The IFCN – International Farm Comparison Network - is a global network of dairy researchers from 91 countries cooperating with over 93 companies representing the dairy chain. The IFCN has a Dairy Research Center (DRC) with 19 dairy researchers coordinating the network process and dairy research activities. The IFCN is independent from third parties and committed to truth, science and reliability of results. The main research focus of the IFCN and its core competence is in the field of milk production, milk prices and especially dairy farm economics.

This article summarizes the key findings of the IFCN work in 2012 and the recently published IFCN Dairy Report 2012.

1. The Top 20 milk producing countries 2011

The IFCN as research network was established in the year 2000 to create a better understanding of milk production world-wide. IFCN is focusing on this segment of the dairy chains as it is the most important element of the chain once it comes to I) the costs, II) resources used, III) emissions created and IV) the political challenges.

It is quite important for the dairy industry to have a solid method to rank countries by milk volumes. The IFCN provides one standard concept and consistent data collection. These data have been collected and validated by the IFCN research partners in the countries since the year 2000. Moreover, the list has standardized national milk production figures (cows and buffalos) to 4% fat and 3.3% protein by using the Energy Corrected Milk (ECM) concept described below.

World milk production 2011

World milk production (cow and buffalo milk) 2011 was in natural fat/protein content 708.7 mill t. As the average natural content of the milk is higher than 4% fat and 3.3% protein the ECM milk...
volume is 721.4 mill t which is 12.4 mill t more. Once it comes to milk deliveries IFCN is estimating that only 62% of world milk production is delivered to milk processors. The remaining 38% are consumed on the farms or sold informally.

![IFCN top 20 milk production and processing countries 2011](image)

Top 5 milk production countries 2011 – 4 developing countries among the top 5
The top 5 countries: 1. India, 2. USA, 3. Pakistan, 4. China and 5. Brazil

Top 5 milk processing countries 2011 – China is no.3 milk processing country in the world
The top 5 countries: 1. USA, 2. Germany, 3. China, 4. France and 5. India

### 2. IFCN Top 20 milk processors list 2012

**Introduction:** To better understand the future of milk production the IFCN has started to benchmark milk processors by milk intake in 2008. We have created a top 20 milk processors list in 2012 and have also estimated a turnover which can be associated to the milk intake.

**Concentration of milk processing 2012:** Based on the table below the Top 20 milk processing companies process 24% of world cow and buffalo milk production. Measured by milk deliveries they account for 39% world-wide. The largest milk processor Fonterra is processing 3.0% of world
milk production or 4.8% of world milk deliveries (cow and buffalo milk). **In comparison to the Global dairy top (Rabobank)** in the IFCN ranking cooperatives are important as they usually have a higher milk intake in relation to their turnover compared to private companies. Private companies often create higher value products and so have higher turnover to milk volume ratios.

Top milk processors 2012: The global top five dairy processors are Fonterra (NZ), Dairy Farmers of America (USA), Lactalis (FR), Nestlé (CH) and Dean Foods (USA). 50% of all companies included in the list are originally from Europe, 30% from the USA/CA and 20% from other world regions including Fonterra, which is originally from Oceania. Half of the companies are cooperatives and half are private companies.

Compared to the IFCN ranking 2011 there were the following major changes in the ranks:

- **Moved up in this ranking:** Arla and Lactalis– mainly via mergers / acquisitions.
- **Newcomer in this ranking:** Bongrain, Glanbia and Müller via the acquisition of Wiseman.

Turnover per kg milk intake: This indicator can be interpreted as “dairy value creation”. To find a meaningful match of milk intake and dairy turnover which is also comparable between companies is challenging. Initial calculations show that the turnover per kg milk differs significantly between companies (range: 0.65 -1.53 US-$ per kg milk, excl. outliers). Details on method and results are
published in the IFCN Dairy Report as special study. The IFCN plans to refine the method and welcomes any feedback especially in this difficult field.

3. IFCN Cost of milk production in 2011

IFCN concept: Since 2000 the IFCN has been comparing typical farms around the world. In 2012, 171 typical farms from 61 dairy regions in 51 countries were analyzed. The analysis is based on the concept of typical farms and has used the model TIPI-CAL to have standardized calculation across the countries. The data collection and validation has been done by researchers in the countries, by researchers in the IFCN Center and also during the IFCN Dairy Conference held in June 2012 in Kiel.

IFCN cost indicator: The IFCN uses the indicator cost of milk production only which can be directly related to a milk price. This cost includes all costs from the profit & loss account of the farms and also opportunity costs for own labour, land and capital. From this cost level the non-milk returns from sales of cull cows, heifers, calves, manure, etc. and also direct payments have been deducted. For creation of the world map, the cost levels on average sized farms have been used.

Cost of milk production in average sized farms per country in 2011

Cost range: Cost of milk production ranges from about 5 US-$ per 100 kg milk in extensive farming systems in Cameroon to 100 US-$ on an average sized farm type in Switzerland. The average cost over all countries analysed was 45 US-$/100 kg milk.

The countries can be grouped in the following cost categories: Costs below 30 US-$: Argentina, Chile, Peru, Indonesia, Pakistan, and countries in central Africa. Costs 30 -40 US-$: Oceania, South Africa, India, selected countries in Northern Africa and Eastern Europe. Costs 40 -50 US-$: USA, Brazil, UK, Ireland, Morocco and Tunisia. Costs > 50 US-$: A wide number of countries in Western Europe, Poland, Mexico, Colombia, Israel, Jordan, Iran, Turkey and China. Most likely, Japan and Korea are also in this segment. It is worth mentioning that economies of scale
were significant in almost all countries, especially in Western Europe and the variation in farm sizes was quite high.

**Key developments in 2011: Cost of milk production increased on average by 5 US-$$**

In the year 2011, the costs have increased on average by 5 US-$$ per 100 kg milk. A key driver was the 38% increase in feed price (based on the IFCN world feed price indicator). Moreover, dairy farms in emerging dairy countries are facing strong increases in wages. A third driver for costs is the increasing energy and fertilizer prices.

**Outlook for cost developments in 2012**

In 2012, costs are expected to increase by about 5% compared to 2011. The main drivers for cost increase are: increasing feed prices, high energy costs, increasing competition on land market worldwide (affecting prices). From the return side, the average milk price from January to August has dropped by 24% in 2012 compared to the same period in 2011. Therefore, profitability of dairy farms is expected to decline significantly in 2012, compared to 2011. More details will be available in IFCN Dairy Report 2013.

4. Developments of feed prices and the impacts on dairy

**World milk and feed prices**

![Graph of world milk and feed prices](image-url)
IFCN feed price indicator:
Source: International Monetary Fund. Specification: Soybean meal: CME futures first contract forward, Corn: FOB US Gulf. Calculation: $0.3 \times$ soybean meal price + $0.7 \times$ corn price.
New combined IFCN milk price indicator:
Weighted average of IFCN milk price indicators: 35% SMP&butter, 45% cheese&whey, 20% WMP.
Milk : feed price ratio: Milk price divided by the calculated feed price.

Feed prices have almost tripled since 2006

Almost tripling prices since 2006 from 13 US-$ to now 42 US-$/100 kg feed. There have been three phases and in each phase, the price level increased by 10 US-$ per 100 kg feed.
- **January 2006 to November 2007:** +70% from 13 to 22 US-$ / 100 kg feed driven by high oil price and biofuel policies
- **August 2010 to February 2011:** +50% from 22 to 32 US-$ / 100 kg feed
- **April 2012 to August 2012:** +30% from 32 to 41 US-$ / 100 kg feed driven by forecast supply shortage, which in turn was driven mainly by extensive drought in the USA. In September, a slightly lower feed price was observed.

Price of 1 kg feed > price of 1 kg milk since July 2012

Similar to 2009, the price of feed is currently higher than the price of milk, even though on a higher level. The milk feed price ratio is below 1. This very simple indicator illustrates when dairy farm economics come under pressure due to transmission of world market prices to the farm level. Farming systems based on high concentrate feed input are affected to a larger extent.

Effects of high world feed prices over a longer period on farm economics

- **Step 1:** Transformation of world feed price into national price for concentrates.
- **Step 2:** Purchase feed costs rise depending on the amount feed bought and duration of forward contracting of farmers.
- **Step 3:** Land values increase especially for arable land for cash crops. This transforms into increasing land rent costs depending on the local land markets and also the land rental contracts.
- **Step 4:** Opportunity costs for own land increases as the farmers might make a better profit from selling the crops they produce instead of feeding them to their cows. A cost increase out of this depends on the perception and decision of each dairy farmer.
- **Steps 5:** If feed prices stay longer on the currently high level, the prices for pastureland would also increase, which would in turn lead to an increase in costs of grazing systems.

Summing up

In times of high feed prices, dairy farms having low concentrate intake (like in Ireland) have a competitive advantage. Adaptation of the farming system by either increasing milk yields (maximize output) or by decreasing yields (minimize input) could help high input systems to improve their farm economics.