Competitiveness of the SA primary dairy industry, 2021.

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Milk SA Project Manager: Economies and Markets

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Contents

1. Background to the IFCN

The International Farm Comparison Network (IFCN) virtual conference was attended by the Project Manager as part of the Milk SA project: Economies and Markets. The specific aim of participating and attending the conference is to gauge the international competitiveness of the SA primary dairy industry. The IFCN is a knowledge-driven organization. Knowledge is created via a network of dairy researchers from 54 countries. The data is managed and analysed by the IFCN Dairy Research Centre staff based in Kiel, Germany. The IFCN economic models and standardization ensure comparability between countries and provide a global picture. More than 140 dairy companies and organisations support and make use of the IFCN.

The values of the IFCN are Trust, Independence and Truth. Trust within the IFCN network is vital for sharing and cooperation. The IFCN is independent and committed to the truth.

In the 2022 Dairy Report of the IFCN, 178 farms in 66 dairy regions in 54 countries took part. They represent 90% of the total world dairy production.

2. Methodology of research

The IFCN applies the Typical Farm Approach (TFA) as a base for standardized global data collection. This approach represents the most common farm type which, at the same time, also produces a large portion of the total milk in the region. This makes it possible to obtain a comprehensive overview in order to generate information at the farm level. The majority of the analyses are based on the information of 132 typical farms, one averaged sized and one large typical farm, for every region/country.

Most of the monetary results are presented in USD in order to be able to compare farm information. Therefore, the average exchange rate of each country was used. It is important to note that the exchange rate and inflation rate affect the information provided.

All unprocessed milk is converted into solid corrected milk (SCM). Unprocessed milk output with 4.0% fat and 3.3% true protein is generated. The factor used to express the density of unprocessed milk is 1.033 per litre.

3. Unprocessed milk prices and drivers

The IFCN world unprocessed milk price stood at an average level of 45.1 USD/100kg SCM corrected milk in 2021, which is an increase of 23% over the previous year. The milk price increase was supported by a tight milk supply from the major exporters, firm global demand and ongoing supply

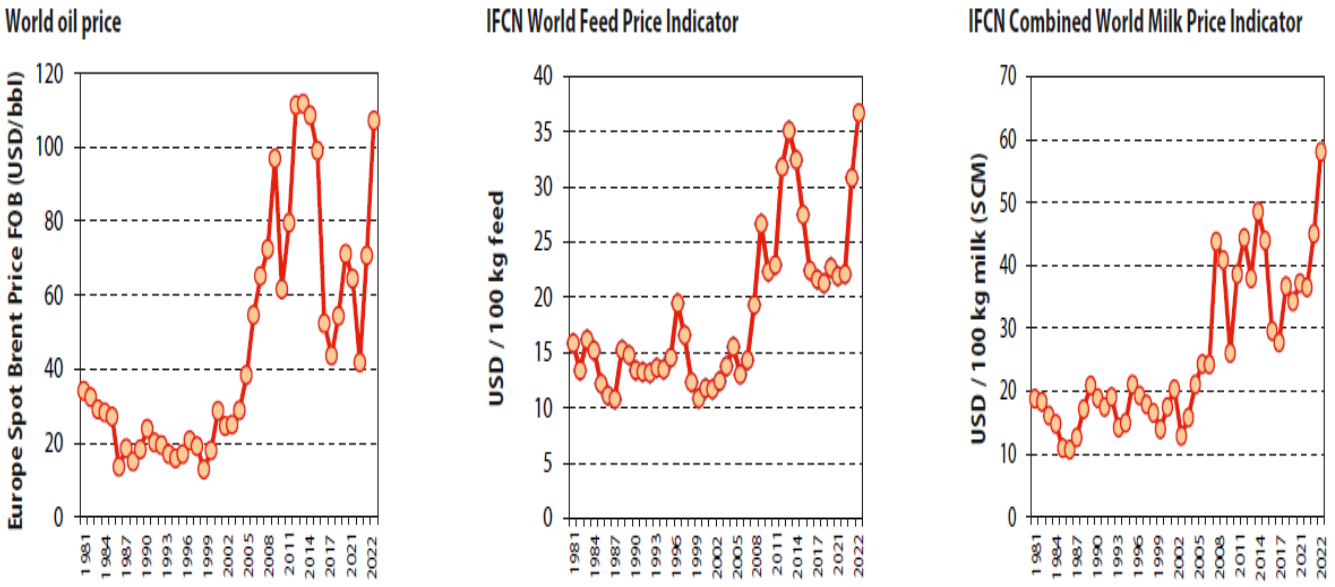
chain disruptions. The milk price showed an upward trend since the beginning of 2021, which extended past March and April when historically it would reach the peak point and seasonally decrease. This did not happen due to the strong demand from China which was shifting its import pattern.

Global dairy demand was very firm right through 2021, even though there were some regional differences. Growth was visible in Asia where the health benefits of dairy were being promoted even by government officials. China was a strong driver of the global market with very strong import demand for the first half of 2021. In the EU and the USA demand growth was moderate, while Africa saw a positive development in demand.

Milk supply growth was strong in 2021 at 2.9% (SCM, cow and buffalo milk). The average growth for the past ten years is 2.4%. The increase in milk supply was mainly driven by an increase in South Asia and Africa, which were rebounding from a low milk supply the previous year. The milk production among top exporters was a mixed picture: USA (+3.5%) and Argentina (+4.6%), while the EU-27 and New Zealand kept production growth flat.

Overall, there is a strong correlation between milk and oil price, as well as between oil and feed prices. Oil prices recovered from the demand shock caused by Covid-19 in April 2020, but a lot of uncertainty still exists. In addition, the recent conflict between Ukraine and Russia, as well as the port congestion in China have resulted in high inflation and an increment in oil, feed and milk prices.

Global trends in oil, feed and milk prices



Source: IFCN, Dairy Report 2022

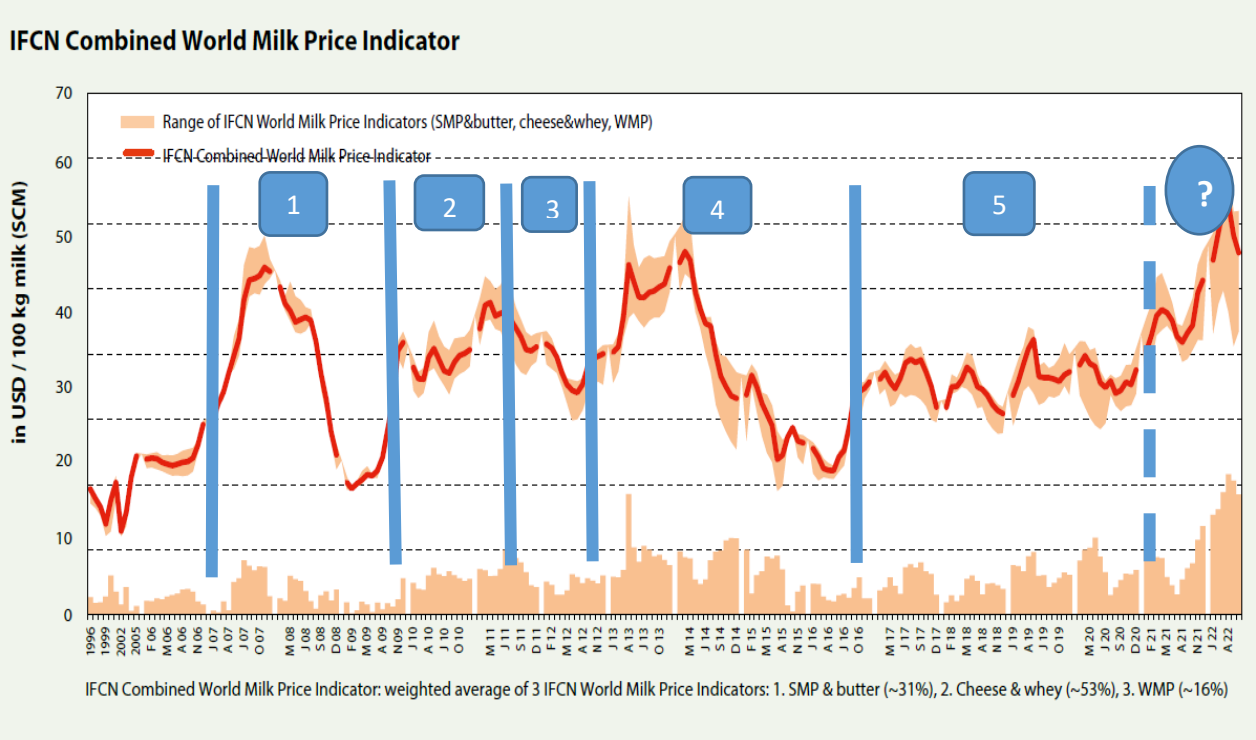
The **trend in the world's unprocessed milk price** from 1996 to 2022 is reflected in the graph below. The volatility in the period from 1996 to the middle of 2016 is noteworthy higher than the period thereafter inclusive of the first six months of 2021. The latter part of 2021 and the whole of 2022 saw increased volatility.

Cycles in the unprocessed milk price are simplified into the following timeframes:

1. 1st rollercoaster: 2007 – 2009, length 3 years, fluctuation 50%, indicating an imbalance. The beginning of this cycle was driven by increased demand with supply responding slowly. At the same time oil and feed prices rose to new levels, contributing to the peak price of 53.3 USD/100kg SCM in November 2007.
2. 1st Zig-Zag: 2010/11, length 12 months, fluctuation 10%, indicating balance. This phase of stability was induced by high stock dairy levels which existed at the end of 2009.
3. 1st Dynamic wave: 2011 -2012, length 2 years, fluctuation 20%, indicating balance. Milk supply and demand were growing at a similar rate. However, adverse weather events, such as the drought in North America caused feed prices to outstrip the milk price. This resulted in poor farm economics that lead to reduced supply at the end of 2012 and triggered a new rollercoaster phase at the beginning of 2013.
4. 2nd Rollercoaster: 2013 – 2016, length 4 years, fluctuation 50%, indicating an imbalance. During this phase, the peak price was 55.8 USD/100kg SCM and the lowest price was slashed to 27.1 USD/100kg SCM. The main causes of the high volatility were the high prices at the beginning of the phase, leading to production stimulation, the abolition of the European milk quota system and the ban of European exports to Russia.
5. 1st Extended Zig-Zag: 2017 - ?, length in play, fluctuation 10%, indicating balance. In 2017 a new scenario started to present, which can be classified as an extended Zig-Zag phase.

   Considering 2021 and 2022, it seems that a new phase is developing for the global dairy market. During 2021, the world milk price went from 40.5 USD/100kg SCM in January 2021 to 51.3 USD/100kg SCM in December 2021. This is a volatility of 27% within a 12-month period. In the first six months of 2022, prices increased from 54.5 USD/100kg SCM in January 2022 to a record high of 63 USD/100kg SCM, which is an increase of 15.7% in four months.

These cycles are demonstrated in the graph below:

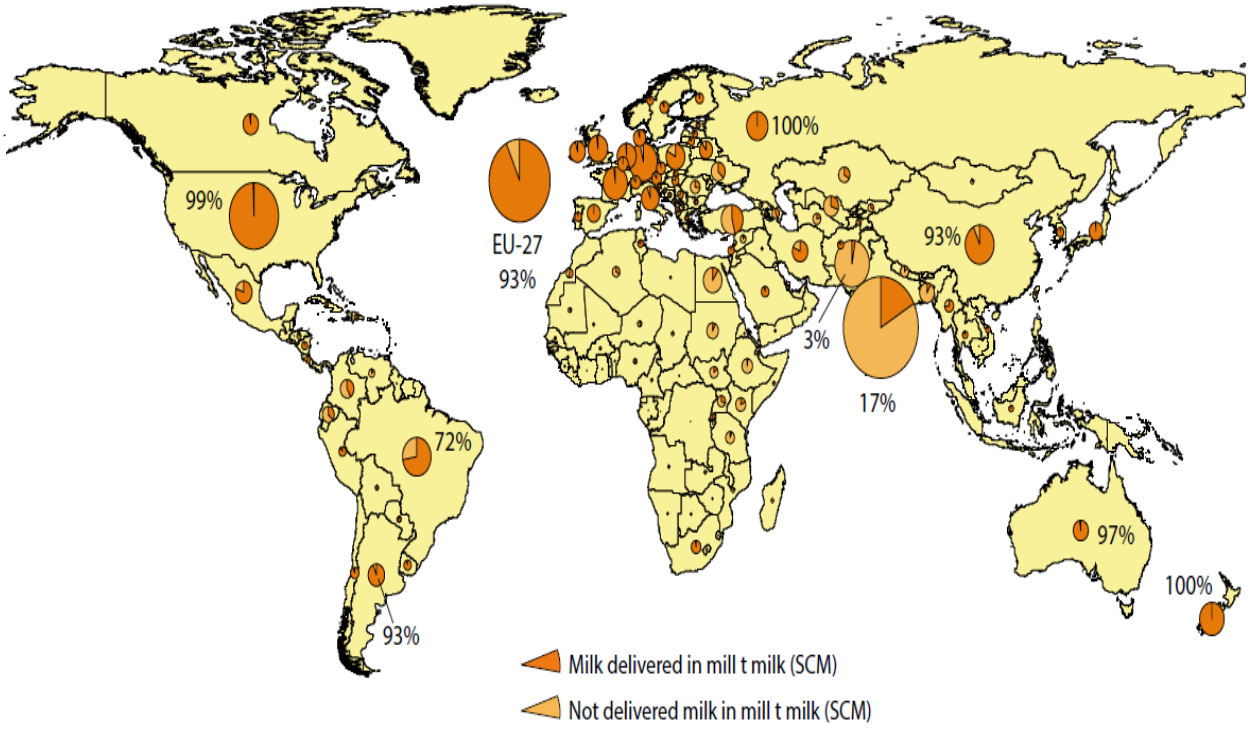


(Source: IFCN, Dairy Report 2022.)

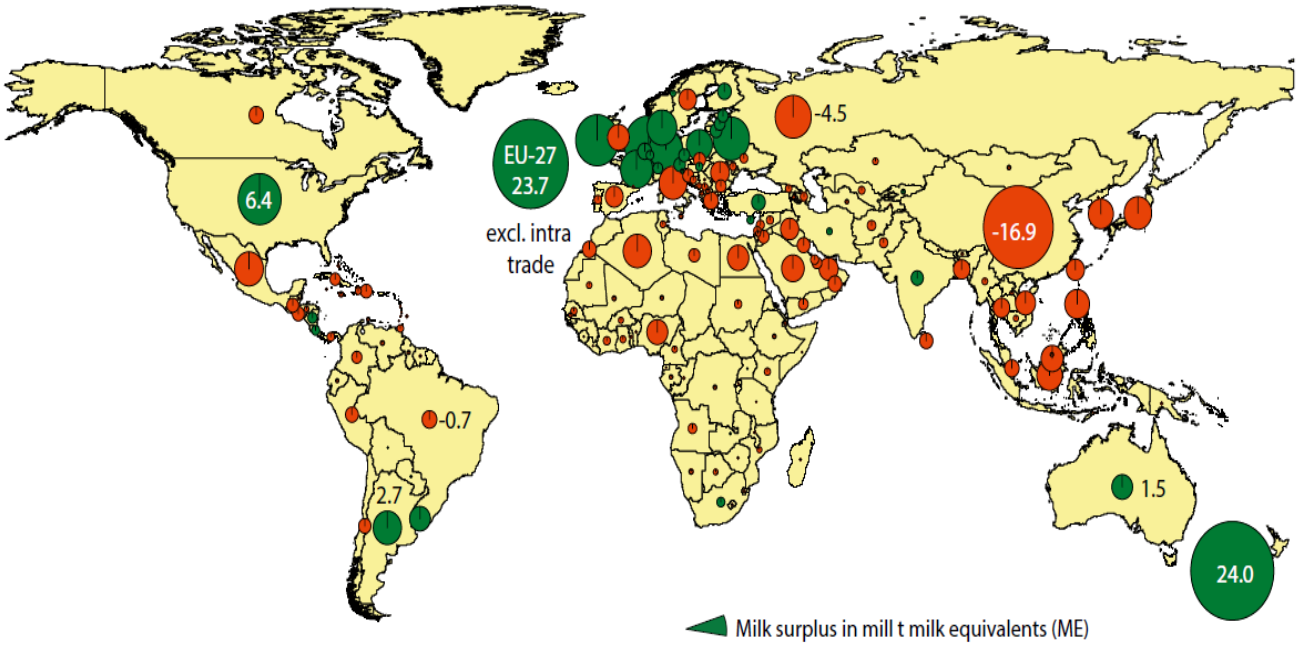
4. World unprocessed milk production in 2021 is illustrated in the map below and surplus and deficit situations in the next map

The map below reflects the absolute levels of unprocessed milk production in the world during 2021 and the share of milk delivered. (Source: The following 2 maps, IFCN, Dairy Report 2022.)

Milk production and share of milk delivered in 2021



Milk surplus and deficit in 2021



Data: National surplus or deficit in 2021 in mill t milk equivalents (ME).
Source: GlobalTradeTracker (GTT) supplemented with FAO data.
Calculation: Milk surplus or deficit: Exports minus imports minus net stock changes.
Remarks: The EU-27 data is only considering trade with countries outside the European Union.

The concentration of surplus versus deficit production of unprocessed milk is clearly visible in different parts of the world and even more evident in certain countries.

5. Country comparison: the average size of dairy herds

The global average dairy farmer owns 2 to 3 dairy cows. Larger herds are found in Saudi Arabia, South Africa, New Zealand, the United States of America and a few other countries. South Africa's average dairy herd size is one of the largest in the world. Table one reflects the average dairy herd size of a few selected countries. The USA replaced Australia at number four.

Table 1. The average number of cows in the dairy herd, selected countries; 2020

Country	The average number of cows in the herd
Saudi Arabia	7 403
South Africa	453
New Zealand	440
USA	297
Australia	279
Czech Republic	248
Denmark	210
Israel	195
United Kingdom	157
Argentina	152
Uruguay	124
Nederland	101
Ireland	97
France	69
Poland	10
India (cows and buffalos)	2

Source: IFCN, Dairy Report 2021

6. Country comparison: number of dairy farms

The number of dairy farms differs hugely between countries. There is some correlation between the average number of cows per herd and the number of farms. The smaller cow numbers per herd tend to be associated with large farm numbers. Table two reflects the number of farms for a few selected countries.

Table 2. The average number of dairy farms for selected countries, 2020

Country	The average number of farms
Saudi Arabia	26
South Africa	1 310
New Zealand	11 180
Australia	5 060
USA	31 660
Czech Republic	1 440
Denmark	2 700
Israel	700
Argentina	10 410
United Kingdom	11 780
Uruguay	3 320
Netherlands	15 700
Ireland	16 170
France	49 570
Poland	203 500
India	68 722 000

Source: IFCN, Dairy Report 2021

7. Farm comparison: cost of unprocessed milk production

The cost of the production of unprocessed milk is a key indicator of the competitiveness of unprocessed milk production in a region/country compared to that of other regions/countries.

In the cost of unprocessed milk production analysis, it was found that 15% of the farms had a cost of unprocessed milk production of ≤ 30 USD per 100kg SCM and are typically situated in Africa, South America and Oceania. This percentage decreased from 20% in 2020 to 15% in 2021. The middle group consists of 68% of the farms with a cost of unprocessed milk production between 30 USD and 60 USD per 100kg SCM and includes Europe, North America and Asia. This percentage decreased from 72% in 2020 to 68% in 2021. The high-cost producers (17%), ≥ 60 USD per 100kg SCM, are found in the Alpine region, Canada, Israel and some farms in Asia. This percentage increased from 8% in 2020 to 17% in 2021. The shift away from low-cost producers could be a result of the drastic upward swing in a range of farm input costs in 2021.

The average cost of unprocessed milk production per 100kg SCM ranges between 13 USD in Uganda and 204 USD in Switzerland. The extremely low-cost producers are found in countries where the feed cost is near zero,

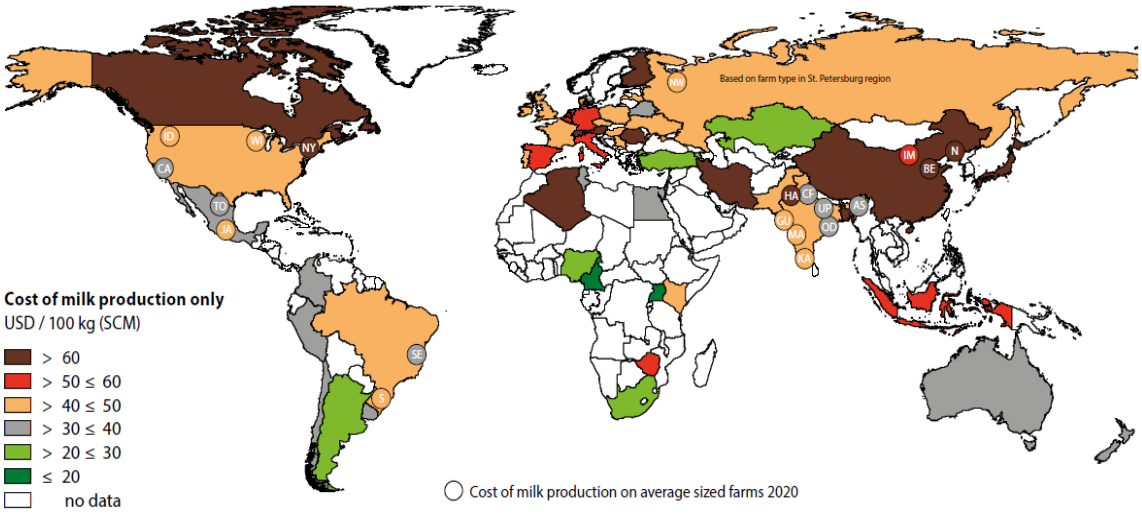
the owner's opportunity cost of labour is low and where a small percentage of the unprocessed milk produced is sold in the market.

In the IFCN typical farm comparison analysis, South Africa included three farms. A small farm with 230 cows on grazing plus concentrate, an average farm with 650 cows (ZA-650) on grazing and an 800 cows (ZA-800) farm on intensive total mixed rations were included.

The costs were grouped into seven categories: variable feed costs, total labour, land and capital, depreciation of machinery and buildings, veterinary, medicine, insemination and other costs.

The first map below reflects the cost of unprocessed milk production on average-sized milk farms for 2021 and the second map on large farms for 2021 (USD/100kg, SCM). South Africa rates amongst the lowest-cost producers in the world (>20≤30 USD/100kg SCM)

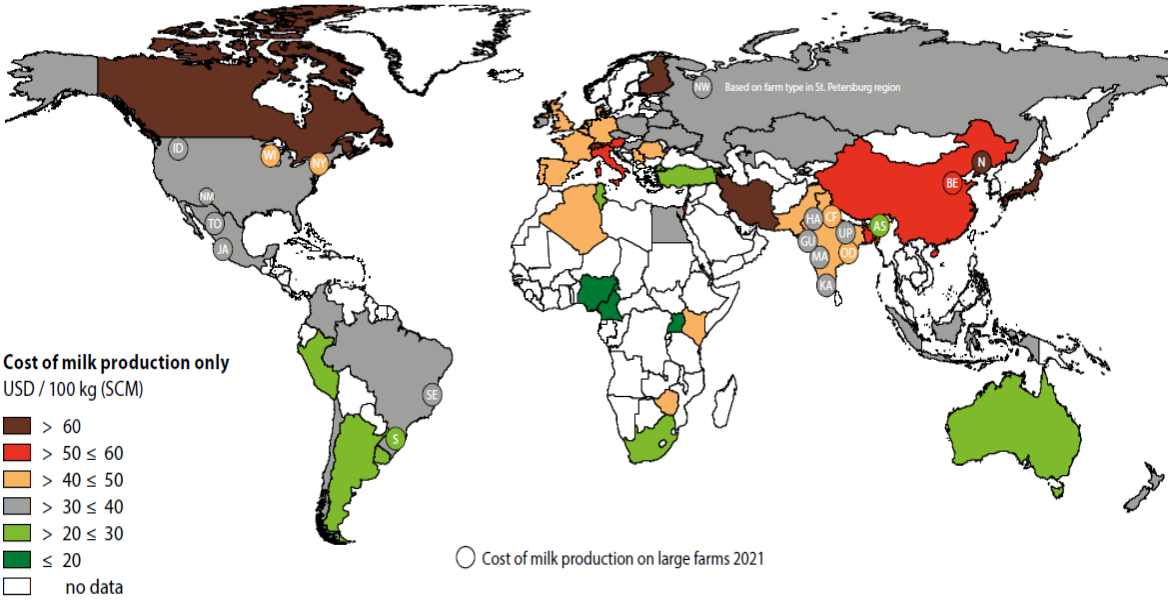
Cost of milk production on average sized farms 2021



Indicator: Cost of milk production (excluding quota cost) of the "average sized" typical farms analysed.

Source: IFCN, Dairy Reports, 2022.

Cost of milk production on large farms 2021

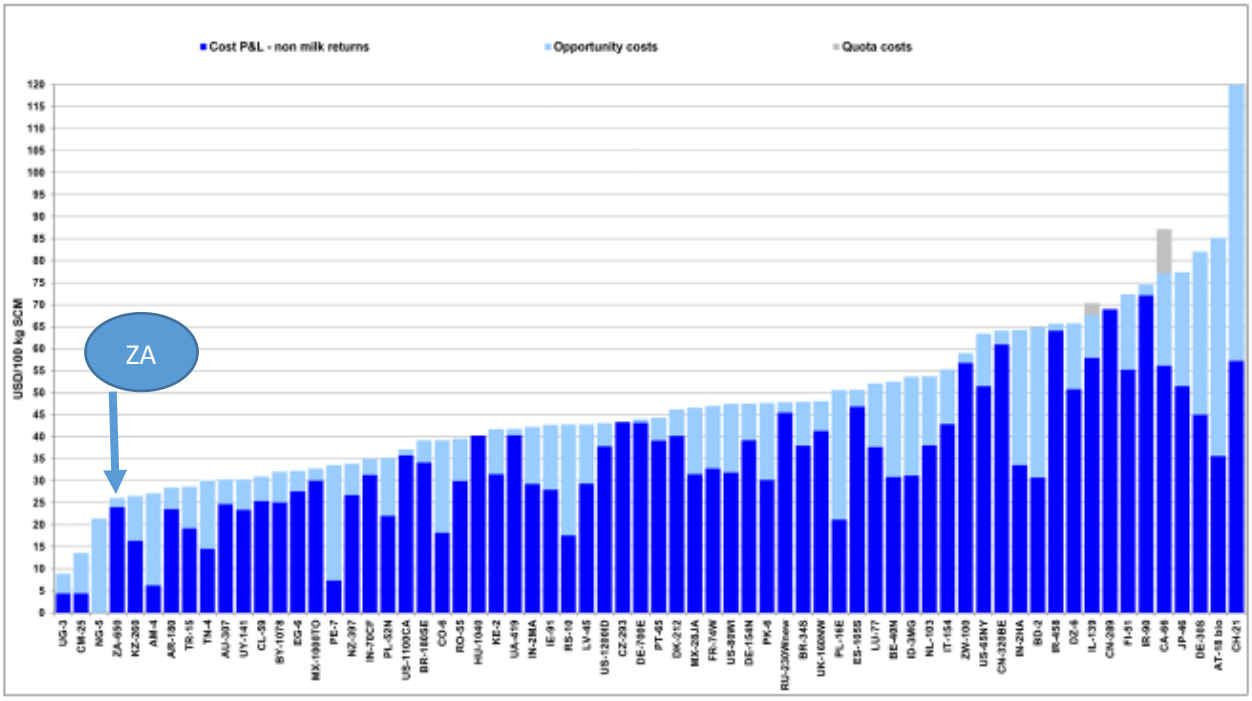


Indicator: Cost of milk production (excluding quota cost) of the large typical farms analysed.

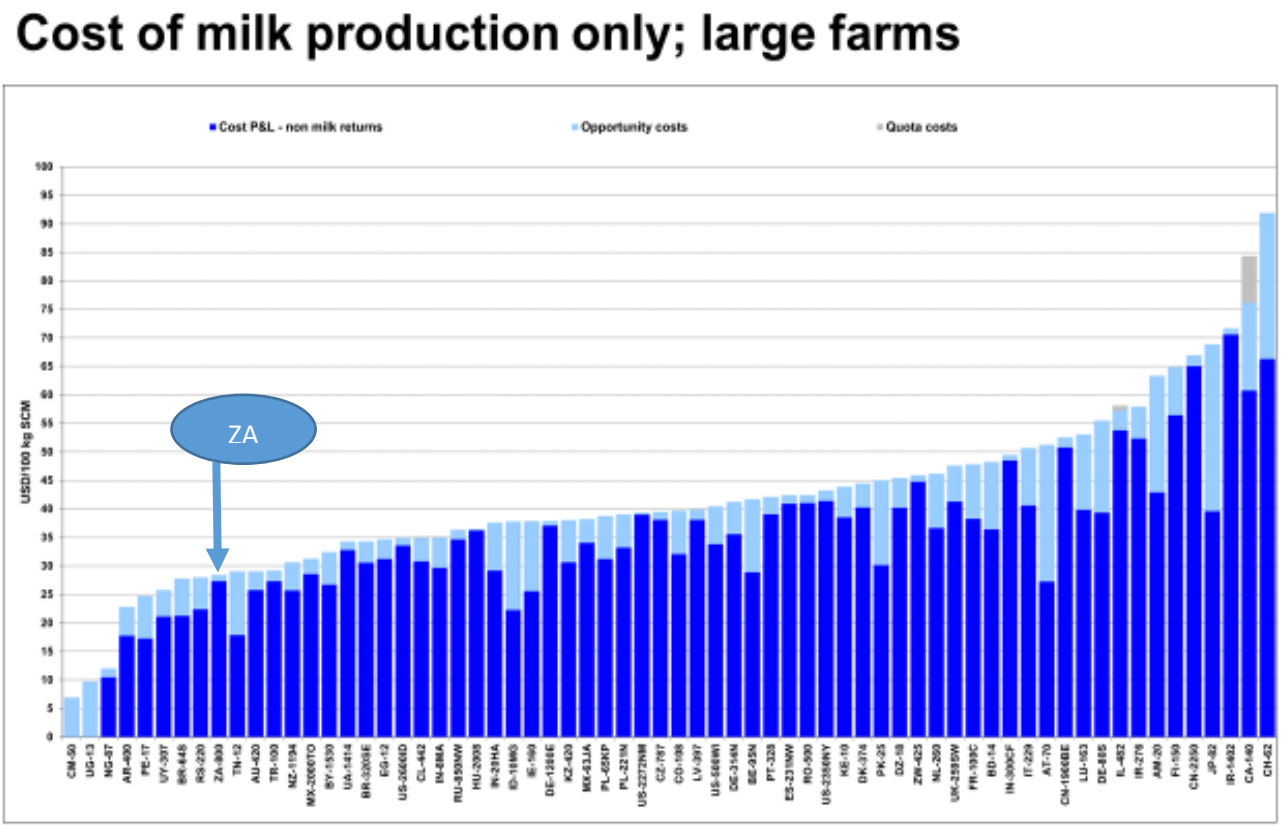
Source: IFCN, Dairy Reports, 2022.

The graph below shows the cost of unprocessed milk production on average and large-sized farms between different countries.

Cost of milk production only; average sized farms



Source: IFCN dairy report 2022



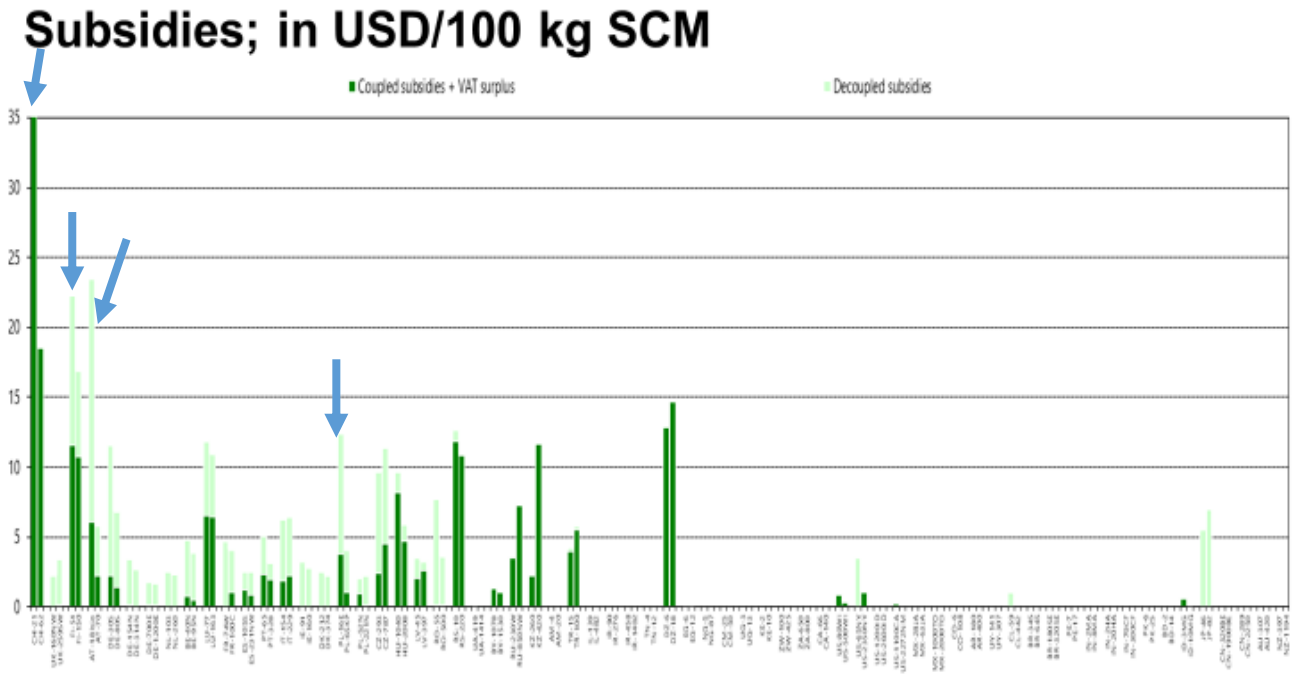
Source: IFCN Dairy Report 2022

For the average-sized farm (ZA 650), South Africa is number 4 of low-cost producers out of 66 farms and for the larger-sized farm (ZA 800), SA is number 9 of low-cost producers out of 66 farms. We need to note that for average-sized farms, the first 9 lowest-cost farms fall into the category of the cost lower than 30 USD/100kg SCM and for the large-sized farms, the first 12 lowest-cost farms fall into the category of the cost lower than 30USD/100kg SCM.

8. Direct subsidies and policies (USD/100kg SCM)

The cash income of dairy farmers in the EU and some other regions of the world is strongly influenced by different types of subsidies and payments. The subsidy policies and implementation in countries and regions are complex. All subsidies which are directly linked to the process of producing milk, are considered coupled subsidies. Decoupled subsidies exist in the EU, Japan and to a minor degree in Serbia, the USA and Chile. These are transfers to farmers as direct aid, often based on the amount of land farmed and not directly linked to production.

The blue arrows in the graph below, from left to right, are for the countries Switzerland, Finland, Austria and Poland. The country codes on the X-axis are unclear. If you need more information, please contact the report writer on 083 300 3667. The supply of subsidy information absorbed in this report is on a voluntary basis.



Source: IFCN Dairy Report 2022

9. Conclusion

The IFCN world unprocessed milk price stood at an average level of 45.1 USD/100kg SCM corrected milk in 2021, which is an increase of 23% over the previous year. The milk price increase was supported by a tight milk supply from the major exporters, firm global demand and ongoing supply chain disruptions. The milk price showed an upward trend since the beginning of 2021, which extended past March and April when historically it would reach the peak point and seasonally decrease. This did not happen due to the strong demand from China which was shifting its import pattern.

The average world price for unprocessed milk in 2020 came in at 45.1 USD per 100kg SCM (4% fat and 3.3% protein) equating to R6.46/kg.

Considering 2021 and 2022, it seems that a new phase is developing for the global dairy market. During 2021, the world milk price went from 40.5 USD/100kg SCM in January 2021 to 51.3 USD/100kg SCM in December 2021. This is a volatility of 27% within a 12-month period. In the first six months of 2022, prices increased from 54.5 USD/100kg SCM in January 2022 to a record high of 63 USD/100kg SCM, which is an increase of 15.7% in four months.

The number of low-cost producers in the world declined in 2021 compared to 2020, and that could be the result of the drastic upward swing in a range of farm input costs in 2021.

South Africa rates amongst the lowest-cost unprocessed milk producers in the world, comparing favourably to New Zealand in relation to pasture-based operations and to the USA and Uruguay for intensive-based operations.