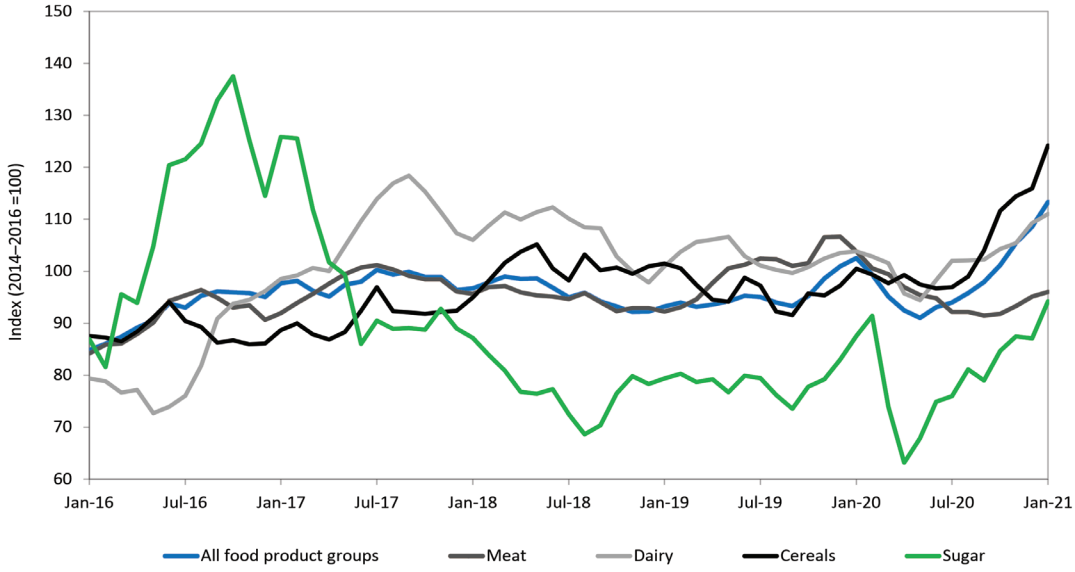
Another surge in the FAO Food Price Index

The FAO Food Price Index (FFPI) averaged 113,3 points in January 2021, 4,7 points (4,3%) higher than in December 2020, not only marking the eighth month of consecutive rise, but also registering its highest monthly average since July 2014. The latest increase reflected strong gains in the sugar and cereals sub-indices, while meat and dairy values were also up, but to a lesser extent.

The FAO Dairy Price Index (FDPI) averaged 111,0 points in January 2021, up 1,7 points (1,6%) from December 2020, rising for the eighth consecutive month and placing the index at 7,1 points (6,9%) above its value in the corresponding month the previous year. In January, butter and whole milk powder (WMP) price quotations increased, underpinned by China's high purchases in the wake of the country's upcoming New Year holiday festivities, amid seasonally lower exportable supplies in New Zealand. Price quotations for skimmed milk powder (SMP) rose too, pressured by high import demand for spot supplies and lagging production activities in Western Europe. By contrast, cheese prices fell slightly from the highs registered in December 2020, due to limited internal sales in Europe, coupled with stock build-up in the US.

The FAO Cereal Price Index (FCPI) averaged 124,2 points in January 2021, marking a sharp increase of 8,3 point (7,1%) from December 2020 and the seventh consecutive monthly rise. International maize prices increased significantly, surging by 11,2% in January, up 42,3% above their January 2020 level, reflecting increasingly tight global supply with lower-than-earlier-expected production and stock estimates in the US and substantial purchases by China.

Figure 2 FAO food price indices of internationally traded product groups, 2016–2021 (source: FAO Food Price Index, 2021)



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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 since then and, although less pronounced, 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

Figure 3a International FOB dairy product prices, US$/t, Jan 2010–Jan 2021 (source: USDA)

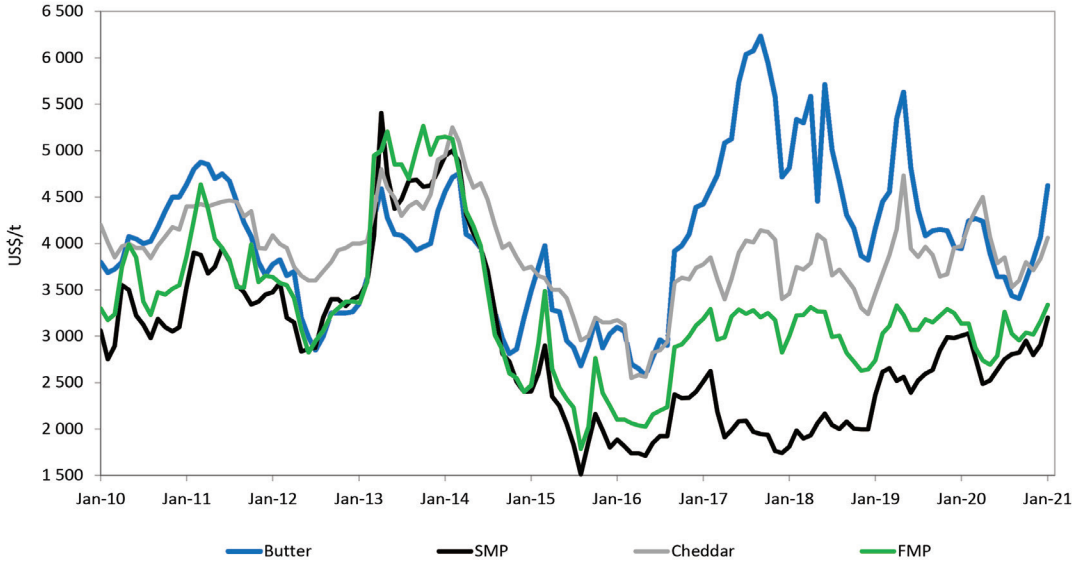
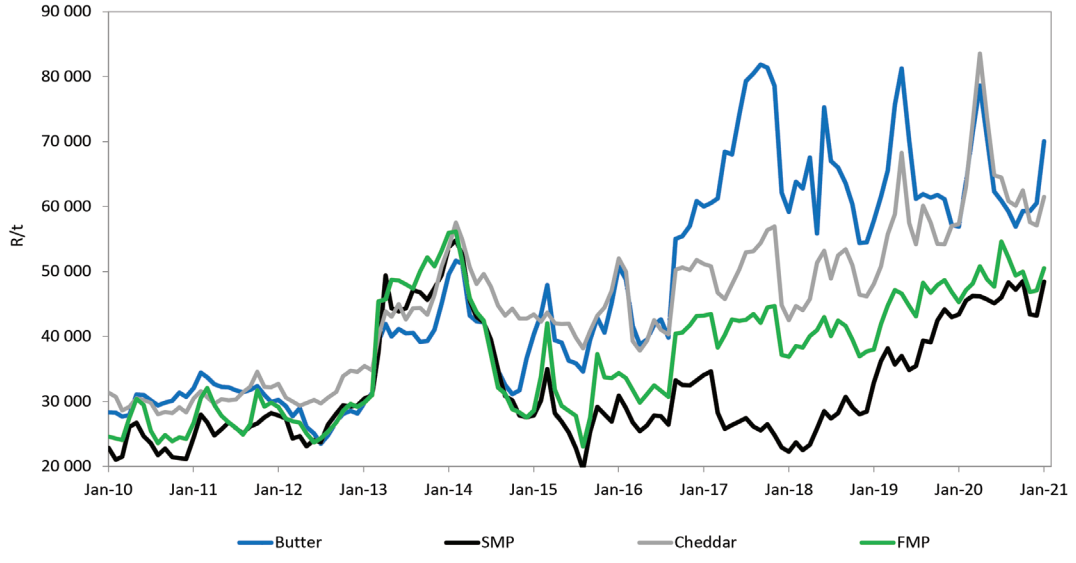


Figure 3b International FOB dairy product prices, R/t, Jan 2010–Jan 2021 (source: USDA, Reserve Bank)



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resulted in an explosion in the prices of butter, cheese, and full-cream milk powder (FMP).

The start of 2021 saw hardened dairy product prices due to robust import demand, with tight export availability being reinforced by the seasonal decline in production in Oceania.

During 2020, the trading price range for butter was between US$3 406 (R56 914) and US$4 269 (R71 463), a 25% variance between the highest and lowest prices. The butter price in January 2021, increased to US$4 625 (R70 023), a rise of 17% on January 2020.

Through 2020, the trading price of SMP was between US$2 488 (R46 202) and US$3 031 (R45 556), a 22% variance between the highest and lowest prices. The SMP price in January 2021 climbed to US$3 200 (R48 448), an increase of 6,1% on January 2020.

The trading price range of FMP during 2020 was between US$2 694 (R48 788) and US$3 263 (R54 623), a 21% variance between the highest and lowest prices. The FMP price in January 2021 increased to US$3 338 (R50 530), a rise of 6,4% on January 2020.

During 2020, the trading price range of cheddar was between US$3 531 (R60 839) and US$4 500 (R83 565), a 27% variance between the highest and lowest prices. The cheddar price in January 2021 increased to US$4 063 (R61 506), a 2,4% escalation on January 2020.

International unprocessed milk producer prices

The calculated average monthly unprocessed milk price for Europe in December 2020 was €0,35 (R6,27) per litre of standardised milk. During 2020, the average unprocessed milk price in Europe decreased by 2%, compared to 2019. There was little difference in the average unprocessed milk price in Europe (in euros) from January 2020 to December 2020; it basically moved sideways. In January 2020, the price was €0,34 (R5,62) and in December 2020, €0,35 (R6,27) per litre. In rand terms, however, the price increased by 12%, illustrating the effect of the depreciated rand. Over the same period, the average unprocessed milk price in South Africa increased by 15%, from R4,50 to R5,19.

Although the dairy market has improved, as shown by the higher price quotations of dairy commodities in January 2021, the picture of unprocessed milk prices in January and February is mixed. For example, according to early indications, the unprocessed milk price for January and February 2021 decreased in Denmark, increased in Belgium, and remained unchanged in the United Kingdom (UK).

World production of unprocessed milk

During 2019, global unprocessed milk production (cow's milk 81%, buffalo milk 15%, and goat's,

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	Dec 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	6,12
Denmark	3,82	4,51	4,45	5,06	5,17	4,83	6,22
France	4,38	5,55	4,42	4,89	5,51	5,19	6,40
Great Britain	4,69	5,29	4,08	5,04	5,32	5,05	6,14
Ireland	3,95	4,41	4,09	5,20	5,11	4,76	6,15
Netherland	3,84	4,90	4,41	5,23	5,65	5,15	6,37
New Zealand	3,26	3,66	4,38	4,49	4,74	5,05	5,79
United States	4,47	5,55	5,23	4,21	4,90	5,63	5,97
South Africa*	4,45	4,11	4,65	5,00	4,15	4,50	5,19

*Based on MPO price survey

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Figure 4 Global milk production per species, 2013–2019 (source: IDF Bull. 506/2020)

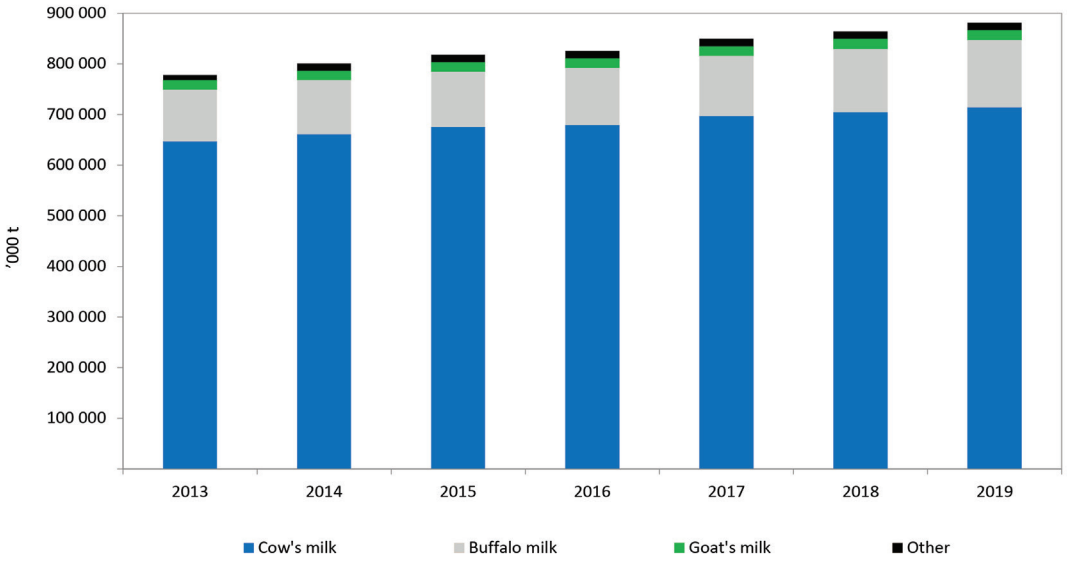

Figure 5 Cattle cow's milk production per region, 2011–2019 (source: IDF Bull. 506/2020)

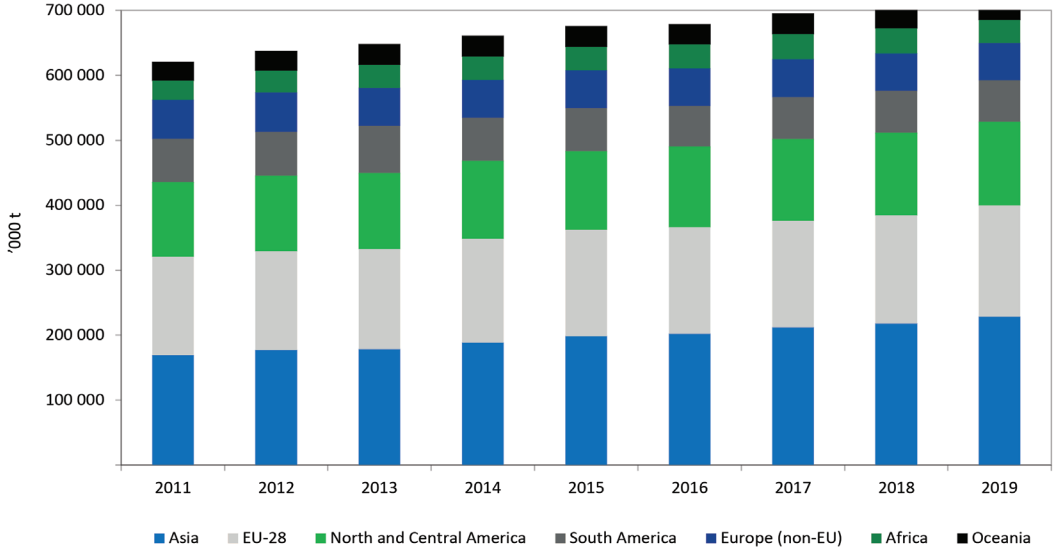

Table 2 Milk production growth: 2016 compared to 2015, 2017 compared to 2016, 2018 compared to 2017, 2019 compared to 2018, and 2020 compared to 2019 (source: CLAL, 2020)

Country	2016/2015	2017/2016	2018/2017	2019/2018	2020/2019
Australia	–6,2%	+0,0%	+2,7%	–6,6%	+2,8%
European Union	+0,3%	+2,2%	+1,8%	+0,5%	+1,6%
New Zealand	–2,0%	+1,7%	–0,6%	–0,7%	+0,4%
United States	+1,6%	+1,7%	+1,1%	+0,4%	+2,1%
Uruguay	–10,3%	+6,3%	+6,3%	–4,2%	+5,8%
Argentina	–12,8%	–1,6%	+6,8%	–1,8%	+7,4%

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sheep's, and camel's milk 4%, combined) remained on a steady growth path of 2,2%, totalling 902 million tonnes solid corrected milk (SCM). Underlying growth factors have been consistent over the past few years. Production in the milk-deficient regions in Asia and other emerging dairy markets was pushed forward by strong local demand growth, as well as favourable average unprocessed milk prices. The other growth factor is buffalo milk production, which experienced an annual growth rate of 4% over the period 2010–2019, more than twice the growth rate of cow's milk at 1,9% (source: IDF Bull. 506/2020).

Milk production in the major dairy export countries improved significantly in 2020, compared to 2019. As domestic consumption of dairy products in these countries is stable, the availability of fresh dairy products and processed products for export increased.

The *OECD–FAO Agricultural Outlook 2020–2029* report predicts world production of unprocessed milk 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 yield. India and Pakistan, important milk producers, are expected to contribute more than half 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 by the second largest milk producer, the European Union (EU), is expected to grow more slowly than the world average, due to environmental restrictions and limited domestic demand growth.

Manufacturing of dairy products globally

During 2019, the total output of dairy products showed limited growth, compared to the long-term trend, due to lower growth in deliveries. Output growth differed significantly between product categories. Global production of packaged milk fell in 2019, for a second consecutive year (–0,3%), whereas it had grown by 1,1% per year, on average, since 2010. China's production rose again (1,3%), Indian cooperatives' production kept growing (3,8%), while liquid milk production declined in most western countries and Russia.

Table 3 Major dairy companies, 2019 (source: IDF Bull. 506/2020)

Rank	Company name	Country	Dairy turnover US$ billion
1	Lactalis	France	22,4
2	Dairy Farmers of America	United States	15,9
3	Danone	France	14,8
4	Fonterra	New Zealand	13,5
5	Nestlé	Switzerland	13,4
6	Yili	China	13,1
7	Friesland Campina	Netherlands	12,6
8	Arla Foods	Denmark	11,8
9	Mengniu	China	11,4
10	Saputo	Canada	11,2
11	DMK	Germany	6,5
12	Sodiaal	France	5,7
13	Savencia	France	5,6
14	Agropur	Canada	5,5
15	Amul	India	5,4
16	Kraft Heinz	United States	5,3
17	Morinaga Milk Industry	Japan	5,3
18	Müller	Germany	5,1
19	Schreiber Foods	United States	5,0
20	Megmilk Snow Brand	Japan	4,8

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The butter and other milk fats market grew by 3% in 2019, in line with the average growth rate since 2010. Production is dominated by India, who alone accounts for 53% of the world's dairy fat production.

Total global cheese production was estimated slightly under 24 million tonnes for 2019 (excluding processed cheese), and grew by 1,4%, significantly under the average long-term growth rate of 2,2% since 2010. The EU accounts for 44% of global cow's milk cheese production and the US for 27%. In 2019, cheese output increased by 1,2% in the EU and 0,8% in the US. Brazil consolidated its position as the third largest producer of cheese, increasing output by 2,4%.

In 2019, WMP production dropped by 2,2%, down to 4,68 million tonnes. It is the first decrease since 2016. Production in New Zealand, the main producer in the world, increased by 3,4%, while production in China (the second largest producer) declined by 13,0%.

The world's SMP production remained at 4,8 million tonnes in 2019 (0,1% increase on 2018). The EU increased production slightly, by 0,4%, and the US by 3,7%, while output in New Zealand and Australia reduced by –8,5% and 25,6%, respectively.

Global production of condensed and evaporated milk was estimated at 5 million tonnes in 2019. The market is dominated by the US, where output continued its negative trend. The EU increased output by 3,5%, returning to the same level as in 2015. Liquid whey is mostly a cheese manufacturing by-product, produced in the leading cheese-producing countries in the world.

According to the *OECD-FAO Agricultural Outlook 2020–2029* report, the fight against the global COVID-19 pandemic is causing unprecedented uncertainties in global food supply chains. The 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

> "Total global cow's milk cheese production was estimated at 24 million tonnes in 2019, excluding processed cheese."

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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. 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 a fall in consumption.

Consumption of dairy products

Per capita consumption of dairy products in 2019 increased by 1,2% to 114,7 kg dairy products per capita, in milk equivalent. The global annual per capita consumption does not reflect the regional differences in consumption patterns. Although this can be explained by the difference in income per capita, whether regionally or per country, there is a broad range of consumer habits and trends. For example, more milk and fermented

Figure 6 World population and per capita consumption of dairy products, 2010–2019 (source: IDF Bull. 506/2020)

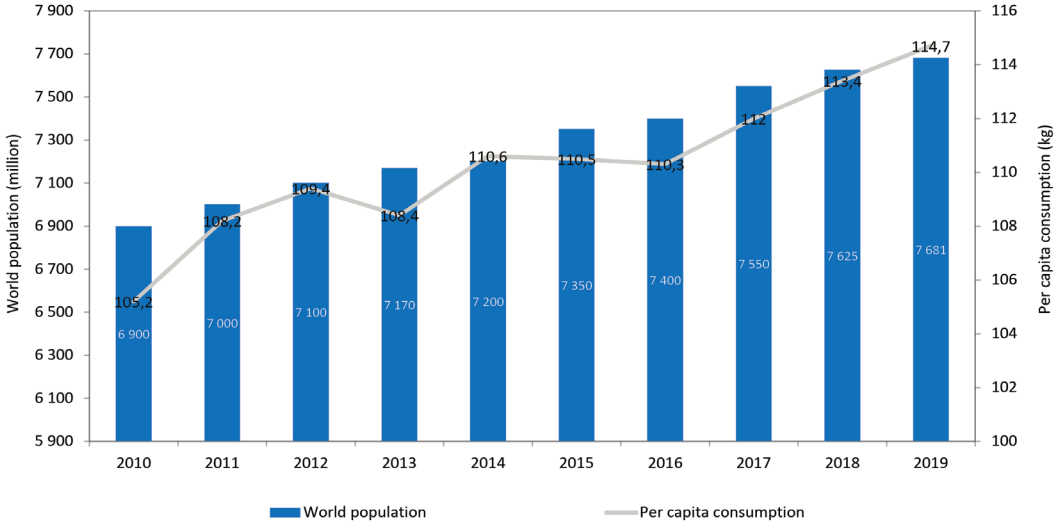

Figure 7 Annual increase in dairy demand, 2010–2019 (source: IFCN Dairy Report, 2020)

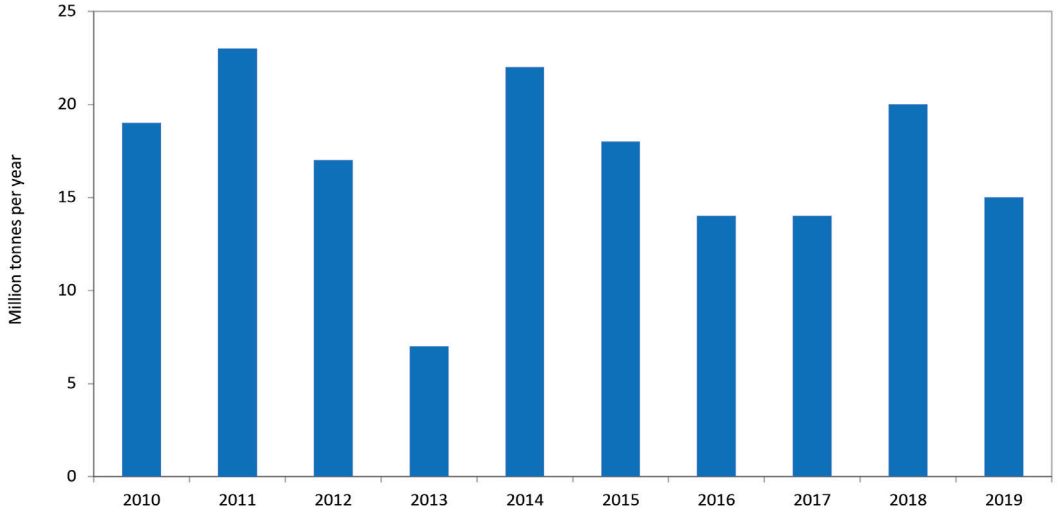

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Figure 8 Percentage breakdown of global dairy consumption, 2018 (source: IDF Bull. 501/2019)

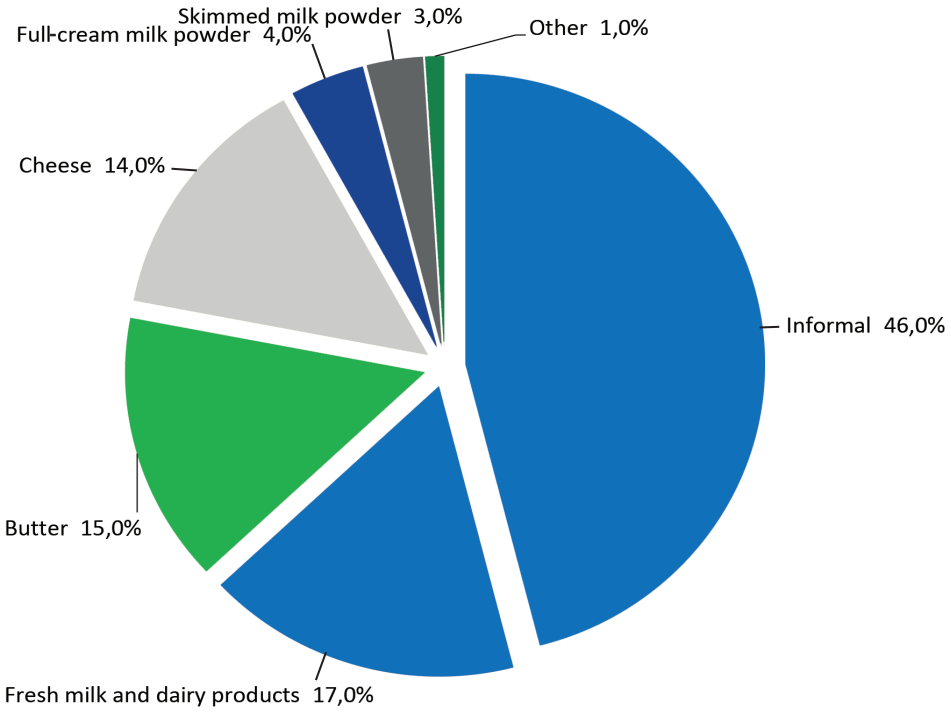
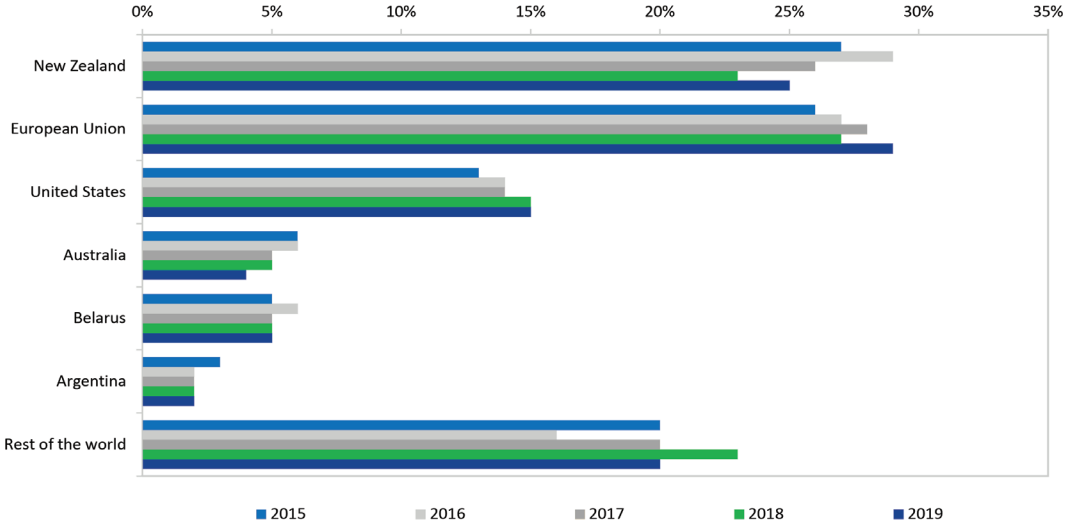


Figure 9 Share of key exporting countries in total trade in dairy products (milk equivalent basis), 2015, 2016, 2017, 2018, and 2019 (source: IDF Bull. 506/2020)



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products are consumed in India than in some European countries, but very little cheese, compared to the EU average. Annual average per capita consumption ranges from 42 kg in Africa to almost 275 kg in Europe and North America.

According to the IMF's *OECD–FAO Agricultural Outlook 2020–2029*, demand for dairy products will continue to grow, backed by population upswing, increasing income, and dietary changes. The COVID-19 pandemic will introduce a lagged effect to projections. An increase of 25% is expected in total dairy consumption between 2017 and 2029, with a higher pace for fresh products (30%) and butter (26%). Growth will be more sustainable in developing countries (2,5% per year) due to an increase in income and income per capita. On the other hand, in developed countries, dairy consumption is already high and impacted by increasing sustainability and responsibility concerns, as well as rising competition from plant-based beverages and products.

International dairy trade

The development of world trade (excluding EU-intra trade) in 2019 was somewhat limited by stagnating milk production development in several leading dairy exporting regions. Meanwhile, overall demand on international markets increased, especially from milk-deficient regions like Africa and Asia.

In 2019, the dairy market was largely determined by a strong recovery in protein prices, which quickly depleted the intervention stocks of SMP in Europe and helped normalise supply and demand mechanisms. Butterfat prices, on the other hand, were under pressure for most of the year.

In the same year, world dairy trade grew modestly by just over 1%, reaching a volume of 82,1 million tonnes milk equivalent. Since 2015, world trade has expanded by more than 9% (7 million tonnes milk equivalent). Among the main traditional world trade categories, the biggest growth was observed for butter and butter oil (3,9%), while cheese (2,8%) and WMP (2,1%) also showed solid increases. Meanwhile, SMP trade remained stagnant (–0,8%). A strong growth was observed for milk and cream (11,5%).

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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, 2019 (source: IFCN, 2020)

	Country	Milk produced (million tonnes SCM)
1	India	206
2	United States	96
3	Pakistan	47
4	Germany	34
5	Brazil	33
6	China	27
7	France	25
8	New Zealand	25
9	Turkey	18
10	Russian Federation	18
	South Africa	3,4

SCM = solid corrected milk

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International primary sector

There are 118 million dairy farms worldwide, 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. Some of the largest average herd sizes are found in Saudi Arabia, New Zealand, and South Africa. 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 on household farms, 22% on family farms, and 17% 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. Some of the largest average herd sizes are found in Saudi Arabia, New Zealand, and South Africa."

Cost of milk production internationally

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 worldwide.

Scientists from 100 countries contributed to the work of the IFCN in 2020. The organisation analysed the production and cost of 120 typical dairy farms in 52 countries and published the results in the IFCN Dairy Report 2020. The comparison of farms is based on the actual income and cost figures for 2019. The MPO's participation in the work of the IFCN is financially supported by Milk SA as part of the Economics and Market Project of Milk SA.

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

MORE INFO

World unprocessed milk production 2019

902 million tonnes scm

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

SA produces **0,4%** of global milk production

Main producing countries (2019 change)

- **INDIA** (206 MILLION TONNES SCM)
- **UNITED STATES** (96 MILLION TONNES SCM)
- **PAKISTAN** (47 MILLION TONNES SCM)
- **GERMANY** (34 MILLION TONNES SCM)
- **BRAZIL** (33 MILLION TONNES SCM)

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Figure 10 Estimated unprocessed milk production cost (US$/100 kg SCM) per average farm in participating countries, 2019 (source: IFCN, 2020)

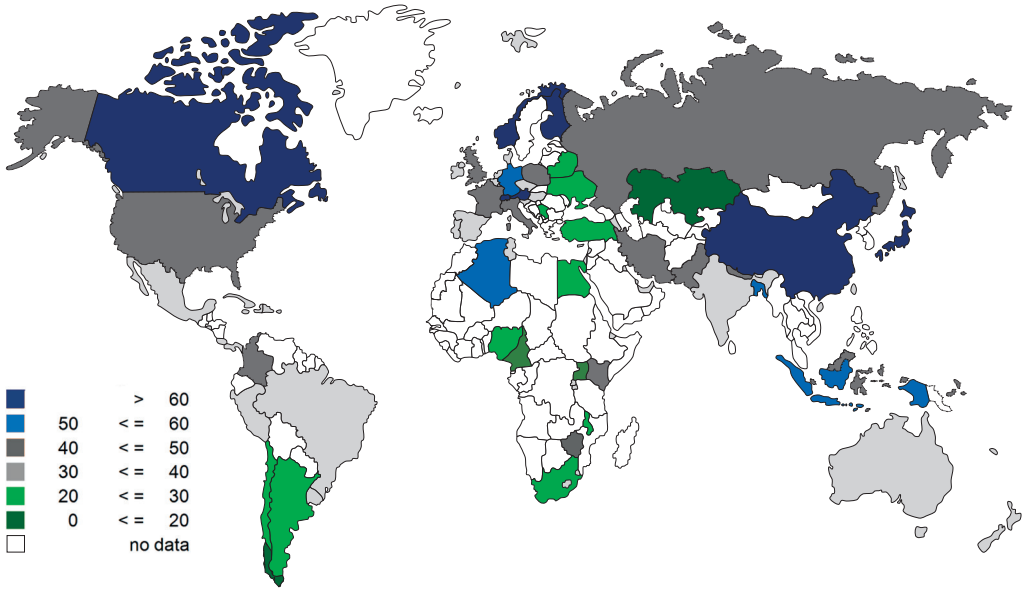
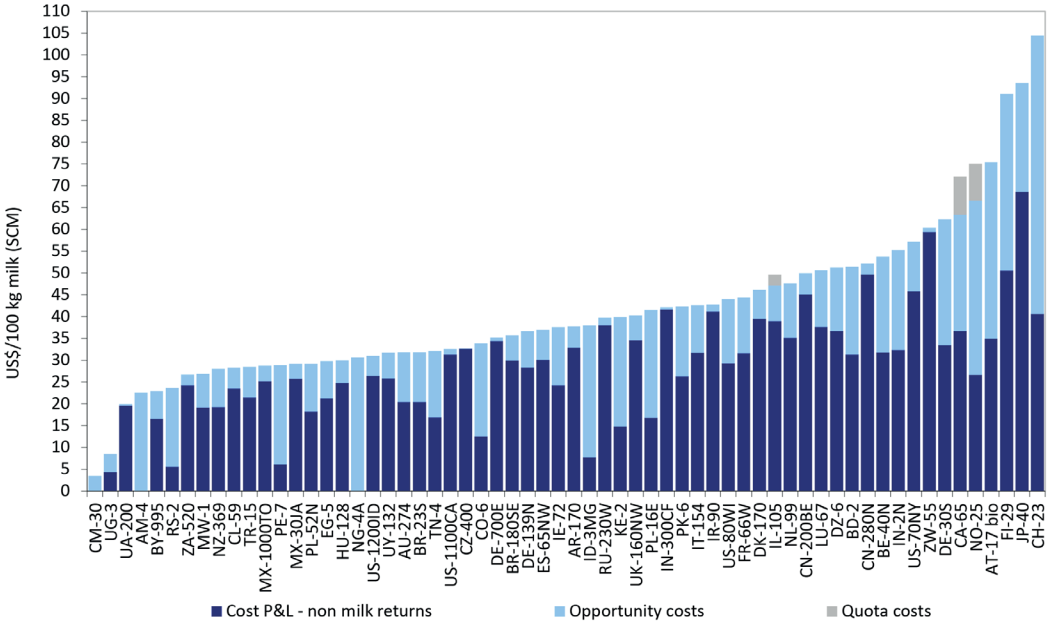


Figure 11 Estimated cost of unprocessed milk production per farm in US$/100 kg SCM for average farms in IFCN analysis, 2019 (source: IFCN, 2020)



P&L – profit and loss account
Country by international country code and herd size, ZA 520 = ZA 520-cow herd.

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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 120 farms evaluated by the IFCN in 2019 stood at US$41,90 (R604,58) per 100 kilograms of solid-corrected milk (100 kg SCM), which is 4,2% lower than in 2018. See Table 6 for countries providing a mix of the differences in cost.

> "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."

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

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.

Table 6 The following countries provide a mix of the differences in the cost of unprocessed milk production and the change from 2018 to 2019 (source: IFCN, 2020)

Country	2018 US$ per 100 kg SCM	2018 R per 100 kg SCM	2019 US$ per 100 kg SCM	2019 R per 100 kg SCM	Increase/ decrease
France	40,26	533,45	40,09	579,30	decrease
United States	39,39	521,92	39,16	565,86	decrease
Uruguay	31,18	413,13	28,88	417,32	decrease
China	53,20	704,90	51,71	747,21	decrease
New Zealand	29,37	389,15	29,48	412,85	increase
Australia	30,48	403,86	33,31	481,33	increase

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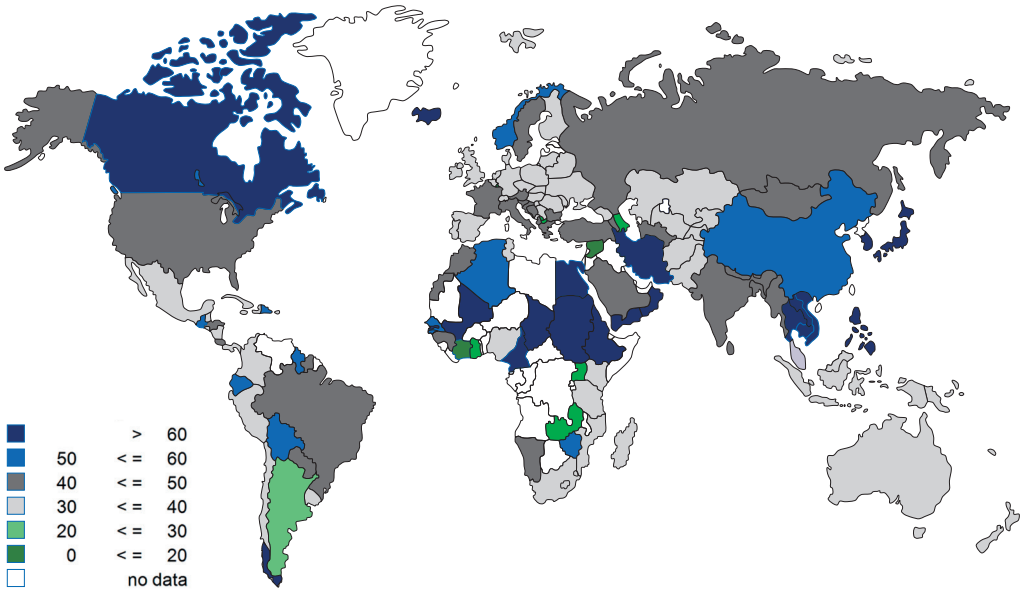
Figure 12 Estimated producer milk prices in various regions (US$/100 kg SCM), 2019
(source: IFCN, 2020)



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International producer price of unprocessed milk

The IFCN world milk price indicator of unprocessed milk stood at an average level of US$37,3 (R538,98) per 100 kg SCM in 2019, which is an increase of 8,9% over the previous year. After reaching a peak of US$42,1 (R608,34) per 100 kg SCM, it dropped to a level of US$36,0 (R520,20) per 100 kg SCM, before climbing to US$37,4 (R540,43) per 100 kg SCM in December 2019.

During 2019, the performance of the milk price was essentially a continuation of the zigzag trend observed in the price since 2016. The IFCN identified three key factors responsible for the price increase in 2019.

Firstly, unprocessed milk supply growth was very low in 2019. In most of the key exporting countries, unprocessed milk production deceased or grew only marginally due to drought and other adverse climatic conditions. Oceania was impacted negatively and South Asia experienced lower than normal rainfall. These conditions resulted in lower unprocessed milk availability, which, in turn, stimulated the world milk price for unprocessed milk.

> "The IFCN world milk price indicator of unprocessed milk stood at an average level of US$37,3 (R538,98) per 100 kg SCM in 2019, which is an increase of 8,9% over the previous year."

Secondly, the IFCN world price for unprocessed milk continued to be boosted by the strong demand for fat in 2019, which becomes visible in the premium price for butter and cheese as traded diary commodities. The price for butter and cheese rose at the start of 2019. Although the price spread narrowed towards the end of 2019, the strong demand and price for fat impacted positively on the world price.

Thirdly, considering the poor supply growth and strong demand growth, the question is, why did the world milk price not react stronger? Total supply, inclusive of carry-over stocks, was adequately in balance with total demand.

MORE INFO

LOWEST and HIGHEST cost countries in the world

Top 5 lowest cost

- CAMEROON
- UGANDA
- UKRAINE
- ARMINIA
- BELARUS

Top 5 highest cost

- SWITZERLAND
- JAPAN
- FINLAND
- AUSTRIA
- NORWAY

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SOUTH AFRICAN SITUATION

The COVID-19 pandemic that caused major disruptions in most markets had a limited effect in the South African dairy market. Some specific dairy products were affected, but most 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, 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 milk was absorbed into the market and utilised toward nutrition.

The latest market research conducted in 2020, indicates that growth in the quantity of dairy sales for the products being monitored are solid, with the exception of fresh milk and flavoured milk, registering negative growth for all the time periods being measured in 2020. Dairy product price movements are mostly negative when comparing nearer months with each other, which could be the result of the weakening of the South African economy.

South African primary dairy sector

Structure of the primary dairy sector

The number of milk producers in South Africa decreased from 1 834 in January 2015 to 1 053

NEED TO KNOW

Number of producers (↓43%)

Jan 2015	Jan 2021
1 834	1 053

Milk production (↑26%)

2011	2020
2 720 000 t	3 427 000 t

Milk production per producer (↑220%)

2011	2020
1 013 t	3 241 t

Table 7 Number of milk producers per province, January month, 2015–2021 (source: MPO)

Province	2015	2016	2017	2018	2019	2020	2021
Western Cape	533	502	481	419	402	379	348
Eastern Cape	262	251	244	212	201	206	172
Northern Cape	14	14	7	7	6	4	4
KwaZulu-Natal	267	253	247	221	212	208	207
Free State	328	280	249	206	165	145	130
North West	222	181	165	135	117	100	84
Gauteng	100	97	98	84	83	65	56
Mpumalanga	94	93	87	69	56	50	46
Limpopo	14	12	15	12	11	7	6
TOTAL	**1 834**	**1 683**	**1 593**	**1 365**	**1 253**	**1 164**	**1 053**

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

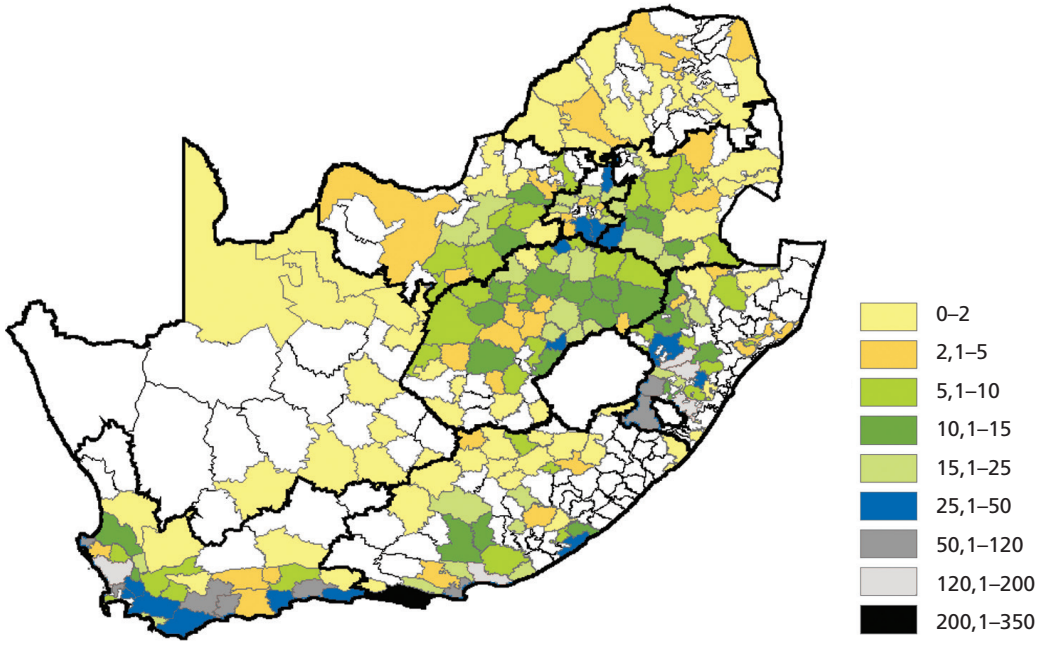

Figure 14 Size distribution of dairy cows per herd, 2020 (source: MPO October 2020 statutory survey)

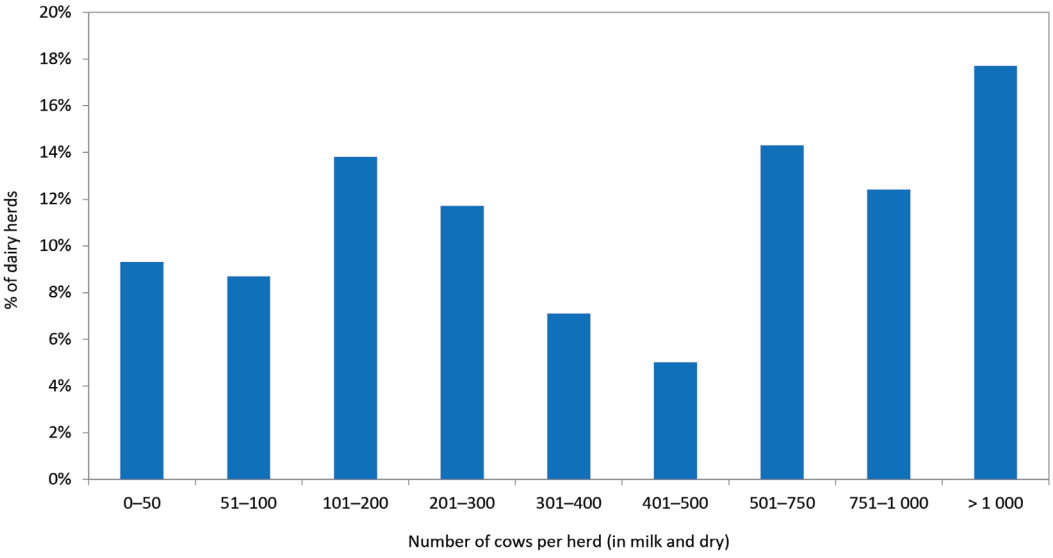

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Figure 15 Cow density per district (cows/km²), 2016 (source: MPO estimates from October 2016 statutory survey)

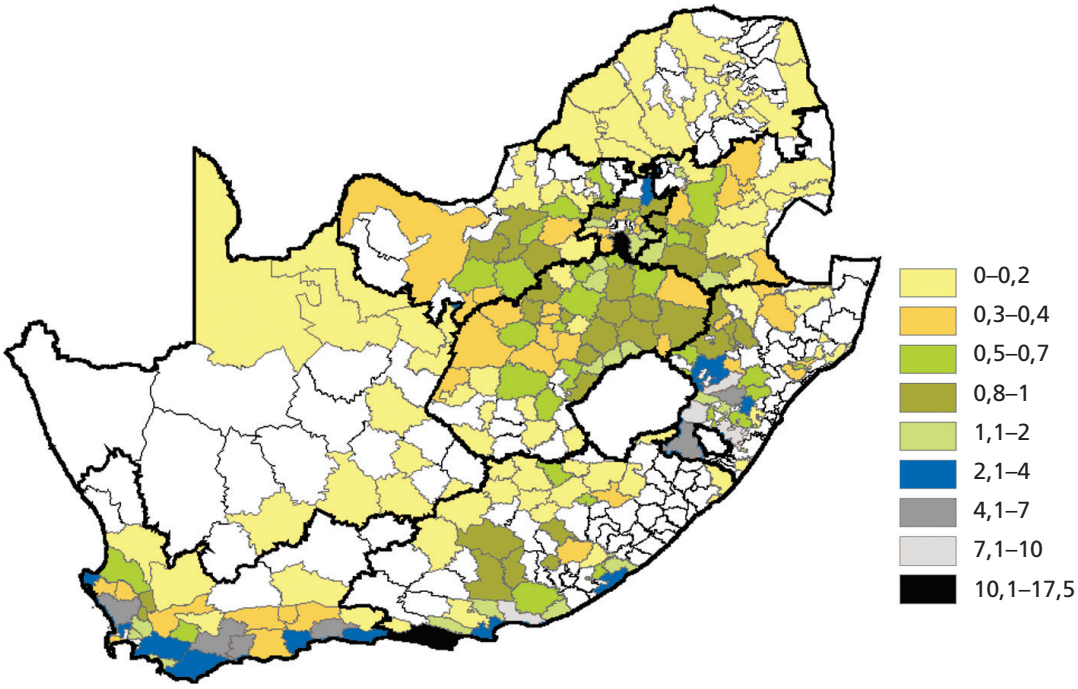
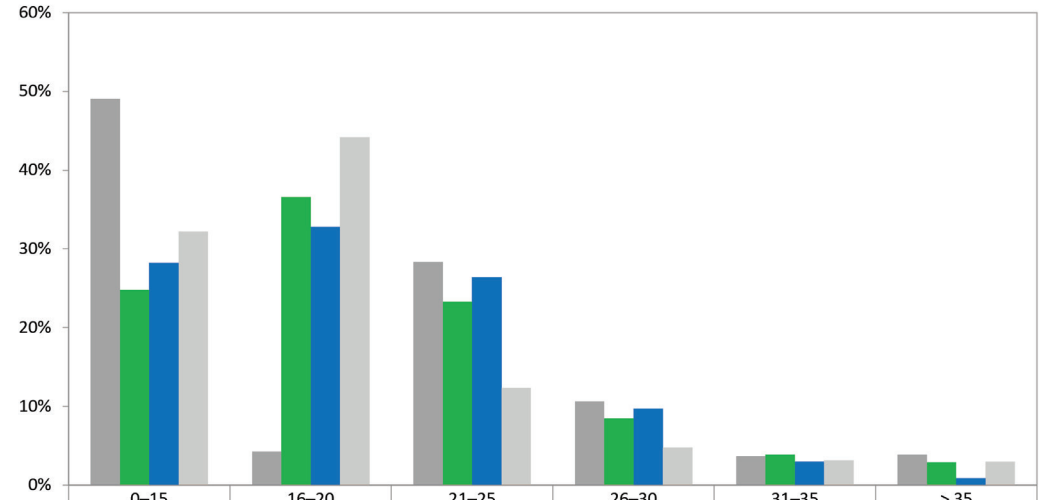


Figure 16 Distribution of herds based on daily production per cow in herd, 2017–2020 (source: MPO October 2020 statutory survey)



	0–15	16–20	21–25	26–30	31–35	> 35
2017	49,1%	4,3%	28,3%	10,7%	3,7%	3,9%
2018	24,8%	36,6%	23,3%	8,5%	3,9%	2,9%
2019	28,2%	32,8%	26,4%	9,7%	3,0%	0,9%
2020	32,20%	44,20%	12,40%	4,80%	3,20%	3,00%

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

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in January 2021. The number of producers per province is shown in Table 7. Since 2015, this number has decreased by 43%. The largest percentage decrease in producer numbers occurred in the Northern Cape.

The trend towards higher production in 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 the results of the October 2020 statutory survey, is shown in Table 8.

Cow numbers vary widely among producers. The percentage distribution of herd size is shown in Figure 14.

The average number of cows in milk per producer in the different provinces is shown in Table 8, and the concentration of cows per district in Figure 15.

Average milk production per cow per day was 18,1 ℓ in 2019. Ninety-nine per cent of 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.

Milk production

Annual milk production shows a steady linear upward trend over time. The total milk to market for 2020 is 3 427 000 t, down 0,16% from the

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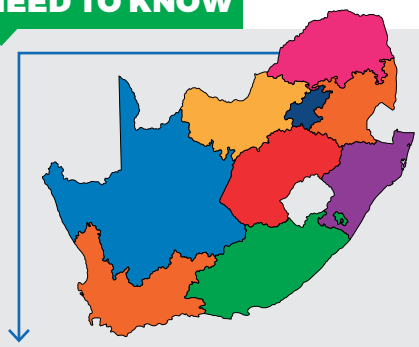

Milk production per province, 2020 (%)

Western Cape	31,0
Eastern Cape	26,2
Northern Cape	0,0
KwaZulu-Natal	27,0
Free State	5,9
North West	2,1
Gauteng	4,1
Mpumalanga	3,2
Limpopo	0,4

Table 8 Unprocessed milk production per province, and cows in herd per producer, specific month in specific year (source: MPO from October 2020 statutory survey)

Province	Percentage distribution of milk production		Number of cows in herd per producer, 2020
	Sep 2009	Oct 2020	Average
Western Cape	27,1	31,0	438
Eastern Cape	25,0	26,2	880
Northern Cape	0,4	0,0	107
KwaZulu-Natal	19,8	27,0	732
Free State	14,0	5,9	258
North West	5,3	2,1	154
Gauteng	3,4	4,1	361
Mpumalanga	4,5	3,2	285
Limpopo	0,3	0,4	271
TOTAL	**100,0**	**100,0**	**510**

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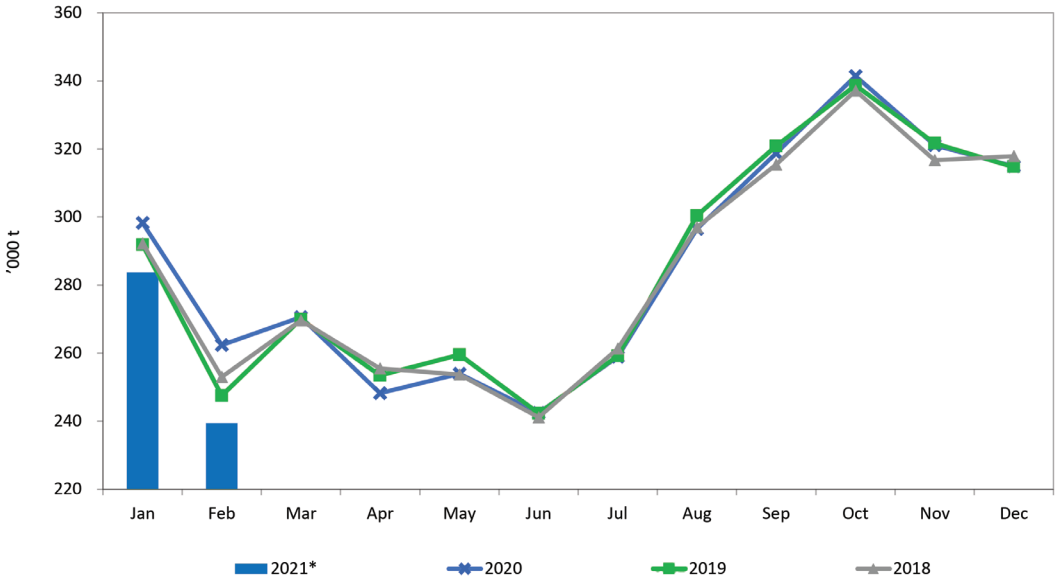
previous year (December 2020). Monthly milk purchases in 2017 to July 2020 are shown in Figure 17.

The growth in the intake of unprocessed milk for 2020 was subdued, due to farm economics being under pressure and adverse climatic conditions prevailing over certain parts of South Africa. Summer rain was late in 2020. The cost-price squeeze farmers experienced, due to high levels of grain prices (yellow maize and soya), deepened the level of negative farm economics.

Figure 17 South African monthly unprocessed milk purchases 2018–2021 (source: Milk SA)



*Estimate based on Milk SA sample

Figure 18 Annual unprocessed milk purchases, 2010–2020 (source: Milk SA)

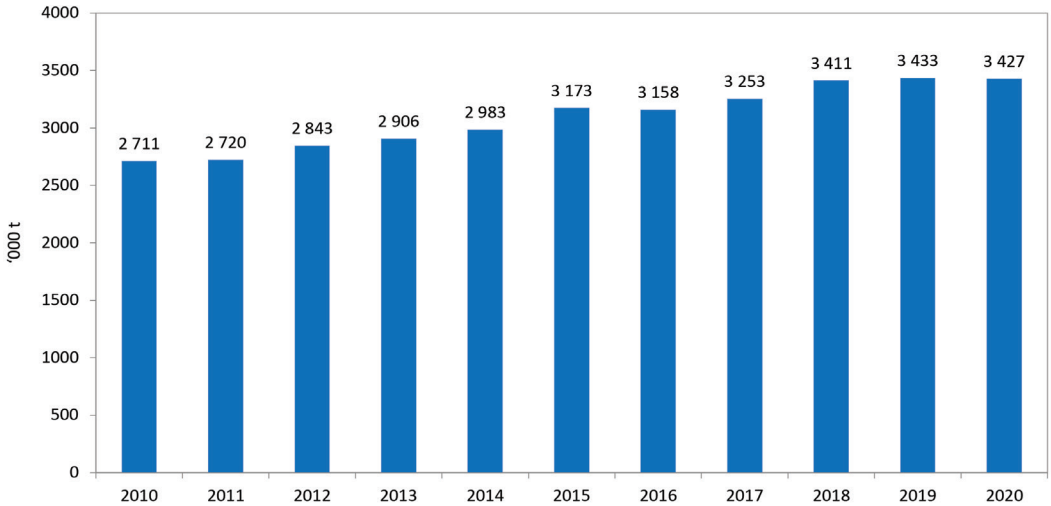


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Table 9 Farm requisite price indices, base 2010 = 100 (source: DAFF)

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* 2012–2020	**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	164,1
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	179,5	169,9	178,6	178,3
Apr '20	183,6	174,9	173,0	173,6
CAGR* Jan '15–Apr '20	**1,10%**	**1,14%**	**0,87%**	**0,89%**

*Compound annual growth rate

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Figure 19 Composition of the South African liquid products market on a volume basis, 2020 (source: industry estimate supplied by Milk SA)

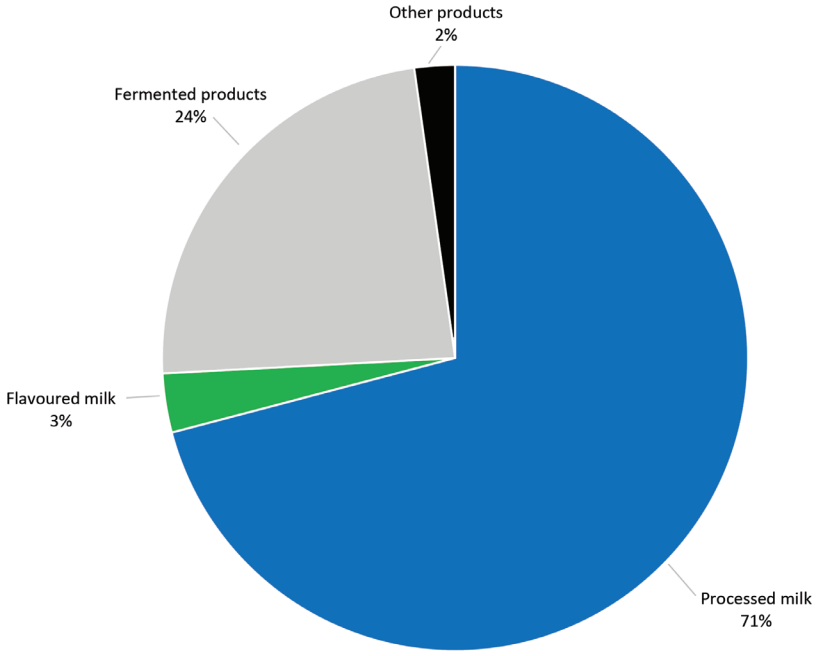
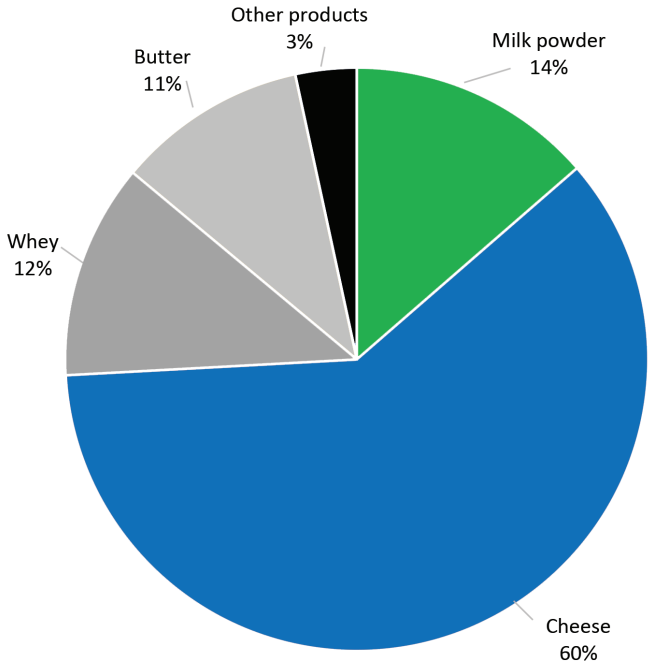


Figure 20 Composition of the South African concentrated products market on a mass basis, 2020 (source: industry estimate supplied by Milk SA)



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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 (processors) per province is shown in Table 10.

From January 2015 to January 2021, the number of producer-distributors decreased by 39% and milk buyers by 18% over the same period.

Production and consumption

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

NEED TO KNOW

Number of producers-distributors (↓39%)

Jan 2015	Jan 2021
110	67

Number of milk processors (↓18%)

Jan 2015	Jan 2021
160	132

Dairy market composition

2020

62% liquid

38% concentrated

Table 10 Number of producer-distributors (PDs) and processors (Proc) per province (indicated according to position of head office), as registered with Milk SA, Jan 2015–Jan 2021 (source: Milk SA)

Province	Jan 2015		Jan 2016		Jan 2017		Jan 2018		Jan 2019		Jan 2020		Jan 2021	
	Proc	PD	Proc	PD	Proc	PD	Proc	PD	Proc	PD	Proc	PD	Proc	PD
Eastern Cape	12	15	13	14	12	13	8	9	9	7	9	7	7	6
Free State	15	11	13	10	13	9	12	7	12	7	12	6	11	4
Gauteng	51	21	48	21	46	22	42	17	39	15	40	15	39	16
KwaZulu-Natal	16	9	18	10	21	10	20	8	20	7	19	7	19	7
Limpopo	4	7	4	8	4	9	4	10	3	10	4	10	4	11
Mpumalanga	6	9	6	9	6	8	5	9	4	8	4	8	4	7
North West	16	4	16	4	14	4	11	3	11	3	10	1	11	2
Northern Cape	1	9	1	8	1	8	1	7	2	6	2	3	2	2
Western Cape	39	25	39	24	38	23	35	18	31	14	33	12	35	12
Total	**160**	**110**	**158**	**108**	**145**	**106**	**138**	**88**	**131**	**77**	**133**	**69**	**132**	**67**

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.

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Imports and exports

Total dairy product imports and exports are shown in Figure 21 and Figure 22. In 2020, 60 600 tonnes of products were imported and 46 700 tonnes exported. The total composition of imports and exports in 2020 is shown in Figure 23 and Figure 24. On a mass basis, milk and cream were the most important products being exported, while whey was the most important product imported.

Figure 21 Dairy product imports and exports, 2011–2020 (source: SARS data, as supplied by SAMPRO)

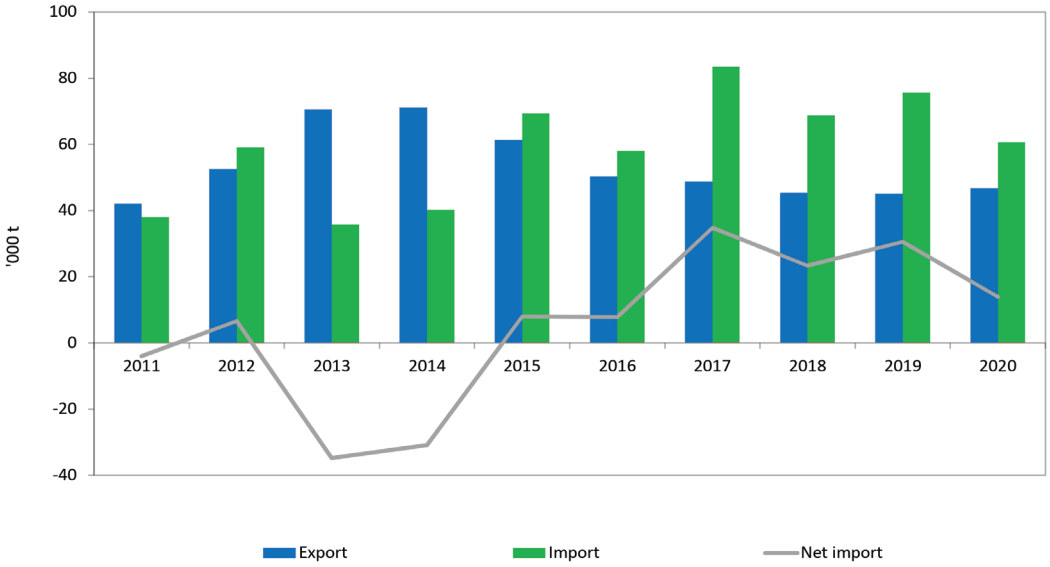

Figure 22 Dairy product imports and exports on milk-equivalent basis, 2011–2020 (source: SARS data, as supplied by SAMPRO)

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Figure 23 Percentage composition of imports on a mass basis, 2020 (source: SARS data, as supplied by SAMPRO)

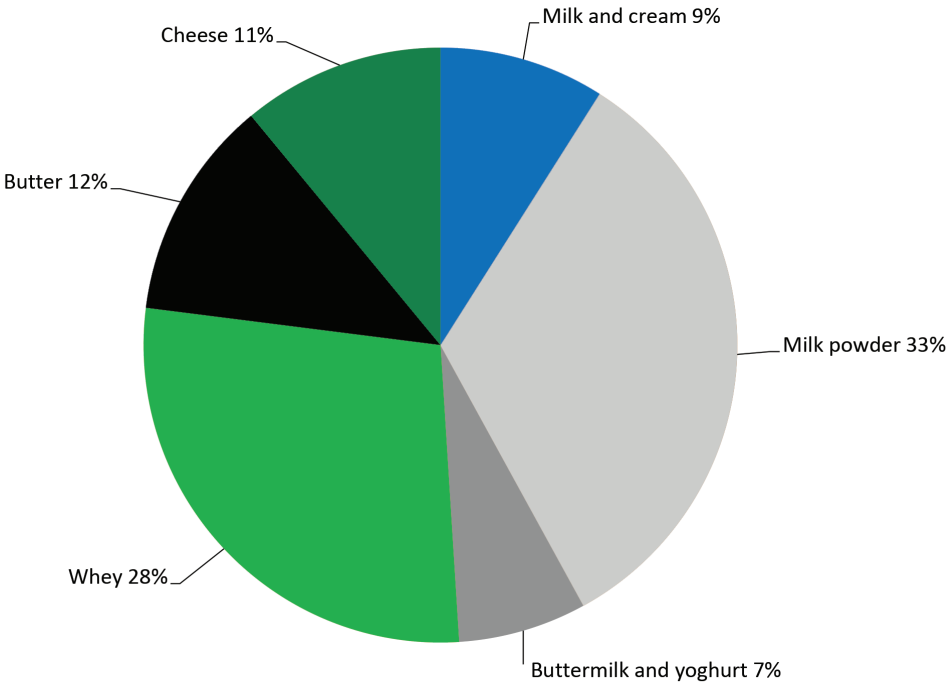

Figure 24 Percentage composition of exports on a mass basis, 2020 (source: SARS data, as supplied by SAMPRO)

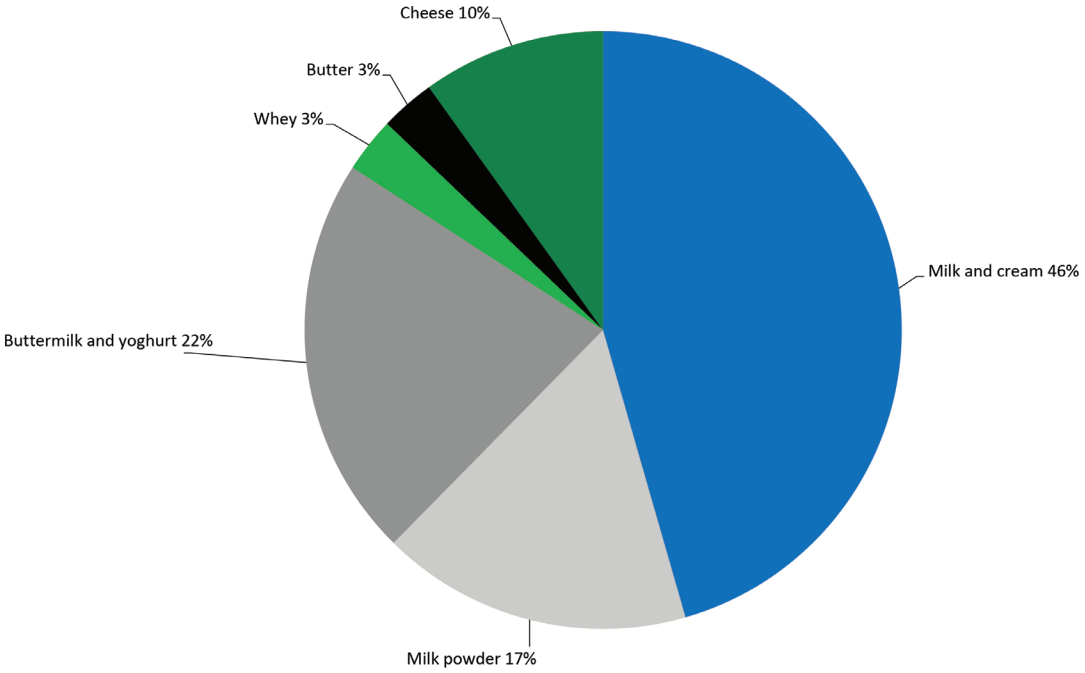

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Figure 25 Price index of unprocessed milk at farm level, dairy products at processor level, and milk and eggs at consumer level, Jan 2012–Feb 2021 (source: Stats SA)

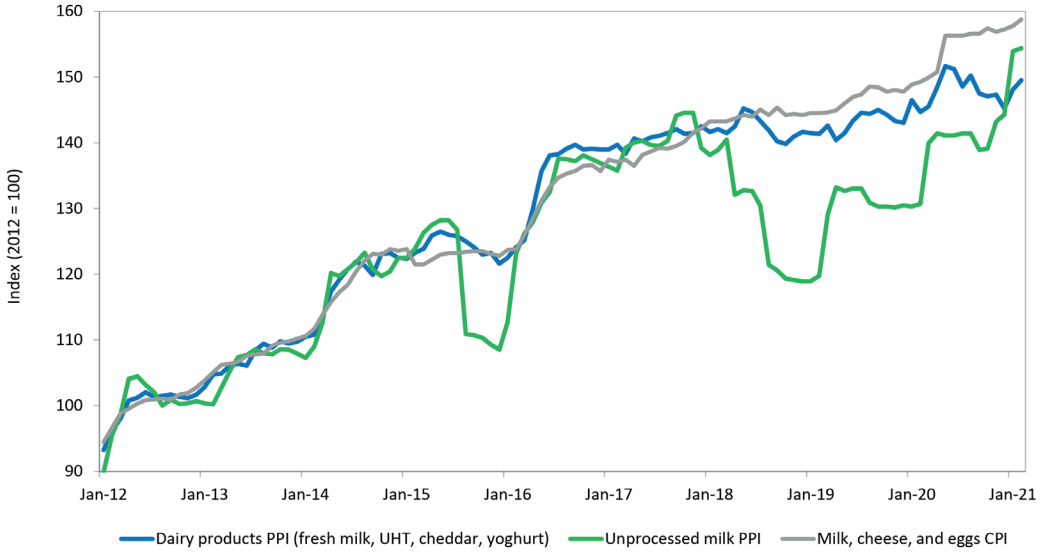

Figure 25 shows the trend in the price indices of unprocessed milk at farm level, dairy products at processor level, and milk, cheese, and eggs at consumer level. For most of the period, prices follow the same general trend, but since the end of 2017, the indices for unprocessed milk (farmer prices)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

During 2020, this index managed to increase by 10,6%, from December 2019 to December 2020, and increased by 18,1% from December 2020 to January 2021. Over the same time period, the producer price indices for dairy products only increased by 1,6%. The index peaked in May 2020 at 151,6 index points (up by 6,0% from December 2019), but then started falling back and reduced to 145,3 index points in December 2020, down by 4,2%. During 2020, the consumer price index (CPI) for milk, cheese, and eggs managed to increase by 6,4%, from December 2019 to December 2020. The index exhibited a continuous positive growth trend, with only one month reducing marginally.

Tables 11 to 14 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 the other seven dairy products increased in all of the five different periods. Of the eight general food products measured, the sales quantity of maize meal and short-life juice decreased in all five periods. The sales quantities for bread and rice decreased in the periods for one month, three months, and six months.

The average retail price of all nine dairy products for the 12-month period from September 2019 to September 2020 increased, with six products increasing by an amount less than inflation. The average retail price of all eight general food products for the 12-month period from September 2019 to September 2020 increased. One of the general food products increased by an amount less than inflation.

The sales quantities for yoghurt and pre-packed cheese over the 12-month period from October 2018 to September 2019 versus October 2019 to September 2020, increased the most, by 10,1% and 14%, respectively. The average retail price of two products, yoghurts and pre-

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packed cheese, increased, by only 3,2% and 2,4%, respectively, for the 12-month period September 2019 to September 2020.

Sales quantities for coffee and tea over the 12-month period from October 2018 to September 2019 versus October 2019 to September 2020, increased the most for the general food products, by 12,2% and 10,6%, respectively. The average retail price of the two products, coffee and tea, increased by 7,3% and 1,8%, respectively, for the 12-month period September 2019 to September 2020.

Table 11 Changes in quantities of retail demand of specific dairy products (source: Nielsen as supplied by SAMPRO)

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

Table 12 Changes in the average retail prices of specific dairy products (source: Nielsen as supplied by SAMPRO)

Product	Sept '20 versus Aug '20 (1 month ago)	Sept '20 versus Jun '20 (3 months ago)	Sept '20 versus Mar '20 (6 months ago)	Sept '20 versus Dec '19 (9 months ago)	Sept '20 versus Sept '19 (12 months ago)	Sept '20 versus Mar '19 (18 months ago)	Sept '20 versus Sept '18 (24 months ago)
Fresh milk	–0,3	–0,5	0,5	1,8	2,4	5,8	8,0
Ultra-high temperature treated milk	–1,4	–1,1	5,5	7,6	2,9	12,6	17,2
Flavoured milk	–1,4	–2,0	1,2	12,0	0,5	6,6	9,6
Yoghurt	–0,1	1,5	0,8	8,6	3,2	2,9	5,6
Maas	–0,6	–1,6	–1,6	2,2	0,8	3,0	2,8
Pre-packaged cheese	–1,8	–0,9	1,5	3,5	2,4	3,7	8,3
Cream cheese	–1,1	–1,9	4,5	5,4	6,4	9,6	9,6
Butter	–1,7	2,2	–1,7	11,3	7,9	8,2	6,7
Cream	0,2	–0,4	0,5	0,6	2,4	10,8	11,4

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Table 13 Changes in quantities of retail demand of other products (source: Nielsen as supplied by SAMPRO)

Product	Sales in the month of Sept '19 versus sales in the month of Sept'19	Sales in the 3 months from Jul '20–Sept '20 versus sales in the 3 months from Jul '19–Sept '19	Sales in the 6 months from Apr '20–Sept '20 versus sales in the 6 months from Apr '19–Sept '19	Sales in the 9 months from Jan '20–Sept '20 versus sales in the 9 months from Jan '19–Sept '19	Sales in the 12 months from Oct '19–Sept '20 versus sales in the 12 months from Oct '18–Sept '19
Instant cereal	6,4	7,5	8,6	8,8	7,8
Bread	–6,5	–4,0	–1,2	1,1	1,5
Rice	–9,2	–3,1	–3,2	2,0	3,2
Maize meal	–4,5	–0,9	–3,6	–1,5	–1,8
Margarine	6,4	8,8	11,4	11,4	9,5
Tea	10,2	13,7	14,7	13,8	10,6
Coffee	11,0	13,8	13,0	13,6	12,2
Short-life juice	–21,5	–16,4	–15,2	–11,9	–9,5

Table 14 Changes in the average retail prices of other products (source: Nielsen as supplied by SAMPRO)

Product	Sept '20 versus Aug '20 (1 month ago)	Sept '20 versus Jun '20 (3 months ago)	Sept '20 versus Mar '20 (6 months ago)	Sept '20 versus Dec '19 (9 months ago)	Sept '20 versus Sept '19 (12 months ago)	Sept '20 versus Mar '19 (18 months ago)	Sept '20 versus Sept '18 (24 months ago)
Instant cereal	–0,9	–0,5	–0,3	6,4	3,4	5,5	13,3
Bread	0,2	3,9	6,8	9,6	7,9	5,9	13,3
Rice	3,0	10,9	24,4	34,9	32,8	32,3	37,1
Maize meal	–1,1	–5,5	–1,9	4,0	6,2	12,7	30,6
Margarine	–1,2	–2,2	4,6	5,2	3,5	3,5	7,3
Tea	0,8	1,3	–0,2	7,2	1,8	1,6	5,9
Coffee	1,7	5,8	0,8	15,1	7,3	1,1	9,3
Short-life juice	–0,3	5,1	7,4	13,6	8,8	15,7	14,8

ACRONYMS AND ABBREVIATIONS

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