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Die MPO en SAMPRO spreek gemeenskaplike
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Melk SA voeg sedert 2002 waarde by tot 'n groeiende
SA suiwelbedryf deur sy inisiatiewe en projekte.

Melk SA werk met nasionale en internasionale
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Milk SA foreword

The purpose of this publication is to make information available 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 SA is proud to present this publication, which was made possible especially through the contributions of the persons or entities sharing their information via statutory regulations. SAMPRO, MPO, and the Milk SA work group comprises messrs Nico Fouché, De Wet Jonker, Alwyn Kraamwinkel, and Bertus van Heerden.

Executive summary

This analysis was performed prior to the COVID-19 effect on the world economy and industries. The South African intake of unprocessed milk in 2019 was 0,65% and 5,51% higher than in 2018 and 2017, respectively. The growth in the intake of unprocessed milk for 2019 was subdued, mainly due to adverse climatic conditions, poor economic performance, and weakened consumer demand. The cost-price squeeze that producers experienced, due to both sides of the ratio being unfavourable, deepened the level of negative farm economics.

In 2019, the South African producer price index of unprocessed milk increased by 9,5%, while the producer price index of dairy products, which measure the price changes of full cream processed milk (fresh and UHT), yoghurt, and cheddar cheese, increased by 1,0%. The sharp increase in the producer price index of unprocessed milk was from a low level. South Africa imported 75 600 tonnes and exported 45 100 tonnes of dairy products in 2019, 10,0% higher and 0,4% lower than in 2018, respectively.

The performance of the nine dairy products of which the retail sales are monitored is summarised as follows: From 2018 to 2019, the retail sales quantities of flavoured milk, yoghurt, maas, pre-packaged cheese, and butter increased, while that of fresh milk, UHT processed milk, cream cheese, and cream decreased. The increases in the retail sales quantities of yoghurt, maas, and pre-packaged cheese were the highest, but at the expense of price, as the retail prices of yoghurt and maas in December 2019 were 1,4% and 4,6% lower, respectively, than December 2017. The FAO Food Price Index (FFPI) averaged 180,5 points in February 2020, down 1,9 points (1,0%) from January, but still 13,5 points (8,1%) higher than in February 2019.

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INTERNATIONAL SITUATION



Global economic growth

Global growth, estimated at 2.9% in 2019, is projected to increase to 3.3% in 2020, and inch

up further to 3.4% in 2021. Compared to the International Monetary Fund (IMF) forecast in their January 2020 *World Economic Outlook* (WEO)

Figure 1: International economic growth, 2010-2021 (source: IMF, 2019* estimate, 2020** and 2021** projections)

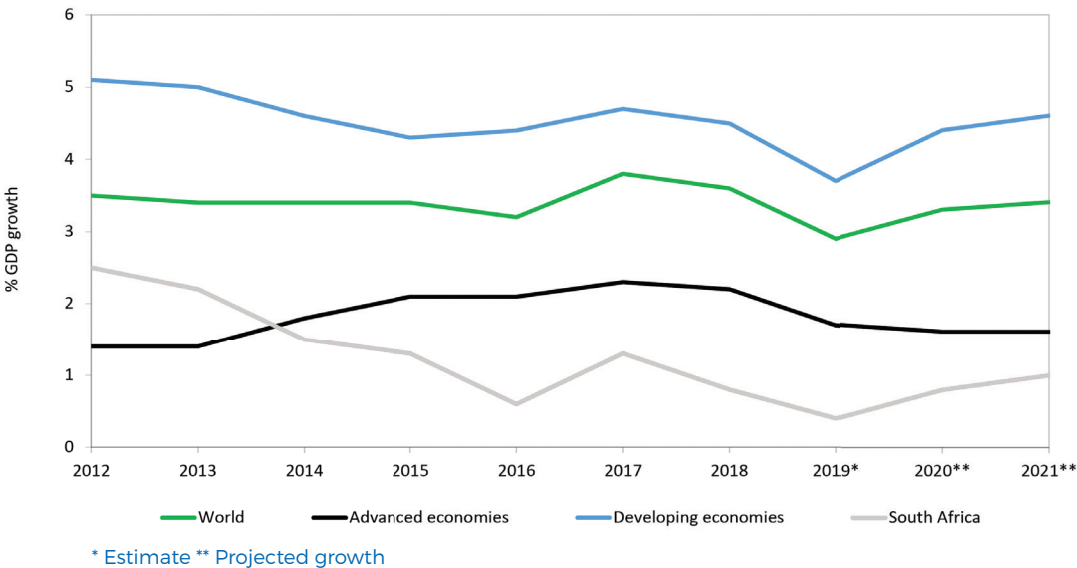
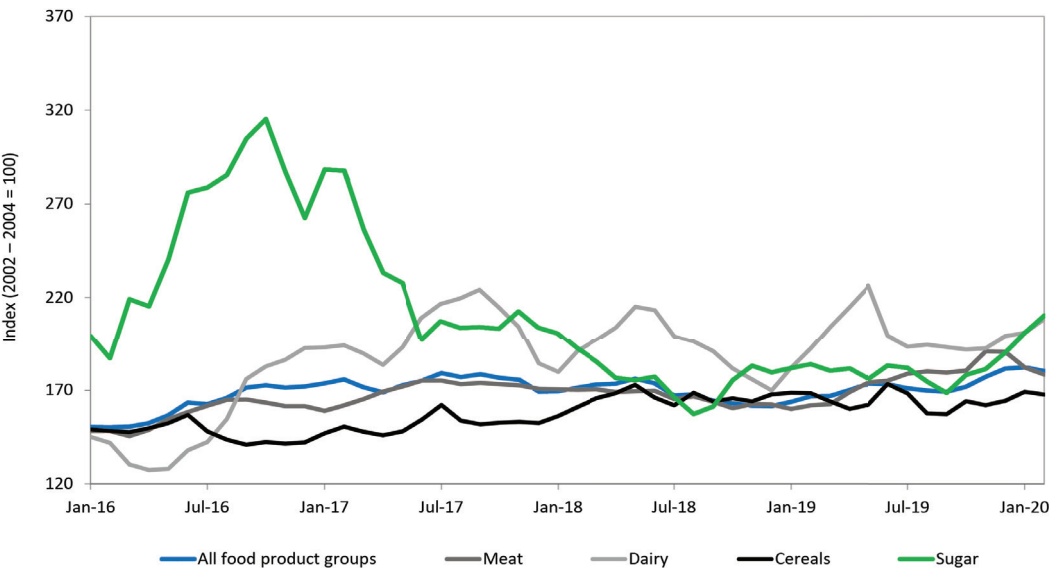


Figure 2: Food and Agriculture Organization (FAO) food price indices of internationally traded product groups, 2016-2020 (source: FAO Food Price Index, 2019)



report, the estimate for 2019 and the projection for 2020 represent 0.1 percentage point reductions for each year, while that for 2021 is 0.2 percentage points lower. A more subdued growth forecast for India accounts for the lion's share of the downward revisions.

The global growth trajectory reflects a sharp decline, followed by a return closer to historical norms for a group of underperforming and stressed emerging markets and developing economies (including Brazil, India, Mexico, Russia, and Turkey). The growth profile also relies on relatively healthy emerging market economies maintaining their robust performance, even as advanced economies and China continue to slow gradually toward their potential growth rates. The effects of substantial monetary easing across advanced and emerging market economies in 2019 are expected to continue working their way through the global economy in 2020.

Across advanced economies, growth is projected to stabilise at 1.6% in 2020–2021 (0.1 percentage point lower than in the October 2019 WEO for 2020, mostly due to downward revisions for the United States (US), the European Union (EU) area, and the United Kingdom (UK), as well as downgrades to other advanced economies in Asia, notably Hong Kong, following protests).

In the US, growth is expected to moderate from 2.3% in 2019 to 2% in 2020 and decline further to 1.7% in 2021 (0.1 percentage point lower for 2020 compared to the October 2019 WEO). The moderation reflects a return to a neutral fiscal stance and anticipated waning support from further loosening of financial conditions.

Growth in the EU is projected to pick up from 1.2% in 2019 to 1.3% in 2020 (a downward revision of 0.1 percentage point) and 1.4% in 2021. Projected improvements in external demand support the anticipated firming of growth. The October 2019 WEO projections for France and Italy remain unchanged in January 2020, but the projections have been marked down for 2020 for Germany (where manufacturing activity remains in contractionary territory in late 2019), and Spain (due to a carryover from stronger-than-expected deceleration in domestic demand and exports in 2019).

In the UK, growth is expected to stabilise at 1.4% in 2020 and firm up to 1.5% in 2021 – unchanged from the October 2019 WEO. The growth forecast assumes an orderly exit from the EU at the end of January, followed by a gradual transition to a new economic relationship.

Growth in emerging and developing Asia is forecast to inch up slightly from 5.6% in 2019 to 5.8% in 2020 and 5.9% in 2021. Growth in emerging and developing Europe is expected to strengthen to around 2.5% in 2020–2021 from 1.8% in 2019. The improvement reflects continued robust growth in central and Eastern Europe, a pickup in activity in Russia, and ongoing recovery in Turkey as financing conditions turn less restrictive.

In Latin America, growth is projected to recover from an estimated 0.1% in 2019 to 1.6% in 2020 and 2.3% in 2021. Growth in the Middle East and Central Asia region is expected at 2.8% in 2020. The downgrade for 2020 mostly reflects a downward revision to Saudi Arabia's projection on expected weaker oil output growth following the OPEC+ decision in December to extend supply cuts [OPEC+ is a group of 24 oil-producing nations, made up of the 14 members of the Organization of Petroleum Exporting Countries (OPEC), and 10 other non-OPEC members, including Russia]. Prospects for several economies remain subdued owing to rising geopolitical tensions (Iran), social unrest (Iraq and Lebanon), and civil strife (Libya, Syria, and Yemen).

In sub-Saharan Africa, growth is expected to strengthen to 3.5% in 2020–2021 (from 3.3% in 2019). The projection is 0.1 percentage point lower than in the October 2019 WEO for 2020 and 0.2 percentage points weaker for 2021. This reflects downward revisions for South Africa (where structural constraints and deteriorating public finances are holding back business confidence and private investment), and for Ethiopia (where public sector consolidation, needed to contain debt vulnerabilities, is expected to weigh on growth).

Risks to the outlook

The balance of risks to the global outlook remains on the downside. Rising geopolitical tensions, notably between the US and Iran, could disrupt global oil supply, hurt sentiment, and weaken already tentative business investment. Moreover, intensifying social unrest across many countries—reflecting, in some cases, the erosion of trust in established institutions and lack of representation in governance structures—could disrupt activity, complicate reform efforts, and weaken sentiment, dragging growth lower than projected.

Higher tariff barriers between the US and their trading partners, notably China, have hurt business sentiment and compounded cyclical and structural slowdowns underway in many economies over the past year.

Policy priorities

The risk of protracted below par global growth remains tangible despite tentative signs of stabilising momentum. Policy missteps at this stage would further enfeeble an already weak global economy. Instead, stronger multilateral cooperation and national-level policies that

provide timely support could foster a sustained recovery to the benefit of all. Across all economies, a key imperative—increasingly relevant at a time of widening unrest—is to enhance inclusiveness, and ensure that governance structures strengthen social cohesion and safety nets do indeed protect the vulnerable.

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

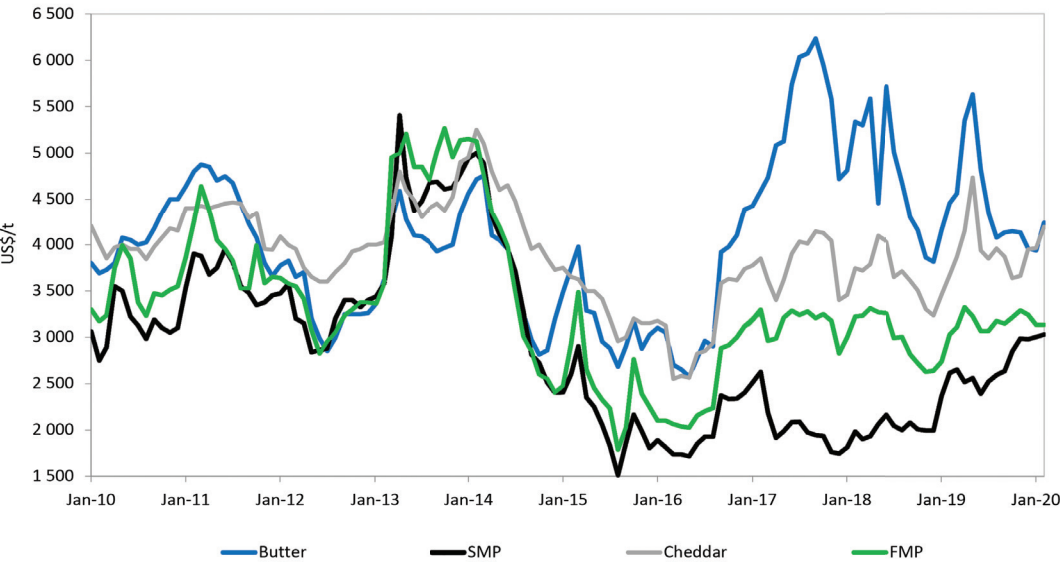
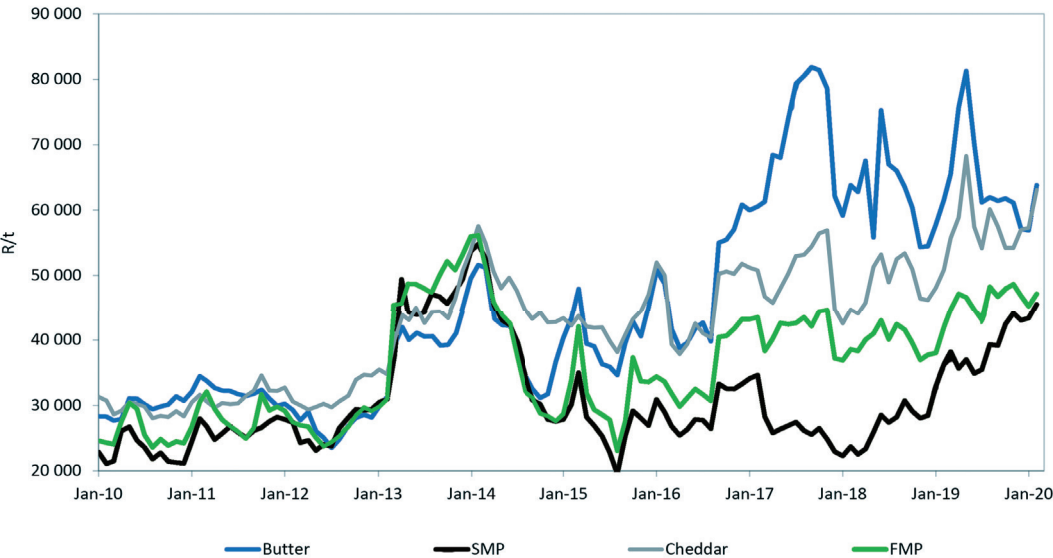


Figure 3b: International FOB dairy product prices, R/t, Jan 2010–Feb 2020 (source: USDA, Reserve Bank)



Policy priorities for advanced economies

Considering the modest growth potential across the group, countries with fiscal space should increase spending on initiatives that raise productivity growth, including research, training, and physical infrastructure. Barring where private demand is very weak, high-debt countries should generally consolidate to prepare for the next downturn and looming entitlement spending further down the road.

Policy priorities for emerging markets and developing economies

Within the group, policy priorities differ based on specific circumstances. Emerging market economies in macroeconomic distress related to domestic imbalances will need to continue making the policy adjustments necessary for rebuilding confidence and putting in place the conditions for a return to stable and sustainable growth.

In these contexts, ensuring adequate safety nets to protect the vulnerable remains critical within overall existing constraints. High-debt economies should generally aim for consolidation—calibrating their pace to avoid a sharp slowdown in activity—by improving subsidy targeting, broadening the revenue base, and ensuring stronger compliance.

Global food prices down slightly in February

The FAO Food Price Index (FFPI) averaged 180.5 points in February 2020, down 1.9 points (1.0%) from January, but still 13.5 points (8.1%) higher than in February 2019. The decline marked the first month-on-month drop in the value of

the FFPI following four months of successive increases. It was driven by meat and grains prices, more than offsetting a continued rise in dairy and sugar prices.

The FAO Cereal Price Index averaged 167.8 points in February, down 1.5 points (0.9%) from January. The FAO Sugar Price Index averaged 209.7 points in February, up 9.0 points (4.5%) from January, marking the fifth consecutive monthly increase and the highest level since May 2017. The FAO Meat Price Index averaged 178.6 points in February, down 3.7 points (2.0%) from January, marking the second month of decline, following 11 months of moderate increases. At this level, the index value was 15.9 points (9.8%) above the corresponding month last year. In February, international prices of ovine meat fell the most, followed by bovine meat, primarily due to reduced imports by China, reflecting delays in cargo handling in ports, which, in turn, led to stock build up in major exporting countries.

The FAO Dairy Price Index averaged 209.8 points in February, up 9.2 points (4.6%) from January, rising for the fourth consecutive month and placing the index at 17.4 points (9.0%) above its value in the corresponding month last year. In February, price quotations for cheese surged by as much as 20 points (10.6%), underpinned by the tightening of export supplies from New Zealand with the seasonal milk production decline, further accentuated by reduced export availabilities from Australia due to a less than average milk output in the 2019/2020 season. By contrast, quotations for skimmed milk powder (SMP) and whole milk powder (WMP)

Table 1: International calculated standardised unprocessed milk producer prices, 2014–2020 (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 2014	Jan 2015	Jan 2016	Jan 2017	Jan 2018	Jan 2019	Jan 2020
Belgium	5.54	3.85	4.55	4.60	4.32	5.17	5.05
Germany	5.51	3.72	4.72	4.18	5.04	5.14	4.76
Denmark	5.51	3.82	4.51	4.45	5.06	5.17	4.83
France	5.68	4.38	5.55	4.42	4.89	5.51	5.19
Great Britain	5.35	4.69	5.29	4.08	5.04	5.32	5.05
Ireland	5.25	3.95	4.41	4.09	5.20	5.11	4.76
Netherlands	5.60	3.84	4.90	4.41	5.23	5.65	5.15
New Zealand	5.44	3.26	3.66	4.38	4.49	4.74	5.05
United States	5.13	4.47	5.55	5.23	4.21	4.90	5.63
South Africa*	4.05	4.45	4.11	4.65	5.00	4.15	4.35

*Based on MPO price survey

declined due to a slowdown in purchases by China, the world's largest milk powder importer, in view of the delays in cargo handling in ports, affected by the spread of the coronavirus disease (COVID-19).

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 was the 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

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

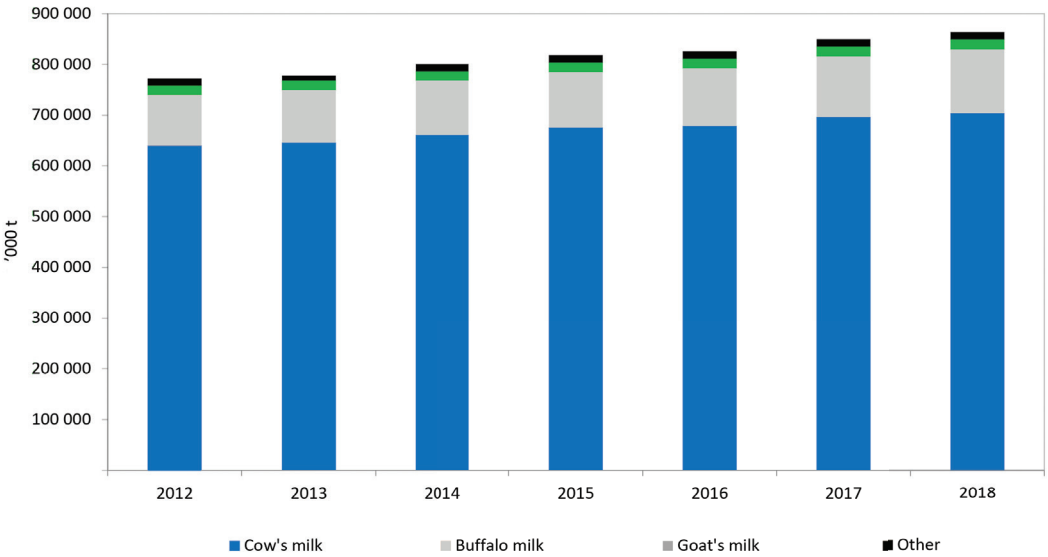
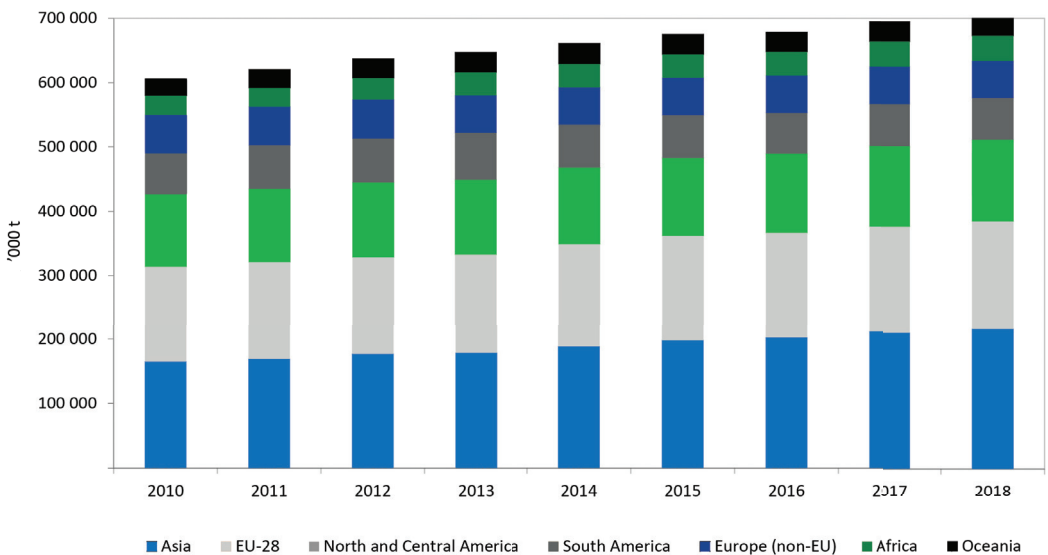


Figure 5: Cattle cow's milk production per region, 2010-2018 (source: IDF Bull. 501/2019)



well known, which is 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 full-cream milk powder (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.

In 2019, the trading price range for butter was between US\$5 631 (R81 255) and US\$3 963 (R57 146), registering a 30% variance between the highest and lowest prices. The butter price peaked in May 2019 and dropped lower for the rest of 2019. In 2019, the trading price range for skimmed milk powder (SMP) was between US\$2 394 (R34 880) and US\$2 988 (R44 162), registering a 27% variance between the highest and lowest prices. The SMP price bottomed out in June 2019 and has been increasing since then, trading at US\$3 031 (R45 555) in February 2020. In 2019, the trading price range for cheddar was between US\$4 731 (R68 261) and US\$3 644 (R54 259), registering a 26% variance between the highest and lowest prices. The cheddar price peaked in May 2019 and then traded down for the remainder of the year, while reversing the trend in December 2019, and traded up to US\$4 200 (R63 126) in February 2020. The full cream milk powder price (FMP) price peaked at US\$3 331 (R47 167) and dropped as low as US\$3 069 (R43 119) in July 2019. The FMP price traded up thereafter, but started dropping again in December 2019, and traded at US\$3 138 (R47 164) in February 2020.

International unprocessed milk producer prices

Since January 2018, unprocessed milk prices in the US rallied continuously. Starting from a low of €27.69 (R 432.24)/100 kg in February 2018, slicing through resistance levels at €40

(R624.40)/100 kg and €45 (R 702.45)/100 kg to peak at €46.12 (R745.76)/100 kg in November 2019 and now, in January 2020, hovering around €38.39 (R615.06)/100 kg, some 39% higher than 24 months ago. These progressive price levels will go a long way in enabling the US dairy men to recoup some of the lost ground suffered in 2016 and 2017.

In New Zealand, producer prices bottomed out in October 2018 at €27.87 (R465.15)/100 kg, with prices hardening all the way up to the January 2020 price of €33.91 (R543.24)/100 kg, a 22% increase. Since January 2018, the price trend in the EU is more subdued, with the average European price constantly trading below €35 (R565.95)/100 kg in a price band between €33.50 (R541.70)/100 kg and €34.50 (R557.87)/100 kg. In January 2020, the price came off slightly to €33.80 (R541.48)/100 kg, with a maximum volatility of only 7% over the 24-month period, indicating satisfaction with the supply of unprocessed milk.

World production of unprocessed milk

For the second year in a row, global milk production is pushed forward by Asia and the other emerging dairy regions rather than the traditional ones. The growth rates of milk production in the EU, Oceania, and the US were unimpressive in 2018. Total milk production increased by 2.4% in 2018, which is higher than the historic average of 2.2%. Another interesting, and most likely structural, development is the growth rate of buffalo milk and goat's milk exceeding the growth rate of cow's milk. In absolute terms, cow's milk still adds the biggest volumes every year, but the rising growth rate of buffalo milk and goat's milk indicates a growing appetite for milk from other animals.

Within the overall supply landscape, India's growing importance as the single biggest milk-

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

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

producing country in the world can hardly be overlooked. The country's importance can easily be illustrated by subtracting their 2018 growth in both cow's milk and buffalo milk. Taking these figures out of the global total brings the 2018 international growth rate down from 2.4% to a modest 1.1%. Cow's milk production in the main export regions failed to impress in 2018.

New Zealand experienced a solid 3% growth for 2018, but overall milk output in the region

declined due to the drought-affected contraction in Australia. In the EU, milk production increased by 0.7% in 2018, but the differences between individual member states were significant. Ireland, Poland, Denmark, and Belgium pushed production growth into positive territory, thereby compensating for the weak performances of the Netherlands, the UK, and France in 2018. In the US, we continue to see a migration away from small farms. In early 2018, many of the

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

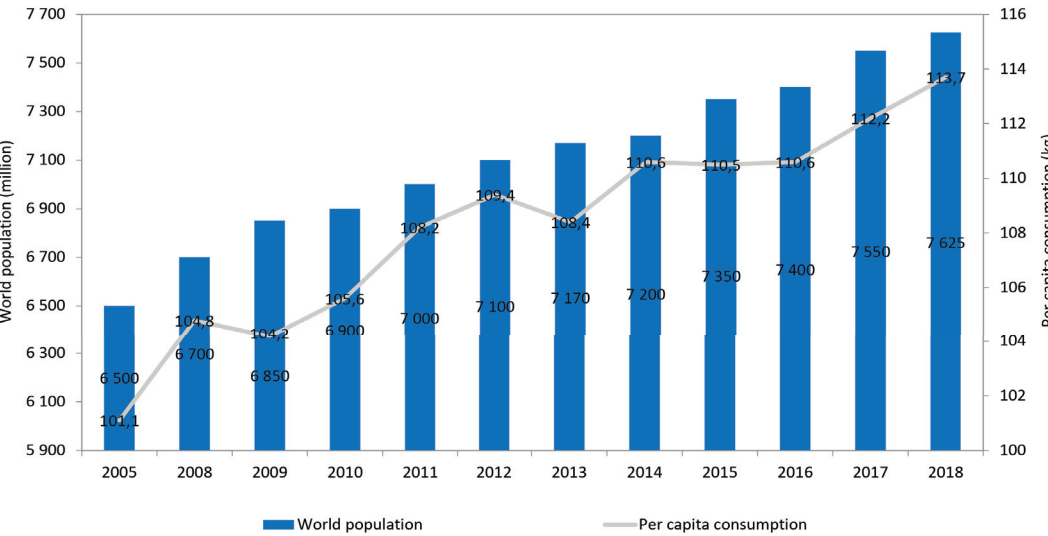
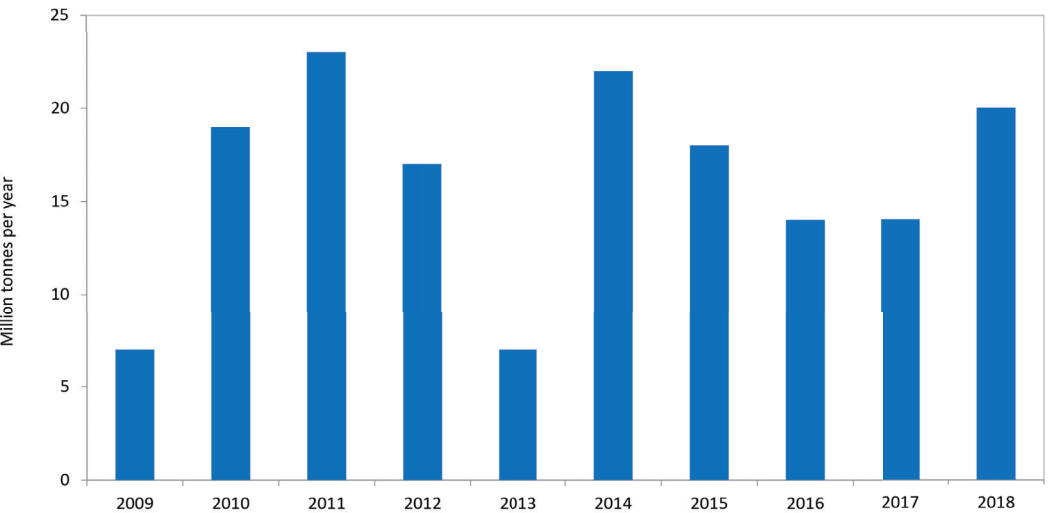


Figure 7: Annual increase in dairy demand, 2009-2018 (source: IFCN Conference, 2019)



quality cows still made their way to larger farms, leaving cow numbers flat to slightly higher. In the second half of 2018, the larger farms became less interested. Late in the year, the exiting of smaller farms accelerated and, overall, the US experienced declining cow numbers in 2018. As a result, production only increased by a modest 1%.

As mentioned earlier, India proves to be the main driver of milk production growth in recent years. Cow's milk supply increased by 7.8%, thereby significantly exceeding its impressive historic average of 6.5%. Other Asian countries that contributed to the impressive growth rate of the Asian continent of 4.8%, were Turkey and Pakistan.

China's growth was once again sluggish in 2018, at only 1.2%. The larger corporate farms managed to grow their output, but the exiting of smaller farms slowed down the country's overall progress. The main challenge in 2018, as well as 2019, was the country's quest for low-priced feed as the traditionally sizeable imports of US soybeans were at risk due to the increasing trade tension between the two countries.

Strong growth rates in Kenya, South Africa, and Tanzania yielded a 1.5% growth rate for the African continent. This was still below the historic average due to the 6.3% decline of Algeria's milk production. The ongoing decline of local production in Algeria increased their dependence on imported products out of the EU.

Manufacturing of dairy products

With a limited growth in milk deliveries in 2018, total output of dairy products showed a limited growth compared to the long-term trend, but developments differed significantly between product categories. Overall, processors manufactured more butter and butter oil, cheese, and fermented products. Liquid milk and cream output hardly changed from last year, while milk and whey powders' output showed limited evolution.

Global production of packaged milk remained stable in 2018, while it has grown 1.8% per year, on average, since 2010. Growth is still sustained in China (4.3%), who consolidated their position as the second largest producer of liquid milk, just behind the EU, but ahead of the US. Indian cooperatives' liquid milk production growth slowed down to 1.2%, while the average growth rate observed since 2010 was 6.1%. Russia developed their liquid milk production in 2018 (3.7%) for the second year in a row. However,

production of liquid milk decreased in western countries, falling 2.6% in the EU, the historic top producer. 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 of liquid milk.

The butter and other milk fats market 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 tension 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% registered since 2010.

The world's two leading cheese producers are the EU, where raw milk is used primarily for cheese production and accounts 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 the 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 declined by 2.1% in 2018 from the record level reached in 2017.

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 increased 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,

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

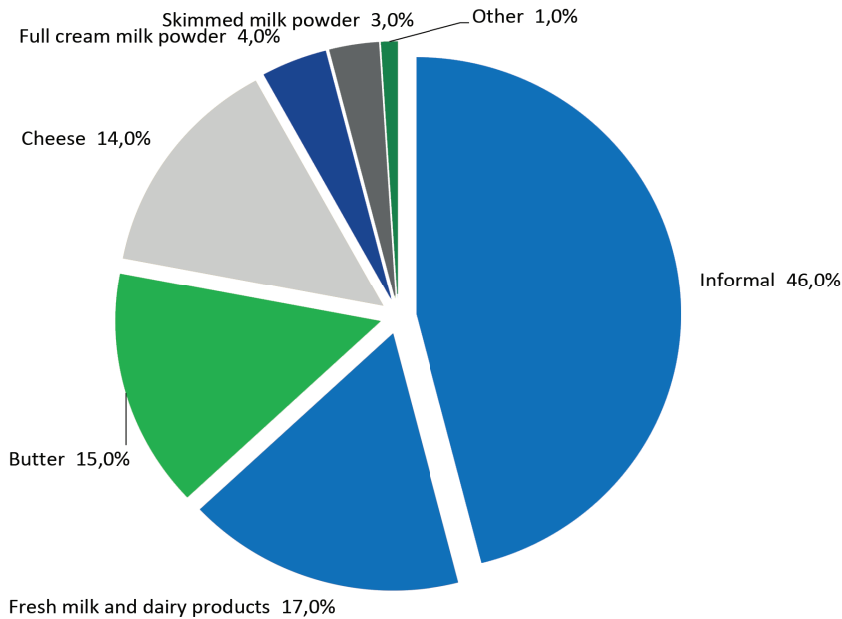
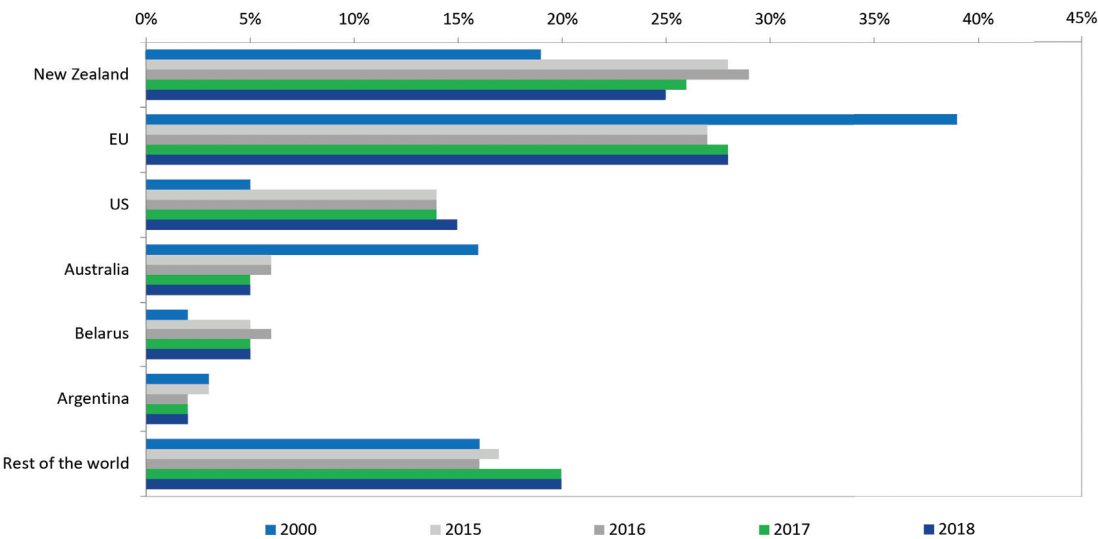


Figure 9: Share of key exporting countries in total trade in dairy products (milk equivalent basis), 2000, 2015, 2016, 2017, and 2018 (source: IDF Bull. 501/2019)



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 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 registered 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.

According to the *Agricultural Outlook 2019–2028* report, published by the Organisation for Economic Co-operation and Development and the Food and Agriculture Organization (OECD-FAO), demand for dairy products will continue to grow, backed up by the population upswing (the Population Reference Bureau predicts a population of 9.8 billion by 2050), increasing incomes, and dietary changes. The OECD-FAO expects a powerful volume increase of 24% in total dairy consumption (in milk equivalent based on the milk and protein solids content method) between 2015 and 2028. This corresponds to an average growth rate of 1.7% per year. The increase should be more consistent in developing countries (2.3%), where it is linked to the expansion of their population.

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%, WMP showed strong growth of 4.4%, butter and butter oil increased by 7.1%, and SMP by 10.6%.

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

Table 4: Average herd size, selected countries, 2018 (source: IFCN 2019 for international data, MPO preliminary 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. Dairy farms can be divided into three categories:

- household farms with typically between one and three cows, selling some milk and with dairy as one of a number of income sources;
- family farms with typically 10 to 300 cows, where labour is mainly supplied by the farming family; and
- larger commercial farms with typically more than 300 cows, where employees mainly do the work.

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 worldwide.

MORE INFO

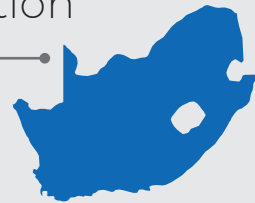
World production 2018

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)

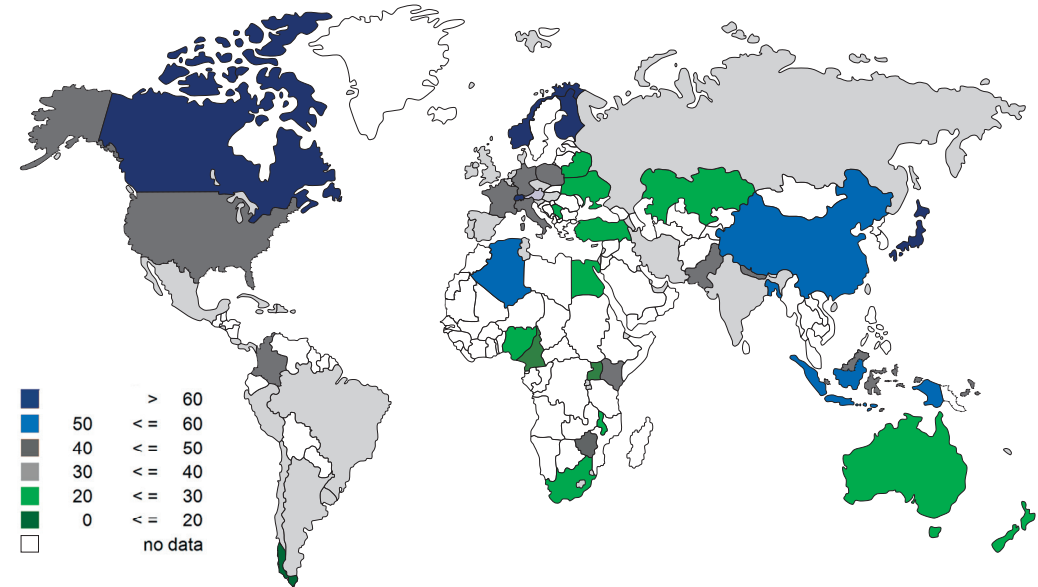
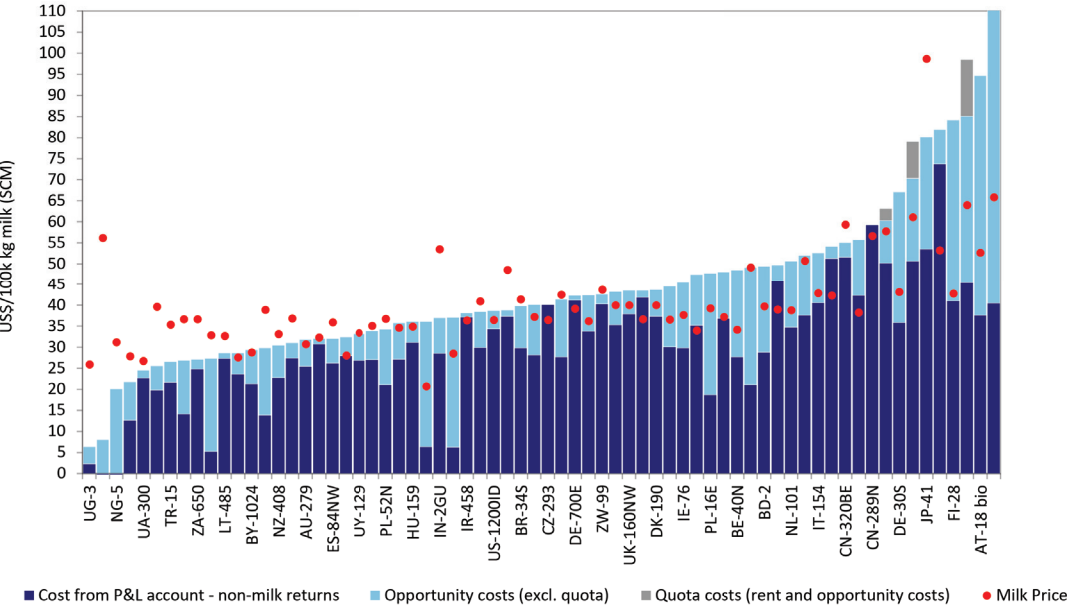


Figure 11: Estimated cost of unprocessed milk production per farm in US\$/100 kg energy-corrected milk for average farms in IFCN analysis, 2018 (source: IFCN, 2019)



P&L – profit and loss account

Country by international country code and herd size, ZA 800 = ZA 800-cow herds.

Scientists from 100 countries contributed to the work of the IFCN in 2019. It 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.

“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.”

The IFCN cost comparisons are based on full economic 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. 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.

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.

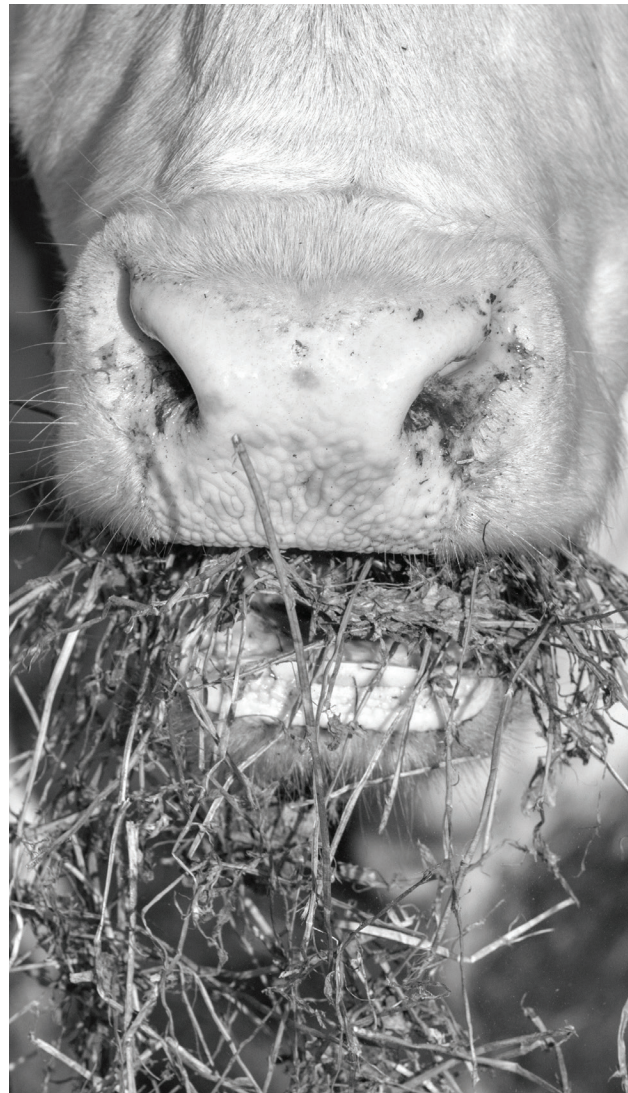
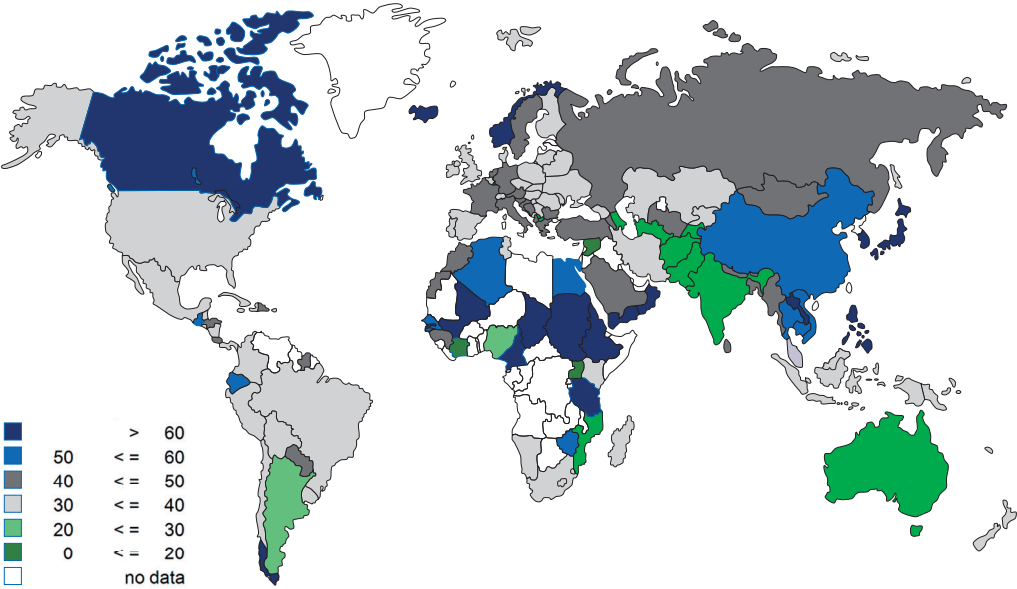


Figure 12: Estimated producer milk prices in various regions (US\$/100 kg SCM), 2018
(source: IFCN, 2019)



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.

The downward trend in the milk price was mainly driven by the drop in butter prices of 47% 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 could be 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 drop in butter prices of 47% 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 estimates from October 2016 statutory survey)

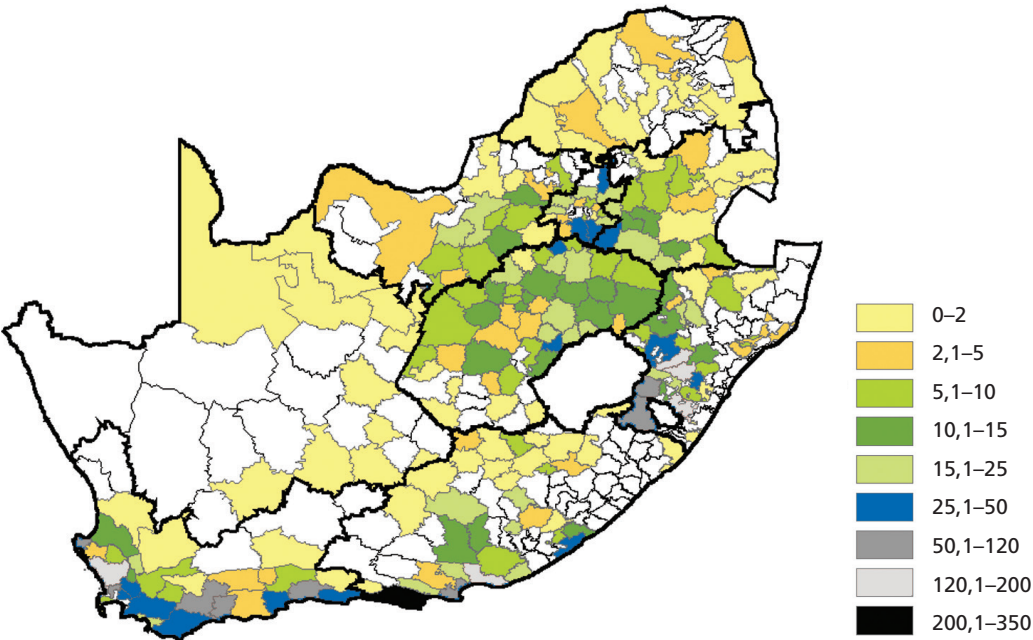
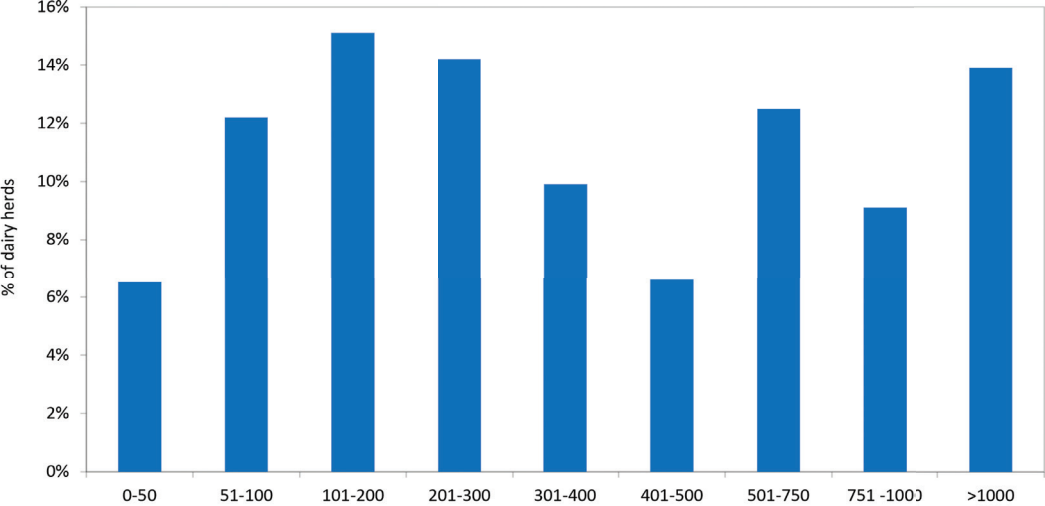


Figure 14: Size distribution of dairy cows per herd, 2018 (source: MPO estimates from October 2019 preliminary statutory survey)



SOUTH AFRICAN SITUATION



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 1 164 in January 2020. The number of producers per province is shown in Table 6. Since 2011, the number of producers has decreased by 57%. The largest percentage decrease in producer numbers occurred in the 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 MPO estimates, considering the results of the October 2019 preliminary 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.

“The number of milk producers in South Africa decreased from 2 686 in January 2011 to 1 164 in January 2020.”

NEED TO KNOW



Number of producers (↓57%)

Jan 2011
2 686

Jan 2020
1 164

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 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
Western Cape	683	647	529	533	502	481	419	402	379
Eastern Cape	314	283	264	262	251	244	212	201	206
Northern Cape	28	21	25	14	14	7	7	6	4
KwaZulu-Natal	323	322	281	267	253	247	221	212	208
Free State	601	535	389	328	280	249	206	165	145
North West	386	352	233	222	181	165	135	117	100
Gauteng	127	126	109	100	97	98	84	83	65
Mpumalanga	201	164	117	94	93	87	69	56	50
Limpopo	23	24	14	14	12	15	12	11	7
TOTAL	2 686	2 474	1961	1 834	1 683	1 593	1 365	1 253	1 164

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

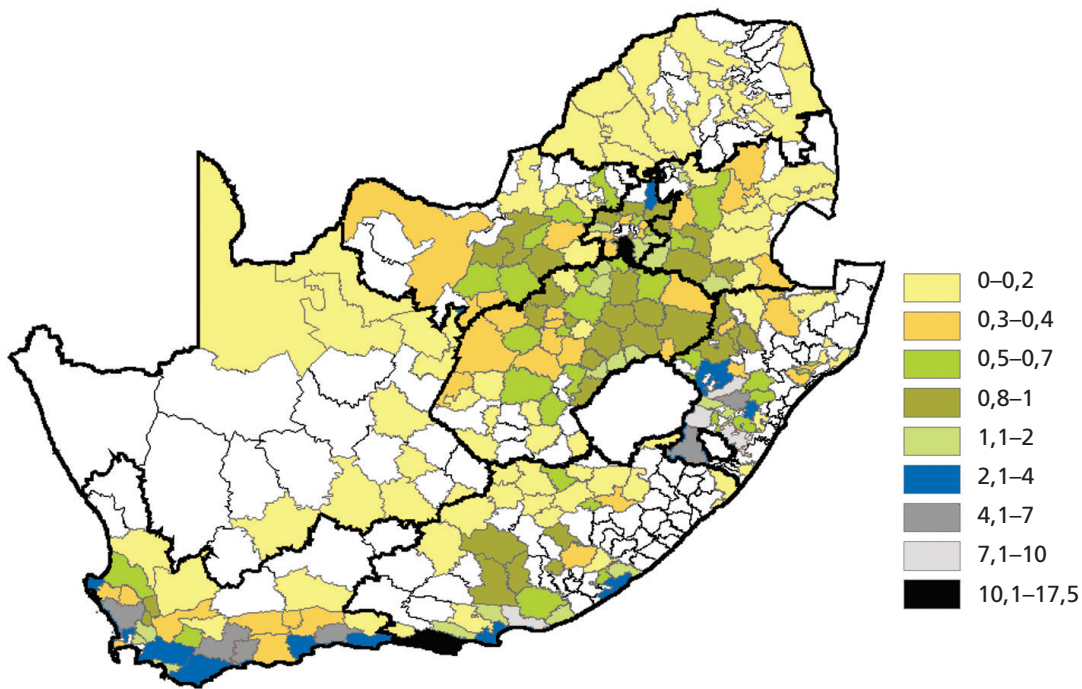
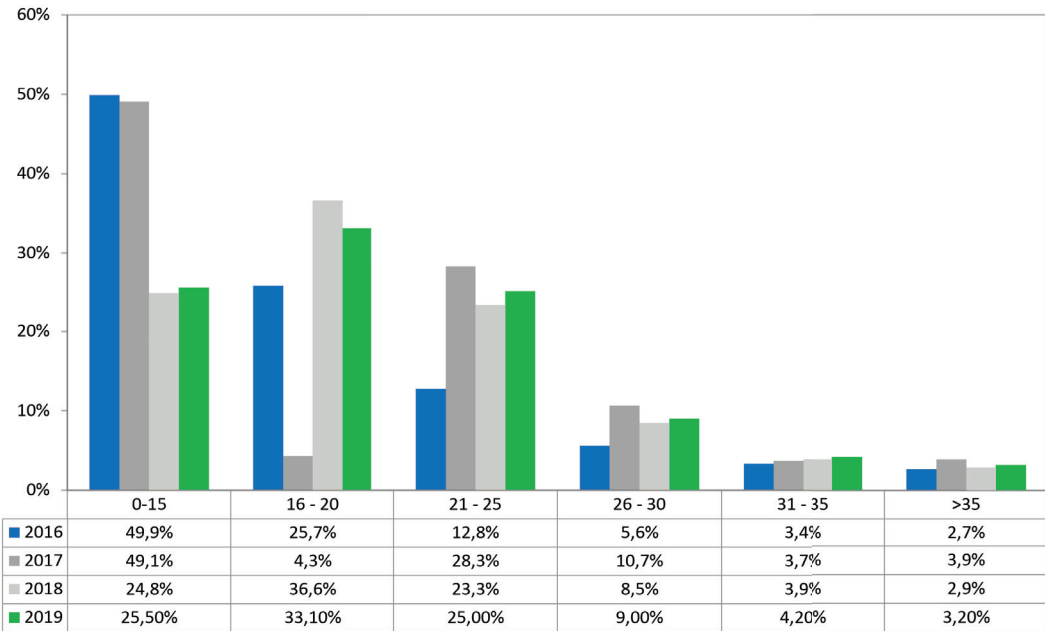


Figure 16: Distribution of herds based on daily production per cow in herd, 2016-2019 (source: MPO estimates from October 2019 preliminary statutory survey)



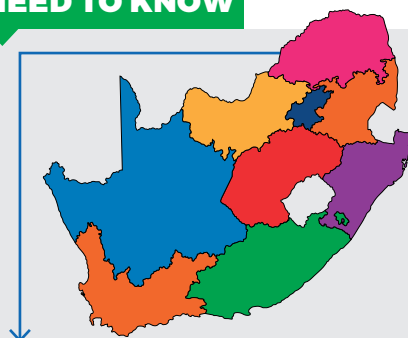
Average daily yield (litres) per cow in a herd, for yield category

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 17,97 ℓ in 2019. Ninety-eight 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	31,3
Eastern Cape	28,1
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: Milk production per province, and cows in herd per producer, specific month in specific year (source: MPO estimates from October 2019 preliminary statutory survey)

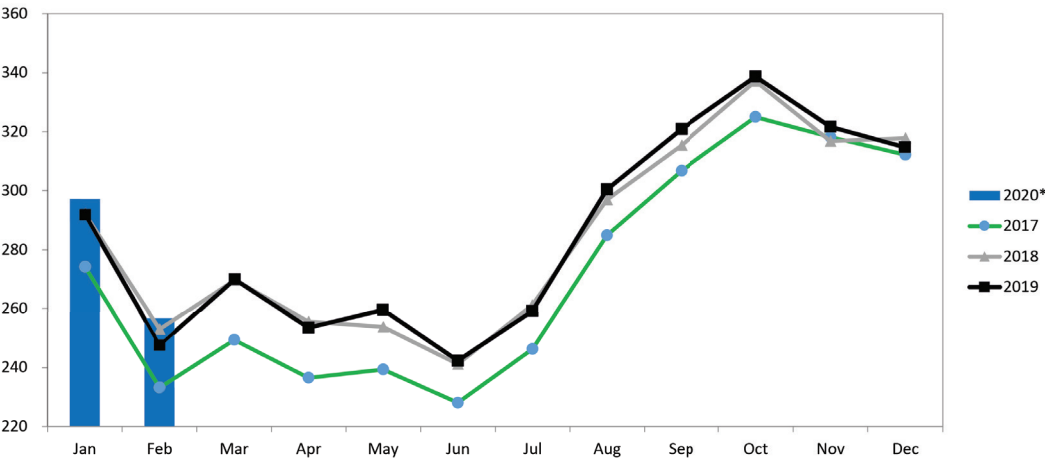
Province	Percentage distribution of milk production		Number of cows in herd per producer, 2019
	Sep 2009	Oct 2019	Mean
Western Cape	27,1	31,3	345
Eastern Cape	25,0	28,1	814
Northern Cape	0,4	0,0	34
KwaZulu-Natal	19,8	28,1	727
Free State	14,0	5,9	327
North West	5,3	2,3	170
Gauteng	3,4	2,0	249
Mpumalanga	4,5	1,8	355
Limpopo	0,3	0,5	143
TOTAL	100,0	100,0	459

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 February 2020 are shown in Figure 17. 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 due to both sides of the equation being unfavourable deepened the level of negative farm economic at play during 2019.

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



*Estimate based on Milk SA sample

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

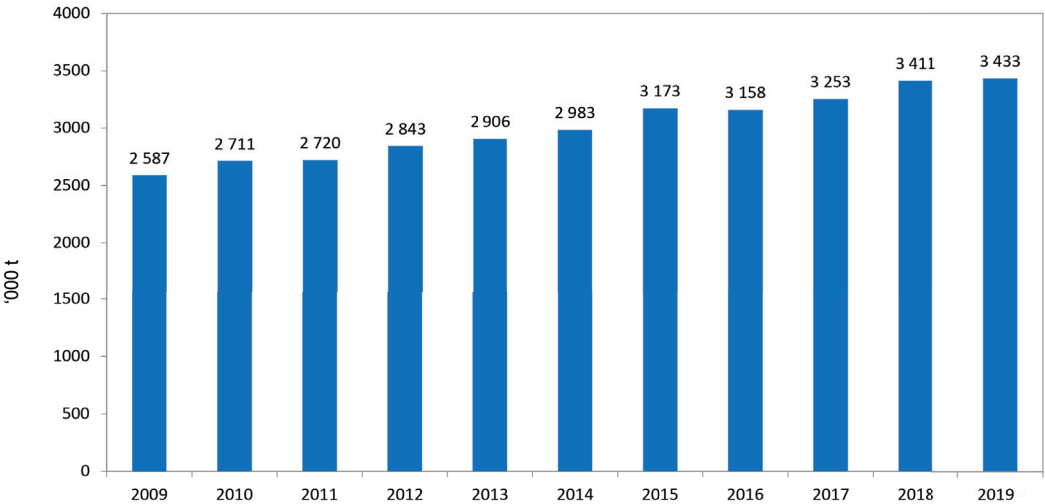


Table 8: Farm requisite price indices, base 2010 = 100 (source: DAFF)

Period	Machinery & 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	162.4	162.9
2018	176.5	164.4	168.7	169.4
CAGR* 2012–2018	5,3%	5,2%	4,2%	4,4%
Jan '14	135.6	132.0	139.2	138.4
Apr '14	141.1	132.2	144.1	143.1
Jul '14	147.5	124.3	146.3	145.4
Oct '14	148.7	129.5	142.7	142.8
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	185.3	164.6	175.2	175.5
Jan '19	177.1	163.5	171.8	172.0
Apr '19	175.7	179.9	169.3	170.6
CAGR* Jan '14–Jan '19	5,4%	6,1%	3,7%	4,0%

*Compound annual growth rate

Figure 19: Composition of the South African liquid products market on a volume basis, 2018 (source: industry estimate supplied by Milk SA)

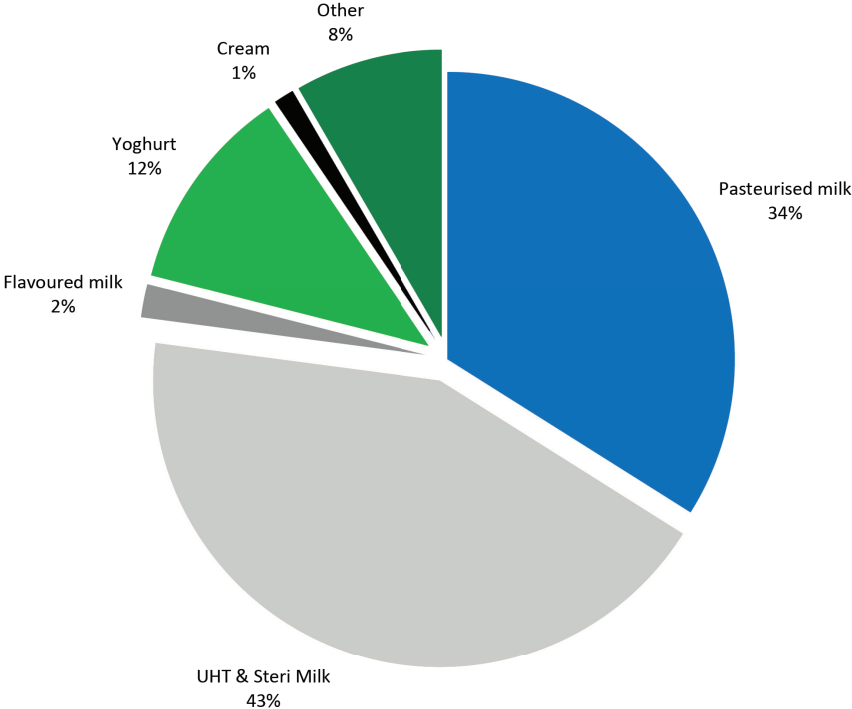
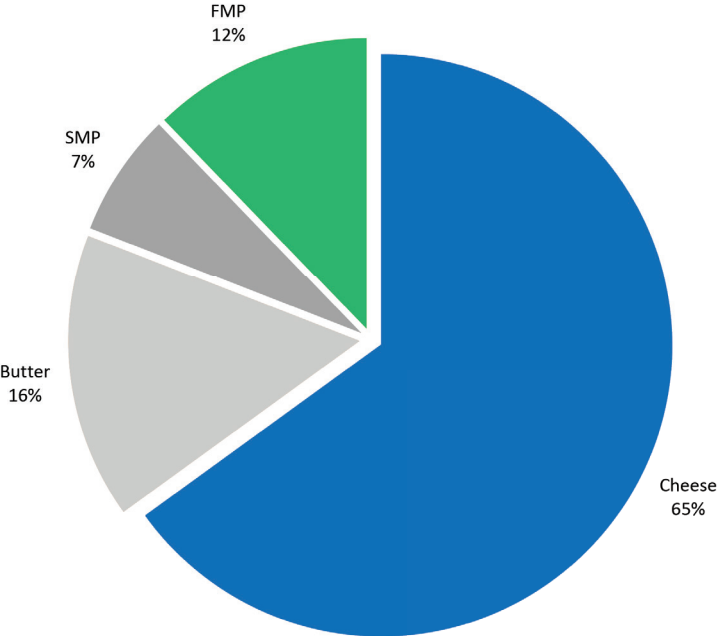


Figure 20: Composition of the South African concentrated products market on a mass basis, 2018 (source: industry estimate supplied by Milk SA)



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 60% from January 2009 to March 2020. Milk buyers 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) 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 Figure 19 and 20.

NEED TO KNOW



Nr of producers-distributors
(↓60%)

Jan 2009

170

Mar 2020

68

Nr of milk processors
(↓30%)



Jan 2009

190

Mar 2020

133

Dairy market composition
2019 **62% liquid**
 38% concentrate



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

Province	Number of PDs							Number of milk processors						
	Jan '09	Aug '16	Apr '17	Jul '17	Mar '18	Mar '19	Mar '20	Jan '09	Aug '16	Apr '17	Jul '17	Mar '18	Mar '19	Mar '20
Western Cape	33	23	22	19	19	8	12	46	37	36	36	34	31	33
Eastern Cape	15	15	12	11	10	3	7	13	12	9	9	8	9	9
Northern Cape	11	9	9	8	7	6	3	3	2	1	1	1	2	2
KwaZulu-Natal	15	10	10	9	9	7	7	28	23	24	23	19	19	19
Free State	13	10	10	9	7	6	5	19	12	12	11	12	13	13
North West	7	3	3	3	2	3	1	16	15	14	13	12	11	10
Gauteng	37	25	21	20	19	18	15	34	38	38	37	37	37	39
Mpumalanga	17	9	8	8	10	7	8	4	7	6	6	6	3	4
Limpopo	22	7	8	8	9	10	10	6	4	4	4	4	4	4
Total	170	111	103	95	92	68	68	190	150	144	140	133	129	133

Milk processors refers to producers of processed milk and manufacturers of other dairy products.

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)

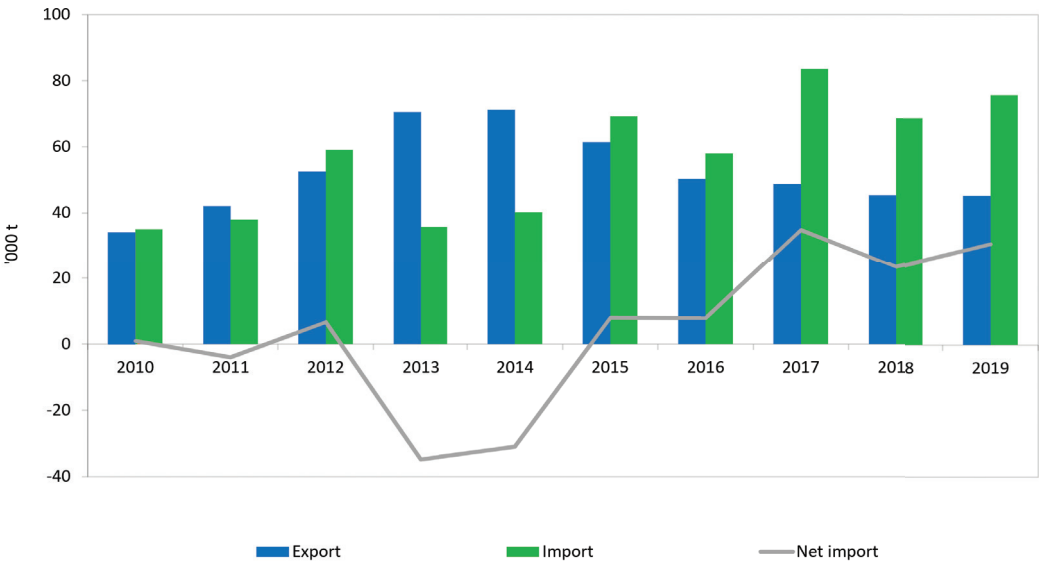


Figure 22: Dairy product imports and exports on milk-equivalent basis, 2010-2019 (source: SARS data, as supplied by SAMPRO)

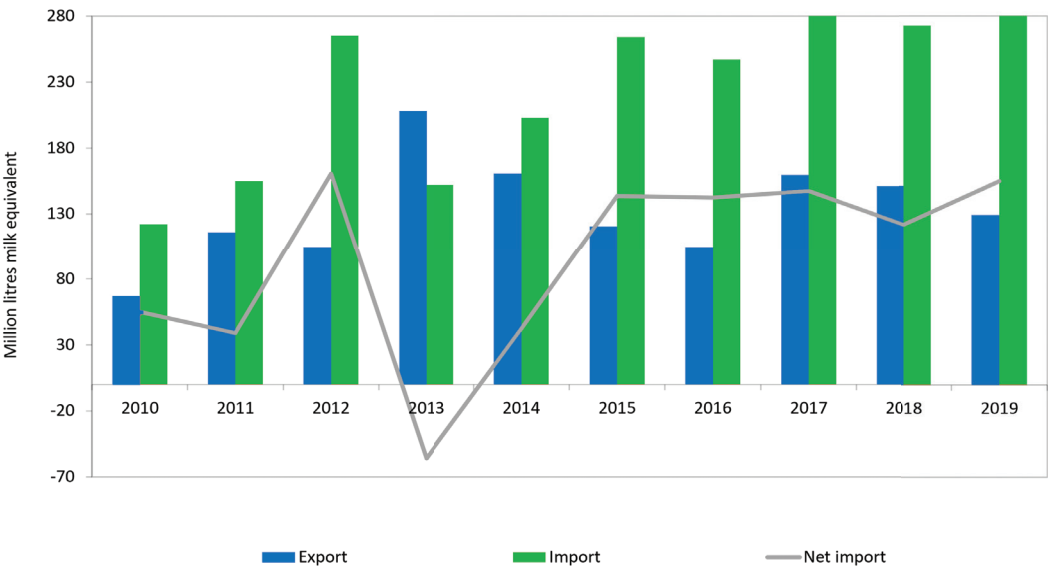


Figure 23: Percentage composition of imports on a mass basis, 2019 (source: SARS data, as supplied by SAMPRO)

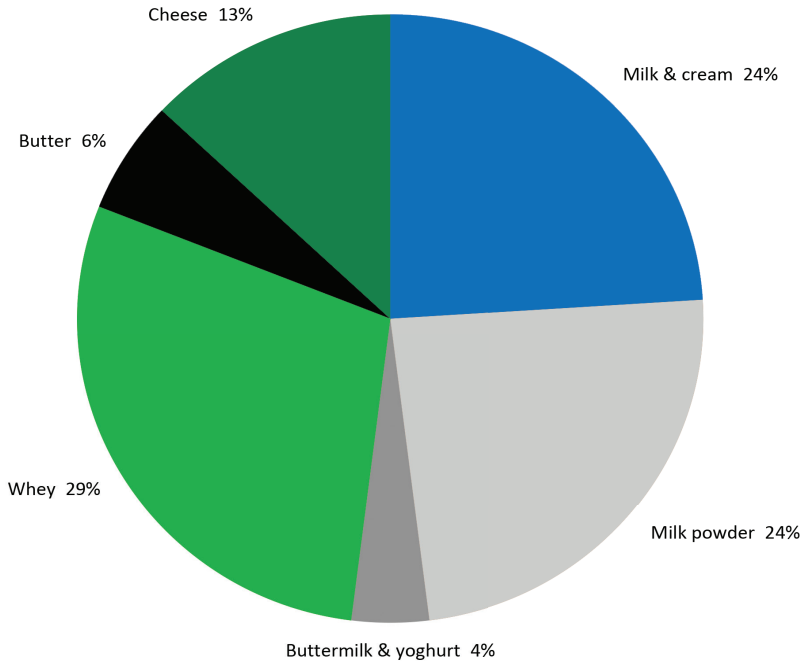


Figure 24: Percentage composition of exports on a mass basis, 2019 (source: SARS data, as supplied by SAMPRO)

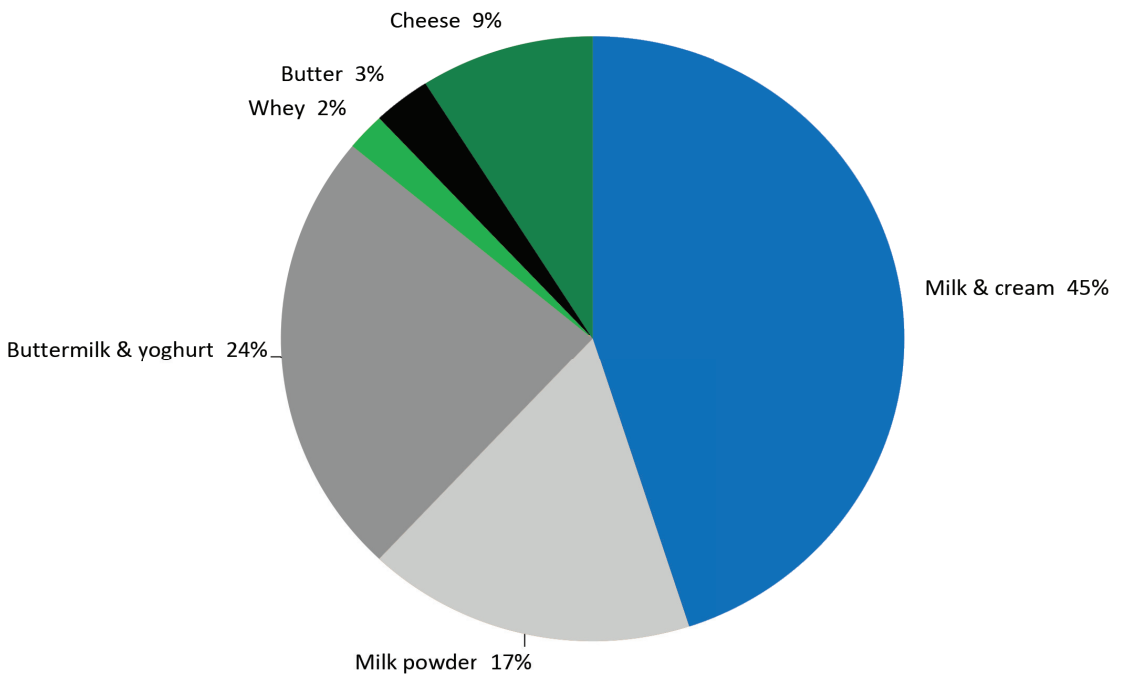
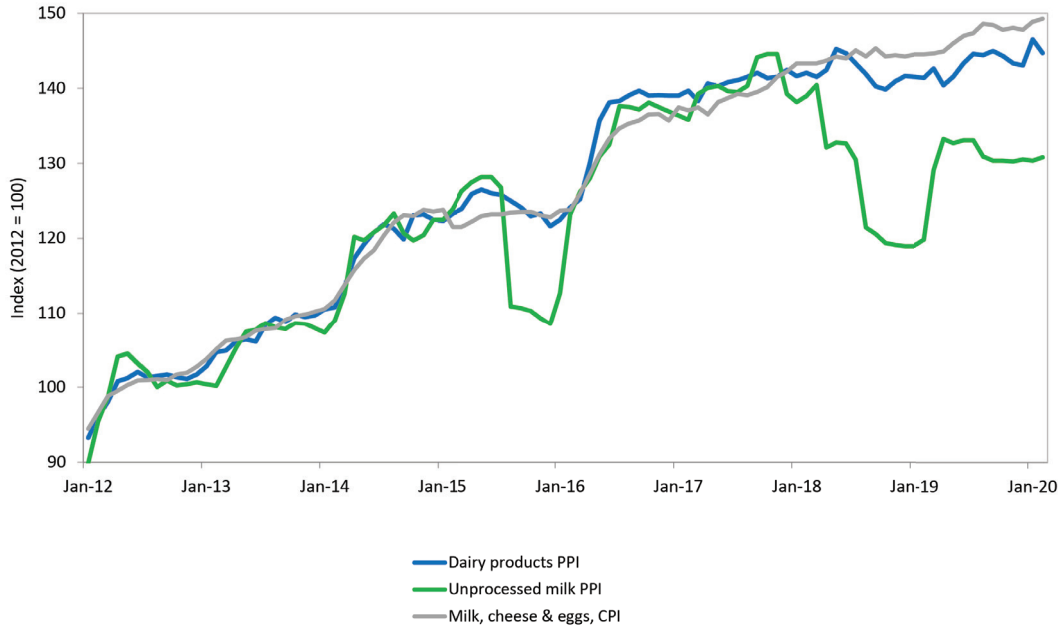


Figure 25: Price index of unprocessed milk on farm level, dairy products at processor level, and milk and eggs at consumer level, Jan 2012-Jan 2020 (source: Stats SA)



In 2019, the South African drinking milk market show signs of fatigue regarding consumption growth, while the fermented products market continues to grow. Table 10 and 11 indicate changes in the size of the formal market for South African products, and changes in retail prices, as reported by Nielsen SA and collated by SAMPRO.

The sales quantities for the 12-month period from January 2019 to December 2019 versus January 2018 to December 2018 for the two major liquid dairy products decreased. The average retail prices of six of the nine products, with monitored retail performance, increased from December 2018 to December 2019. Price increases for two of the six products were lower than the inflation rate of 4.1% in the period ending December 2019. Changes in quantity of retail sales and changes in average retail prices over specific time periods are provided in Table 10 and Table 11. The change in sales in a 12-month period for any product does not imply that the quantities or prices changed at a uniform rate during the period.

Sales quantities of maas for the period December 2019 compared to December 2018 increased by 13.4%, while for the period (six months) July 2019 to December 2019 versus July 2018 to December 2018, they increased by 14.2%.

For the period of 12 months from January 2019 to December 2019 versus January 2018 to December 2018, sales quantities of maas increased by 18.7%. Changes in the retail price of maas for the period December 2019 compared to December 2018 increased by 2.1%, but decreased by -1.8% when compared to June 2018, and by -4.6% when compared to December 2017.

Sales quantities of ultra-high temperature (UHT) treated milk for the period December 2019 compared to December 2018 increased by 7.8%, while for the period of six months from July 2019 to December 2019 versus July 2018 to December 2018, they decreased by 7.9%. Sales quantities of UHT for the period of 12 months from January 2019 to December 2019 versus January 2018 to December 2018 decreased by 1.5%. Changes in the retail price of UHT milk for the period December 2019 compared to December 2018 increased by 8.3%, by 9.2% when compared to June 2018, and by 4.0% when compared to December 2017.

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. Except for a period in 2015 and 2018/2019, when producer prices decreased relative to the other prices, prices follow the same general trend.

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

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

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

Product	Dec'19 versus Nov'19 (1 month ago)	Dec'19 versus Sep'19 (3 months ago)	Dec'19 versus Jun'19 (6 months ago)	Dec'19 versus Mar'19 (9 months ago)	Dec'19 versus Dec'18 (12 months ago)	Dec'19 versus Jun'18 (18 months ago)	Dec'19 versus Dec'17 (24 months ago)
Fresh milk	-0,02	0,6	1,9	4,0	5,5	3,9	6,6
Ultra-high temperature treated milk	-2,7	-4,3	-0,9	4,6	8,3	9,2	4,0
Flavoured milk	-9,7	-10,2	-7,9	-4,8	-0,5	-1,1	2,5
Yoghurt	-6,6	-4,9	-6,0	-5,3	-2,0	-3,2	-1,4
Maas	-3,8	-1,4	-0,8	0,6	2,1	-1,8	-4,6
Pre-packaged cheese	-0,7	-1,1	0,7	0,2	1,1	2,1	3,3
Cream cheese	0,6	0,8	0,8	3,9	6,2	3,5	6,2
Butter	-1,7	-3,0	-1,5	-2,8	-3,0	-6,4	-5,6
Cream	2,9	1,8	5,7	10,2	8,0	13,7	11,5

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
CEEC	Central and Eastern Europe Countries	OPEC	The Organization of the Petroleum Exporting Countries
DAFF	Department of Agriculture, Forestry and Fisheries	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
FFPI	FAO Food Price index	SCM	solid-corrected milk
FMP	full-cream milk powder	SMP	skimmed milk powder
FOB	free on board	t	tonnes (a metric tonne, equal to 1 000 kilograms)
IDF	International Dairy Federation	UHT	ultra-high temperature
IFCN	International Farm Comparison Network	UK	United Kingdom
IMF	International Monetary Fund	US	United States
LTO	<i>Nederland Land- en Tuinbouw Organisatie</i> (Dutch Federation of Agriculture and Horticulture)	USDA	United States Department of Agriculture
Milk SA	Milk South Africa	WEO	World Economic Outlook
MPO	Milk Producers' Organisation	WMP	whole milk powder

Statistics

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