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Milk production, quality and prices in Czech Republic

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Summary

Production quantity, quality, and prices of cow milk in Czech Republic, as well as in Poland, are permanently influenced by economic factors and, after EU participation, also by the milk quota regime. Alongside similarities production characteristics, in Poland and the Czech Republic there exist substantial differences. The aim of this study was to overview changes taking place in the meat and milk sectors of the Czech Republic. Despite the decreasing cattle population (including dairy cows), production in the Czech Republic is rather stable because of rising milk yield. During the last few years there has been a milk surplus on the market, even thought dairy exports dominate over import.

A precondition of the realization of milk on the market is its high quality and this has become a basic prerequisite for profit and for the maintenance of the customer in the competitive market. An analysis has therefore been carried out of the economic indicators of the dynamics of milk yield, overall production and the quality indicators of milk, the bulk purchase and buying price of milk, during the years 1998 to 2004, including a survey of the costs, profits and the marketability of milk in the given years. In 2004, the milk purchase price, including compensation payment, ranged around 8 crowns (CZK) per litre. However, the production costs of milk sold increased to 8.42 crowns resulting in a lack of profitability. This was a result of an increasing growth rate in expenditure over milk yield. The level of expenditure and profits of the milk production of agricultural enterprises is going to be comparable with average results attained in EU-15. The static level of milk production is characteristic for all countries operating with a milk quota regime (EU-15, Norway, Switzerland and Canada). Individual reference quantities become a limiting factor for many producers. Based on EU data milk output is forecast to exceed national quota for 2005/6 in Czech and Poland, exposing both countries to hefty fines.

Keywords: milk, price, Czech Republic

An essential precondition for milk realization on the market is its high quality and this has become one of the fundamental conditions for profit and for retaining the customer on the competitive market. This requirement imposes ever increasing demands and burdens the breeders, especially with regard to the quality and quantity of raw cow's milk production. The breeders are therefore compelled to exercise flexible adaptation to the demands, which range from new technology of stabling, nutrition and feeding of animals, to the biological or genetic needs of the milking cows, and thus ensure production of high quality milk (11).

Results obtained in Germany by Konig et al. (6) indicate that differences in heard size accounted for more in genetic correlations than geographic regional differences. Also Zwald et al. (14) stated that percent of North American Holstein genes herd size play more important role than geographic condition (country borders). Similar study performed by Bailey et al. (1) in US has shown importance of genetic impact on farm profitability. They calculated than Holstein herd generated more income over Jerseys. Also the study performed in Czech Republic (crossbreeding effect of Czech Pied, Ayrshire and Holstein) has shown additive genetic effect for Holstein cows on milk yield (13).

The current demands by consumers for market milk move towards its durability, but also to freshness and taste. The highest appreciation is given to milk which is biologically valuable and processed as little as possible. Such processing, of course, requires high quality milk from primary industry. Increased interest from the primary producers, as well as from the end consumers, confirms that the continuing pressure on improving the quality of raw milk has a great significance for the overall consumption of milk. It is therefore necessary to continuously monitor the health status of

milking cows, fodder, hygienic requirements and all those conditions that affect the milk production, whose deterioration could unnecessarily increase the costs and thus income itself, which is important for the primary producer (12).

The aim of the work is to draw attention to the importance of the individual indicators for the successful realization of raw milk

Material and methods

An analysis was carried out of the economics of milk production in the Czech Republic. The given data were obtained from the Situational and Prospective Reports – Milk from the Ministry of Agriculture, Year Book on cattle breeding in the Czech Republic, issued by the Czech Moravian Society of Cattle Breeders, as well as from the Reports on the milk and milk products market issued by the State Agricultural and Intervention Fund.

An analysis of the indices of economics was primarily based on the dynamics of the milk yield, on milk production, the purchase and shop price of milk for each year from 1998 to 2004.

Results and discussion

Since year 2000, the cattle population decrease by 2.2% per year. In spite of 3.7% increase of number of suckler cows the production of cattle for slaughter did not cover domestic demand and caused significant increase of meat prices. The cattle population kept decreasing also in 2005. 1397 thousand heads of cattle was stated and it was 11.2% less than in 2000. This decrease of population was caused by liquidation on unprofitable herds and increase of production efficiency. The significant fall down of beef production was caused also by significant increase of exports of cattle for slaughter.

The composition of herds has gradually changed with a drop in the numbers of milking cows and a gradual increase in the number of cows without milk production for the market. Slowly being put into operation is the intention of making use of specialized meat breeds, in order to maintain mainly the disadvantaged areas of the Czech Republic for the production of good quality beef and the standing herd. The number of cows without marketable production of milk grew by 14.6 thousand head per year (4).

Since 1989 there has been observed a marked decline in the numbers of cattle as production of milk. According to the Register of farm animals kept up to April 4th, 2004, the numbers of cattle were reduced between years by 21.5 thousand head (562.1 in 1998 and 433.3 thousand of heads in year 2004). Persisting trend to reduction of the heard of dairy cows stabilized on about 4% yearly which is partly compensated by an increase of average milk efficiency. One of the basic parameters in the sphere of milk production is milk yield which has also undergone considerable change.

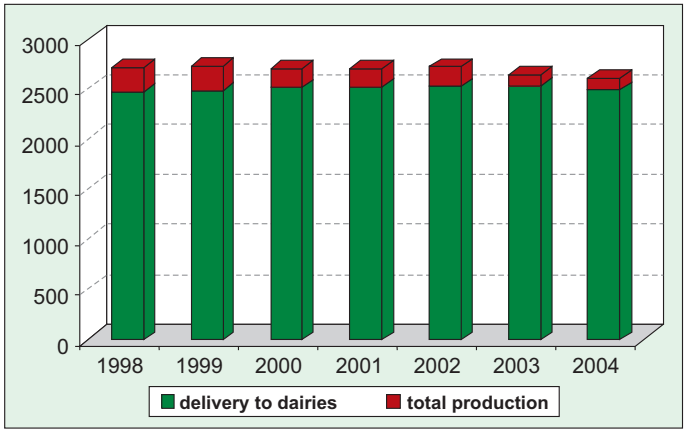

Fig. 1. Total production of milk and purchase milk quantities (tons) in Czech Republic, 1998-2004

Average milk yield in the Czech Republic is constantly rising from 14.6 l daily in 1998 to 17.9 l in 2004. Increased milk yields are connected with economic production, i.e. the yields rise only until such a time that there is improvement in the economic results of milk production. Since 1998 annual milk yield/cow rise 178.7 l per year. In milk production in the Czech Republic had a decreasing trend, but this decrease is very limited. However in 2005 it was observed slight increase in milk production in second and third quarter of a year. In season 2004/2005 national quota estimated on 2682 million litre and they was field in 99.72% (2). It means that individual reference quantities become a limiting factor for many producers. Right now based on EU data milk output is forecast to exceed national quota for 2005/2006. Also Poland is set to exceed EU milk production quotas this year by ca 4% exposing the country to hefty fines from Brussels.

Despite decreasing production in Czech observed during few last years there has been a milk surplus on the market, even thought dairy exports dominate over import. Thus the production of consumer milk is rather stable since 1998 – 2513 ± 28 (SD). The changes of the overall milk production in years 1998-2004 is shown in fig. 1. Milk production in agriculture and its supply to the milk industry in the year 2003, which was a year of severe drought in the summer months, reached a standard level comparable with the average of past years (8). The purchase of milk is also shown on this graph. Connected with its production is the purchase of milk by the dairies which declines lately. It can be seen from this graph that in the year 2004 a smaller amount of milk was purchased by the dairy industry. This situation is the result of increased exports of raw milk and milk products. A positive fact is the expansion of imports of Czech products onto the selective European market (EU-15). There was an increase in exports of not only high volume products (cream, dried milk and butter), but also of fermented products and cheeses. In 2005 raw milk and milk products export was estimated to be 380.5 thousand tons. 49.3% of this amount was exported to Germany and

20.2% to Slovakia. Czech Statistical Office (2006) informed that import of raw milk and milk products was much smaller – 203.1 thousand tons (37.9% from Poland, 29.5 Slovakia and 26% Germany). The increased interest of both Czech and foreign processors of milk is reflected in the growth in the prices by the Czech producers of raw milk, but the increase in the costs of production of these products is not fully reflected in the market prices of finished products as a consequence of growing imports. Input prices increased more rapidly than producer prices which affected profitability negatively. The lack of profitability decided that Czech milk suppliers have started selling their milk directly to neighbouring Germany at more advantageous prices.

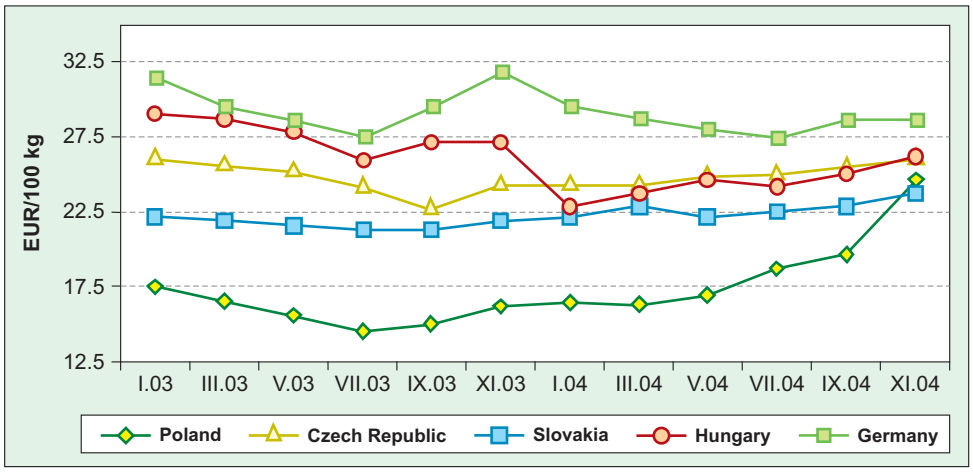

Fig. 2. Development of raw cow's milk price in selected countries

Nowadays, milk is converted into cash on the basis of supplier-purchaser agreements according to the latest wording of the Czech Government Standard CSN 57 0529 – Raw Milk for Dairy Processing which was brought up to date. Raw cow's milk is sorted out into two quality classes, namely Q (Selection) and 1st Quality, according to the basic attributes of quality which comprise the total number of micro-organisms – standard plate count (SPC), the number of somatic cells (SCC), the absence of inhibiting materials, and satisfactory freezing point.

Classification of milk into these classes of quality is not compulsory anymore, unless required by the supplier-purchaser agreement. Lipids and protein milk content have no effect on the quality classification, but their higher values than the minimum (lipids content of at least 33.00 g/litre and protein content at least 28.0 g/l serve as a bonus in the basic price of the milk). The dairies continue to use this system of milk realization. However, calculations of SPC and SCC must always comply with the Law on Veterinary Care No. 131/2003, and the Public Notice No. 131/2003 on veterinary requirements for animal products, issued by the Ministry of Agriculture.

The purchase or sales prices of milk are usually fixed by agreement between the producer and purchaser organisations. When purchasing animal products, their quality is taken into consideration with a view to attaining the highest purchase prices and favourable economic results of cattle breeding in the relevant category. Based on economic data received from 135 agricultural enterprises Kopecek (7) evaluated milk production expenses by means of cost function showed existence of profitability limit of milk production 5760 l of market milk per dairy cow/year. This was calculated using prices from 2000.

The purchase prices of milk are not unified in the Czech Republic. Neither is the system of classifying its quality. However, the basic indicators are included in contracts signed for a certain time period (usually one year) between the supplier and purchaser. The growing consumer demand as to milk quality is also evident in the increasing strictness of the indicators of quality of raw milk. It is therefore essential to continuously improve hygiene in milking and storage of milk, to use good quality fodder and to improve the balancing of nutritional value of fodder, to care for the health of the cows, to prevent udder inflammation, and to adhere to a daily routine and organisation of work in the cowsheds (9).

In the year 2004 the proportion of milk that had been included in the Q quality class comprised approximately 53%. However, the level of the purchase price had changed (fig. 2). Compared with the year 2003 it had increased by 0.23 CZK (2.9%). The difference in the purchase price, which included a compensation payment, amounted to only 0.19 CZK (2.4%), since payments per one litre of sold milk were lower in 2004.

Tab. 1. Development of milk quality and its appreciation in Czech Republic, during the period of 1998-2004

Indicator	Unit	1998	1999	2000	2001	2002	2003	2004
Milk yield/cow/year	L	4934	5080	5255	5589	5718	5756	6006
Share market production	%	90.94	87.6	92.84	93.72	91.1	94.2	94.2
Share of Q quality class of milk	%	80	52.2	52.9	51.8	54.7	53.1	52.6
Costs per feeding day	CZK	126.18	122.32	126.12	134.53	138.30	145.68	152.16
Costs per l of sold milk	CZK	8.48	7.93	7.68	8.01	8.15	8.19	8.42
Purchase price of l of milk	CZK	7.99	7.11	7.48	7.84	8.17	7.83	8.06
Profit per l of sold milk	CZK	–0.49	–0.83	–0.20	–0.16	0.02	–0.36	–0.36
Profit with state support	CZK	–0.19	–0.51	0.05	–0.04	0.08	–0.20	–0.24

Nevertheless, the purchase price of milk, including the compensation payment, was around 8.00 CZK during the year. The production costs per one litre of sold milk also increased to 8.42 CZK (2.8%) compared with the previous year. This means that in the year 2004 the profitability of milk was not attained (tab. 1). The reason was the faster increase in the costs compared with the milk yield. In 2005 the agricultural producer price of the Q-quality milk went up reaching 8.22 CZK.

The problem of the lack of milk production profitability concerns not only Czech Republic but also the agriculturally advanced countries of the EU-10. For instance, according to Jaster (5) the limit of profitability equalling 7,600 kg of marketable milk has not been achieved even in Germany with the purchase prices of 33.57 Euro per 100 kg milk in the year 2002.

The average purchase price of milk in Germany in 2003 falls into the range of USD 28-36 for 100 kg of milk, similarly to that in most of the EU countries, and the Czech Republic as well. The purchase price of milk in Germany failed to create conditions for profitability because costs per 100 kg of milk amounted on an average to USD 28-36 at an average milking rate of 6,537 kg (3). According to Kvaplik et al. (10) some of the costs in the Czech Republic are quite comparable with the EU level (technology, feeding mixtures, fuel, energy, etc.), others will be raised in the Czech Republic in the future (wages, price quotas, fuel, energy and the like).

Conclusions

It can be expected that in the period ahead, milk will be losing its local character on the common market, and it will acquire greater movement, as has occurred in the states of the former EU 15. In connection with this there will probably be a gradual levelling out of regional differences in the availability of raw milk. Local processing enterprises will, presumably, come under pressure of increasing prices of raw milk and the unwillingness of the commercial chains to accept higher prices of dairy products.

From the results of the analyses it appears that the Czech Republic is approaching the average results of the EU-15 not only in its milking rate of 6006 l/year/cow, when average of milk production in EU-15 countries was 6388 and in EU-10 only 4773 litres in 2004. Also milk marketability including the state subsidies and level of expenditure in Czech Republic is going to be similar as in EU-15 countries. National quota system together with increasing cost associated with upgrading processing industry (to keep EU-standards) seem to be main factors affecting future milk production. It will be also more costly to respect the stricter requirements on milk quality and animal health protection, because three-year period for compliance with EU health standards abattoirs, meat and dairy processing is going to the end.

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