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DAIRY COOPERATIVES – BETWEEN MYTH AND REALITY: AMERICAN EXPERIENCE

***Abstract.** This paper presents the principles of cooperation and briefly describes the history and development of dairy cooperatives in developed countries, with particular emphasis on the United States of America. The author made an analysis of the future of Ukrainian dairy cooperatives in general and with the using U.S. experience in changing economic environment characterized by technological change, industrialization of agriculture and growing individualism.*

***Keywords:** dairy industry, cooperative approach, dairy cooperatives, dairy products, milk production, productivity, dairy producer, competitiveness.*

The Problem Statement. Dairy cooperatives were among the first type of agricultural cooperatives organized in the U.S. They have their beginning in the early 1800s. Dairy cooperatives have played a very significant role in the procurement, processing and marketing of milk and dairy products and in representing farmers politically at both the state and national level. Dairy farmers have relied more heavily upon dairy cooperatives to market their milk than have farmers of any other commodity.

Dairy cooperatives range widely in size and function-some solely arrange for the sale of members' milk and provide few services, while others manufacture a wide range of products and may market their own branded products directly to consumers. Additionally, many offer supporting services for their members, such as providing field services, verifying weights and tests of milk, selling milk production equipment and supplies, and providing health insurance.

A dairy cooperative business is owned, operated, and controlled by the dairy farmers who benefit from its services. Members finance the cooperative and share in profits it earns in proportion to the volume of milk they market through the cooperative.

The Analysis of main researches and publications. The modern state of cooperative processes in agro-industrial sub-complex and the prospects of their development in market conditions have been attracting the attention of many

researchers. Among them there are such Ukrainian scholars as V. Andriichuk, P. Berezivskyy, S. Vasylchak, P. Gaydutsky, T. Dudar, V. Zinovchuk, M. Ilchuk, M. Malik, P. Sabluk and others. Among the foreign scientists we should call I. Ushachov, I. Minakov, G. Hokman, and D. Hay.

Forming purposes of article. In this paper we discuss the major bottlenecks in the dairy sector known in the literature and expressed by the sector players. Presented here is an overview of the early history of U.S. dairy cooperatives, their developments over time, the roles dairy cooperatives play, and the current status of dairy cooperatives. Also we summarize the main results of the recent empirical studies done on the U.S. dairy sector. However, according to the last years' features and trends of cooperative processes in the dairy sub-complex, some approaches require the deepening and adaptation to the modern Ukrainian realities.

Research results. The U.S. dairy industry is 6th largest in the world in terms of milk production and represents more than 10% of the total milk production in the world in 2010. The dairy industry in the U.S. has undergone significant structural change over the past eight years, with the number of large operations increasing and total milk cow operations declining significantly.

In the early 1600s immigrants from Europe brought cattle with them to supply their families with dairy products and meat. Although many different breeds of cattle including Durhams, Ayrshires, Guernseys, Jerseys, and Brown Swiss were imported through the next few centuries, it was not until the late 1800s that cattle breeds were developed specifically for dairy purposes. Many dairy farms also grow their own feed such as alfalfa, hay and corn, or own or lease pastures where the cows graze.

In rural America, milk and milk products were made primarily for home or local use. However, with the movement of population from the farms to the cities at the turn of the century, it became necessary to increase the scale of production and improve the quality of milk. Significant inventions such as commercial milk bottles, milking machines, tuberculin tests for cattle, pasteurization equipment, refrigerated milk tank cars, and automatic bottling machines contributed towards making milk a healthful and commercially viable product. Today, about 99% of all U.S. dairy farms

are family-owned and operated. The majority (77%) have less than 100 cows [Mani 2013].

During the past 100 years the U.S. dairy industry has experienced a broad array of major changes including the following trends: 1) Marked increase in the consumption of cheese. 2) Sharp reduction in total cow numbers. 3) Near six-fold increase in average production per cow. 4) Substantially greater total annual milk production. 5) Steep decline in the number of herds. 6) Large increase in the cows per herd. 7) Shift in cow numbers from the north and east to the west. 8) Cow population now dominated by Holsteins. 9) Recent resurgence of Jerseys. 10) Decline in the per capita consumption of whole milk equivalent and fluid milk.

Global demand and supply gap in the milk and dairy products will present a number of internal and external growth opportunities for the U.S. The U.S. milk and dairy market is currently well positioned to serve the milk supply shortage in the world and has prospects to grow its market share in the exports to other countries. There are two types of external growth opportunities available to the U.S. dairy exporters. First, the U.S. could increase its share in the import demand growth in the regions where the economy is highly integrated with the customer market, for example Mexico. Second, the U.S. could encapsulate the latent demand gaps for dairy products that will arise across the rest of the global market. Below are some key statistics for the U.S. dairy industry (Table 1).

Most dairy cooperatives are organized on a centralized basis – farmers are direct members. Only a few dairy cooperatives are organized on a federated basis – members of the cooperative are other cooperatives or a combination of direct members and cooperative members. Many are organized to serve farmers in a local area or single State, while others serve members in multiple States, regionally or nationally. Some dairy cooperatives have made additional business arrangements to increase outlets for members' milk through subsidiaries, partnerships, federations, marketing agencies in-common with other cooperatives, and joint ventures with other cooperatives or investor-owned firms.

U.S. Dairy Production, 2010

Rank	State	Total milk production (in million lbs)	Number of cows (in 000s)	No. of licensed dairy herds	Average herd size
1	California	40,385	1,754	1,710	1,026
2	Wisconsin	26,035	1,262	12,710	99
3	Idaho	12,779	564	585	964
4	New York	12,713	611	5,380	114
5	Pennsylvania	10,734	541	7,340	74
6	Minnesota	9,102	470	4,540	104
7	Texas	8,828	413	590	700
8	Michigan	8,327	358	2,230	161
9	New Mexico	7,881	321	140	2,293
10	Washington	5,901	251	460	546
11	Ohio	5,270	271	3,250	83
12	Iowa	4,337	209	1,790	117
13	Arizona	4,149	177	110	1,609
14	Indiana	3,434	169	1,660	102
15	Colorado	2,816	119	130	915
16	Vermont	2,522	136	1,020	133
17	Kansas	2,499	119	390	305
18	Oregon	2,399	118	270	437
19	Florida	2,127	114	140	814
20	Illinois	1,917	100	860	116
21	South Dakota	1,884	92	375	245
22	Utah	1,819	85	240	354
23	Virginia	1,719	95	705	135
24	Missouri	1,445	99	1,630	61
25	Georgia	1,395	78	260	300

The basic reasons why dairy farmers choose to market through a dairy cooperative include:

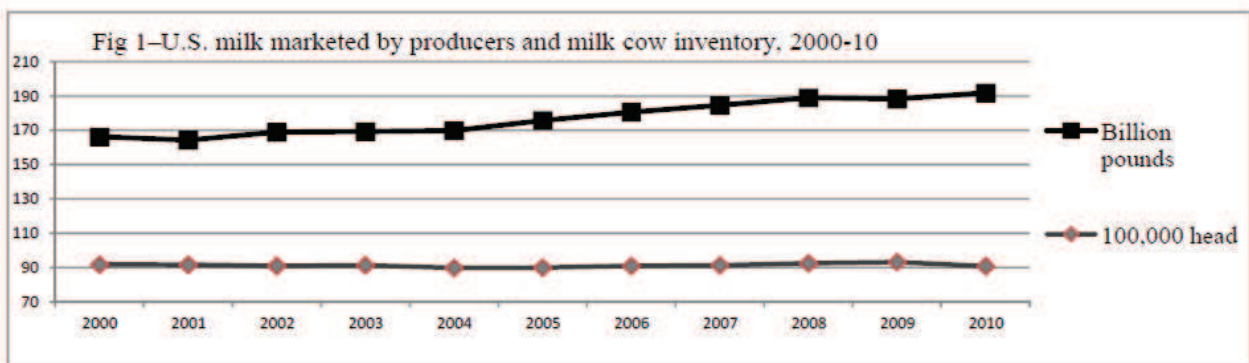
- 1) To be guaranteed a market outlet.
- 2) To bargain for the best price terms possible in the marketplace, including over-order premiums in federal milk marketing orders.
- 3) To have milk marketed efficiently, i.e., balancing plant needs, diverting milk surpluses, and assembling producer milk.
- 4) To have the highest quality producer milk possible shipped in the market.
- 5) To be effectively represented in legislative, regulatory and public relations arenas.

In the first decade of the 21st century, dairy cooperatives lost a net of 60 cooperatives – dropping from 211 in 2000 to 151 in 2010. Of the 151 dairy

cooperatives operating in 2010, almost 3 of every 4 had been in operation prior to 1992, but only a little more than 1 in 7 had been formed since 2000.

The number of dairy cooperatives that disappeared between 2000 and 2010 outpaced the number of new cooperatives that were formed by nearly four to one. Almost two of every five dairy cooperatives existing in 2000 had gone out of existence by 2010, averaging 7.5 cooperative exits per year between 2000 and 2010. About two new dairy cooperatives were formed per year, on average. Most of the 83 cooperatives that ceased to exist between 2000 and 2010 were sold or otherwise went out of operation (49 cooperatives) while 30 merged with another cooperative. Four no longer handled member-producer milk. There were eight more cooperatives with diversified operations in 2010 than in 2000 [USDA RBS Research Report 225 2012].

The volume of milk marketed by U.S. producers grew an average of 2.6 billion pounds annually between 2000 and 2010 (Fig. 1). Cow numbers decreased by an average of 9,700 head annually, but there were increases in 6 of the 10 years. In contrast, the number of licensed dairy herds in the United States continued on a steady downward trend.



Source: USDA RBS Research Report 225

Accordingly, the number of memberships in cooperatives with a majority of sales from milk and dairy products shrunk by an average of 5,300 per year during 2000-10. The number of producer-members of cooperatives that handled producer milk likewise showed a drop between 2002 and 2007 to about 50,000 producer-members.

The small cooperatives (those handling less than 50 million pounds of milk annually) had more exits and entries than either medium-sized cooperatives (50 to 1 billion pounds) or large cooperatives (1 billion pounds or more). Furthermore, the net drop of 63 small cooperatives during 2000-10 was the largest change among the 3 size groups. Accordingly, small cooperatives went from being a majority of the Nation's dairy cooperatives (60.2 percent in 2000) to 42.4 percent in 2010. Medium-sized cooperatives showed the smallest net change in numbers – a decline of three cooperatives, while the number of large cooperatives grew by a net of six cooperatives, mostly due to increases in the amount of milk handled by existing cooperatives.

The changes outlined in this article reveal dairy cooperatives to be flexible, responsive organizations that adapt to member needs in the marketplace. Dairy cooperatives represent a major share of U.S. milk production even as some have altered their operations to meet changes in the market environment and some have gone out of business. The cooperative model for U.S. milk producers appears resilient across a range of operating types.

This environment no doubt will force dairy cooperatives to consider additional mergers and consolidations and various strategic alliances with other cooperatives and investor owned firms. A more market oriented federal dairy policy, with resulting market risks, provides major opportunities for dairy cooperatives to add value to dairy farmers, and also provide value to its customers. As a result, it is very possible that dairy farmers will develop closer contractual relationships with dairy cooperatives, and dairy cooperatives will develop closer coordinating relationships with its customers in the food system. Dairy cooperatives will continue to be a major player in the procurement, pricing, processing and marketing of milk and dairy products. Their market shares are anticipated to remain constant, if not increasing [Jacobson 1995].

As for Ukrainian dairy cooperatives, with the structure of dairy farms and the food system changing rapidly, dairy cooperatives will be challenged in meeting the

needs of a more diverse farmer membership, and being competitive in serving the needs of customers in the marketplace.

Thus, dairy cooperatives came to dominate the functions of supplying fluid milk markets, routing the movement of milk, and balancing supply with demand. In addition, their role in verifying weights and tests assures members of proper payment for their milk. In this way, they have increased efficiency in milk marketing and strengthened their position in the marketplace. Their guarantee to market all of their members' milk distinctly sets dairy cooperatives apart from proprietary milk handlers.

Conclusions. The U.S. dairy cooperatives have shown their ability to successfully adapt to changes in the marketing environment and offer a wide variety of avenues for dairy farmers to market their milk. Their success has allowed milk producers to maintain the independence of their farm firms.

Developments on various fronts raise new issues for U.S. dairy cooperatives to address as the future unfolds. World trade issues, such as subsidy levels and import quotas, are under scrutiny by world bodies. The recent upsurge in domestic use of imported milk protein concentrates has raised concern among dairy producers that it is displacing nonfat dry milk produced domestically and depressing prices. New technology and procedures for making dairy products (such as cheese from dry dairy ingredients rather than fresh milk) may require cooperatives to assess and adjust their operations. In sum, the dynamics of the 21st century dairy industry present a broad array of issues for dairy cooperatives as they plan and direct their operations to market members' milk to its best advantage.

Meanwhile, continued development of dairy technology allowed dairy product lines to be expanded and diversified. Consumers received these developments with open arms in many cases, particularly in the case of cheese. Subsequently, the large manufacturing plants that cooperatives developed to manage milk supplies began to evolve into important profit centers in their own right.

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Анотація. У даній статті представлені принципи створення та функціонування кооперативів, коротко описується історія і розвиток молочних кооперативів у розвинених країнах, з особливим акцентом на досвід Сполучених Штатів Америки. Автор статті відзначає важливість вивчення та адаптації досвіду функціонування кооперативів у молокопродуктовому підкомплексі США.

Ключові слова: молочна промисловість, кооперативний підхід, молочарські кооперативи, молочні продукти, виробництво молока, продуктивність, конкурентоспроможність.

U.D.C 631.3.01.004.67

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ESTABLISHMENT OF THE REGIONAL CENTRE FOR TECHNICAL SERVICE AND MONITORING OF EXPLOITATION OF AGRICULTURAL MACHINERY

Abstract. The expediency of establishing the regional center of technical service and monitoring of exploitation agricultural machinery is grounded. Objectives, economic features of the project and monitoring are set. Methodology of monitoring of exploitation in the center is proposed.

Keywords. Agricultural machinery, technical service, maintenance, repair.