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CHALLENGES IN THE MILK MARKET (INVESTMENTS, DISRUPTIONS, LOGISTICS, COMPETITIVENESS, PRICES, AND POLICY)

Collective work, edited by  
Piotr Bórawski  
Andrzej Parzonko  
Ireneusz Żuchowski

## CHALLENGES IN THE MILK MARKET (INVESTMENTS, DISRUPTIONS, LOGISTICS, COMPETITIVENESS, PRICES, AND POLICY)

Wydawnictwo Ostrołęckiego  
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## THE ROLE OF SUPPLIERS OF PRODUCTION MEANS AND RECIPIENTS OF MILK IN THE DEVELOPMENT OF DAIRY FARMS<sup>7</sup>

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### 10.1. Introduction

The efficiency of milk production depends on many factors. One of the most important is logistics, which can be defined as the management of storage and handling activities that enable the flow of products from their origins to their places of consumption (Baran et al., 2010). Logistics has, among other things, a great influence on the quality and profitability of work. The intensively developing market enables entrepreneurs to be innovative and creative. Visible changes take place in the logistics of production and procurement, warehouses, inventory management, as well as in distribution logistics. We observe the dynamic improvement of the supply chain system and their application to customer needs. All branches of logistics – supply, production, and distribution –

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should be interconnected in such a way that meet customer requirements, and hence sales, the most important goal (Dyczkowska 2012). For many years, service and trade companies and international corporations have been interested in logistics. It is clearly visible in many popular science and scientific publications devoted to logistics. For several years we have observed an increase in interest in logistics among farms, including dairy farms. Farmers are increasingly focusing on improving the compatibility of all branches of their production (Klepacki 2016). They try to make all stages of the production chain more interdependent. A farm's logistic system depends, among other things, on its size, specialization and production structure. It can be very simple or very complex (Kuboń 2007).

Logistics on dairy farms is a complex process that allows the farmer to properly dispose of his capital, as well as plan his time and work in advance. One of the most important pillars is supply logistics. It affects the efficient functioning of farms. Another important element is production logistics. It is responsible for the appropriate adjustment of the sown area to the number of dairy cattle. The third type is distribution logistics. Its main task is to constantly control the quality of the raw material, which allows it to meet the growing expectations of consumers, including hygiene, purity, and health benefits of milk (Szymańska et al. 2018). From 2005 to 2017, a significant increase in milk production of almost 12% was observed, despite the decreasing number of cows, which shows that the changes are bringing the intended effects.

## **10.2. Aim and method**

The main aim of the research was to evaluate logistic activities on dairy farms. The specific goals are:

- recognition of supply and distribution logistics;
- introduction of machines to improve the logistics of supply and distribution;
- assessment of investments in the researched farms.

The time scope of the research covered 2019.

The research material consisted of data obtained in own research carried out on 373 farms involved in milk production.

The selection of farms for the research was purposeful. The basis for the selection was:

- the farmer's willingness to answer the survey questions,
- making investments on the farm.

In this paper, the results of the survey were analyzed. The respondents answered questions about the logistic processes of supplying their farms, the production processes of the raw material, which is milk, as well as the processes of its distribution. The questionnaire mainly covered issues related to the expenses incurred at each stage of the farmer's work. For greater comparative possibilities, the respondents also answered many basic issues. They contained, inter alia, information on the size of the farm, stock levels, and methods of keeping and breeding cows.

### **10.3. Factors influencing the choice of suppliers of means of production**

Supply logistics aims to use existing opportunities. It coordinates the flow of goods and information in order to provide the company with materials used for production or for trade. Its activities go beyond the reach of the enterprise, sometimes even outside the country (Dyczkowska 2012).

The conducted research shows that dairy farmers cooperate with many suppliers and purchase inputs on the market. As a result, supply logistics has developed, which has a very large impact on the efficient functioning of the farm (Szymańska et al. 2018). Its main task is to provide maximum protection of all material needs at the lowest possible cost. First of all, it is about ensuring the availability of raw materials, products and materials that allow the farm to be ready for production (Wojciechowski 1999). Agricultural means of production include: plant protection chemicals, agricultural machinery, organic, mineral and natural fertilizers, as well as certified seed. The broadly understood market for services, for example mechanization, transport or veterinary services,

should also be considered when it comes to supplying dairy farms. An additional aspect is the energy needed to work and maintain production (Kuziemska et al. 2016). Table 1 presents the factors having an impact on the choice of suppliers of means of production.

Table 1. Factors influencing the choice of suppliers of means of production? (on a scale of 1-5)

Factors	Points
High quality	4,11
Competitive price	4,18
Products' differentiation	3,77
Known mark	3,61
The attractiveness of the packaging	2,85
A wide range of assortment	3,64
Ecological features	3,29
Constant cooperation	3,72
Favorable distance	3,71
The best price for the goods	3,99
The best quality of goods	4,05
Timely deliveries	3,87
Supplier monopoly	3,17
Knowledge of suppliers	3,57
Other	1,49

Source: elaborations made on own research

#### **10.4. Nature of cooperation with suppliers**

Two main purchased goods are concentrates and concentrated feed. The surveyed farmers evaluated the nature of cooperation with suppliers (Table 2). Most of them pointed out that they take into account their own and supplier's conditions. More than 30% of farmers accepted the terms of delivery. Only 8% dictated terms.



Table 2. Nature of cooperation with suppliers

Specification	%
We accept the terms of delivery	32,70
We take into account our own and supplier's conditions	62,16
We dictate our terms	7,57

Source: elaborations made on own research

Farmers sometimes refuse to accept (42,3%). Some of them decide to refuse accept goods for various reasons, for example defective goods (30,27%) and lack of timeliness (23,51%). No information on sustainability for use was the reason for 8% of farmers. Majority of farmers do not refuse to accept the goods (Table 3).

Table 3. Reasons for refusing to accept the goods in the opinion of the respondents

Specification	%
No refusal to accept the goods	55,40
Refusal to accept the goods:	42,43
Lack of timeliness	23,51
Lack of the ordered quantity	11,35
Defective goods	30,27
No information on suitability for use	7,84

Source: elaborations made on own research

Production logistics is designed to ensure the flow of information and materials throughout the entire production process. Its main tasks are control, organization and planning of the flow of raw materials, materials, cooperative elements, and parts during the entire production process (Dyczkowska 2012).

Farmers as an active supplier chain members sometimes change suppliers (Table 4). The reasons for this actions are following: bad attitude towards customer (56,75%), untimely (55,67%) and high price of goods (55,13%).

Table 4. Reasons for changing supplier

Specification	%
Untimely	55,67
Bad attitude towards the customer	56,75
Not an interesting offer	45,13
High price	55,13

Source: elaborations based on own research

### 10.5. Products sales channels

Distribution is the last stage in the logistics chain. Its aim is to provide a product that meets the expectations and needs of buyers in the right place and time. Through the distribution channels, the entire process of movement of goods from producers to customers takes place. Distribution channels are not limited to intermediary links, but also involve companies that participate in the flow of goods and services from producers to the final recipient. One of the most important roles of distribution logistics arises from the principle of modern logistics. It states the need to shorten and accelerate all processes as much as possible at each stage of distribution with the required quality of customer service. The biggest problem of these processes is the time-consuming nature that results from the distance between the producer's location and the consumer's location. Distribution logistics combines all processes and flows that occur in the field of sales and delivery into one management system. Its main goal is to minimize sales costs with the optimal satisfaction of customer needs (Dyczkowska 2012).

Table 5 presents the product sales channels.

Table 5. Product sales channels

Specification	%
Directly on the farm	48,92
For processing	43,24
Sale to intermediaries	23,78
At marketplaces	7,30
To wholesalers	7,84

Source: own elaborations based on own research

When trading milk, it is very important to maintain its high quality. The requirements of retail chains and consumers regarding the purity, hygiene and health benefits of milk grow constantly. They require ensuring food safety and its adequate quality (Kobus and Kmiecik 2006). The accession to the European Union required improvement of the raw material quality. The milk producers had to make many of the necessary investments in terms of milking as well as milk storage in order to comply with its regulations. Table 6 shows the factors determining the choice of recipients of agricultural products.

Table 6. Factors determining the choice of the recipient of agricultural products

Specification	Points*
Timeliness of receipt	3,95
Good prices	4,09
Possibility to pick up a large batch	3,89
Known mark	3,46
Knowing the recipient	3,74
A positive experience	3,85
Good opinion about the recipient	3,86
Constant cooperation	3,84
Favorable distance	3,58
Customer monopoly	3,07

\* the farmers evaluated the factors in 1-5 points, where 5 is the most important  
Source: elaborations based on own survey

Farms now focus more on the proper development of the distribution of their milk. First of all, it concerns obtaining the highest possible customer satisfaction, reducing transport costs or limiting the activities of competitors (Pawlewicz and Gotkiewicz 2012). Producers of this milk claim that they sell mainly to dairy cooperatives. This proves that the link of farms with processing is developing, which, in turn, guarantees the cooperatives an uninterrupted supply of milk (Karwat-Woźniak 2013).

## 10.6. Summary and conclusions

We conclude from the research that a small few farmers sell products to restaurant at markets, to wholesalers, or on request directly to the customer. This means that producers are reluctant to undertake their own milk sales activities. The development of distribution logistics also depends on cooperation with other farmers. Hence horizontal integration develops.

Producers most often sell milk to dairy cooperatives, establishing long-term cooperation. Thanks to this, they are provided with a market and regular raw material pick-ups, usually every two days. This results in reduced milk storage costs. Companies that purchase milk most often look for farms with large production, which can provide batches of raw milk of consistent quality. When setting prices, dairy cooperatives do not only consider the market situation. Therefore, manufacturers are mainly guided by the price offered and the favorable distance when selecting the recipient. Other aspects are secondary to them.

An important element in distribution logistics is the maintenance of constant milk production throughout the year. Research shows that it is easier to achieve by farms more open to new investments that focus on milk production. Not only does this make it possible to obtain a higher price of milk, but also allows the farmer to take advantage of specific subsidies.

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