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DEVELOPMENT OF COOPERATIVE RELATIONS OF PRIVATE MILK PRODUCERS

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The current trends of milk production in private sector are discovered in the article. The need of relations deepening is grounded. The system of households functioning through co-operative creation is presented. The need of resources and investments return is calculated.

Introduction. Dairy complex is very important sphere of agriculture and national economy of Ukraine. It provides the raw materials to produce valuable products and consumer goods. Milk products play a big role on diet of children, teenagers and the elderly people. Effective development of dairy livestock influences on agricultural production positively. It increases the profits of agricultural producers both the enterprises and private households.

For the years the large volume of production is provided by private producers. They produce more than 80% of gross milk production. It has negative impact on the situation in the branch. The most important reason is low raw milk quality. The households aren't able to provide all technological processes according to scientific recommendations. It affects the differences in prices for different categories of producers. As a result the private households get lower prices and the profits.

Review of the last publications. The problems of effective development of dairy subcomplex are the main objects of researches of many scientists including P.S.Berezivsky, V.M.Bidenko, V.I.Boyko,

P.T.Sabluk, O.I.Shubenko, I.V.Svynous and others. Despite of big attention of experts and scientists the situation in the milk production is still unstable and needs for the recommendation to solve it.

The main aim of the research is to analyze the situation in milk production especially in private sector and propose the ways of development.

The main material. There is a difficult situation in milk subcomplex of Ukraine in recent years. Insufficiently effective organization of production and sales of milk leads to a decrease of interest in this type of business. Many agricultural producers reduced and sometimes completely stopped milk producing. As a result, private farms became the main suppliers of raw milk (Table 1). They hold about 60% of dairy cows and produce nearly 9 million tons of milk, representing 86.1% of the gross production in Ukraine. In 2013 cow productivity in private sector was 4550 kg that is higher than the average level in Ukraine.

Moving a larger share of milk produce to households leads to the deterioration of the situation on the raw milk market. There is a need to improve organization of raw milk



Table 1. Development of milk production in households of Ukraine

Index	2011	2012	2013
Number of dairy cows, thousands heads	3509,1	3485,6	3380,9
including households	1998,5	1979,1	1943,4
Share of households in total number of cows, %	57,0	56,8	57,5
The average yield on all farms, kg	4174	4361	4446
The average yield on households, kg	4354	4480	4550
The ratio of yields on households to the average in all categories, %	104,3	102,7	102,3
Gross production of milk, thousands t	10055,4	10113,5	10347
including households	8840,1	8842,3	8905,7
Share of households in gross production, %	87,9	87,4	86,1

collection from private producers and quality control. The existing system of milk collection from the households can't provide high raw quality through the absence receiving points and initial processing of milk in many cases, and modern methods of delivery to processing enterprises. The quality of milk from private producers is very low and therefore milk processing enterprises reduce the purchase price of such materials. Thus, in 2013 the average level of prices for milk produced by agricultural enterprises exceeded the prices households to 604.3 UAH/t. As a result, in 2013 households received 2.5 billion UAH less only on the difference in price from the low quality (Table 2).

Quality and volume of raw milk are the main indexes that have very big influence to the efficiency of milk processing companies [3, p.250].

Production of milk in private sector with a reduction of its quality leads to a decline in

economic efficiency of milk subcomplex. Therefore, to ensure the competitiveness of domestic dairy products there is a need to improve the quality of raw materials and the pricing policy with the new forms of milk collection forms.

According to studies found that the difference in purchase prices for households and enterprises is about 1-1.5 UAH/kg. This difference may be an economic basis for deepening cooperation relationship between private producers and creating cooperatives. Implementation of this project will not only improve the quality of milk collected from the private households to the level of enterprises but even better for the basic characteristics.

To ensure the effective functioning of the milk cooperatives should pay great attention to the formation and expansion of the resource base. This can be achieved through the involvement of new producers or increase the number of dairy cows. In other case there

Table 2. Sale and quality of milk to processing enterprises

Indexes	2011	2012	2013
Sold milk to processing enterprises, total, tons	4615,1	4716,4	4570,2
including private households	2155,3	2007,2	1824,0
From all - the premium quality, thousands tons	765,7	831,0	1223
Average raw milk prices:	2736,1	2386,2	2955,3
on enterprises	3093,1	2689,7	3337,4
on households	2309,5	1905,3	2351,0

is a problem of the investment attraction for development. The problem of access to financial resources is related not only to the size of the business. Getting a bank loan in rural areas is often complicated by the remoteness of banks, problems with collateral, lack of constant formally confirmed income of private entrepreneurs, inability to find guarantors and the complicated procedure of getting the loan. Commercial banks shun lending to small rural businesses through high transaction costs associated with small loan size and high risk of agricultural production, and sometimes – due to the lack of bank lending specialists in agribusiness.

Currently, commercial banks are reluctant to cooperate with farms. The main reasons are:

1. High risk of loan default owners of private farms;
2. The legal status of a private person (commercial banks are not allowed to provide loans for production activities borrowers who are not entrepreneurs);
3. No warranty of third party.

Serving milk cooperatives forming will have economic and social consequences. First, the purchase price for raw milk will increase, which increase the rural population income. Second, produced raw materials will increase its quality due to the cooling.

Third, the involvement of private producers to cooperatives will have a positive impact on employment in rural area and improve the socio-economic situation.

Summarised organization chart of milk collection from private producers by agricultural service cooperatives is represented below (Figure 1):

To ensure the milk collection in households several organizational scenarios were developed (Table 3). As a basis was buying milk in households with such criteria: the car load – 3 t; average daily milk sale of a household – 10 kg; number of settlements – 1, 2, 3, 4, 5 or more, depending to the number of milk producers.

To determine the distance for download milk tanker the route from procurement centers to producers and reverse was taken into account.

Milk cooperatives must provide raw milk filtration, cooling to 2-4°C, short-term storage and quality determination. Reception center shall provide storage of primary raw milk properties.

The agricultural service cooperative has to examine the available number of dairy cows, opportunities for milk volume. From offered the most realistic variant is milk collection in three settlements, the average number of cows

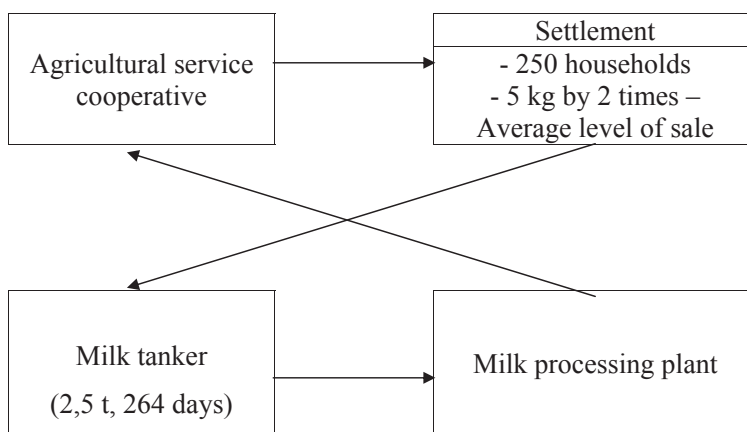


Fig.1. Scheme of milk collection from private producers



Table 3. Organizational chart of milk purchases from the households

Indexes	Variant				
	1	2	3	4	5
The volume of milk collection by one milk tanker, t	2,5	2,5	2,5	2,5	2,5
Distance to load milk tanker, km	10	30	50	70	90
Distance from the dairy plant, km	20	20	20	20	20
Average daily mileage, km	30	50	70	90	110
The total yield of milk in one settlement, etc.	2,5	1,25	833,3	0,63	0,5

is 50 heads and milk producers have the opportunity of sale it twice per day.

Collection of raw milk is supposed to occur by GAZ-3309 with a tank. The car is designed for milk collection on a milk procurement stations and households and its delivery to processing enterprises.

The calculation of the milk transportation and cooling cost in different variants is represented in table 4.

The proposed technology of milk collection will perform the main task which is milk collection from the households and ensure its high quality,

Experts confirm the feasibility of establishing a permanent milk collecting stations equipped milk coolers of different sizes (300 l, 500 l, 1000 l 2000 l 3000 l), depending on the number of cows in the private sector and devices for quality milk determination. Chilled milk from milk

collecting stations should get out and transported to the milk processing plants with greater capacity tankers and simpler construction scheme (like a thermos without cooling system), which will significantly reduce the cost. In addition, this scheme of milk collection from the households will help:

- to collect the maximum amount of milk, including lunch milking;
- to make an independent schedule of milk collection in optimal time both in terms of product quality and minimum time;
- to increase the quality of the milk;
- to increase milk tanker productivity and optimize schedule of driver.

Many researches state that the deepening of cooperative relations of milk producers is a way of dairy sphere development.

Scientists consider the development of cooperatives may be the salvation of the village. The people create cooperatives because of

Table 4. Calculation of basic indexes of cooperative organization and functioning

Показник	Variants		
	I	II	III
Milk tanker price, thousands UAH	756,6		
Service period, years	10		
Deductions for repairment	0,07		
Distance from milk plant to milk collection point, km	30		
Delivery radius, km	35	55	75
Fuel consumption per 100 km, l	15		
Average monthly wage, UAH	3500		
Number of milk collected from a cow, l	10		
Amount of milk collected and transported per day, t	3		
Amount of milk collected and transported per year, t	1095		

Table 6. The need of investments for service milk cooperative*

Budget Item	Amount, thousands UAH
A rent of collection point	21,6
Equipment for raw milk quality control	50,0
Equipment for milk cooling	100,0
Wages with charges	230,2
Other expences	30
Milk tanker	200
Total	631,8

*The details of calculations: a number of employees - 4 people. salary - 3,5 thousand UAH, room - 60 m², rent - 30 UAH/m², the other expenses include state registration, a lawyer, notary, consulting, business plan development, electricity, office equipment, administrative and incidental expenses.

some benefits. One of it is the possibility to sell the raw material in higher prices.

Shubenko O.I., Bidenko V.M. state that cooperatives sell about 80-90% of raw milk in Europe [10, p. 65-67].

According to current legislation an agricultural service cooperative is a nonprofit organization that operates to provide for its members the services necessary for farming and seeks to increase the amount of their profits. Cooperative members commit themselves to sale their products through cooperatives. That is, membership in the cooperative is based on contractual arrangements under which members producers undertake to sell produced milk through cooperative and cooperative – to ensure procurement of raw milk, cooling and transporting it to the milk processing plant.

Berezivsky P.S. suggests that private households have some difficulties with effective milk production (feeding, quality, level of marketability etc.) that's why they have to develop cooperation with others producers to provide own profitability [1, p.102]

The main purpose of the cooperative may be providing additional income for its members by increasing the purchase price as a result of primary processing of raw milk (cooling). The main activities will focus on combining households, purchase their milk and its initial processing.

It is assumed that cooling equipment and raw milk quality control will be provided by dairy enterprise and its cost cooperative will repay by the part of the monthly income. The value of the equipment will be repaid in equal parts over the first year of operation, ie 12.5 thousands UAH monthly.

The estimated costs for creating service milk cooperatives are represented in table 6.

To operate the cooperative needs a cooling tank that brings the temperature of the milk to + 4 ... + 6°C. The cost of such equipment is about 100 thousand UAH and can vary depending on the manufacturer and terms of delivery. For determination of the quality of milk it is planned to upgrade the mobile unit. For the storage of milk purchased the necessary equipment will be leased, worth 21.6 thousand per year. To ensure that the co-op, record keeping, accounting and other activities should involve employees and to pay for their services expected to 230.2 thousand. Under current legislation on the payroll accrual held about 37%. In order to include the initial cost of state registration, lawyer, notary, consulting, business plan development, payment for consumed electricity, necessary office equipment, administrative and unforeseen expenses, etc. total costs to be incurred in the establishment and operation of agricultural service milk cooperative, we estimate about 631.8 thousand UAH.



The main indicators of economic activity in the proposed cooperative are reflected in table 7.

We calculated the scenarios that differed by volume of milk – from 500 to 3000 kg per day. For the calculations were taken that each cooperative member has one dairy cow and sells about 10 kg of milk per day.

Recently, the milk purchase price at private households is about 3-3.5 UAH/kg, and enterprises – 4-4.5 UAH/kg. According to automation and mechanization of milking at enterprises milk contact with air minimized, what is not possible to provide at households. That’s why the difference between purchase prices appears. Under the calculations the chilled milk in cooperative can be sold for the price of UAH 3.0 kg. The members of the cooperative will receive a fee for abandoned milk and will be charged around 0.50 UAH/kg. The remaining funds will be directed to income of the cooperative to repay the cost of its organization and the return on the initial investment.

The calculations of efficiency and investments return of serving milk cooperatives enable argue about the feasibility of establishing such forms. They will have a positive impact on the dairy industry, improve the economic efficiency of milk subcomplex and create conditions for its expanded

reproduction. Costs back on their creation will be from 10.1 to 1.4 years at the purveyance from 500 kg to 3 tons of milk per day (table 7). By increasing the amount of milk purchased payback period significantly reduced.

Private entrepreneurs with own equipped machinery will be involved to transporting raw milk from procurement centers to processing plants. The expenses they will cover by the income for the provided services.

As the example of cooperation development could be experience of such co-operatives:

1. Milk country – cooperative that unites about 18000 members from 15 regions of Ukraine with about 25000 dairy cows [7].
2. Dobrobut Andriivky – cooperative with 157 members in Dnipropetrovsk region [4].
3. Hospodar – has 12 milk collecting stations and with 15 t of milk daily [5].
4. Hospodar Pidgirya – is a unit of 3 agricultural cooperatives in Chernivtsi region that can process 12 t of milk per day [9].
5. Balkivsky plus – the cooperative that sell the milk to Danone milk processing plant [6].

In Ukraine we have an experience of NGO Dnister created in 2012. Total budget of the program is 480 thousands Euro. The program provides combination of private milk producers [8].

Table 7. Key economic indicators of serving milk cooperative*

Indexes	Variant			
	1	2	3	4
The number of cooperative members	50	100	200	300
The volume of purchased milk kg / day	500	1000	2000	3000
The annual expenses on the purchase, thousand UAH	525	1050	2100	3150
Annual gross income, thousand UAH	675	1350	2700	4050
Cooperative payments, thousand UAH	75	150,00	300	450
Profit, thousand UAH	62,5	137,5	287,5	437,5
Payback period, years	10,1	4,6	2,2	1,4

*The calculations details: milk purchase price in private households - 3.5 UAH/kg, the purchase price for the cooperative - 4.0 UAH/kg, selling milk price - 4,5 UAH/kg.

In addition government suggests that cooperatives would increase the milk purchase prices [2].

Tereshenko I.O notes that development of cooperation is one of strategic directions of improvement dairy cattle competitiveness [11, p.167].

Conclusions

An agricultural service milk cooperatives functioning will have both economic and social consequences. First, it increases the income of

rural population by increasing the milk purchase price. Secondly, the employees are involving to perform business functions, thus reducing the number of unemployed in rural areas. Thirdly, incentives created and motivation increased for milk production business and expanded reproduction in dairy farming.

So deepening of cooperation relations between private households is an important condition of milk subcomplex effective development.

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АНОТАЦІЯ

Ільчук М.М., Радько В.І. Розвиток коопераційних відносин приватних виробників молока // Біоресурси і природокористування. – 2015. – 7, № 1–2. – С. 130–136.

У статті розкрито основні тенденції виробництва молока в приватному секторі. Обґрунтовано потребу поглиблення економічних взаємовідносин. Показано систему функціонування господарств населення з урахуванням розвитку кооперації. Розраховано потребу в ресурсах та окупність вкладень.

АННОТАЦИЯ

Ильчук Н.М., Радько В.И. Развитие кооперативных отношений частных производителей молока // Биоресурсы и природопользование. – 2015. – 7, № 1–2. – P. 130–136.

В статье раскрыты основные тенденции производства молока в частном секторе. Обоснована потребность углубления экономических взаимоотношений. Представлена система функционирования хозяйств населения с учетом развития кооперации. Рассчитана потребность в ресурсах и окупаемость вложений.