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CRUDE MILK INDICATIVE PRICES: MECHANISM OF DEFINING AND APPLICATION

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Summary

In the article the results of the analysis of the environment of purchase prices of crude milk in Russia and the Saratov region, including their long-term dynamics of seasonal fluctuations are presented. Author's calculations prove an exponential rise in prices and its negative influence on consumer prices of dairy production. Importance of monitoring of inter-branch parity of the agricultural and industrial prices is emphasized. Experience of use of indicative pricing within agreements between national associations of producers and milk processors is generalized. Special attention is given to methodical questions of justification of indication prices. The improvement guidelines «Temporary methodical recommendations on the organization of monitoring of the current profitability, indication prices and production costs of main types of agricultural production» are formulated. The offered author's approach is approved on materials of the Saratov region. The corridor of the minimum and ceiling indication prices for 2013 is reasonable. The conclusion is drawn on the need of reconstruction of the regional Union of producers and milk processors Saratov-Molprom.

Key words: indication price, crude milk, price inter-branch parity, Saratov region, methodical approach, forecast

JEL: R11, Q11

Introduction

Discussion on purchase prices of crude milk in recent years in scientific and business environment is vital and actual. It is connected with the fact, on the one hand, that not only payback, but the destiny of the Russian dairy cattle breeding industry depends on it, and on the other hand, economic availability of milk consumption as many dairy products are socially significant. How should the opposite purposes of objective growth and necessary reduction on crude milk prices be coordinated? In the article we'll try to analyze the situation on the example of the Saratov region in Russian Federation.

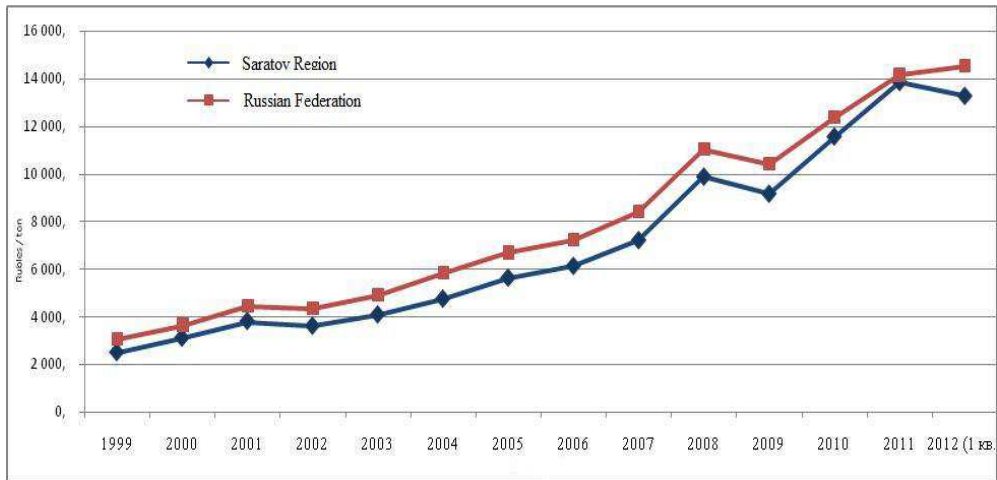
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Dynamics of milk prices in the Saratov region

The prices on crude milk in Russia are the highest in Europe. This is connected both with the industry's level of technological development, and natural climatic conditions. It is possible to note that the change of purchase prices of crude milk is characterized by positive dynamics (*Graph 1*).

Graph 1. Crude milk producers' medium prices' dynamics in the Saratov region and Russian Federation



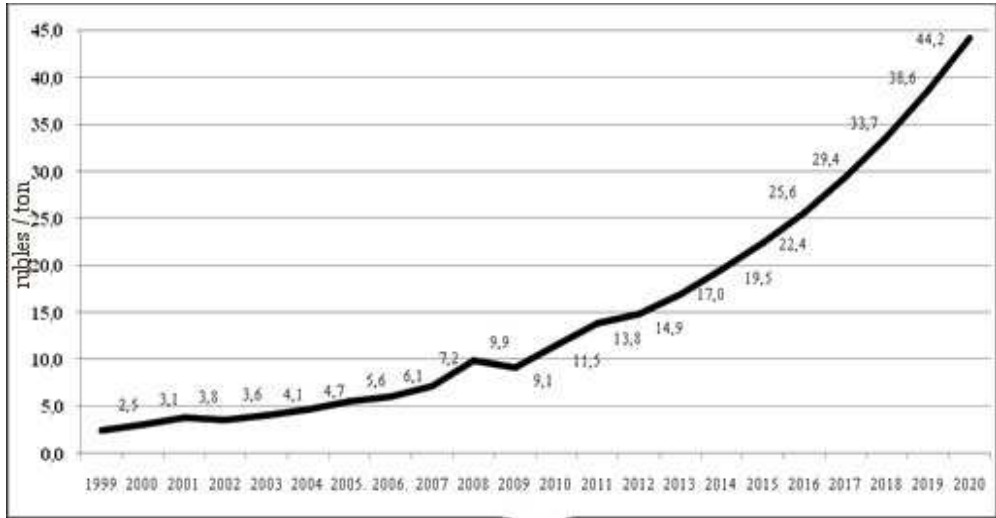
Source: Milk producers' national union Souzsmoloko, 20th February 2012, http://www.souzsmoloko.ru/news/news_996.html

The graph shows that during the last years medium purchase prices on crude milk in the region have grown up from 3,1 in 2000 up to 13,8 thousand rubles per ton in 2011, i.e. 4,5 times. Thus, the gap in the level of medium Russian and regional prices decreased from 15 up to 2%. From the point of view of farm goods producers such growth should be considered as a positive one, because it allows in the conditions of energy and feeds' costs increase retain profitability and with the help of state subsidies invest into production development.

Under given circumstances crude milk prices will grow. The prices on crude milk will increase not linearly but exponentially. The author's inertial purchase price change forecast shows that by 2020 it will reach 44,2 rubles per liter, i.e. will grow during 8 years 3,2 times (*Graph 2*).

Nowadays crude milk costs constitute 42-44 per cent of retail price on whole pasteurized milk, sour cream, cottage cheese, different kinds of cheese and 60% - on butter [4]. It is obvious that the increase in purchase prices on crude milk will become the factor of dairy products consumer prices' changes.

Graph 2. Crude milk producers’ medium prices exponential trend in the Saratov region up to the year 2020



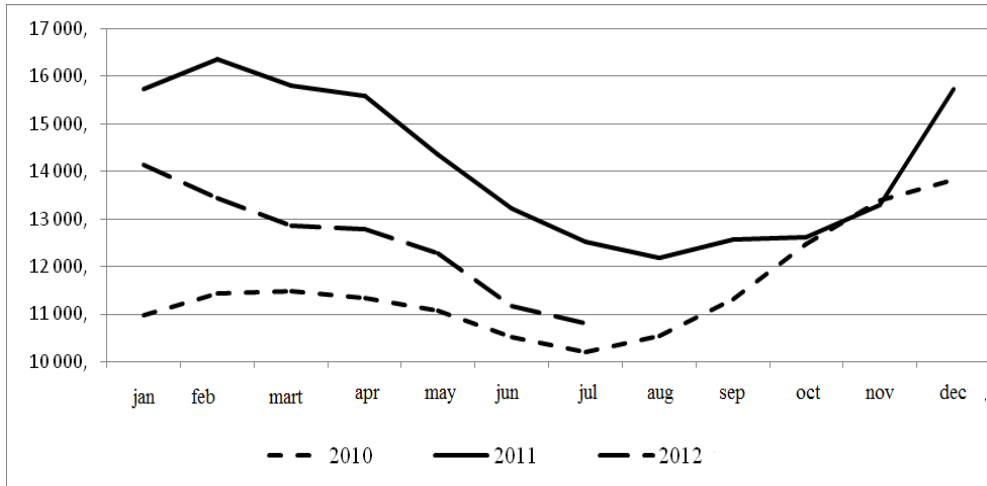
Source: Author’s calculation

The problems connected with prices inter industries parity is revealed as follows:

- Milk processors can not raise their realization prices because of high competition on import dairy production supplies (cheese, butter and powdered milk), cost production price of which is being calculated on the base of medium purchase prices on crude milk at the level of 8-10 rubles per kg [6]. The restriction on retail prices growth renders a depression of solvent demand as well;
- Crude milk production is characterized by very high seasonal instability –in May-July it is 40-60% more than in December-February. It is during the highest milk production period that consumer demand on it is seasonally reduced. As a consequence, summer purchase prices are falling leading to agricultural producers’ losses (*Graph 3*).

These calculations demonstrate that scientifically based methodic approach is necessary towards defining approximate crude milk indicative prices. That was why in 2010 under the auspices of the Russian Federation Ministry of Agriculture, work began on the conclusion of a special agreement between the associations of milk producers and processors (Soyuzmoloko and Russian Union of Dairy Suppliers) on crude milk indicative pricing, and, in particular, minimum prices on crude milk, below which they could not be dropped during the year.

Graph 3. Crude milk purchase prices' seasonal volatility in the Saratov region, rubles per ton



Source: Milk producers' national union Souzsmoloko, 20th February 2012, http://www.souzsmoloko.ru/news/news_996.html

In 2010 processing enterprises controlling 65% of domestic cheese production, more than 50% of butter production and about 40% of powdered milk production [4] agreed on the price of 11 rubles per 1 liter of crude milk. It is important to stress the fact that the given consensus was not a legal statement, but the declaration creating the position of dairy market participants. As a consequence, stated prices were indicative, i.e. were recommended.

The application of indicative prices forms objective and forecasted situation in dairy production necessary for efficient functioning of the market, financial policy planning and favorable investment climate creation. Indicative prices perform several important functions:

- analytical, characterizing the alteration of equivalence of inter branch exchange on the dairy production market;
- informational, orientating market subjects under the elaboration of their current and long-term plans for the forecast level of purchasing and sales prices;
- coordinating, harmonizing the interests of buyers and sellers in the process of implementation of market transactions at the conclusion of "fair" contracts;
- regulatory, forming mechanism of the overflow of milk and dairy products in the most favorable areas, and to the most efficient producers;
- stimulating, creating motivation to improve production efficiency by means of modernization and innovations.

In 2011 and 2012 the created precedent of signing inter branch agreement was continued. Thus, in the current year the Agreement between Soyuzmoloko, a group of companies Danone-Unimilk and Wimm-Bill-Dan Products on the compliance with the monthly average basic indicator price for crude milk not less than 12 rubles and 16 rubles per kilogram of

crude cow's first grade milk on the dairy farm (3,4% of fat and 3,0% of protein) excluding VAT was signed [3].

Association of milk producers performs prices justification in the framework of annual forecast for the twelve-months period on the basis of the "Provisional guidelines for organizing the monitoring of current profitability, indicative prices and the costs of the main kinds of farm produce", together with jointly collaborated RF Ministry of Agriculture and All-Russian Scientific Research Institute of Agricultural Economics and approved at the end of 2008 [1].

Indicative price

Indicative prices for crude milk must meet the following requirements:

- to provide conditions for the expanded reproduction of both agricultural and processing enterprises;
- reduce (or increase the minimum growth) of consumer prices for dairy products;
- motivate the use of advanced technologies growing livestock breeding and effective use of all resources.

In the current procedure under the indicative price there should be understood such level of producer prices under which indicative (normal) cost are compensated and profit is generated, which in view of the proceeds from the budget and borrowings provides inherent in State Program of agricultural development milk growth rates (4,9%).

The practical value of this study is - it determines the absolute value of the indicative profitability of milk production as the norm of providing the required rate of expanded reproduction in the industry at 26,5 % (with a growth rate of 6 %, it is increased up to 32,8%) as well as the minimum level of profitability, offsetting cost inflation at the level of 14,8%.

Normative profitability for the Saratov region may be defined using these fundamental ratios. In the Draft Concept of agro-industrial complex of the Saratov region until 2020, [5] average annual milk growth rates up to 5,4% are being planned, therefore normative profitability should constitute 29,4%.

The benchmark price is calculated as the sum of the regulatory industry profits and normal costs. These indicators are determined on the basis of information on the actual cost of milk in the model farms with high productivity of cows, low production cost and producing 30-40% of total milk output in the region.

All-Russian Scientific Research Institute of Agricultural Sciences' specialists calculations showed that the actual values should be adjusted to reduce costs by applying (0,95) costs reduction and production output coefficients (1,3). Then indicative prices of the basic period are being indexed on the base of rates of consumer prices (inflation).

Recognizing the important role of this methodological approach, certain drawbacks should be pointed out.

The developers themselves note that the methodology should be improved in the direction of detailed cost structure, differentiation of indicative prices for different types of households, including those with varying technical capabilities.

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First, in our opinion, one should more carefully define "normal" costs, differentiating them in terms of marginal costs acknowledged by society. By limiting or trailing costs the cost of milk production in the last included in the optimal plan closing company should be meant.

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With the data of the annual reports of all agricultural organizations the Saratov region involved in dairy cattle breeding available, we'll analyze the fluctuations in the milk production costs and profitability.

As it follows from Table 1, the range of fluctuations of milk production costs is approximately 800%. The minimum production cost constitutes 48 per cent of the average level of the Saratov region, and the maximum is 762%. Price range is significantly less - from 59,4% to 175%.

Table 1. Differences in the indicators of cost production, profitability and milk producers' prices in the Saratov Region

Indicators	Minimum	Maximum	Average in the region
Cost production of 1litre of milk, rubles	3,02 - Agricultural marketing cooperative Repyevskaya	47,93 - Open Unincorporated Company Dairy Production Plant Krasniy Kut	6,29
Realization price of 1litre of milk, rubles	4,38 - Agricultural marketing cooperative Beryezovskaya	12,91 - Closed joint stock company Novoye	7,38
Production profitability, %	79,8 - Open Unincorporated Company Dairy Production Plant Krasniy Kut	150,5 - Private farm Pobeda	17,34

Source: Author's calculated

From the table it is seen that, first, the level of profitability is only 2,6% higher minimum admissible level. It compensates inflation of expenses, but does not provide conditions for expanded reproduction.

Secondly, there are enterprises with unprofitable production with the level of expenses that has not been recognized by the market. To determine the range of limit expenses the author has grouped the farms of the Saratov region according to the indicators of efficiency, the size of dairy herd and specific costs per 1 animal. This grouping has shown that there is not close connection between the key production and economic parameters of

activity of the enterprises. It is stipulated by different strategies, technological level, and efficiency of marketing activity.

Along with this, cumulative indicators testify that prime cost directly depends on cattle breeding charges and as a whole decreases in the process of their productivity growth. The first group of enterprises, having achieved low prime cost, has very high profitability of sales. At the same time, even in the last, the most expensive group there are enterprises getting profit, sufficient for expanded reproduction at the expense of higher marketing prices and bigger production scales.

High level of expenses can be objectively caused by high investment loading, but it is paid off at the expense of high quality milk production and realization of a significant amount of milk during the winter period.

The revealed levels of expenses are offered to be used for definition of an indicative corridor of the prices in which at least there will be the prices providing standard level of profitability at the expenses in the second group of companies. The purpose of the minimum indicative price is to define the guaranteed minimum of purchase prices regardless of a season, i.e. even in months of «great milk» production (June-August).

Prime cost level at the enterprises of the third group will provide profitability of not less standard for the enterprises making more than a half of all milk production. Therefore we will consider the prices on the basis of expenses of this group indicative for average annual level.

The price on the basis of limit expenses will be the maximum price defining the highest margin within a year regardless of a season, including the periods of «small» milk production (December - February). If the minimum indicative price is intended for the protection of interests of crude milk producers, the maximum indicative price is supposed to support the interests of processors. The results of calculation of the prices' corridor are presented in Table 2.

Table 2. Indicative prices in the conditions of the Saratov Region, Russia

Indicative price type	2007	2008	2009	2010	2011
Minimum	6,6	9,2	8,5	10,9	13,0
Average annual	7,8	10,7	9,9	12,5	15,0
Maximum	14,4	16,8	13,7	18,7	22,3

Source: Author's calculated

Realization of information function of indication prices demands their forecast at least for a year in advance. The simplest way of forecasting, taking into account the inflation of expenses is the use of prices' indexes. Therefore the next direction of improving techniques of Ministry of Agriculture – All-Russian Scientific Research Institute of Agricultural Economics is the switch over from the consumer prices growth rates use to material resources prices growth rates used in dairy cattle breeding (inflationary component of the price). To be more precise, the use of the aggregated price index weighed on the structure of material inputs is necessary. To our mind, it is more correct, because the tendencies of prices change on in-

dustrial and consumer goods may vary considerably. Specialists note, that such technique makes it possible to trace the dynamics concerning relative changes of reproduction conditions in the industry, but may lead to the problem of «accrued disparities» as well [2]. Nevertheless in the absence of financial balances of dairy cattle breeding such approach becomes the only one available to practical calculation.

According to the 13- APK form and the Central Base of Statistical Data we will calculate the structure of expenses for the production of milk and the aggregated weighed index of inflation of expenses for the last 3 years (*Table 3*).

Table 3. Calculation of the aggregate index of inflation of expenses in dairy cattle breeding enterprises of the Saratov Region

Type of costs	Specific weight in material costs, %	Average prices index in 2009-2011	Weighted price index
Feeds	65,0	109,2	71,0
Electricity	5,2	113,5	5,9
Petroleum	6,1	98,9	6,0
Maintenance of fixed assets	23,7	104,2	24,7
Material costs - total	100,0	-	107,6

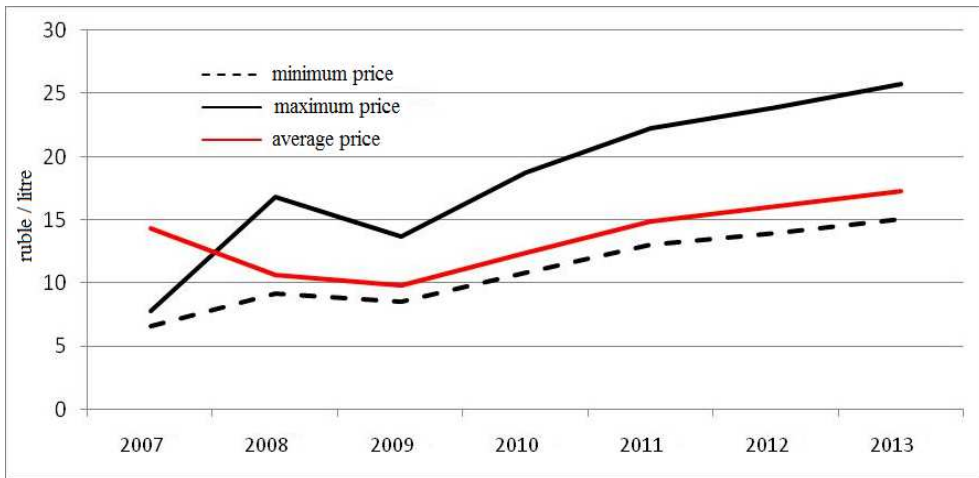
Source: Author's calculated

Subsequently, by means of multiplication of price coefficient calculated according to the 2010 data and the aggregated index of inflation of expenses it is possible to receive expected values of indicative prices (*Table 4* and *Graph 4*).

Table 4. Indicative prices forecast for 2012 – 2013 in the conditions of the Saratov Region

Type of indicative price	2011	2012	2013
Minimum	13,0	14,0	15,0
Average annual	15,0	16,1	17,3
Maximum	22,3	24,0	25,8

Source: Author's calculated

Graph 4. Dynamics of indicative prices on crude milk in the Saratov Region

The forecast shows that purchase prices growth for crude milk is objectively stipulated, otherwise, the disparity of inter sectoral exchange will increase, and conditions for expanded reproduction in dairy cattle breeding will get worse.

Conclusion

The main practical sense of indication prices which is given to them by governing agricultural bodies is the opportunity to reduce seasonal fluctuations in prices on the basis of voluntary agreements. Producers and processors of agricultural products can sign these agreements within branch associations. Therefore it is necessary to create a new regional Union of dairy producers and processors of milk Saratov-Molprom to introduce indicative pricing in the Saratov Region. It was registered in 2008, but after two years of functioning, its activity was stopped.

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