

## COMPETITIVENESS OF MILK PRODUCTION WORLD WIDE

Torsten Hemme, Otto Garcia/FCN Dairy Research Center<sup>1</sup>

Co-Authors: Researcher from 27 countries participating in the IFCN (s. Annex)

<sup>1</sup> Bohlweg 55 38100 Braunschweig, Germany, Tel.: +49 531 1805311, Fax.: +49 531 1805335, Torsten.hemme@ifcndairy.org, www.ifcndairy.org

### Introduction

The globalisation of the economy and the ongoing liberalisation of trade will lead to a considerable change in agriculture. This paper focuses on the perspectives of milk production in different parts of the world including milk prices, farm structures and costs of production.

### Milk prices in 2003

Milk prices are generally determined by the situation of demand, supply and the agricultural policy system. Fig. 1 shows significant global differences in milk prices.

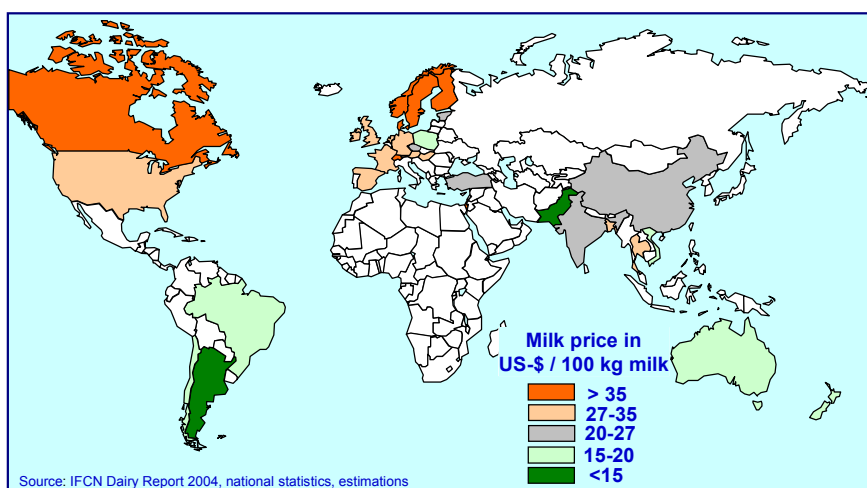


Fig. 1. Milk prices by country in 2003

The countries could be grouped in the following classes:

- **EU/US level:** The milk price in 2003 varied from 28 - 40 US-\$ per 100 kg in the EU with the lowest prices in UK and IE and the highest in the Scandinavian countries and Spain. In the USA the milk price varied from 26 - 30 US-\$. Besides the EU/US, this price level was also found in Hungary, Czech Republic, Israel, Bangladesh, Thailand and parts of China.
- **World market price level:** In 2003 a milk price level of 15 - 22 US-\$ per 100 kg was received by farmers in Estonia, Poland, Chile, Brazil, India, Vietnam, and Oceania. This price range generally reflects the range of the 'world market price for milk' in recent years.
- **Below world market price:** In Argentina and Pakistan farmers receive very low prices. This means the milk price there is not determined by the world market price for butter/skim milk powder minus average processing costs.
- **Above EU/US level:** The highest milk prices in 2003 were found in Switzerland, Norway and Canada.

Two main conclusions can be drawn from the global milk price comparison:

- **The diversity of milk prices** between the countries gives a first impression of how national and international trade and market policies are affecting the dairy markets.

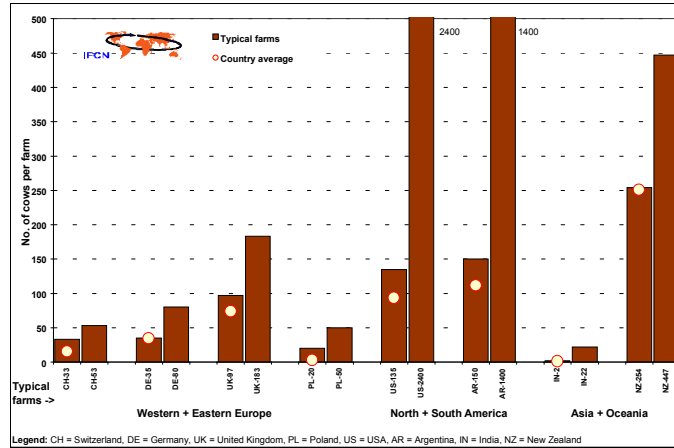
With WTO negotiations in progress, and more countries signing the agreement on liberalising world dairy markets further, a significant scope for change and shifts in milk production between countries can be expected.

- Milk price comparisons on their own do not allow conclusions about the **competitiveness** of milk production and shifts of market shares in the future. Therefore, in the next step, the costs of milk production in selected countries are analysed.

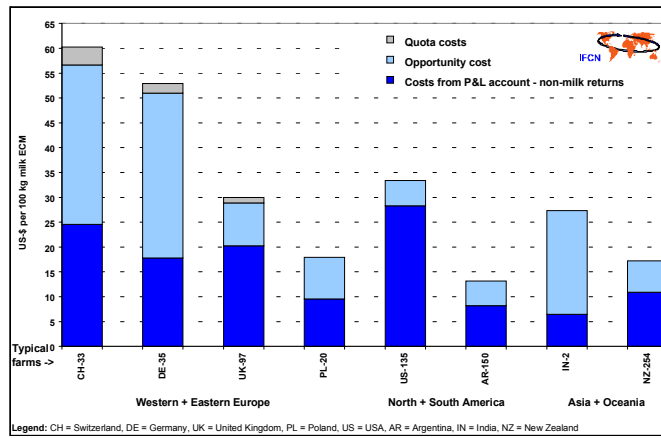
**Comparison Cost of milk production**

The cost of milk production will be one of the major factors driving the direction of production and also the trade of dairy products in the future. The following section analyses cost of milk production in the typical farms of the major milk producing countries.

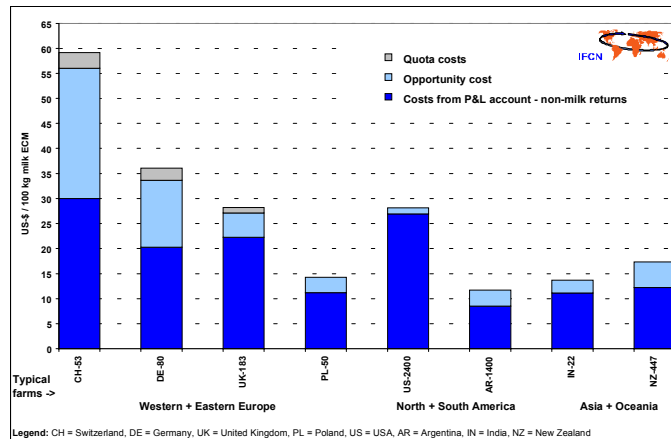
The analysis is based on the IFCN method. It is using the concept of typical farms: The small farms in each country, shown in Fig. 2, represent a farm type close to the statistical average in the country. The larger farm type is analysed to show the economies of scale and to give a picture of how competitive milk production might be after structural changes. The farm size ranges between two and 2400 cows per farm. Besides the inter-country differences, significant size differences can also be found within the countries.



**Fig. 2.** Farm size of typical dairy farms



**Fig. 3.** Cost of milk production in typical smaller size farms



**Fig. 4.** Cost of milk production in typical larger size farms

The results of the cost comparison can be summarised in the following way:

- **Within Europe and also America**, the costs of milk production differ significantly. This means that even without political movements like the extension of the EU or the idea of free trade among North/South America, significant shifts of milk production will occur.
- **Even within countries**, significant cost advantages of larger dairy farms compared to smaller ones were found. This can be seen as an indicator of strong structural change within the countries in the future.
- **The average sized farms** represent the majority of milk producers today. The most competitive countries from this perspective are found in South America, Oceania and Poland (below 17 US-\$/100 kg milk). Dairy farms in the USA and Western Europe need more than 30 US-\$ per 100 kg milk to cover their full economic costs.
- **Fig. 4 shows the cost potential in the countries.** In Argentina, India and Poland the larger farms analysed can produce milk below 15 US-\$ per 100 kg milk.
- **The cost potential in Western Europe:** The cost potential in the EU (example UK 183) is around 28 US-\$ per 100 kg milk. This is two times higher than the countries mentioned in the point above. The costs in the larger Swiss and German farm are far above 30 US-\$ per 100 kg milk.
- **The case of larger farms in the USA:** The very large farm in the USA (2400 cows) has the potential to produce milk for 28 US-\$ per 100 kg milk which is comparable with the larger farm in UK.

## Conclusions

**Scope for change:** Today we have a significant potential for changes in the dairy sector. Within the IFCN we monitor the changes and forecast future developments. Therefore, the IFCN can be seen as a navigation system for farmers, policy makers and the agribusiness in a rapidly changing world.

**Milk pricing in the future:** Assuming a globally liberalised dairy market, two scenarios could be possible for the individual countries:

- Countries that produce milk only for the local fresh milk market and do not have competitors within driving distance (500 – 1000 km) can obtain significantly higher prices than the world market price.
- In the other countries, the farmers' milk price will be driven by the world market prices for dairy products (butter, SMP, standard cheese) and the performance of the local dairy processing company.

**Where is the 'world market price for milk' headed in the future:** In the past, prices fluctuated within a range of 15 – 20 US-\$ per 100 kg milk. In a liberalised situation, the milk price on the world market is determined by the least competitive producer still producing milk (covering his costs). This means that instead of the very competitive producers in the Southern Hemisphere, the marginal producers in the Northern Hemisphere are relevant. Assuming the 2003 input price/exchange rate situation, a milk price around 28 US-\$ per 100 kg milk can be seen as realistic for a liberalised dairy market. In this range, the larger farms in the USA and in Western Europe, would be able to produce milk. This figure is significantly above the estimation based on the IFCN analysis for the year 2002.

**Annex: Co-authors of this article****Western Europe**

Christian Gazzarin	Swiss Federal Research Station for Agricultural Economics and Engineering, Taenikon, <i>Switzerland</i>
Leopold Kirner	Federal Institute of Agricultural Economics, Wien, <i>Austria</i>
Eva Deeken,	FAL - Federal Agricultural Research Centre, Institute of Farm Economics and Rural Studies, Braunschweig, <i>Germany</i>
Karin Christoffers	PV Praktijkonderzoek Veehouderij, Lelystad, <i>The Netherlands</i>
Michel de Haan	Institut de l'Élevage, Département Actions Régionales, Laxou, <i>France</i>
Dominique Caillaud,	Animal Health and Livestock Services, TRAGSEGA, Madrid, <i>Spain</i>
Ernesto Reyes	The Danish Agricultural Advisory Centre, Aarhus, <i>Denmark</i>
Susanne Clausen	Swedish Dairy Association, Eskilstuna, <i>Sweden</i>
Carolina Nilsson	Milk Development Council, Cirencester, <i>United Kingdom</i>
Colm O'Reilly, Brian Lindsay	Rural Economy Research Centre, Teagasc, Dublin, <i>Ireland</i> ,
Billy Fingleton,	MTT Economic Research, Agrifood Research Finland, Helsinki, <i>Finland</i>
Timo Sipiläinen, Sami Ovaska	Seinäjoki Polytechnic, Ilmajoki, <i>Finland</i>
Matti Ryhänen	NILF - Norwegian Agricultural Economics Research Institute, TINE,
Ola Flaten,	Norwegian Dairies, Oslo, <i>Norway</i>
Bjørn Gunnar Hansen	

**Central and Eastern Europe**

Katri Lahesoo	Estonian Agricultural University, Institute of Agricultural Economics and Marketing, Tartu, <i>Estonia</i>
Ewa Kaczochoa,	University of Szczecin, Institute of Management, Szczecin, <i>Poland</i>
Michal Switlyk	
Petr Jakobe, Jan Klapka	Vuze - Research Institute of Agricultural Economics, Praha, <i>Czech Republic</i>
Csaba Borbély,	University of Kaposvár, Kaposvár, <i>Hungary</i>

**Middle East**

Ayse Uzmay	Ege University, Faculty of Agriculture, Department of Agricultural Economics, Izmir, <i>Turkey</i>
Liron Tamir	Israel Dairy Board, Rishon-Le'Zion, <i>Israel</i>

**North and South America**

Mathieu Frigon, Phil Cairns	Dairy Farmers of Canada, Ottawa, <i>Canada</i>
James Richardson	Texas A&M University, Agricultural Food Policy Centre, Department of Agricultural Economics, College Station, Texas, <i>USA</i>
Bernardo Ostrowski	Universidad Buenos Aires (UBA), Cátedra de Administración Rural, Facultad de Agronomía, Buenos Aires, <i>Argentina</i>
Lorildo Aldo Stock	Embrapa Gado de Leite (Embrapa Dairy Cattle), Minas Gerais, Juiz de Fora, <i>Brazil</i>
Carlos Lizana	Cooprinsem, Osorno, <i>Chile</i>

**Asia**

TN Datta	National Dairy Development Board, Anand, <i>India</i> Region Maharashtra
Amit Kumar Saha	Post doctoral research fellow at FAL – India Regions Haryana, Orissa
Khalid Mahmood	Agriculture Policy Studies Institute, Lahore, <i>Pakistan</i>
A. R. Khan	Bangladesh Agricultural University Mymensingh, <i>Bangladesh</i>
Lu Yaohua	Shanghai Bright Dairy & Food Co., Shanghai, <i>China</i>
Jarunluk Youngdad, Suvichai	
Rojanasthien	Chiang Mai University, Faculty of Veterinarian Medicine, Thailand
Tra Thi Huong Hoang, Nho Tat	
Luong	National Institute of Animal Husbandry, Department of Economics and Farming Systems, Hanoi, Vietnam

**Oceania**

Chris Murphy	Dairy Australia, Melbourne, Victoria, Australia
Andrew Weinert, Ian Bell	Department of Agriculture, Perth, <i>Western Australia</i>
Nicola Shadbolt	College of Sciences, Massey University, Palmerston North, <i>New Zealand</i>