

DAIRY SECTOR IN REPUBLIC OF MACEDONIA– YESTERDAY, TODAY, TOMORROW

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Abstract

The aim of this study is to follow the changes in dairy sector in Republic of Macedonia. This study is an attempt to address the various important aspects related to dairy sector in Macedonia like source of milk production, average unit productivity, cost of milk production and milk supply channels. It may also provide an understanding of the opportunities and problems associated with the dairy enterprises in Macedonia. The findings of the study may help in ensuring development of country's dairy sector because the research based decisions of policy makers may have real impact on welfare of farmers and progress of all the stakeholders of the sector. The above mentioned objectives of study are achieved through surveying the farmers, statistical data and direct interviews with representatives of government institutions.

Keywords: milk production, dairy farmers, dairy industry

JEL: Q13

Introduction

Agriculture has historically been an important sector in Macedonian economy. In Macedonia agriculture sector contributes more than 18 percent of the GDP of which the share of agriculture is about 12% and food industry accounts for 6% of GDP. Although, agriculture sector employs more than 20 percent of the total workforce (MKchamber, 2012).

The Macedonian dairy farming, similarly as other sub-sectors, went through dramatic structural changes during the economic transition period, since the country gained its independency in 1991 (Krstevska et. al., 2009). The brake-up of the former Federation and the ensuing regional conflicts meant a loss of a large and protected traditional market,

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so farmers were left vulnerable to the competition, and had limited contacts in potentially interesting markets (Simonovska, Nilsson, 2011). However, the situation is so far improving, with an abrupt halt in 2001 because of the ethnical conflict within the country, but henceforward 2002 the country has made considerable progress. The dairy sub-sector, nowadays, is embodied by a large number of small, subsistence oriented farm households and a decreasing number of large, specialised dairy enterprises that originate from the former socially owned large-scale agricultural enterprises, so-called agro-combinats (Krstevska et. al., 2009). The milk production is mainly concentrated in the private sector, hence is very much focused on small scale, family units. A certain proportion of milk is retained on farms for family and livestock usage, and some quantities are sold directly to consumers, frequently through street markets. Majority of dairy cattle farmers, however, sell their milk to a dairy processor (MAFWE, *Annual Agricultural Report 2009-2011*). At the processing level, there are 77 registered dairy companies which are mainly small and medium sized. The most important retail market outlets in Macedonia are small shops (66%) followed by supermarkets (18%) and huckster (more precisely, the street traders) (MK chamber, 2012). The small shops and supermarkets are correct in terms of product presentation and cooling. Selling dairy products via street trader is under hygienic aspects, not acceptable under the present conditions. Overcoming transport and transaction costs may contribute to higher income for the farmers and hence to improving their livelihoods. (Voors, D'Haese, 2010).

Materials and methods

The intention of this study was to gain an understanding of dairy farmer's production, problems and future plans. In this order was developed a structured questionnaire and used for collection of data of 30 dairy farms in Macedonia. This section emphasizes the sampling principles and methods involved in selecting dairy farmers who would be asked question by questionnaire. Emphasis in questionnaire was placed on the number of animals in the farm, average milk yield, quality of raw milk, average selling price of milk, subsidies, problems faced by farmers, future plans, etc.

Results

Dairy sector is one of the most promising sectors. Dairy sector generates employment and business opportunities, particularly in the rural and peri-urban areas. A number of people in urban areas are also involved in dairy based business. The public sector departments hold primary responsibility to guide the farmers and play significant role in dairy sector development (MAFWE, *Annual Agricultural Report 2009-2011*). In analysis of milk production in Macedonia, it should be considered that there are two different sectors: individual producers and big agricultural firms. Production of these agricultural companies represents market surplus and 99% of this production is placed on the market, whereas in case of individual farmers, one part of the milk produced remains on the local market (raw milk or cheese), which is a problem in our country (Palaševski, 2007). Dairy enterprise is dominated by the private sector and the role of

government is regulatory. Dairy farms are spread all over the country except in the high mountainous regions where the costs of milk collection would be very high. The major cow milk production areas are found around the perimeter of the northern, western and eastern boundaries of the country near the cities in which neighborhood are located focal dairy plants. These production areas surround the field crop growing regions, which encourage interaction and use of arable by-products. In order of importance, the main raw milk production areas are the Pelagonia region in the south, Polog region in the north-west and the North-eastern region in the country (Krstevska et. al., 2009).

Milk production in the country is characterized by a large number of small farms - traditional farmers (75% of the total) who have low 1-3 cows with low annual milk production of 2-3 thousand liters per cow. Very small number of large specialized farms with over 20 cows (about 3% of the total) with high productivity and annual milk production around 5 thousand liters per cow. Only 1% of farms has more than 50 heads and should be the production of quality genetic material remaining farms (reproductive centers) (MKchamber, 2012). The predominant role of small family farms in the production of milk in Macedonia has already been stressed. Low output (average number of head of cattle's per farm about three cows) raises numerous issues with regard to efficiency of the sector. One of the areas of low technical efficiency is that of milk yields (SSO, *Livestock production 2012*).

The average milk yield per cow in Macedonia is significantly lower if compared to those achieved in the EU. Although average milked yield production per cow was found to rise in Macedonia, it is still low and in 2011 was 2866 liters per cow, and in 2012 was 2 928liters (SSO, *Livestock production 2012*).

Statistical data on the processing sector, i.e. dairy industry in Macedonia are poor as well as livestock fund. The dairy sector experts estimated a total of 77 dairy plants (MKchamber, 2012). The dairy processing firms can roughly be divided into two categories. One can be labeled professional dairies. These are fairly large and expanding firms. These dairies have laboratories to check the fat, protein and dry substance content, and thus pay the farmers according to the quality of the milk. The large-scale dairy processors typically produce consumption milk (pasteurized and UHT) and dairy products, such as yoghurt, sour milk, yellow cheese (kashkaval), white cheese, quark, etc. The other groups are the semi-professional ones, which consist of small plants (so-called mini dairies), processing less than 5000 liters per day. The mini dairies pay a flat rate for the raw milk, without checking for the hygienic and other quality standards. These dairies compensate the low quality of milk by focusing on a few simple products only, generally sour milk and yoghurt (A.Krstevska et. al., 2009).

Table 1. Production of cow's and ewe's milk

year	Number of dairy cows	Average per dairy cow (liter)	Production of cow's milk in '000 liter	Number of milking sheep	Average liter per milking ewe	Production of ewe's milk in '000 liter
2008	129 882	2835	368 217	562 915	68	38 296
2009	114 043	3004	342 622	478 332	69	32 934
2010	124 553	2787	347 103	536 529	60	32 157
2011	131 275	2866	376290	495 693	51	25 381
2012	119 453	2 928	403233	488 114	79	38 616

Source: State Statistical Office 2009-2012

Table 2. Production of goat's milk

Year	Number of milking goat	Average per milking goat	Production of milk in '000 litres
2008	100 645	313	31 556
2009	68 270	284	19 386
2010	56 638	266	15 074
2011	62 711	248	15 565
2012	49 828	298	14 848

Source: State Statistical Office 2009-2012

According to the data of the State Statistical Office the produced cow milk has decrease 7% in comparison with 2008. A decrease of 14% is noted in the production of sheep's milk, and decrease of 38.6% is noted in the production of goat's milk in comparison with 2008(SSO 2009). In 2010 we can registered increase of 1.2% on total production on cow's milk comparison with previous year.(SSO 2010) In 2011 has significant increase on cow's milk production of 8.4% , increase of 3.3% on goat's milk production and decrease of 21.2% of sheep's milk compared with 2010(SSO 2011).The production of cow's milk in 2012 was 349 769 thousand liters, which is a decrease of 7.0% compared to 2011.An increase of 52.1% in 2012 was registered in sheep's milk production, whereas the production of goat's milk decreased by 4.6% compared to the previous year (SSO, *Livestock production 2012*). During these five years (from 2008 to 2012) we can noted a significant reduction in the production of cow's, goat's and sheep's milk.

A relatively small portion (about 40 %) of the total milk production is delivered to dairy plants for further processing (SSO 2011). The remaining portion of the milk is used on farms to feed livestock and consumed by household members. In addition, farms owning milking cows involve in the processing of milk themselves, producing cheese, and creammeeting own requirements and surpluses are usually sold on green markets.

In Macedonia producer prices of cow milk vary from 17 to 22 MKD. In 2008 average purchased price was 23.9MKD, in 2009 was 16 MKD and 17MKD in 2010, and in 2011 was 18MKD. In 2012 the producer prices has reached the level of 19 MKD

(0.33 euro), sheep milk around 34,96 MKD (0.57euro) and goat milk 19,46 MKD (0.35 euro)(MAFWE, *Annual Agricultural Report 2009-2011*). There are also different types of subventions (premiums, regresses, i.e. direct payments in order to support the development of milk production (ARDP- MAFWE 2007-2013).

If we analyze the exported and imported quantities of milk and dairy products for years, there is a trend of declining exports in 2011 (3 727 tones) compared to 2008 (4 390 tones) and decreased by 16%. While the quantity imported in 2011 (31 472 tones) has increased compared to 2008 (19 415 tones) by 61% (SSO 2011).

From here arises that Macedonia is a net importer of dairy products. Main import countries of milk and dairy products are: Slovenia, Germany, Croatia, Serbia, Montenegro, Bosnia and Herzegovina, Czech Republic, Bulgaria, Greece, and France (MKchamber, 2012).

Table 3. Import/Export of milk and dairy products

Year	Import	Export
2008	4 390 379	19 415 319
2009	2 203 974	26 441 381
2010	3 274 670	25 132 352
2011	3 277 166	31 472 780

Source: State Statistical Office 2009-2012

Discussion

The Dairy sector in R. Macedonia is consisted of many farmers that keep breeds for both milk and meat production, but there are also farmers who specialize in high productive milking cows. This specialization means investments in modern production equipment and facilities that comply with the quality and safety standards. These dairy farmers invest in milking equipment, improved housing, milk storage equipment, fodder preparation, breeds and breeding, etc. Small scale dairy farming causes increase in the cost of collecting milk and cooling equipment (lacto-freezers). Small family farms are characterized by inappropriate feed stocks for winter nutrition which has a significant impact on seasonal milk production. Low milk quality is the result of lacking knowledge and orientation on preserving quality hygienic safety of milk but also the need to harmonize legislation in the field. Animal production in the small, individual farms was characterized by low degree of modernization and low standards in hygiene terms.

The analysis of the sector has shown constant decrease in the number of animal stock, which is additionally enhanced by the recent turbulences in the dairy sector. The collection of milk is organized in different ways, varying from: the dairies collecting the milk from the “larger farms”, dairies having milk collection centers with milk cooling tanks (lacto-freezers), and individual farmers delivering the milk to the dairies directly. This situation creates investment problems for the investors in the dairy sector

in terms of upgrading milk quality and also because of the high transaction costs of milk collection. The relations between the dairies and the farmers are mainly regulated by contracts, evaluating milk on quality basis. Contract enforcement is often costly and inconsistent. This problem experienced by most of the countries in transition is manifested by payment delays or non-payments for delivered products to the dairies, causing problems in the essential cash flow for the farmers. Many farmers' sale milk and dairy products on green market which has advantages those farmers are paid at once, low prices for some products (cheese) for consumers with low income. Disadvantages are low hygienic conditions, poor product quality and high labor costs. Furthermore, farmers do not feel that they rely on the dairies' own measures for milk quality, since the large dairies sometimes misinterpret the measures in their favor. On the other side the biggest problem often embraced by the dairies is the problem of opportunistic behavior by farmers, in terms of inconsistent milk. Moreover, the variations in raw milk quality causes further problems in the supply chain affecting milk shelf life, and causing inconsistency in product's quality and taste. So, the need of additional investments in on farm machinery like milking and cooling equipment, and in animal welfare standards are believed to have a positive effects on the entire dairy sector. High prices of inputs and especially the expensive animal feed is also causing problems in the raw milk production. Feed purchase tends to raise production costs making it non-profitable. Many farms face low milk production output which is followed by expensive production and low production efficiency.

Dairy industry lacks specialization of production, narrowing production to some products would raise production efficacy, high costs for collecting and delivering milk from the producer to dairy plant. Presently, when there is lack of purchase raw milk, as the milk sector problem is underdeveloped payment system for milk quality. Low productivity follows insufficient development of new products. Dairy industry output is too low and cannot be considered competitive at the international level. Principal advantages of the dairy processing industry are: low labor costs, low input costs (milk); technologically well equipped, modern equipment, high expertise and trained personnel. (Sekovska 2011)

Based on this study the conclusions derived point development of the Macedonian dairy sector we can note lot of factors considered to be responsible for slow dairy development in Macedonia. At the farm level it is considered reasonable to focus on ensuring high-quality feed and improving hygienic conditions and animal welfare. With different types of subventions by the government, can increase livestock number, increase raw milk production on farm and improve milk quality (Bunevski et. al.,). In dairy industry measures may include develop payment system for milk quality, extensive training in the area of marketing, management, supply chain, and credit schemes for small farmers. Regarding these data it can be perceived that the primary milk production has a potential to grow.

Conclusion and future perspectives

Capacity building and investments should take place to solve the subsequent problems:

Improve the raw milk quality in terms of hygienic and fat and protein content;

- Ensure the raw milk supply via increasing the milk yield per cow and the fodder hectare via an advanced compound fodder strategy;
- Raising the profit per cow as a precondition for the farmers decision for buying more cows and investing in modern stables;
- Strengthen dairies on modern scientific dairy processing technology which will enable them to develop new products;
- Strengthen dairies to achieve to international hygienic standards, ISO certifications, HAASP and waste water treatment, and
- Strengthen dairies to get export numbers and permission, since only 2 of them today has export licence. To develop the preceding matters, a specific governmental policy is required for the dairy industry, in the following areas:
 - Land policy - aimed at land transfers that contribute to efficient farming by encouraging land consolidation. Such policy could be helpful in the more productive (flat) areas, where land parcels are still relatively small;
 - Regional policy – aimed at organizing the farmers, both small and large-scale, in the most effective governance structure, and to support niche markets, and
 - Facilitate technical and institutional modernization to increase productivity and efficiency in the sector by supporting up to date research and extension services to farmers and by ensuring as much as possible market transparency providing information for producers and processors on supply, demand, and prices, considering the trade of milk, milk quota, land and other agricultural inputs.

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