Ekonomické vědy

ANALYSIS AND FORECASTING OF MILK PRODUCTION IN THE DISTRICT

A. I. Akhmetyanova

Student,
ORCID 0000-0002-5739-769X,
e-mail: ai-albina@mail.ru,
Bashkir State University,
Ufa, Republic of Bashkortostan, Russia

Abstract. In this work it is noted that dairy cattle breeding performs the most important socio-economic and national-economic task, providing the population of the region and the country with valuable food products. Therefore, the analysis was carried out and the milk yield per cow for one of the federal districts was fulfilled. The key problem of the undercomplexity of agricultural organizations in the workforce is the disproportion in the wage level of not only the workers in the agricultural and construction, finance and industrial sectors, but the lower wages of workers in the professions compared with managers and specialists of agricultural organizations.
Keywords: coefficient of variation; indicators of volatility; average growth rate; milk yield per cow; interval forecast.

The dairy industry in the Republic of Bashkortostan is developing at an intensive pace. One of the problems of undercompleteness of agricultural organizations by the personnel of the working professions is the low wages of the cadres of the working professions in comparison with the leaders and specialists of agricultural organizations. The development of the dairy cattle breeding industry is influenced by various factors, among which the most important are power-building and stock-building, as well as availability of fodder base and availability of labor resources [2].

In the agricultural organizations of the republic, the largest proportion of dairy cows is concentrated in the farms of the pre-Ural steppe zone – 36 %, the northern forest-steppe – 25 % and the southern forest-steppe zone – 25 % [1; 3]. It is in these natural and climatic zones of the republic that the supply of fodder is the highest. The higher availability of feed for animals affects the increase in their productivity, contributes to the growth of production volumes per one feed unit and to the ruble costs, leads to a reduction in the cost of production of dairy cattle.

The Privolzhsky Federal District includes 14 constituent entities of the Russian Federation. For analysis, milk yield per cow, kg. and to analyze the consumption of milk and dairy products per capita in the Privolzhsky Federal District in 2016, we will select data on gross milk production by 14 subjects, the number of dairy cows, the gross consumption of milk and dairy products, as well as the population in the studied regions.

Based on the data for the Privolzhsky Federal District, a ranked number of milk per cow, kg, was compiled. To study the data we are interested in, we plotted the distribution of PFD regions by milking milk for a cow (Figure 1).
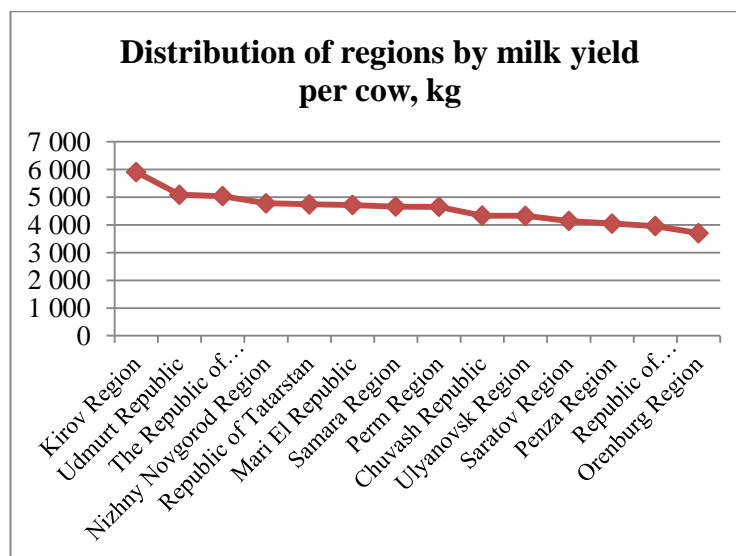
Figure 1. **The distribution of the regions of the Privolzhskom Federal District by milking milk per cow, kg.**

The obtained graph shows that the data on milk yield per cow, kg., In the regions vary from 3,700 to 6,000 kg. on the cow, but the main trend is from 4000 to 5000 kg. on a cow, namely 9 regions out of 14 have such indicators.

To analyze the series and find the average milk yield per cow, kg. and consumption of milk and dairy products per capita, kg., all data were divided into 3 non-interval groups.

The average milk yield per cow was 4440 kg, the average consumption of milk and dairy products was 284 kg. per capita. Dependence of consumption of milk and dairy products per capita, kg. from gross milk yield and milking milk per cow, kg. not found.

According to the selected function, the oscillation indicators were determined as a trend, and since the stability coefficient was more than 50%, and accordingly the levels of a number of dynamics are stable and this trend equation is suitable for calculating the forecast for the future.

We will perform the interval forecast for 2 years:

$$\mu_{\delta_t} = \sqrt{\frac{\delta_t^2}{n} + \frac{\delta_t^2}{\sum t_i^2} * t_k^2 + \frac{\delta_t^2}{\sum t_i^4} * t_k^4}$$,

Interval forecast for 2018, in kg:

$$\mu_{\delta_t} = \sqrt{\frac{16759}{9} + \frac{16759}{285} * 10^2 + \frac{16759}{15333} * 10^4} = 136{,}65 \quad \Delta_{\delta_t} = t_\alpha * \mu_{\delta_t} = 2{,}36 * 136{,}65 = 322{,}5$$

$$Y_t - \Delta_{\delta_t} = 3769{,}8 - 322{,}5 = 3447{,}3 \quad Y_t + \Delta_{\delta_t} = 3769{,}8 + 322{,}5 = 4092{,}3$$

Interval forecast for 2019, in kg:

$$\mu_{\delta_t} = \sqrt{\frac{16759}{9} + \frac{16759}{285} * 11^2 + \frac{16759}{15333} * 11^4} = 158{,}05 \quad \Delta_{\delta_t} = t_\alpha * \mu_{\delta_t} = 2{,}36 * 158{,}05 = 372{,}3$$

$$Y_t - \Delta_{\delta_t} = 3785{,}8 - 372{,}3 = 3413{,}5 \quad Y_t + \Delta_{\delta_t} = 3785{,}8 + 372{,}3 = 4158{,}1$$

Thus, if the revealed trend in the logarithmic function is preserved, then in the next two years, with a probability of 96.85%, we can expect an increase in the milk volume per cow in the Republic of Bashkortostan, and in 2017 the milk yield will be from 3447.3 to 4092.3 kg, and in 2018 – from 3413.5 to 4158.1 kg.

Bibliographic list

1. Авзалов М. Р. Развитие отрасли молочного скотоводства в Российской Федерации и в Республике Башкортостан // Международный сельскохозяйственный журнал. – 2016. – № 11. (в печати).
2. Авзалов М. Р., Кузнецова А. Р. Развитие отрасли молочного скотоводства в Республике Башкортостан // Международный журнал прикладных и фундаментальных исследований. – 2016. – № 11. – С. 774–778.
3. Кузнецова А. Р., Мамбетова Л., Валиева Г. Р., Кадыров Э. М. Обеспечение продовольственной безопасности Республики Башкортостан // Международный сельскохозяйственный журнал. – 2006. – № 1. – С. 49–53.

Bibliographic list

1. Avzalov M. R. Razvitie otrasli molochnogo skotovodstva v Rossijskoj Federacii i v Respublike Bashkortostan // Mezhdunarodnyj sel'skohozjajstvennyj zhurnal. – 2016. – № 11. (v pechati)
2. Avzalov M. R., Kuznecova A. R. Razvitie otrasli molochnogo skotovodstva v Respublike Bashkortostan // Mezhdunarodnyj zhurnal prikladnyh i fundamental'nyh issledovanij. – 2016. – № 11. – S. 774–778.
3. Kuznecova A. R., Mambetova L., Valieva G. R., Kadyrov Je. M. Obespechenie prodovol'stvennoj bezopasnosti Respubliki Bashkortostan // Mezhdunarodnyj sel'skohozjajstvennyj zhurnal. – 2006. – № 1. – S. 49–53.