The Global Dairy World 2017/18

Results of the IFCN Dairy Report 2018

Katrin Reincke, Amit Saha, Łukasz Wyrzykowski

This paper is based on the contribution of the participating researchers of the IFCN Dairy Research Network in 2018

IFCN Dairy Research Network

Kiel, Germany

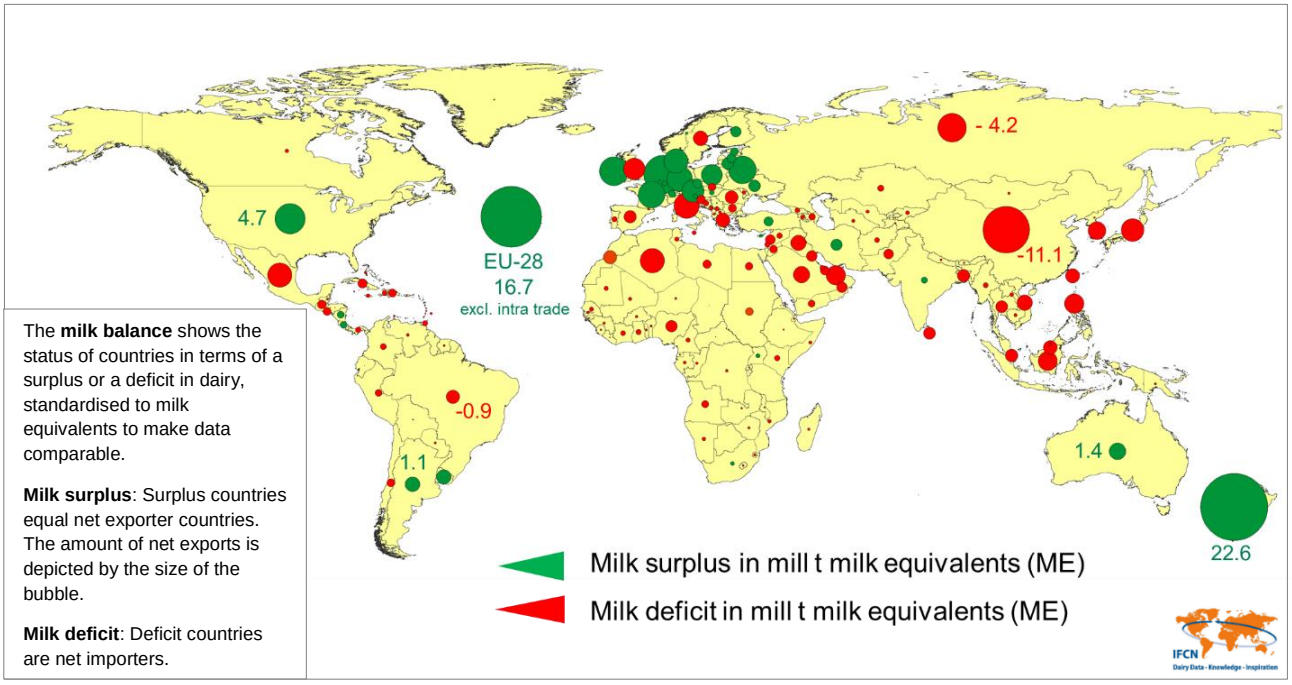
katrin.reincke@ifcndairy.org

8th October 2018

At the 8th of October 2018, the latest IFCN Dairy Report 2018 has been published. The report has become a guideline publication for researchers and companies along the whole dairy chain to understand the dairy world. The data and insights can build the backbone for a comprehensive, holistic analysis and a solid fact base for discussions and strategic decisions.

In 2018, the IFCN Dairy Report focuses on the dairy value chain, covering 115 country profiles representing 98% of total global milk production. On the farm level, 177 typical farm types of 53 countries have been analysed. For the first time, fundamental indicators to asses sustainability on economic, social and environmental issues are monitored.

Fig.1 World milk balance status 2017 – Surplus and deficit



The Dairy World in a nutshell

World	Unit	2017	Change 2017 vs. 2016
Milk supply			
All milk production	ECM (4% fat, 3.3% protein)	867	2.6%
Milk supply drivers			
Farm number	mill	118	-1.0%
Average farm size	head/ farm	3.1	2.1%
Average milk yield	t/ milk animal/ year	2.3	1.7%
Production per farm	t per farm	7.3	4.1%
Milk consumption			
All milk consumption	mill t milk equivalents (ME)	869	2.5%
Milk consumption drivers			
All milk consumption per capita	kg milk equivalents (ME) per capita	117	1.3%
Population	billion	7.5	1.2%
Price			
IFCN World Milk Price Indicator	USD/ 100kg ECM (4% fat, 3.3% protein)	35.5	31%

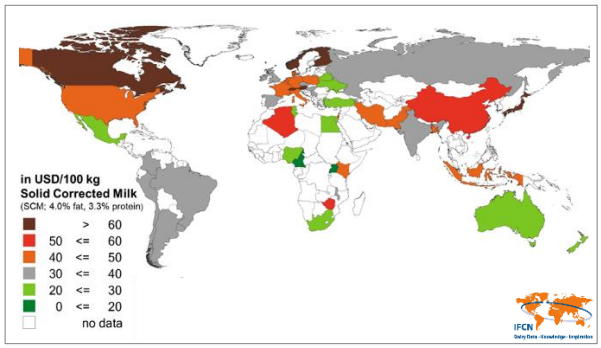
Data :
All milk production incl. milk from cow, buffalo, camel, goat, sheep. Data are calculated in ECM= Energy corrected milk (standardised to 4.0% fat and 3.3% protein).
Milk consumption mill t milk equivalents (ME). ME= Milk equivalents, method "fat and protein" only.
Milk yield calculation based on cow and buffalo milk and animals. Number of farms representing dairy cow and buffalo farms.
Source: IFCN Database, Status of data: 10/18.

Cost competitiveness of milk production

The cost of milk production for 2017 is based on the data of 132 typical farm types, one average and one larger sized farm from each of the 66 dairy regions in 53 countries. These countries analysed account for 89% of milk production worldwide. The unique Typical Farm Approach enables to benchmark and compare dairy farms globally (see Annex).

The simple average cost of milk production of all the 132 farms analysed was 40.2 USD / 100 kg milk which was nearly 2 USD above the previous year, mostly driven by the devaluation of USD against some currencies, higher feed costs and inflation rates depending on the country affected.

Fig 2. Cost of milk production in 2017



Globally, cost of milk production varied widely in the range of 20 to 105 USD/100 kg standardised milk in 2017 (Fig. 2). However, most farms produce in the range of 30 to 60 USD per 100 kg milk. IFCN Time Series Trends since 2000 reveal that the US and Europe have stabilised costs to a level of 40 USD since 2012, while emerging economies tend to increase in costs. Key drivers are inflation and factor prices increasing greater than farm efficiency gains.

Farm profitability drives milk production

The average farm gate milk price of all farms analysed was 41.2 USD per 100 kg Solid Corrected Milk (SCM), an increase of nearly 3.5 USD over 2016. This had a clear effect on farm profitability as entrepreneurs profit increased by 2.8 USD/100 kg SCM after two years of downtrend. The highest gains in profitability relative to the 2015-2016 crisis period were monitored in Western Europe, CEEC and New Zealand. In 2017, at the world level, all milk production increased by 2.6%.

Are cost competitive farms sustainable?

Many typical dairy farm types though they are cost competitive at global level, are not certainly sustainable in the long run. For the first time IFCN has published farm sustainability indicators capturing environmental, animal health and welfare and social sustainability issues. GHG emissions measured as CO2 equivalent per 100 kg standardised milk using comparable data and standard partial LCA method (Annex) enable to compare and benchmark globally 177 farm types in 53 countries. Carbon footprint ranged from around 90 CO2 to >1000 kg CO2 per 100 kg milk. Many farms with a higher yield such those in Germany and USA showed a carbon footprint between 100 and 150 CO2 per 100 kg milk, while low yielding systems in developing countries can be up to five times higher.

One of the criteria being focused is animal welfare by producers and consumers alike. The average age of cow and lifetime production in farms is now monitored by IFCN.

Fig 3. Average life period of cow in Typical farms

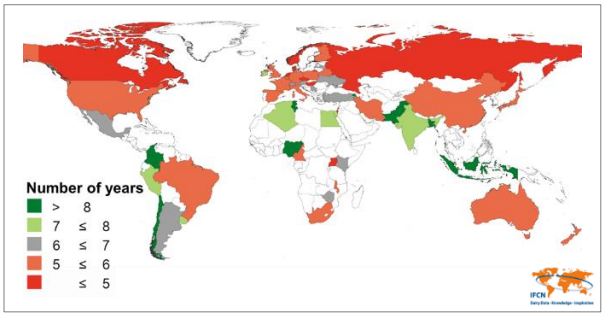


Figure 3 above shows the average life period of a cow in typical farm types ranging from 4 years to 10 years. The lifetime period in developed countries is lower than 5 years. Though higher milk yield compensates for the lower lifetime period, prospects to utilise a longer productive period of cows exists. Thus, farms in the US are producing over 30 t milk per cow over a lifetime of 6 years, while a 2 cow farm in Bangladesh is producing 5 t milk with a 9 year lifetime.

One of the key measurable indicators for assessing milk quality through the animal health and welfare status of typical farms is somatic cell count (SCC). Farms monitored in 2017 show a SCC range from 67,000 to over 1,000000 cells per ml. Thus, there is a lot of scope for further farm improvements to ensure the sustainable development of the dairy supply chain.

All milk production – Trends and drivers

In response to the complexity of the dairy world, IFCN is monitoring significant indicators like milk supply, milk demand, dairy trade, milk balance and world and national prices. In this way, IFCN is able to explain global market developments, key drivers and implications. Considering trends in all milk production (cow, buffalo, goat, sheep and camel milk) a long-term average growth of 2.3% (1998-2016) is observed.

Developments in growth and its drivers

Taking a look to Figure 4, weak years of production growth, like in 2009, 2013 and 2016 are observed. These years coincide with poor farm economics, due to lower farm gate milk prices in response to global prices and its transmission to national level, higher production costs based on oil, feed and input factors or adverse weather events. Moreover, strong growth years were noted in 2005, 2006, 2011 and 2014. High growth rates were driven by beneficial weather events, high milk prices and policies like the EU quota abolition.

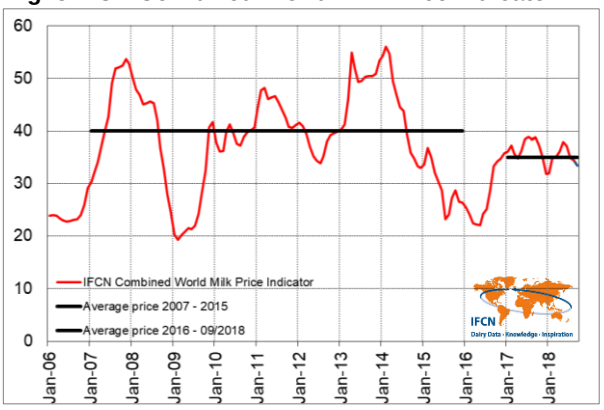
Recovery of milk production growth in 2017

In 2017, milk production growth recovered (+2.6%), after a weak year in 2016. This recovery was driven by different factors. Higher milk prices in 2017 for European farmers triggered an increase in production especially in Eastern Europe as well as the in UK and Ireland. New Zealand shifted again to positive growth, albeit with moderate pace due to adverse weather events (+1%). Meanwhile the US continued its progressive supply growth by 2.3%. However, also some new players were noted to have a significant impact e.g. Turkey increasing production by 10%, Colombia by 15% and Canada by 4%.

World milk price trends

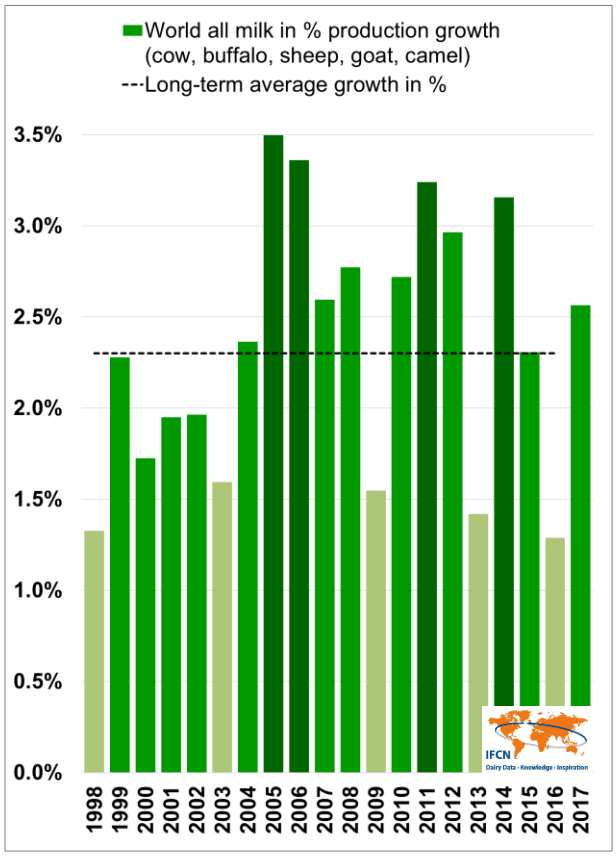
Monitoring monthly milk price developments since 2006, the world milk price showed high volatility resulting in a long-term average price of 40 USD/100 kg ECM. After the price crisis lasting until 2016, in 2017 the world milk price moved into a Zig-Zag Scenario with fluctuations by only 10%. Thus, the average world milk price showed a level shift to 35 USD/100 kg ECM.

Fig. 5 IFCN Combined World Milk Price Indicator



The latest level shift can be explained by the following developments. As supply growth slowed down in 2016, the world milk price started to recover in mid-2016. In 2017 supply growth (+22 mill t ECM vs 2016) and demand growth (+21 mill t ME vs 2016) balanced out, leading to a price stabilization and an average annual milk price of 35.5 USD/100kg ECM. Major drivers were a high level of demand and prices for fat, a decrease in stocks and the recovery in import demand. In 2018, the world milk price continued showed a further stabilization. This shows same patterns like in 2010, when prices increased and stabilized after the milk price crisis of 2009.

Fig. 4 World milk production growth in %/ year



Global milk production trends in 2018

The world milk production growth reached an average of 2.2% YoY growth (January-September 2018), based on IFCN monthly real-time data and estimates on the last three months This is slightly below the long-term average growth of 2.3%. More particularly, production growth slowed down from 3.1% in January 2018 to only 1.7% growth in September.

This slowdown can be explained by adverse weather events and lower margins which effected the milk production in the Northern Hemisphere in mid-2018 as well as macroeconomic and political shocks which hit South American countries.

The Future: What to expect in 2019?

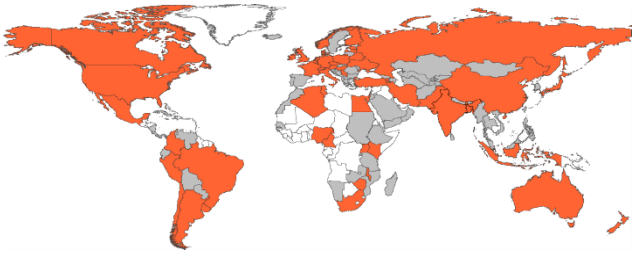
Taking into consideration prices of future trade platforms in early October, different price levels are indicated: New Zealand at 33.4 USD/100 kg ECM and in the EU and the USA 36 USD/100kg ECM, due to a higher level of butter prices. After a current short-term decrease in the world milk price, looking at 2019, IFCN assumes the world milk price to stabilize at higher level than 35 USD/ 100kg ECM. Demand growth is supposed to slightly exceed supply growth. This is driven by the long-term effect of the EU-drought of 2018, provoking less available feed with a lower quality in 2019, resulting in a lower number of cows and lower yield. As a consequence, the EU milk price is supposed to be slightly higher than the world milk price.

Based on historic milk production and developments tracked by IFCN, price volatility seems to be caused more by shifts in supply than shifts in demand. As a response, since 2014 IFCN monitors monthly milk supply developments for over 62 countries in real-time, standardized to 4.0% fat and 3.3% protein. This enables stakeholders of the dairy chain to anticipate short-term shifts in the dairy market and to better prepare for the future.

Annex

IFCN Network and coverage map

Fig 6. IFCN Countries Coverage and Partners



IFCN Dairy Sector Data cover 115 countries, depicting 98% of the world milk production. Data are provided by more than 100 researchers.

Farm comparison researchers cover 53 countries, 66 dairy regions and 89% of the world milk production by analyzing 177 typical farm types.

Farm Database Coverage since 2000 from 8 to 53 countries and Dairy Sector Data since 1996.

IFCN Methods

Farm Comparison Analysis

The annual IFCN Work of comparing typical farms around the world has been an on-going process since the year 2000. The IFCN Methodology applied for data collection, economic analysis and result validation uses the following three elements: A network approach of researchers continuously co-operating, the concept of typical farms described below and a standard model TIPI-CAL (Technology Impact Policy Impact Calculation model) to ensure technical comparability of indicators.

A typical farm represents the most common production system which produces a significant proportion of milk in a country or a region. Usually, two farm types are used per dairy region – the first represents an average farm and the second a larger farm type. The typical farms were modelled and validated by a combination of accounting statistics and a panel of dairy experts. The data collection and validation were done by researchers in the countries represented, researchers in the IFCN Dairy Research Network and also during method setting conferences every year.

Standard Partial LCA method

IFCN uses the partial Life Cycle Assessment (LCA) to assess GHG emissions for the entire life cycle of the cows in the farm from cradle to farm selling point.

Dairy Market Analysis

Country level data collected by over 100 Research Partners, covering supply, demand, price and farm structure indicators. Partner data are supplemented by National Statistics, Global Trade Tracker (GTT), Food and Agriculture Organization of the United Nations (FAO), Euromonitor and IFCN Estimates.

The dairy market analysis covers annual dairy sector data including a 13 years forecast, monthly real-time data on production, prices and milk:feed price ratio, real time farm economics, monthly demand, farm structure data, regional data and top milk processor data. To make data globally comparable, a standardization to ECM and ME is applied.

IFCN Indicators

SCM correction: As the dairy farms operate with milk of different fat and protein contents, the IFCN uses the Solid Corrected Milk (SCM) approach to standardise milk volumes to 4.0% fat and 3.3% true protein. The following formula was used: Standardised milk volume = correction factor * natural milk volume; Correction factor: (fat% + protein%) / 7.3

ECM correction: In order to be able to show comparable outputs in terms of milk, IFCN uses the unit of Energy Corrected Milk (ECM). Raw milk values are converted based on its natural contents. Thus, milk outputs with 4.0% fat and 3.3% protein are generated. The formula applied is: ECM = (milk production * (0.383 * % fat + 0.242 * % protein + 0.7832)/ 3.1138)

ME: In order to be able to show comparable outputs in terms of dairy products, IFCN converts different dairy commodities into milk equivalents (ME). For this the “fat and protein only” method is applied. Conversion factors are applied, based on the fat and protein contents of the different commodities. This method is applied for all processed products, imports and exports.

IFCN Combined World Milk Price Indicator: This Indicator is based on the weighted average of 3 IFCN world milk price indicators: 1. SMP & butter (35%), 2. Cheese & whey (45%), 3. WMP (20%), based on shares of the related commodities traded on the world market.
For more details, see http://ifcndairy.org/about-ifcn-neu/ifcn-dairy-research-center-method/

Exchange rates: Oanda.com

Upcoming IFCN Events – Join the IFCN

- **7th IFCN Regional Workshop 2018**
  November 28-29, 2018 · Pune, India
  “Milk quality and export potential of India”
- **5th IFCN Dairy Economic Workshop**
  February 20-21, 2019 · Kiel, Germany
  “Dairy economics is more than just the price of milk”
- **20th IFCN Dairy Conference**
  June 15-19, 2019 · Berlin, Germany
  “Different types of milk - complexity, challenges and opportunities” (to be decided)

Obtaining the IFCN Dairy Report 2018

The IFCN Dairy Report has been published annually since 2000 and became a standard publication for researchers and companies involved in the dairy chain. It enables to gain a holistic view and understand interrelations in the dairy supply chain on a global level. Contact us to join IFCN Events and to get access to the latest IFCN Dairy Report 2018 published on October 8, 2018.

Feedback welcome

The IFCN Dairy Situation Analysis 2018 is an ongoing research project. Therefore, IFCN will appreciate receiving any feedback to improve the work further. The IFCN Dairy Report is published annually in October. For any comments or questions, please contact us at **info@ifcndairy.org**