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Milk Processing In Production: Management And Planning.

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ABSTRACT

The current state of the dairy industry puts forward special conditions and new mechanisms for processing, production and management of this activity. Enterprises have tasks not only of effective functioning, but also of sustainable development through the realization of their potential. Successful completion of tasks is closely related to solving the problems of milk processing and marketing of these products. This predetermines the need for the formation of effective management and comprehensive modernization. In this regard, their successful economic activity at the current stage of development of the Russian economy becomes possible with the opening of mini-plants for the processing of milk in the countryside.

Keywords: milk, processing, capital investments, equipment, management, planning, payback, profit.

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INTRODUTION

In connection with the current events in the global economy, as well as economic sanctions, the main goal of all commercial organizations is to make a profit [1,2]. The optimal organization of sales activity is one of the most important components of an effective business for processing enterprises, since it provides the organization with the cash flow necessary for normal activities [3,8,11]. Consequently, its success or failure in a market economy depends on the formulation and development of the sales activity of a processing enterprise. In modern conditions, it is advisable to open mini factories on the basis of individual enterprises.

The development of new approaches to the management of all resources of the enterprise is one of the conditions for the successful functioning of mini-plants for milk processing, as well as their reformation in the current economic conditions [6,7].

Milk is the only food product that a person consumes from birth. Milk is important in the nutrition of people throughout life, as it acts as a source of easily digestible calcium, protein, vitamins A, B2, B12.

Currently, milk is received only through purchases at retail outlets. However, villagers can consume fresh milk. They keep cows, not only to get milk for personal consumption, but also for additional income [9,10]. The object of the study is a separate region of the republic.

In the study area, residents deliver milk to a dairy plant remote from them, which is not very convenient for the population. First, not every villager has a personal vehicle for transporting milk. Secondly, the calculation is made at the end of the month and therefore the population cannot know the cost of their products.

The technology of processing milk and individual dairy products is presented in Figure 1.

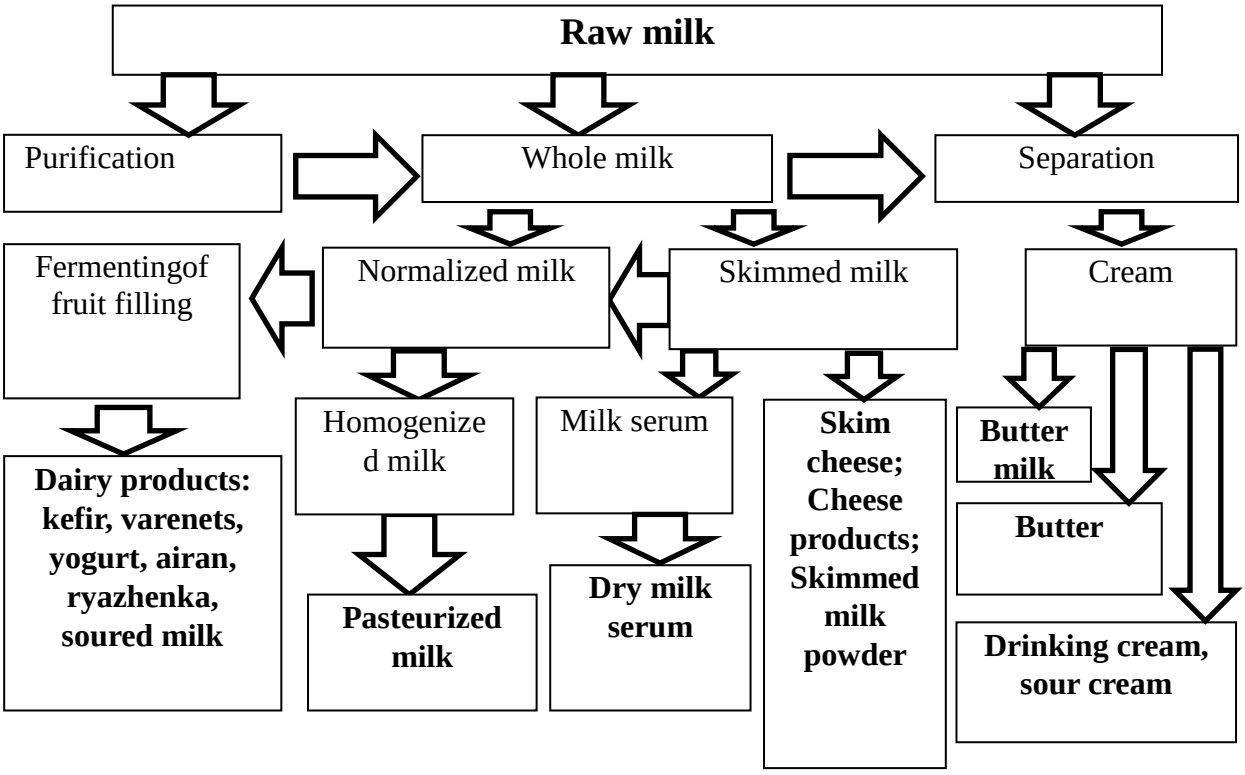

Figure 1: Technological operations for the processing of milk by groups of finished products

The project of a mini-plant for the processing of milk in the study area on the basis of an operating enterprise that is capable of initially processing up to 1000 liters of milk per day is presented below.

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The advantages of this plant are as follows:

- Milk will be purchased in localities, which is a plus for residents, since it will not be necessary to look for transport to bring the goods;
- Payment for the goods will be made the next day after the delivery of milk;
- Products will be completely natural, which means the absence of synthetic and chemical components.

To implement this project, it is necessary to develop a production plan in which all necessary actions will be described in stages (Figure 2) [5,13].

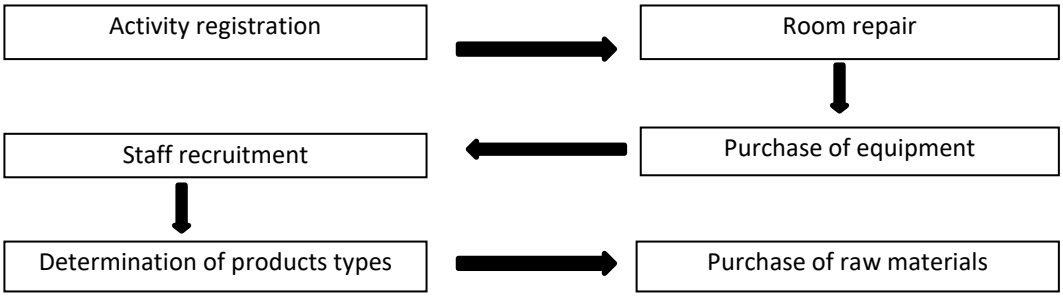

Figure 2: Development of a phased production plan

Today, the authorities are serious about the development of agriculture. Due to this, many start-up entrepreneurs have the opportunity to engage in the dairy business and receive state support: exemption from paying local and regional taxes; seasonal tax deferral; budget subsidies [15].

Problems of milk processing, management, accounting and analysis are highlighted in the works of domestic economists [1,2,3,14,16,17,18,19] and others. Significant experience has been gained, however, special conditions and management tools are needed in dairy mini enterprises.

Before opening a mini-milk processing plant, it is necessary to register a business and obtain all necessary permits.

Documents for the trade in dairy products required for registration are presented in Table 1.

Table 1: Documents on registration of trading activities

No	**Registrationdocuments**
1	Permission to sell dairy products at retail
2	Documents for the transportation of products
3	Veterinary certificate in the form No 2
4	Documents issued by the State Veterinary Laboratory
5	Permission to trade
6	Certificate confirming the quality of products
Note: It is necessary to pay attention to the packaging for milk processing products meet all the requirements.	

Equipment for dairy production includes a set of means for processing animal milk in order to produce a variety of dairy products. It can be both separate units, and the whole complexes. In our case, these will be separate units, since we have free premises and their cost is much lower than the whole complex.

A variety of dairy products can be obtained using these units: milk, kefir, sour cream, cottage cheese, butter.

The following equipment is needed for the milk processing workshop:

1. Equipment for the acceptance of milk (approximate cost of 90,000 rubles). The main purpose of such equipment is the primary acceptance and processing of milk, measuring its characteristics (fat, water temperature percentage, etc.), checking their compliance with standards. Also, the purification of milk from harmful impurities and pollutants, the release of air from it and cooling for subsequent storage is performed with the help of this equipment. Often the means of acceptance are also the place of preliminary storage of chilled milk before it enters the production cycle.
2. Capacities of long pasteurization (approximate cost is 250,000 rubles). The main purpose of such equipment is pasteurization of dairy products.
3. Pasteurizer (approximate cost 420,000 rubles). These plants are used in the production of various dairy products that require special heat treatment to ensure disinfection in a relatively short time. If the processes in the baths of prolonged pasteurization can take several hours, then the pasteurizers can handle this in a few tens of minutes.
4. Coolers (approximate cost 100,000 rubles). These units are necessary for cooling pasteurized dairy products and their short-term storage before final packaging. Coolers consist of a tank, a refrigerator and a temperature control system.
5. Pumps (approximate cost of 30 000 rubles). Food pumps are designed for pumping milk or thick substances.
6. Homogenizers (approximate cost 150,000 rubles). These devices are used to produce homogeneous mixtures of two or more liquids [4, 12, 20-24].

6 workers (2 people per shift), 3 masters (1 person per shift), 1 laboratory assistant and 1 technologist (their working day will be 8-hour 5 days a week) will be required for the production of milk processing, which will work around the clock and process up to 1000 liters of milk per day in the initial stages.

The table on employees wages (table 2) is presented below.

Table 2: Production employees wages fund

No	Position	Officialsalary, rub.	Numberofpersons	Monthlypayroll, rub.	Annualpayroll, rub.
1	Worker	15 000	6	90 000	1 080 000
2	Master	19 000	3	57 000	684 000
3	Laboratory assistant	25 000	1	25 000	300 000
4	Technologist	26 000	1	26 000	312 000
5	Total	-	11	198 000	2 376 000

Capital expenditures will amount to 1,540,000 rubles (purchase of equipment + repair of premises).

The absolute value of depreciation of fixed assets is calculated at a rate of 10% for equipment. The useful life is 10 years. [10]

90,000 * 10% = 9,000 rubles.
250,000 * 10% = 25,000 rubles.
420,000 * 10% = 42,000 rubles.
100,000 * 10% = 10,000 rubles.
30,000 * 10% = 3,000 rubles.
150,000 * 10% = 15,000 rubles.
Total: 104 000 rubles.

The use of credit is not planned, since it is expected to receive financial assistance from the investor.

The cost of advertising, stationery, etc., according to approximate estimates, will not exceed 36,000 rubles per year.

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The cost of electricity, utilities - 600 000 rubles per year
The cost of packaging - 413,100 rubles per year (packaging - 1.5 rubles / piece)
Purchase of raw materials - 16 rubles / liter (5,760,000 rubles per year).
Total current assets per month will amount to 774,185 rubles.
Based on the above information, the total cost of 1 l of milk will be equal to 25.8 rubles.
To start the production of milk processing, we need to invest 2,314,185 rubles.

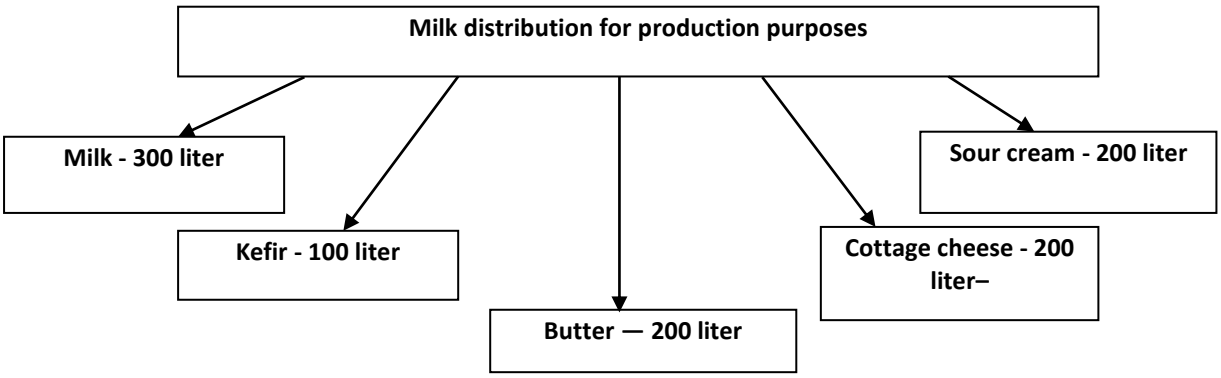

Figure 3: Distribution of milk by types of products

Next, we present the calculation of sales revenue (table 3).

Table 3: Calculation of revenue from sales of the planned production

No	Product type	Price, in rubles per pack	Quantity of production received per day	Revenue per month, in rubles
1	Milk	42	300 l	378 000
2	Kefir	45	100 l	135 000
3	Sour cream	40	20 kg	96 000
4	Cottage cheese	65	40 kg	156 000
5	Butter	90	7 kg	75 600
6	Total	x	x	840 600
Note: Net profit per month: 840 600-774 185 = 66,415 rubles. Payback: 1,540,000/66,415 = 23.2 months. Production of milk processing will pay off in 2 years.				

From all of the above, we can conclude:

The following activities should be carried out to continuously improve the organization of product sales at the mini-plant: monitoring, which allows for a timely and constant assessment of the effectiveness of sales activities at the enterprise; search for new developments and expanding the range of products; situational analysis of the position of the enterprise in the markets; production improvement, including through the introduction of new technologies; definition of strategic directions of innovation policy of the enterprise.

Despite the available risk share, this investment project can be quite attractive for an investor in terms of its high subsequent profitability and business value.

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