

Competitiveness of the SA primary dairy industry, 2019.

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1. Background to the IFCN

The International Farm Comparison Network (IFCN) 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 over a 90 countries. The data are 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 130 dairy companies and organisations support and make use of the IFCN.

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

In the 2020 Dairy Report of the IFCN, 170 farms in 64 dairy regions in 52 countries took part. They represent 89% of total world dairy production.

2. Methodology of research

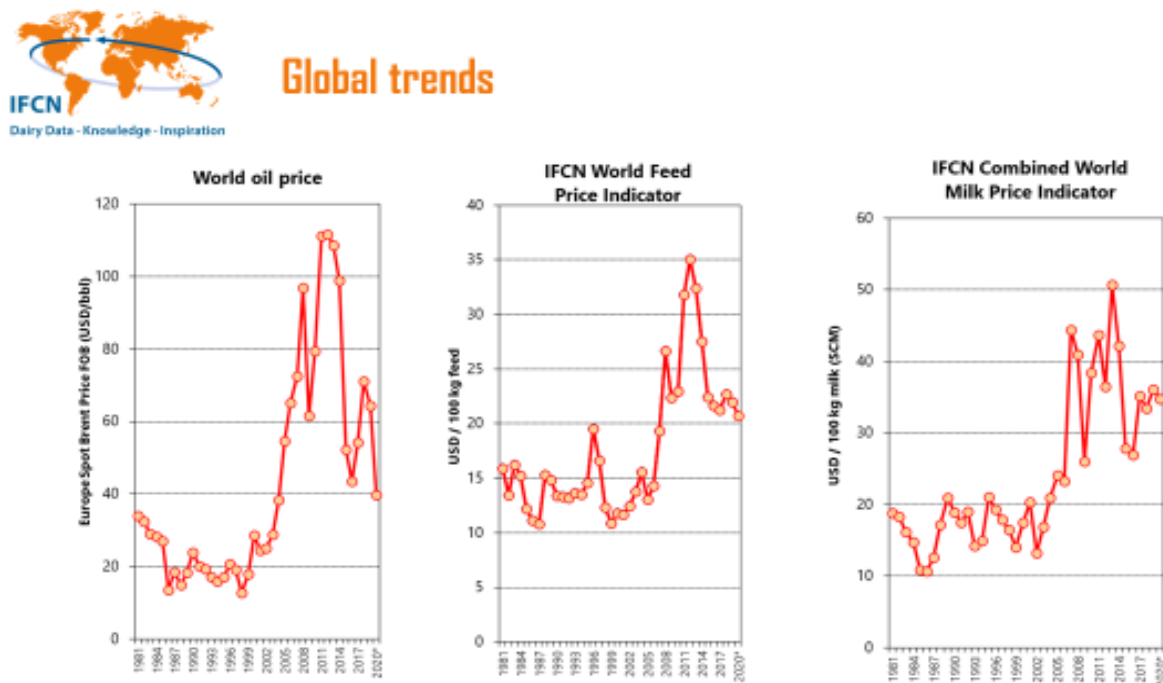
The IFCN applies the Typical Farm Approach (TFA) as a base for standardized global data collection. This approach represents the most common farm type which, at the same time, also produces a large portion of the total milk in the region. This makes it possible to obtain a comprehensive overview in order to generate information at farm level. The majority of the analyses is based on the information of 170 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 world unprocessed milk price is the result of interplay between supply and demand levels. In the event of an imbalance between the supply and demand for unprocessed milk, the **two main drivers** of the world unprocessed milk price are the world oil price as it links to grain prices and world feed prices. Since the ethanol 10% blend in US fuels came into effect, grains and oilseeds were pulled into developments and trends in the energy sector. However, changes in the demand for milk fat could create short term fluctuations independent of developments in the oil price or feed prices.



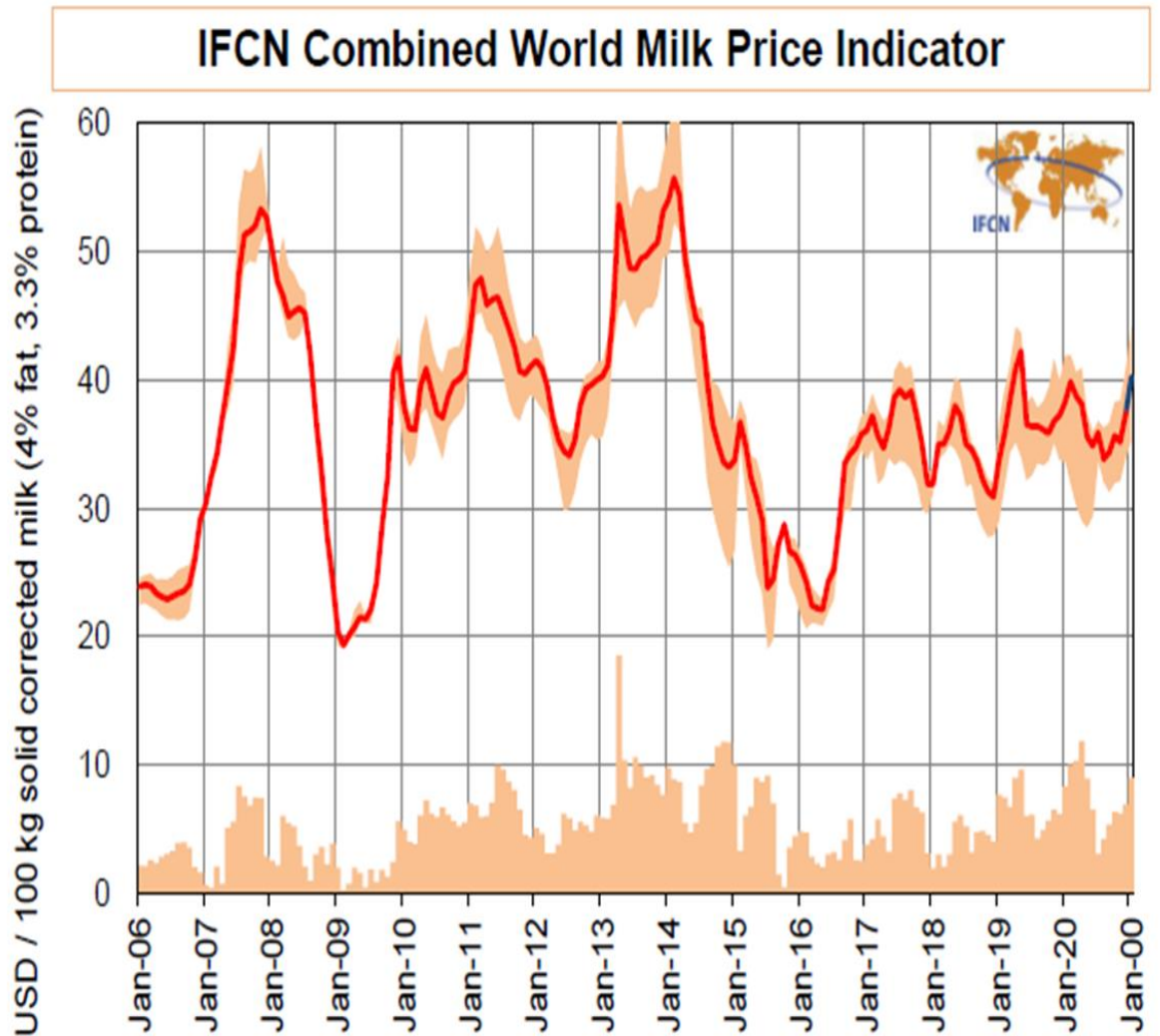
Source: IFCN, Dairy Report 2020

The **trend in the world unprocessed milk price** from 2006 to 2021 is reflected in the graph below. The IFCN calculated the long term average, from 2007 to 2015 at \$40 per 100kg SCM and found that at the end of 2015/16 a new reality dawned with an average price at \$35 per 100kg SCM (2016 to 2019). This is however early days for the “new” price level. Cycles in the unprocessed milk price are simplified into the following timeframes:

- 1st rollercoaster: 2007 – 2009, length 3 years, fluctuation 50%, indicating imbalance.
- 1st Zig-Zag: 2010/11, length 12 months, fluctuation 10%, indicating balance.
- 1st Dynamic wave: 2011 -2012, length 2 years, fluctuation 20%, indicating balance.
- 2nd Rollercoaster: 2013 – 2016, length 4 years, fluctuation 50%, indicating imbalance.

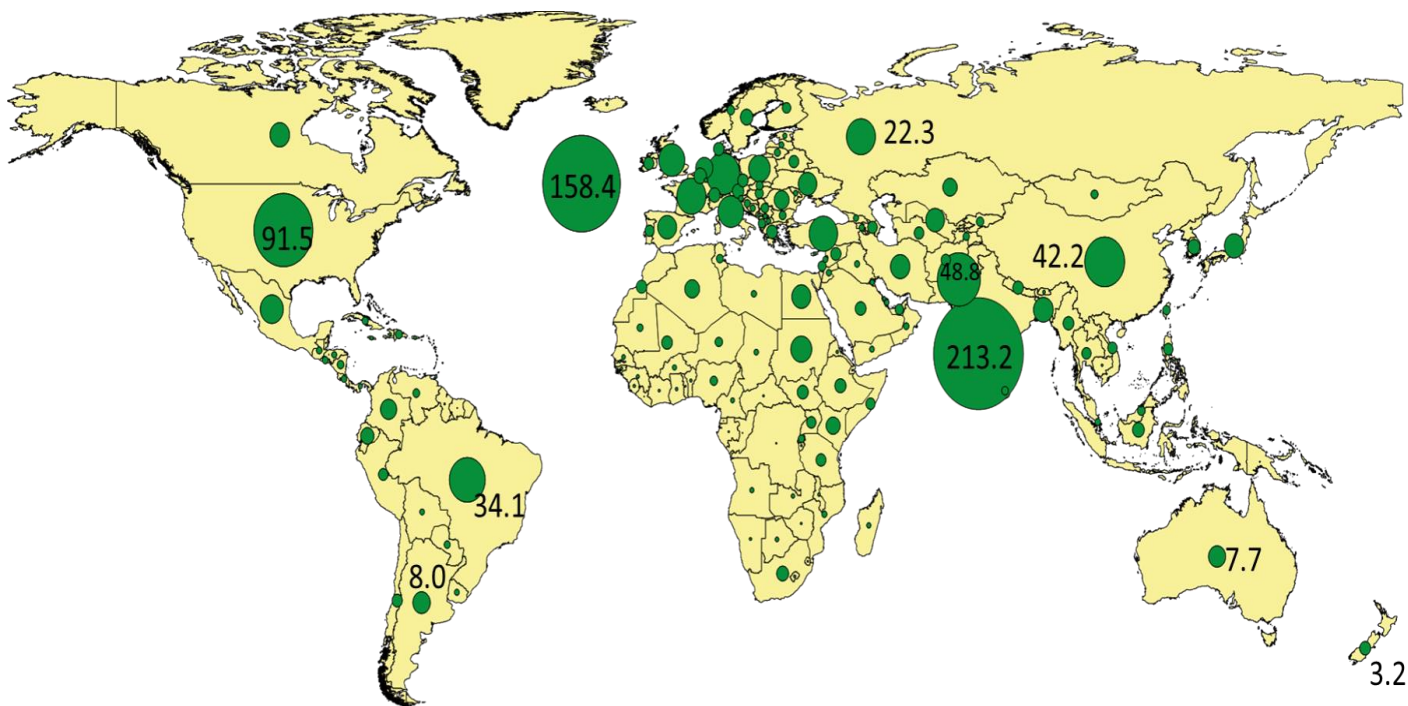
2nd Zig-Zag: 2017 - ?, length in play, fluctuation 10%, indicating balance.

These cycles are demonstrated in the graph below.



4. World unprocessed milk demand growth in 2019

The map below reflects the absolute change in unprocessed milk demand - 2019 versus 2018 - in million tonnes milk equivalent (all milk). (Source: IFCN, Dairy Report 2020.)



5. Country comparison: 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, Australia 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.

Table 1. Average number of cows in dairy herd, selected countries; 2018

Country	Average number of cows in herd
Saudi Arabia	7 139
South Africa	442
New Zealand	416
Australia	274
USA	241
Czech Republic	239
Denmark	204
Israel	186
Argentina	149
United Kingdom	148
Uruguay	136
Nederland	94
Germany	65
France	63
Poland	10
India (cows and buffalos)	2

Source: IFCN, Dairy Report 2019

6. Country comparison: number of dairy farms

The number of dairy farms differ 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. Average number of dairy farms for selected countries, 2018

Country	Average number of farms
Saudi Arabia	30
South Africa	1 380
New Zealand	12 000
Australia	5 700
USA	39 000
Czech Republic	1 510
Denmark	2 800
Israel	700
Argentina	11 000
United Kingdom	12 800
Uruguay	3 280
Netherlands	17 000
Germany	62 800
France	56 000
Poland	230 000

Source: IFCN, Dairy Report 2019

7. Farm comparison: cost of unprocessed milk production

The cost of the production of unprocessed milk is the key cost component in the dairy value chain. It indicates 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 25% 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. The middle group consists of 66% of the farms with a cost of unprocessed milk production between 30 USD and 60 USD per 100kg SCM and include Europe, North America and Asia. The high cost producers (9%), ≥ 60 USD per 100kg SCM, are found in Scandinavia, the Alpine region, Canada and Japan.

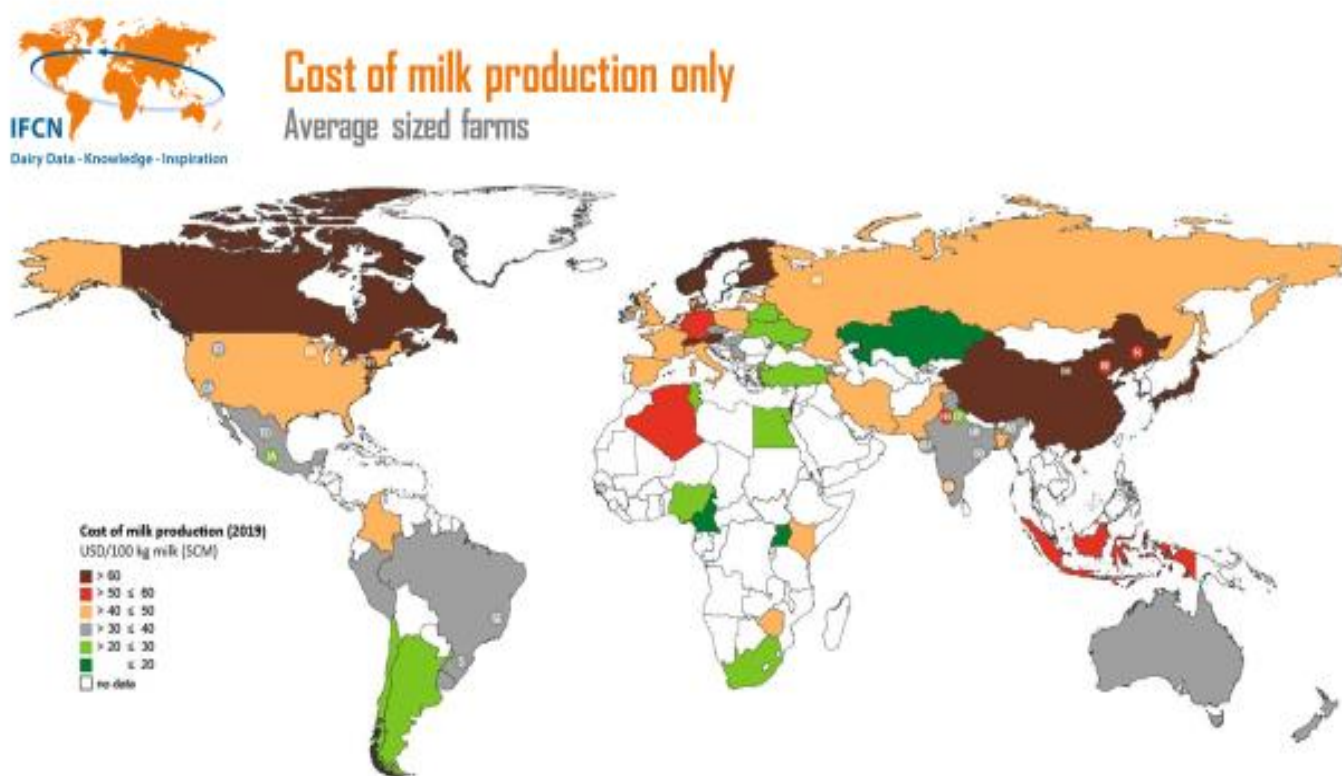
The average cost of unprocessed milk production 100kg SCM ranges between 11 USD in Uganda and 181 USD in Switzerland. The extreme low cost producers are found in countries where the feed cost is near zero, the

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 a 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 2019 and the second map on large farms for 2019 (USD/100kg, SCM). South Africa rates amongst the lowest cost producers in the world (>20≤30 USD/100kg SCM)

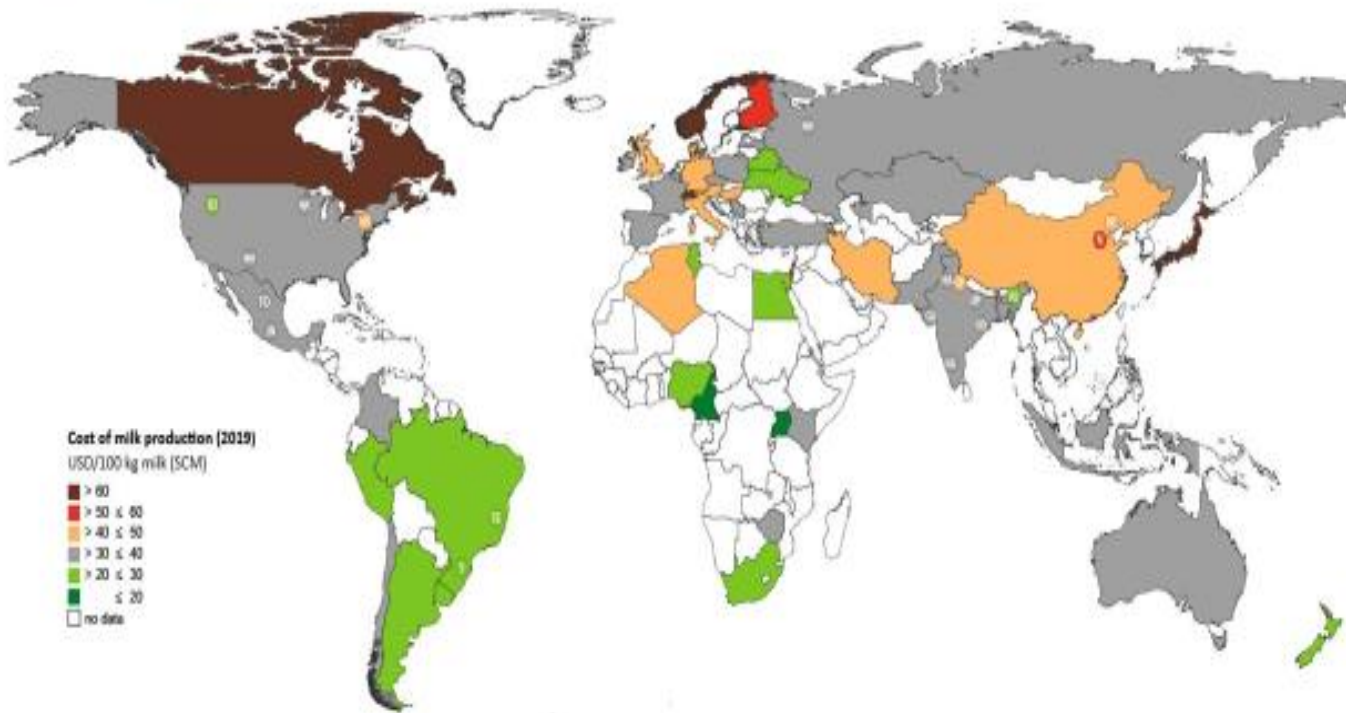


Source: IFCN, Dairy Reports, 2020.



Cost of milk production only

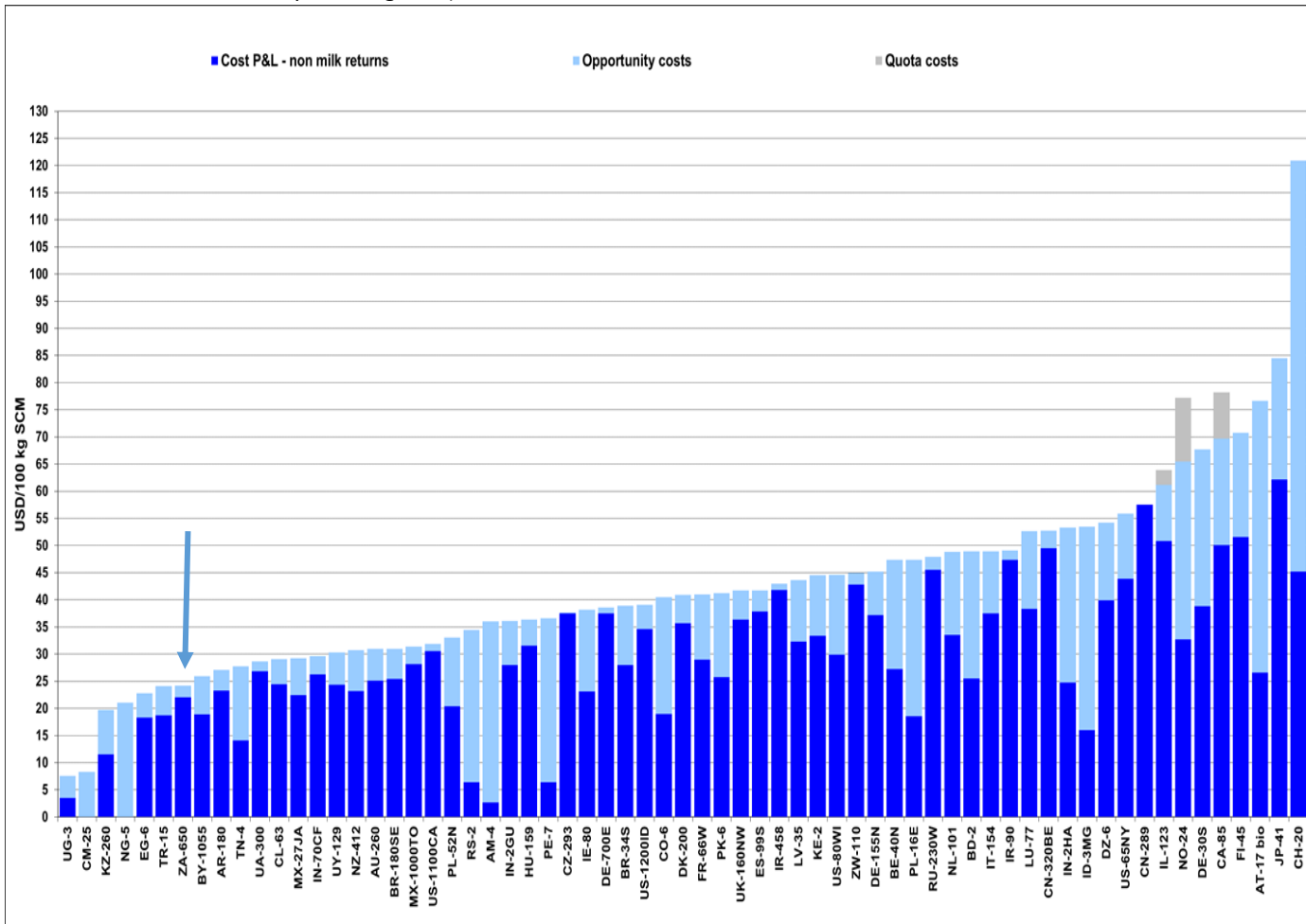
Large farms



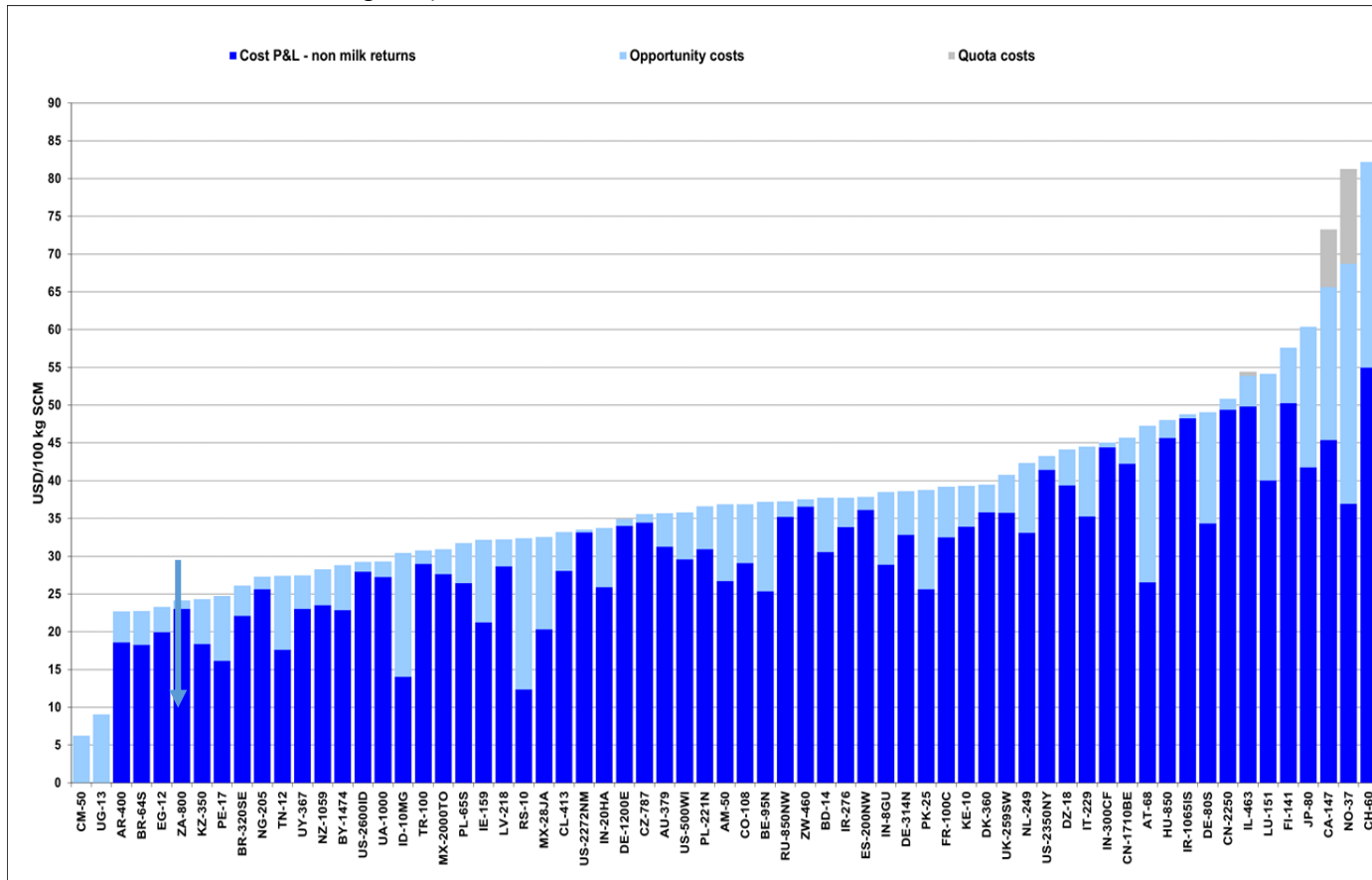
Source: IFCN, Dairy Reports, 2020.

The two graphs below show the cost of unprocessed milk production on average sized and large sized farms between different countries.

- **Cost of unprocessed milk production on average sized farms (USD per 100kg SCM)**



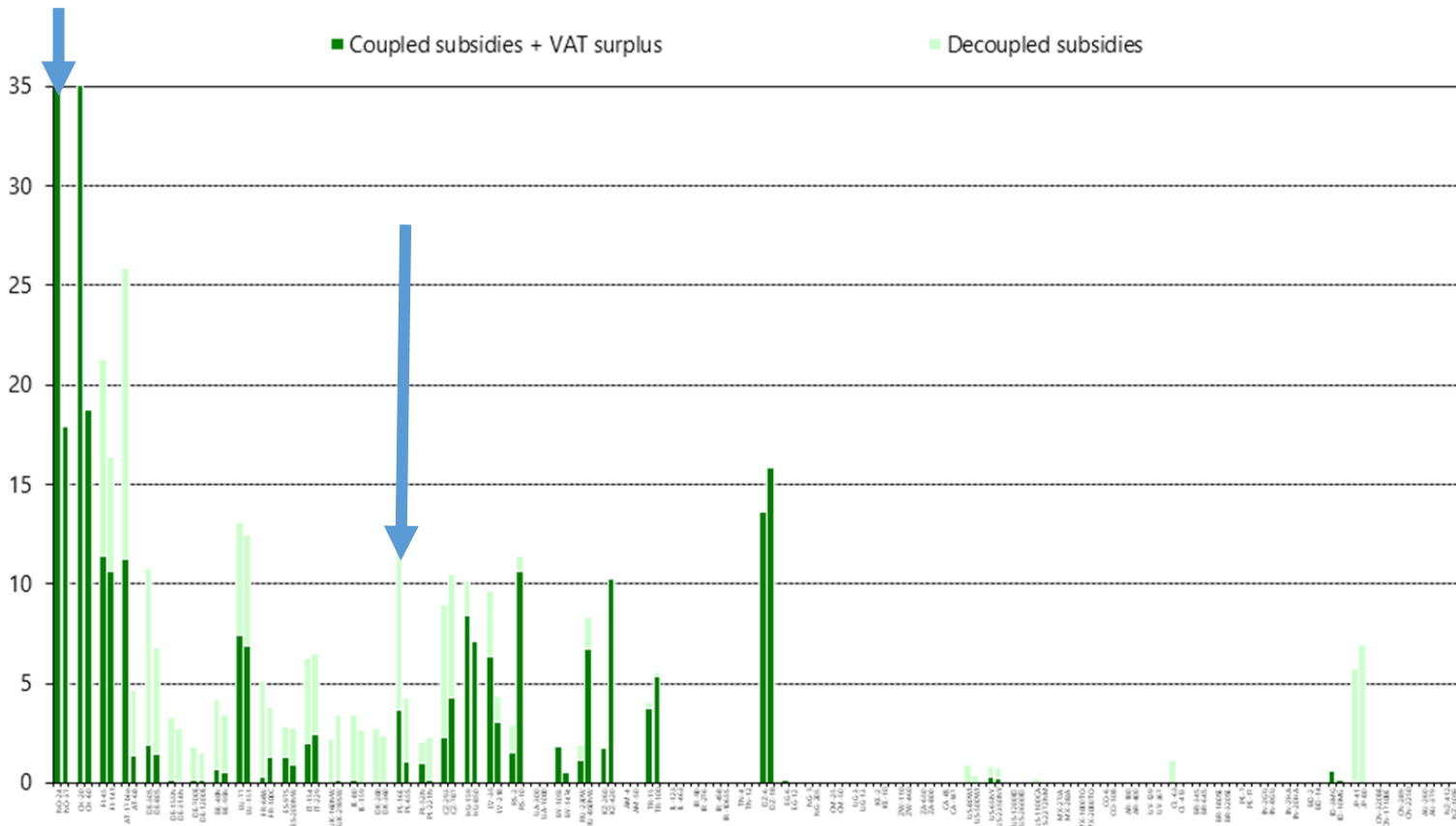
- **Cost of unprocessed milk production on large sized farms (USD per 100kg SCM)**



For the average sized farm (ZA 650) South Africa is number 7 of low cost producers out of 65 farms and for the larger sized farm (ZA 800) SA is number 6 of low cost producers out of 65 farms. We need to note that for average sized farms the first 14 lowest cost farms fall into the category of the cost lower than 30USD/100kg SCM and for the large sized farms the first 16 lowest cost farms fall into the category of the cost lower than 30USD/100kg SCM.

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

The subsidy policies and implementation in countries and regions are complex. Taking Norway (NO) as an example, subsidies differ between regions. There is structural income support for milk production: a subsidy per dairy cow for the first five cows and a subsidy for grazing livestock. In Poland (PL), part of the EU, there is single farm payment subsidy and additional programmes for farming in a less favoured areas and nature protection.



9. Conclusion

The unprocessed milk price is influenced by the interaction between supply and demand, which in turn is influenced by various factors. The IFCN world unprocessed milk price indicator entered a zig-zag cycle since 2017. A zig-zag cycle is defined as where prices fluctuates with 10%.

According to the IFCN Dairy report 2020, growth in unprocessed milk demand is boisterous in India, the EU, the USA and China.

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.

