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## PROBLEMS OF THE HUNGARIAN DAIRY SECTOR IN CONNECTION WITH THE ABOLITION OF THE MILK QUOTA SYSTEM

### *PROBLEMY WĘGIERSKIEGO SEKTORA MLECZARSKIEGO W ZWIĄZKU ZE ZNIESIENIEM SYSTEMU KWOT MLECZNYCH*

**Key words:** Hungarian dairy sector, problem – tree analysis, impact of the abolition of the milk quota system

*Słowa kluczowe:* węgierski sektor mleczarski, problem – drzewo analizy, wpływ zniesienia systemu kwot mlecznych

**Abstract.** The general objective of this study is to present the main problems, potential outlooks and challenges of the Hungarian dairy sector in connection with the general social and economic situation. Problems that have been implicated as playing a role in the low competitiveness of Hungarian dairy supply chain arise from the internal capabilities of the sector and the country. Most of these problems are relative and emerge when it comes to comparison with competitors. It is a fact that Hungary, regarding its current position, has become a potential market offered by dominant milk producing member states in the EU and existing, traditional dairy product brands have been mostly lost to foreign companies. This follows directly from low self-sufficiency, unexploited quota looking back to several subsequent years and unfavourable export/import structure (raw consumer milk is dominant in export, whereas high value-added processed products in import) in Hungary. As a result of the abolition of the EU milk quota system, milk production may rearrange in the EU, posing a serious threat unless the competitiveness of Hungarian dairy supply chain is improved.

### Introduction

The expansion of global milk production accelerated in the previous decade and its output reached 760 million tons in 2012 [Varga et al. 2013]. Cow's milk (82.3%, 626 million tons) represents the decisive part of this volume. As for OECD-FAO forecasts, the trend of production increase will remain unchanged in the coming years, production is likely to attain 801 million tons in 2015 and it will exceed 905 million tons by 2022 [Mándi-Nagy 2013]. Developing countries are expected to give 70% of increase, with the outstanding role of India and China [Varga et al. 2013]. More than 50% of global milk production (53%) is given by the four economic superpowers (EU 24%, 157 million tons, USA 14%, India 9%, and China 6%). Hungary's share in worldwide milk production was merely 0.3% in 2012. The greatest part (34%) of global milk production is represented by the European continent, but in the past 50 years considerable production limitations were introduced here, which led to the stagnation of milk production as of the mid-90s. European milk production reached a peak in the 80s, when its output was 280 million tons, and estimatedly, it exceeded present day production level by 25%. Today the EU accounts for more than 70% of total European production. About 28% of produced milk participates in foreign trade, including 103 million tons for import and approximately the same amount of (105 million tons) for export. Regarding foreign trade balance of the EU, it is strongly positive, whereas most countries in Asia, Africa and Oceania show a negative foreign trade balance [FAOSTAT 2014].

Expressed in milk equivalent, global milk consumption is 622 million tons<sup>1</sup> (2012). Citizens on the Asian continent consume the highest amount of milk, which is 39% of the total dairy product consumption. India is outstanding with its annual 97 million tons. The European continent

<sup>1</sup> Regarding FAO, EUROSTAT and CSO methodology, the consumption of butter is not included in milk and dairy product consumption calculated in milk equivalents.

represents 26% of global milk consumption, including approximately 20% of EU member states (122 million tons). Milk and dairy product consumption per capita varies significantly in countries worldwide. According to 2012 data, it is prominently high in Europe (219 kg/person/year including the EU 240 kg/person/year) and in North-America (253 kg/person/year), whereas it is extremely low in Asia (58 kg/person/year), where, however, the tendency is showing an upward trend [FAOSTAT 2014].

As for the quantity of dairy cows, EU member states differ strongly. Their number in the EU-28 was about 23.5 million in 2013 [EUROSTAT 2014]. The first five (TOP-5) member states own more than 50% of dairy stock. Consequently, milk production within the EU community is the strongest in Germany, France, Poland, Italy, the United Kingdom and The Netherlands. The number of average dairy cow per farm is the highest in Cyprus, Luxembourg, the Czech Republic, Denmark and the Netherlands, where the average herd number on the farm is 121-190. The Netherlands and Denmark typically have more intensive farms with an average farm size of 115-120 animals. The lowest farm size (1.8-1.9 animal per farm) can be found in Poland, Latvia, Lithuania and newly accessed Bulgaria and Romania, due to local endowments, production traditions and the structure of rural society. Cattle number per farm is also low in Austria and Slovenia (13-29 animal/farm) as a result of highland cattle farming. In Hungary this average number is 37 animal per farm, whereas the EU average is 34.2 animal/farm [*Agriculture in...* 2013].

Average milk yield per cow in the EU 28 rose to 6584 kg in 2012, but it is likely to reach 7200 kg (+5%) till 2022 [EUROSTAT 2014]. The main reason of slight increase is low economic growth, moderate upturn in demand and relatively high production costs. In previous years, distribution of EU milk production shifted from intensive producers towards mainly coastal areas in the Atlantic Ocean region where mild winter and a high amount of precipitation are typical and towards less intensive farms with lower yields and lower specific costs of milk production [Popp et al. 2010, Vőneki et al. 2015].

The inner market of the EU was closed and strictly regulated until 31 March 2015 (abolition of the milk quota system); however, prices vary slightly in certain member states. Data for the previous five years present that milk producer prices are the highest (35-40 EUR/100 kg) in Malta, Italy, Greece and Finland. It is moderately high, 30-35 EUR/100 kg in Austria, Sweden, Ireland and the Netherlands. It is very low in Spain, Slovenia, Romania, Estonia and Lithuania (27-33 EUR/100 kg). In Hungary the average milk price was 33.43 EUR/100 kg in 2013, thus the country is ranked in the group of countries with the moderately high milk prices [EUROSTAT 2014]. In the past five years prices in Poland and New Zealand exhibited similar tendencies (they were close to average milk prices on the global market), Western European and American milk price changes succeeded one another clearly. The price level of milk from New Zealand and Poland in the 1990s represented 45-60% of German and North-American prices [FAOSTAT 2014]. Globally, this price convergence is ongoing at present. In the dairy sector, the highly subsidized supply chain in the EU, overproduction posed/pose the main concern.

In Hungary the number of the cattle herd increased slowly in the previous two years, but data from the past 20 years indicate a slowly decreasing tendency. Cattle stock grew from 708 thousand heads to 783 thousand heads in 2005-2013, while cow stock from 334 thousand heads to 345 thousand heads. However, the number of dairy (milk and dual-purpose) cows decreased within the cattle stock, it was 300 in 2005 and 244 in 2013 [HCSO 2015]. At the same time milk production declined also.

### **Research material and methodology**

The paper is focused on competitiveness of Hungarian dairy sector and seeks to explore and demonstrate causes of low competitiveness in particular the profitability of dairy farms. Based on available literature, our own data and information in the interactive dairy sector workshop organised in Debrecen (Hungary) on 27 February 2015, we addressed the actual problems of the Hungarian dairy supply chain and illustrated the existing casual relationships by the method of

problem-tree analysis. After the identification of the problems, we explored causal correlations by focusing on the question “why”. If, e.g. problem “A” is the cause of problem “B”, it is placed under “B”; if it is its consequence, it is placed above “B”. The end result is a tree-structure broken down into branches, which provides a clear picture of causal relationships in the Hungarian dairy sector, and underlines the correlation of partial problems and the main problem. The structure of the problem tree outlines the objectives towards solution-finding.

### Research results

The main reasons for the low competitiveness of the Hungarian dairy supply chain include three main groups of problems. Regarding the production of raw materials, the profitability of milk production is low compared with international benchmarks and also with other agricultural activities. To this should be added the present-day unfavourable market position and situation of Hungarian processing industry and the fact that Hungary has become a potential market offered by determinant milk producers in EU member states. These three problem groups cover all the causes which ultimately raised competitiveness problems in the sector (Fig. 1). Having regard to length limit of the article only the key issues are highlighted from the chart. Problems discussed in detailed below contribute to relatively high milk production costs and relates to the first problem group mainly. The majority of dairy farms are typically underdeveloped in terms of keeping and feeding technologies, economies of scale, fodder production and preservation. The greater part of available milk producing capacities have become obsolete, their refurbishment is topical. It is therefore necessary to place a great emphasis on production conditions, the development of producer organisations (POs) comprising small-scale dairy farms, family farms and integrations operated by the processing industry; on the issues of improving the situation of the dairy industry, the reduction of the size of “hidden (black) industry”, questions of research-development and consultation, specific credit financing for farmers engaged in milk production and also marketing activities. The modernization of competitiveness-related and technical conditions (e.g. reduction of technological losses, better utilization of biological bases) should be underlined in the sector development programs, as well as the reduction of environmental and animal health risks.

Feeding costs account for the majority of production costs in milk production. Extensive grassland management is the most typical in Hungary, with significantly lower yields than in Western-European countries. Consequently, hay production in Hungary is relatively costly, and grazing is almost completely missing from feeding technologies. Moreover, monodiet feeding is mainly dominated by maize-based fodder, which renders the sector vulnerable through volatile raw material prices. The dominance of maize (a feeding system built on grain and silage maize) causes a high rate of culling through weak reproduction indicators and also very short useful life (1.8-2.2 year/cow) [Udovecz et al. 2013], pushing up average costs (unit costs: EUR/kg), as the value of breeding animals remains quasi unexploited. Precision feeding and its improvement for dairy cows must become a priority in the future. Due to our feeding system, our forage production costs are higher than those of competitors, and feeding costs account for a higher proportion in milk average cost [Szajner, Vőneki 2014]. Our ratio is 65-75%, whereas it is well under 60% in Western-Europe [Udovecz et al. 2013].

In accordance with climate changes, extreme weather, with its impact on safe fodder production, poses a threat to the sector and various fungal infections (e.g. aflatoxins and other mycotoxins) also endanger safe feed supply. In addition to relatively high average costs, the observance of environmental, animal health and welfare regulations requires additional costs. Although they are unavoidable due to compliance with EU restrictions, according to the general opinion of professionals (participants of our interactive workshop) overregulated administrative measures are typical of our country, which sometimes interprets EU recommendations as regulations.

Milk producers agree that the greatest weakness of the sector is the current situation of the ownership of forage areas. As long as cattle farms and their owners fail to possess properties, they are forced to purchase fodder, which is a significant competitive disadvantage in terms of costs. In

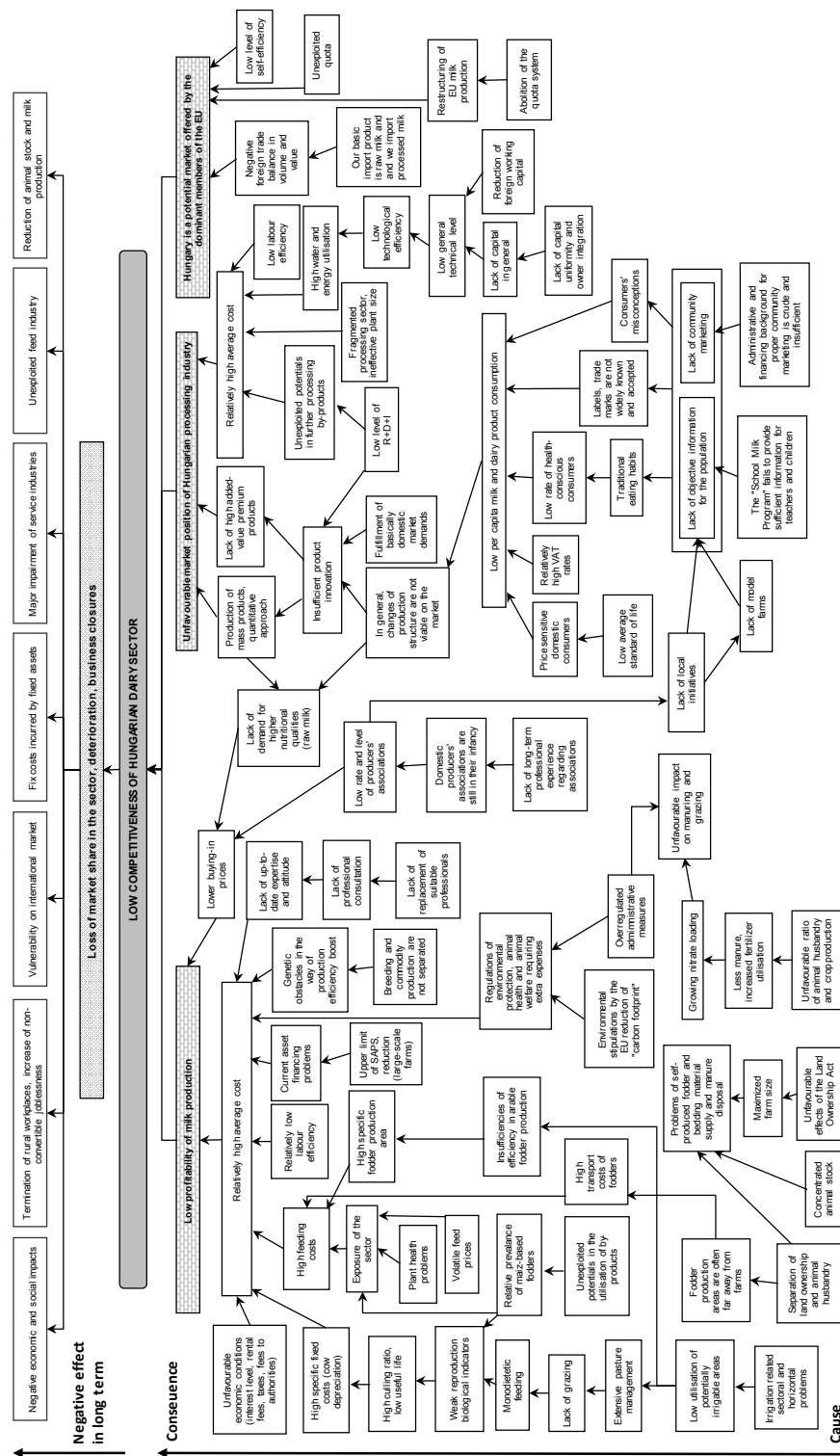


Figure 1. Systemized structure of actual problems in the Hungarian dairy supply chain  
 Rysunek 1. Usystematyzowana struktura rzeczywistych problemow lancuchu dostawiania mleka na Węgrzech  
 Source: own study  
 Źródło: opracowanie własne

the current political/economic situation, it is highly risky to invest into a large-scale dairy farm on rented forage areas. As the result of the new Hungarian land transfer regulation<sup>2</sup> with the introduction of restrictions of the demand side and with the tightening of sales and purchases, arable land has become a less liquid asset. Moreover degressivity (upper limit of SAPS) hits mostly farms using modern, large-scale technologies, i.e. those which constitute the backbone of Hungarian milk production. However, when milk production is estimated from an economic viewpoint, we must bear in mind that fodder and milk production should constitute a single economic entity.

The hygienic results of milk produced in Hungary are at the forefront, but nutritive value parameters, e.g. fat (3.6%) and protein (3.3%) lag slightly behind the EU average [Szenderek 2014, cit. *Analysis on future...* 2013]. Hungarian milk production can be characterised by a quantitative approach as opposed to a qualitative one. At present, Hungarian dairy herd includes an estimated 92% of Holstein-Friesian and its crossbred dairy cows. Although other high producing dairy breeds are available in the global production of cow's milk on farms (Ayrshire, Brown Swiss, Swedish Red), their proportion is insignificant. As a result of present-day quantitative approach, even the proportion of the highest-performer, Jersey cow, is under 3%. According to Búzás and Szabó [2011] under the current circumstances increasing the share of varieties producing more concentrated milk would not provide significant advantage in the Hungarian milk production market. In most countries pure breed stocks produce milk on farms. As the performance of other breeds lags behind that of Holstein-Friesian, the crossing of breeds leads to quantitative risks (milk kg) without exception, and breeders are concerned about it. However, Lopez-Villalobos et al. [2000] evaluated higher profitability using crossbred herds in New Zealand. We believe that the methods of crossing must play a greater part in the future of cows' milk production. A good example is New Zealand, where cross-breeds present more than 50% of total milk production.

In Hungarian milk production, despite the negative tendencies in the previous period, large-scale and industrial technologies and the proportion of milk produced by these methods are predominant. In contrast to the global and the European structure of organization, more than 80% of milk yields is produced by farms with high animal stock and with the number of cows per dairy, which is above 350, Hungary is ahead of all milk producing countries. However, merely 5% of Hungarian dairy farms are large-scale ones in the true sense of the word. Regarding economies of scale, we will expectedly preserve our existing comparative advantage and large-scale farms will present the dominant part of our farm structure in the coming years, but this advantage compensate the other disadvantages in production costs partly.

The significance of small-scale milk production in cattle farming dropped in the past decades. Household farming has practically ceased, milk collector system have almost been fully scaled down, the number of people willing to work in animal husbandry diminished, therefore rural cattle farming has marginalised. Farms with the animal population of under 50 account for 12% of cattle farms, but merely 1% of cows are kept in farms of such sizes. Looking to the future, developments in this area are definitely justified and their presence (in some percentages) is necessary from more than one angle. Caring about animals – even if it is not a significant factor in animal breeding – makes the lives of rural people meaningful.

The distribution of income in the dairy supply chain is disproportionate, the beneficiaries of the crucial part of the resulting income are not producers. Cooperation, coordination and integration among certain phases of the supply chain are extremely weak (e.g. as a result of the lack of capitalisation requirements and the degree of organisation) [Udovecz et al. 2013]. The economic sustainability of small and medium sized dairy farms strongly requires the organisation level improvements and participation in producers' associations, and/or vertical integrations. The subsidy system that is decisive in providing funding for existing POs is to be renewed, as contracts will expire for all Hungarian POs in the following years. The transformation of the subsidy system (PO) means that it should be based on the quantity of marketed milk, thus promoting sectoral concentration. The dominant part (minimum 2/3) of players in the sector should desirably link

<sup>2</sup> Act No. CXXII of 2013 concerning agricultural and forestry land trade

to some kind of integration. Certain subsidies and tax allowances should be the benefits of participation in integrations.

As a general problem, Hungarian producers fail to realize and accept the fact that in terms of knowledge capital, Western-European dairy farmers have already attained a more advanced stage. There is almost no producer who would insist upon participation in professional further education, almost everybody finds the root of the problem in milk prices and expects the intervention of the government in the solution of sectoral problems. We are of the opinion that the creation of knowledge-based competitiveness is the most crucial challenge in the dairy sector. In Hungary, secondary and higher education are not really practice-oriented, the lack of resources in staff and equipment constitutes a general problem. Nowadays educational institutes do not dispose of modern model farms for practical education and enterprises in the profit sphere are reluctant to receive students in their plants, making the solution of the problem even more difficult. One solution could be the introduction of dual training programs and the establishment of a network of model farms. In both cases so-called outside school training is required, meaning primarily the integration of a specific system of professional consultation in the model. Another problem is the lack of motivation and the fact that jobs on an animal farm became socially despised in most settlements in the past 20 years.

Besides the problems led to low profitability of milk production directly the low per capita dairy product consumption (150 kg/person/year) need to be emphasized too as an indirect issue. Falling purchasing power is closely related to reduced living standards and low level of community marketing. Due to the price sensitive Hungarian demand the Hungarian dairy sector has competitive disadvantage in relation to imported products.

### **Conclusions**

The milk quota system did not restrict Hungarian milk production the past ten years. The sector exploited its available quantitative potentials in approximately 72-76% in the previous years. The fact that the quota was not used implies the production was not profitable due to the relatively high production costs. The main cause of this is higher feeding costs than in EU-15 countries due to the relatively low level of feed management (e.g. too "extensive" grassland management, low level of mass feed production, poor ensiling technology, maize-based monodiet feeding). Most of Hungarian dairy farms use state owned forage areas which depends on the actual political background. This is also a barrier to increase feed management efficiency and decrease feeding costs in large scale dairy farms. Due the abolition of the milk quota system in Hungary, by the summer of 2015 milk buying-in prices saw an estimated reduction of 28-30%, creating a critical situation in the dairy sector, as most dairy farmers are making a loss at present. Regarding the low competitiveness of Hungarian dairy supply chain, the problems mentioned so far are the internal capabilities typical of the sector and the country. Most of them are relative and emerge in the group of negative impacts on competitiveness when it comes to a comparison with competitors. It can be stated that regarding the position of Hungary, we have become a potential market provided by dominant milk producing countries in the EU. Consequently, Hungarian cows' milk production needs the development of new and novel production methods which can considerably increase specific income (income per 1 litre of milk produced) – and not yield per cow unilaterally – without a significant impairment of the environment. The improvement of the productivity and quality of the dairy sector requires the fast increase of research and development spending. The main objective includes the elimination of conditions that hamper the competitiveness of the Hungarian dairy sector and the improvement of production efficiency in the future as well, even if this leads to the reduction of specific utilisation of labour; the strengthening of sectoral innovation, POs, cooperation and the restoration of the unity of fodder production and animal farm. Job creation may not come at the expense of improving efficiency and competitiveness. Another crucial issue is the exploitation of market potentials in GMO-free production, i.e. the creation of GMO-free labelling and its application on milk and dairy products, as the majority of EU citizens refuses to consume genetically modified food, in so far as they are aware of it.

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## Streszczenie

*Celem opracowania było przedstawienie głównych problemów, potencjalnych perspektyw i wyzwań węgierskiego sektora mleczarskiego w związku ze zmianami ogólnej sytuacji społecznej i gospodarczej, w szczególności zniesieniem systemu kwot mlecznych w Unii Europejskiej. Problemem sektora jest niska konkurencyjność węgierskiego łańcucha dostaw mleka i przetworów mlecznych. Na Węgrzech krajowy rynek mleka i tradycyjnych produktów mleczarskich przegrywa z firmami zagranicznymi. Wynika to bezpośrednio z małej samowystarczalności, niewykorzystania kwoty mlecznej i niekorzystnej struktury eksportu-importu (surowe mleko dominuje w eksporcie, a wysoka wartość dodana produktów przetworzonych w imporcie).*

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