The World Dairy Situation

Dr. Nico van Belzen
Director General
International Dairy Federation (IDF)

The IDF World Dairy Situation Report

Since 1903, the International Dairy Federation (IDF) has represented the interests of the dairy sector, ensuring that the best scientific expertise is used to support high quality milk and nutritious, safe and sustainable dairy products. One of IDF’s flagship publications is the annual World Dairy Situation Report. Using graphs and tables to highlight key findings, it presents an overview of global milk production, processing and consumption as well as trade and pricing for more than fifty countries from five continents. This article summarizes some key findings from the 2015 edition of the Report, supplemented by information about IDF’s work programme and some personal observations.

The global dairy sector witnessed several important policy changes over the past year, such as the phasing out of milk production quota in Europe, the new Farm Bill in the USA and new regional trade discussions and agreements, such as the Comprehensive Economic and Trade Agreement (CETA) between the European Union and Canada. Also aided by rather good climate conditions, global milk production rose to 802 million tonnes in 2014, 3.3% more than in 2013 and a new world record. Average per capita consumption also increased to record levels, increasing by 1.7% compared to the year before to almost 111 kg per person per year in 2014. However, the market volatility experienced in this century remains a reality as the dairy sector is transiting from a supply-driven to a demand-driven market. The record prices for milk and dairy products of a few years ago have started to slide in 2014 with growing inventories of dairy commodity stocks. The most striking examples are milk powder prices in Oceania, which halved within a year and have since partially recovered.

Although a sustained price recovery appears imminent, its timing and size is uncertain due to the general state of the world economy, uncertainties in the development of demand from Asia, the import ban in Russia and the upcoming El Niño climate pattern. The Food and Agriculture Organization of the United Nations (FAO) and The Organisation for Economic Co-operation and Development (OECD) estimate that from 2017 onwards, real prices of dairy commodities are expected to recover from a low point in 2015 to approximately 90% of the average price from 2012-2014.

Given the increased reluctance of many governments to interfere with market forces, the dairy sector will have to adapt to a world where volatility is higher than before 2007 and its effects are contemplated in public and private sector strategies. The resilience of the processing part of the dairy sector is increasing due to mergers and acquisitions, many of which are at global scale. The downstream parts of the sector, including retailers, need to ensure that dairy farming remains an attractive career choice generating a fair income in accordance with efforts and risks taken. The increasing average age of dairy farmers is a concern and needs to be reversed.

Regarding dairy product output, significant differences were observed between product categories. Global production of packaged liquid milk increased by just 0.7% in 2014; increases in India (5.3%) and China (2.7%) were balanced by decreases in Japan, Canada and the European Union (EU). Butter and other milk fats increased by 3.4%, thus in line with milk production increase. This category is largely dominated by India which accounts for almost half of global production. Global cheese production (excluding processed cheese to avoid double counting) increased by 2.6%. The EU leads in this category with 46% of cow’s milk cheese output, followed by the USA with 26%. The highest increases were seen in the production of whole milk powder (6%) and skim milk powder (15%). The EU alone produced 31% more skim milk powder in 2014, leveraging new drying equipment to compensate for the decreased milk conversion to cheese due to the Russian import embargo. Production of condensed milk and whey powder grew by 2.6% and 0.8%, respectively.

---

1 Contributed as a personal view, not as an official IDF position.
2 The full Report is available for purchase at the IDF website www.fil-idf.org.
Milk and dairy product consumption as recorded in the IDF World Dairy Situation Report is actually the apparent consumption of milk and dairy products, for two reasons. First, on global scale no precise survey of consumption habits based on actual purchases is available. Second, the informal market (see below) represents a significant part of the dairy market worldwide. Therefore total consumption can only be assessed by calculating production, adjusting for trade and (when available) stock utilization.

A significant part of the milk produced in the world is not processed through industrial channels but handled by small-scale and informal operators. By definition, this ‘informal milk’ (not only in the sense of unlicensed and unregulated, but also more broadly exempt from statistical follow-up) cannot be recorded. According to FAO, it can represent over 80% of dairy output in some developing countries. It is therefore difficult to precisely assess the quantity and breakdown of the different dairy products that actually reach consumers. Available data of milk deliveries and processing, as compiled in the IDF World Dairy Situation Report, cover 54% of total milk produced. Therefore the ‘informal milk’ category is estimated to account for the remaining 46% of global milk.

Despite the current difficulties in transitioning from a supply-driven to a demand-driven sector, on the medium and long term the prospects for the dairy sector look good. After several decades of bad publicity for saturated fats due to their presumed role in causing cardiovascular disease, advances in human nutrition science indicate that consumption of dairy products, including full fat dairy, actually lowers the risk of cardiovascular disease. There is also more understanding of the matrix effects of food, i.e. a focus on the complete food instead of the individual nutrients it contains. This is important because people eat foods, not isolated nutrients. In contrast to most other sources of our diet, e.g. crops whose seeds have evolved to serve plant propagation rather than being eaten, milk is one of the very few foods that have evolved to be consumed. Therefore the composition (‘matrix’) of milk is particularly complete and of great nutritional value.

Socioeconomic and demographic trends also indicate a bright future for the dairy sector. Poverty is decreasing in most parts of the world, so more people will be able to afford improving their nutrition. Assuming that the global demand for milk would reach current average consumption levels in South America, milk production would need to double by 2050 to nourish 9 billion people. Assuming demand would rise to average consumption levels in Europe (which is also the recommended intake in many countries), production would need to triple.

As any production increase would need to be environmentally and socioeconomically sustainable, it will present a huge challenge and opportunity for the dairy sector to even partially meet the expected demand. In the medium term, milk production will probably increase less dramatically than the theoretical demand calculations above; OECD and FAO expect global consumption of dairy products to increase by 14% until 2023.

**Regional differences and trade**

Obviously the average milk consumption of 111 kg per person per year hides huge differences between regions and countries. According to FAO, average per capita consumption ranges from less than 50 kg per year in Africa to over 270 kg per year in Europe. Asia, despite being the number one milk consuming region with 43% of total dairy consumption in the World, still only consumes 78 kg per capita per year on average. Although this is over 2 kg more than in 2013, this is still far lower than in Western regions like North America, Europe or Oceania. The latter is the main exporting region of dairy products, yet accounts for just 1% of global consumption.

Global milk trade increased by 6% in 2014 to involve more than 8% of global production, driven by large differences in self-sufficiency that range from 345% in Oceania to 81% in Central America. Export is quite concentrated, with EU-28, New Zealand and the USA as leading exporters followed by Australia and Argentina. For example, Figure 2 shows the main cheese trade in 2014 and how it changed compared to 2013.
Table 1
Consumption per region

<table>
<thead>
<tr>
<th>Region</th>
<th>Consumption (mtn tonnes)</th>
<th>Per Capita Consumption (kg per year)</th>
<th>Share in World Production</th>
<th>Share in World Consumption</th>
<th>Self-sufficiency ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>337.0</td>
<td>77.5</td>
<td>38.4%</td>
<td>42.9%</td>
<td>89.8%</td>
</tr>
<tr>
<td>Europe</td>
<td>200.6</td>
<td>270.7</td>
<td>27.8%</td>
<td>25.5%</td>
<td>109.5%</td>
</tr>
<tr>
<td>North America</td>
<td>93.2</td>
<td>263.9</td>
<td>12.9%</td>
<td>11.9%</td>
<td>109.4%</td>
</tr>
<tr>
<td>South America</td>
<td>69.5</td>
<td>169.4</td>
<td>9.0%</td>
<td>8.8%</td>
<td>101.6%</td>
</tr>
<tr>
<td>Africa</td>
<td>54.8</td>
<td>48.2</td>
<td>5.9%</td>
<td>7.0%</td>
<td>84.4%</td>
</tr>
<tr>
<td>Central America</td>
<td>21.2</td>
<td>102.0</td>
<td>2.2%</td>
<td>2.7%</td>
<td>80.6%</td>
</tr>
<tr>
<td>Oceania</td>
<td>8.8</td>
<td>226.8</td>
<td>3.9%</td>
<td>1.1%</td>
<td>345.0%</td>
</tr>
</tbody>
</table>

Source: IDF World Dairy Situation Report 2015, with permission.

Figure 2
Cheese trade.
Top-5 export flows per exporter exceeding 10 000 tons. Development 2013/14 as indicated in %.

Source: IDF World Dairy Situation Report 2015, with permission.
The role of IDF

To support the dairy sector’s sustainable growth and resilience, IDF has redefined its mission as “Helping to nourish the world with safe and sustainable dairy”. IDF represents the global dairy sector towards intergovernmental organizations and other key stakeholders, such as FAO, Codex Alimentarius, World Health Organization (WHO), World Organisation for Animal Health (OIE), UN Committee for World Food Security (CFS) and International Organization for Standardization (ISO). To fulfill its mission, IDF has chosen nutrition, sustainability, food safety and quality, and standard setting as its key focus areas. IDF’s role in these areas is briefly described below.

In the area of nutrition, IDF pro-actively supports science-based nutrition policies to ensure that dairy is an integral part of the diet for all age groups and contributes to closing the ‘nutritional gap’, i.e. the difference between demand and production of milk and dairy products described above. A recent example is IDF Bulletin 478 that describes the contribution of school milk programmes to the nutrition of children worldwide¹. The reviews of school milk programmes that were done together with FAO show positive trends between the first survey in 1998 and the latest in 2013. For instance, 20% more countries were providing official guidelines for children’s diets in 2013 as compared to 1998. 80% of countries that have official recommendations or guidelines for the amount of milk children should consume recommend a daily intake of at least 250 ml. The school milk surveys help create awareness among intergovernmental organizations and other key influencers about the science-based evidence supporting the essential role of milk and dairy products as part of healthy and sustainable diets.

Regarding sustainability, IDF pro-actively supports a vibrant dairy sector committed to continuously improve its environmental, social and economic performance. IDF has been at the forefront of efforts to reduce the environmental impact of the dairy sector, closing the ‘nutritional gap’, i.e. the difference between nutrition and the production of milk and dairy products. The interrelatedness of safety, quality, technology and sustainability should be ensured not only from the environmental point of view but also from the socioeconomic perspective. IDF has been at the forefront of efforts to reduce the environmental impact of the dairy sector, publishing guidance on life cycle assessment in 2005⁵, on calculating the carbon footprint of dairy in 2010 and an update on the latter including the latest science in 2015⁶.

IDF is a founding and governing member of the Global Dairy Agenda for Action and its Dairy Sustainability Framework⁷, which aligns and connects sustainability initiatives to demonstrate leadership and progress in the dairy sector worldwide. IDF also actively participates in multi-stakeholder partnerships that aim to measure and decrease the environmental impact of the livestock sector such as the Global Agenda for Sustainable Livestock⁸ and the Livestock Environmental Assessment and Performance (LEAP) Partnership⁹. The social aspect of sustainability includes IDF’s work on animal welfare, e.g. IDF’s contributions to the OIE Terrestrial Code regarding animal welfare and dairy cattle production systems⁴.

To ensure safety and quality of milk and dairy products, IDF proactively engages in safeguarding the integrity and transparency of the dairy supply chain. This starts on the farm and its inputs, as described in more detail in the FAO/IDF Guide to good dairy farming practice¹⁰. Recent publications include a factsheet on risk management¹¹, which underlines the need for a risk-based (rather than a hazard-based) approach to food safety. Recent IDF publications include guidance on prudent use of antimicrobial agents¹² and testing for antibiotic residues¹³. The interrelatedness of safety, quality, technology and nutrition is illustrated by the special issue of the role of salt in the ripening of cheese¹⁴.

In the area of standard setting, which underpins the other three areas, IDF pro-actively contributes to the development of science-based globally harmonized standards, guidelines, codes of practice and related methodologies, to continually improve regulatory environments for the dairy sector. For instance, IDF protects consumers from misleading claims and safeguards the position of the dairy sector by advocating for the use of ‘milk’ only for normal mammalian secretions, not plant-based beverages, in Codex texts. IDF has co-published hundreds of dairy-related standards and guidelines together with ISO¹⁵, which promote global harmonization of standards, regulations and trade. A recent example is IDF Bulletin 478, which supports the ISO/IDF flow cytometry method for quantifying lactic acid bacteria in starter cultures, probiotics and fermented milk products, thereby facilitating the validated replacement of the time-consuming bacterial plating method by a rapid high-throughput technique¹⁶.

---

¹ http://www.fil-idf.org/Public/Publication.php?ID=41396
² http://www.fil-idf.org/Public/Publication.php?ID=41394
³ http://www.fil-idf.org/Public/Publication.php?ID=27121#list
⁵ http://www.fil-idf.org/Public/Publication.php?ID=40125
⁶ http://www.fil-idf.org/Public/Publication.php?ID=41394
⁷ http://dairysustainabilityframework.org/
⁸ http://www.livestockdialogue.org/
11 http://www.fao.org/docrep/014/ba0027e/ba0027e00.pdf
12 http://www.filiidf.org/Files/media/Factsheets/Risk-Based-Food-Safety-Management.pdf
13 http://www.filiidf.org/Public/Publication.php?media=40125
14 http://www.filiidf.org/Files/media/Factsheets/semicarbazide20150709.pdf
15 http://www.filiidf.org/Public/Publication.php?ID=21712
16 http://www.filiidf.org/Public/Publication.php?ID=41394
17 http://www.filiidf.org/Public/Publication.php?ID=41396
Mediterranean dairy in global context

Milk and dairy products have been part of the Mediterranean diet for thousands of years. Dairying is believed to have originated in or close to the region, and its rich dairy culture is illustrated by the wide range of dairy products produced from milk from different species, including cow, sheep, goat and buffalo.

From the FAOSTAT data on milk production it can be calculated that Mediterranean countries produced 11% of global milk, including 45% of the world’s sheep milk, in 2013. As sheep milk is the category with lowest volume growth, just 0.7% in 2014 compared to 1.3% for goat, 3.3% for cow and 4.4% for buffalo milk, the Mediterranean countries are expected to keep the lead in this milk category. Therefore these countries are well placed to serve the specialty market for sheep dairy products in Europe, Middle East and Africa.

Another export opportunity for Mediterranean countries is the African market. Africa has the lowest per-capita milk consumption in the world, slightly over 48 kg per person per year. Even at this low consumption level, Africa produces only 84% of the milk it consumes. Thus already today Africa is a net importer of dairy products, with significant growth potential as its current per capita consumption is less than half of the world average. Mediterranean countries could leverage their geographic and cultural proximity to African countries, provided they can compete on price and quality with dairy products from the major global exporters in Northern Europe, Oceania and the USA.

A key element of milk production in some Mediterranean countries is that it occurs under significant water and heat stress. The value of this expertise for other parts of the world is expected to increase in the coming decades due to climate change, and could provide another source of revenue for the Mediterranean dairy sector.

The Mediterranean countries are blessed with a benign climate, especially during autumn, winter and spring on the Northern hemisphere. Their rich historical and cultural heritage attracts many tourists from all over the world. Dairy farms and milk processing plants in Mediterranean countries, especially those that operation on a relatively small scale, may want to consider becoming tourist attractions. Particular interest may be expected from families with small children, which are generally interested in animals and in learning the origin of their food, and from retirees who spend the Northern winter in the Mediterranean region. Highlighting national and regional differences in milk production and processing would increase the educational experience and entertainment value.