

NORTHERN AGRICULTURE GOVERNANCE IN FOOD SECURITY

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Formulation of the problem. Agriculture and commercial economy of the Northern zone developed together with the development of the territory, is a way of life of the peoples rooted here. It was based on centuries-old agricultural traditions taking into account the extreme harsh natural conditions and agricultural features. The agro-industrial farm is designed to provide the population with biologically complete local food products, perform a social function. *The purpose of the article* is the sustainable development of agricultural production, providing an increase in the level of food self-sufficiency of the population of the northern territories on the example of the Komi Republic. *The subject* of the study is the process of managing the sustainable development of the agricultural sector. *The research methods* used were systematic, comparative analysis, analogies, statistical, generalization of accumulated experience. *The hypothesis of the study.* The development of local agricultural production will increase food self-sufficiency, which will lead to savings in investments in transport, reduce product losses and improve its quality. *Presentation of the main material.* The possibilities and limitations of the development of northern agriculture are revealed. The trends in the development of the agricultural sector in the 1960s-1980s and in the conditions of market transformations are considered. The reasons for the decline in agricultural production, the reduction of the coefficient of food self-sufficiency are established. Priorities for the development of agriculture have been determined. *Practical significance.* Conclusions and recommendations can be taken into account by the Ministry of Agriculture and Consumer Market of the Komi Republic and other government bodies when determining the directions for improving state policy on the development of the agricultural sector. *Conclusions of the study.* Sustainable development of agriculture and increasing food self-sufficiency will require strengthening innovative modernization, the formation of a multi-layered agrarian economy, improving the economic mechanism, priority development of rural infrastructure, improving the level and quality of life of peasants.

Key words:

agriculture, food security, food self-sufficiency, features, trends and directions of development, market reforms.

УПРАВЛІННЯ СІЛЬСЬКИМ ГОСПОДАРСТВОМ ПІВНІЧНОГО РЕГІОНУ В СИСТЕМІ ПРОДОВОЛЬЧОВОЇ БЕЗПЕКИ

Постановка проблеми. Сільське та промислове господарство зони Півночі розвивалося разом із освоєнням території, є способом життя вкорінених тут народів. Воно ґрунтувалося на багатовікових сільськогосподарських традиціях, що враховують екстремальні суворі природні умови та аграрні особливості. Агропромислове господарство призначене для забезпечення населення біологічно повноцінними місцевими продуктами харчування, виконанням соціальної функції. *Метою статті* є сталий розвиток виробництва аграрної продукції, що забезпечує підвищення рівня продовольчого самозабезпечення населення північних територій з прикладу Республіки Комі. *Предмет дослідження* – процес управління сталим розвитком аграрного сектора. Як методи дослідження застосовувалися системний, порівняльний аналіз, аналогії, статистичні, узагальнення накопиченого досвіду. *Гіпотеза дослідження.* Розвиток місцевого аграрного виробництва дозволить підвищити продовольчу самозабезпеченість, що призведе до економії інвестицій у транспорті, зменшення втрат продукції та покращення її якості. *Виклад основного матеріалу.* Виявлено можливості та обмеження розвитку північного сільського господарства. Розглянуто тенденції розвитку аграрного сектора у 1960-1980-ті рр. та в умовах ринкових перетворень. Встановлено причини спаду виробництва аграрної продукції, скорочення

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коєфіцієнта продовольчого самозабезпечення. Визначено пріоритети розвитку сільського господарства. *Оригінальність та практичне значення дослідження.* Висновки та рекомендації можуть бути враховані Міністерством сільського господарства та споживчого ринку Республіки Комі та іншими органами управління при визначенні напрямів удосконалення державної політики щодо розвитку аграрної сфери. *Висновки дослідження та перспективи подальших досліджень.* Стійкий розвиток сільського господарства та підвищення продовольчого самозабезпечення потребуватиме посилення інноваційної модернізації, формування багатокладної аграрної економіки, удосконалення економічного механізму, пріоритетного розвитку сільської інфраструктури, підвищення рівня та якості життя селян.

Ключові слова:

сільське господарство, продовольча безпека, продовольче самозабезпечення, особливості, тенденції та напрямки розвитку, ринкові реформи.

УПРАВЛЕНИЕ СЕВЕРНЫМ СЕЛЬСКОМ ХОЗЯЙСТВОМ В СИСТЕМЕ ПРОДОВОЛЬСТВЕННОЙ БЕЗОПАСНОСТИ

Постановка проблемы. Сельское и промышленное хозяйство зоны Севера развивалось вместе с освоением территории, является образом жизни укоренных здесь народов. Оно основывалось на многовековых сельскохозяйственных традициях учитывающих экстремальные суровые природные условия и аграрные особенности. Агропромышленное хозяйство предназначено для обеспечения населения биологически полноценными местными продуктами питания, выполнения социальной функции. *Целью статьи* является устойчивое развитие производства аграрной продукции, обеспечивающей повышение уровня продовольственного самообеспечения населения северных территорий на примере Республики Коми. *Предмет исследования* – процесс управления устойчивым развитием аграрного сектора. В качестве методов исследования применялись системный, сравнительного анализа, аналогий, статистической, обобщения накопленного опыта. *Гипотеза исследования.* Развитие местного аграрного производства позволит повысить продовольственную самообеспеченность, что приведет к экономии инвестиций в транспорт, уменьшению потерь продукции и улучшению ее качества. *Изложение основного материала.* Выявлены возможности и ограничения развития северного сельского хозяйства. Рассмотрены тенденции развития аграрного сектора в 1960-1980-е гг. и в условиях рыночных преобразований. Установлены причины спада производства аграрной продукции, сокращения коэффициента продовольственного самообеспечения. Определены приоритеты развития сельского хозяйства. *Оригинальность и практическое значение исследования.* Выводы и рекомендации могут быть учтены Министерством сельского хозяйства и потребительского рынка Республики Коми и другими органами управления при определении направлений совершенствования государственной политики по развитию аграрной сферы. *Выводы исследования.* Устойчивое развитие сельского хозяйства и повышение продовольственного самообеспечения потребует усиления инновационной модернизации, формирования многоукладной аграрной экономики, совершенствования экономического механизма, приоритетного развития сельской инфраструктуры, повышения уровня и качества жизни крестьян.

Ключевые слова:

сельское хозяйство, продовольственная безопасность, продовольственное самообеспечение, особенности, тенденции и направления развития, рыночные реформы.

Formulation of the problem. The agri-food sector and its main link, agriculture, play a decisive role in strengthening food security. The northern and arctic territories can make a significant contribution to solving the country's food problem. Here, agriculture and fishing are intended to provide the population with biologically valuable local food products, and to fulfill a social function. In the zone of the North and the Arctic, where, due to long distances, underdeveloped transport, a sparse network of settlements, low population density, agriculture can be considered as social entrepreneurship [1].

In remote rural areas, agriculture solves the problem of providing socially unprotected segments of the population with jobs and social organizations with fresh high-grade products. Agrarian enterprises and peasant farms are engaged in maintaining roads in the winter, helping the population with the procurement of firewood, plowing gardens, haymaking and other activities. Maintaining the social function of agricultural entrepreneurship in areas with unfavorable conditions will require incomparably less government spending than the creation of new jobs in other areas for the indigenous peoples





here. In recent years, social agriculture has attracted more and more attention of scientists [2-7].

Analysis of recent research and publications. Certain aspects of the development of the agrarian industry and food supply for the population of the northern and arctic territories of Russia and foreign countries are considered in a number of publications [8-12]. However, they do not pay enough attention to the role of agriculture and fishing in increasing the level of self-sufficiency in local products, the production of high-quality and safe food. It is from the standpoint of the development of local agricultural production that the author examines the strengthening of the food security of the Komi Republic.

The purpose of the article is the sustainable development of agricultural production, providing an increase in the level of food self-sufficiency of the population of the northern territories on the example of the Komi Republic.

Presentation of the main material. Agriculture in the northern region is developing under the influence of a number of restrictions and favorable conditions and factors. Natural conditions and, above all, the climate, soil quality, and the growing season hinder the effective development of agricultural production. Especially unfavorable conditions for agriculture are in the Far North, where tundra soils prevail and thermal resources are extremely limited.

Agricultural development and food self-sufficiency are influenced by limited agricultural resources. In the Komi Republic, in comparison with Russia, the per capita supply of potato crops is 22.5 times lower, vegetables - 200, cattle - 3.4 times, pigs - 3.5 times.

The agricultural sector is also characterized by other restrictions, the main of which are:

- over the years of reforms, due to a sharp decline in investment, the material and technical base of agricultural production was destroyed. Investments in fixed assets in agriculture in the total amount of investments decreased over 1990 - 2019. from 5.7 to 0.8%, with the share of agriculture in the gross regional product equal to 1.4%. The rate of decline in investment in the agricultural sector is more than four times higher than in the republic as a whole;

- limited access of small and medium-sized forms of the agricultural economy to markets for products, material, technical, financial resources and information and consulting services;

- the level of remuneration in agriculture is half of the republican indicator. In the pre-reform period, it reached 81%;

- depopulation of rural areas, especially districts remote from the capital of the republic (Izhemsky, Ust-Tsilemsky, Udorsky, Ust-Kulomsky, Troitsko-Pechorsky, Koigorodsky). 1990-2019 the average annual rate of decline in the rural population due to outflow and natural decline amounted to 5.5%. Since the mid-2000s. in the countryside, the mortality rate is growing, which exceeds the birth rate. During the years of market reforms in the republic, the number of rural population due to outflow and natural loss decreased by 122.7 thousand people, or 40%. Average density for 1990-2019 decreased from 1.3 to 0.8 people. The number of settlements without population increased 4.5 times;

- an increase in abandoned land plots (empty houses) in rural areas. The results of the 2016 agricultural census showed that 28% of households in the republic did not carry out agricultural activities. In 2006 this figure was 12%. In 2016, the share of personal subsidiary plots with abandoned land plots (empty houses) in rural settlements was 20%, gardeners, summer residents and truck farmers - 28%;

- deterioration of the demographic situation in the countryside and human resources in the agricultural sector. The share of the rural population under the working age decreased from 28.9% in 1989 to 21.7% in 2018, of the working age, respectively, from 57.2 to 50.6%, and the share of people over working age increased from 13.9 to 27.7%. The deterioration of the demographic situation in the countryside will lead to a reduction in the number of labor potential, its aging and, in the future, will become a factor limiting the development of the rural economy;

- underdevelopment and degradation of rural infrastructure facilities. On-farm paved roads account for 37%. Only 2% of personal subsidiary plots are connected to gas supply networks. During the years of market reforms, the construction of rural roads and medical institutions stopped;

- utility systems (water supply, heating, sewerage) have high wear and tear and are subject to frequent accidents. Improvement of the housing stock in rural areas is 2-3 times lower than the average Russian level. The value of the integral indicator of the comfort of housing and communal conditions in areas with a completely rural population is 1.3 times lower than the average value for Komi [13].

Unfavorable conditions for the development of agriculture hinder the self-sufficiency of the population with local foodstuffs. In 2019, the level of self-sufficiency of the population of the Komi Republic was 67%, vegetables - 19, meat - 37, milk - 26, eggs - 49%. The level of self-sufficiency is especially low in the arctic regions of the republic. Now these figures are respectively - 9%, 4%, 18% and 21%.

The basis of food supply for the population is formed by the import of food products from other regions and from abroad. Heat-loving products (melons, fruits), most types of food

products of industrial processing, such as sugar, tea, vegetable oil, flour, cereals, canned vegetables, most of meat, dairy and vegetable products are fully imported. In 2019, 44.5 thousand tons of meat and meat products were brought to the Komi Republic, which is 178% of the size of its own production, 153.8 thousand tons of milk and dairy products (279%), 160 million pcs. eggs (132%), 60.8 thousand tons of vegetables and melons (416%). At present, the share of imports of food products of animal origin from the size of their own production exceeds this indicator in 1990 (Table 1).

Table 1 – **Import of food products to the volume of own production in the Komi Republic, %**

Products and services	1990	2000	2005	2010	2015	2017	2018	2019
Meat and meat products	166	287	315	289	210	195	182	178
Milk and dairy products	156	126	204	289	309	314	300	279
Eggs and egg products	6	67	60	68	112	95	112	132
Potato	33	0,2	4	29	2	23	30	36
Vegetables and melons and gourds	538	157	216	305	279	376	310	416

Source: calculated by the author

Let's note the favorable conditions and factors for the development of the agricultural sector. The agro-natural potential of the southern and central regions ensures efficient production of potatoes, local vegetables, and fodder. Agroclimatic resources make it possible to obtain, using modern technologies, the yield of potatoes 200 - 300 c / ha, vegetables - 300 - 400 c / ha, grain (in the southern regions) - 20 - 30 c / ha, hay of perennial grasses - 40 - 50 c / ha ...

Favorable conditions for the development of livestock and reindeer husbandry. The farmland is dominated by natural hayfields and pastures. There are 3 hectares of forage lands per hectare of arable land in the republic. Large tracts of floodplain meadows are of particular national economic value, the potential for collecting forage from which exceeds 150 thousand tons of forage. units The region has 9.5 million hectares of reindeer pastures.

To improve the food supply of the population, there are significant fish resources and the potential for increasing the collection and processing of wild plants.

Almost round-the-clock natural light in the subarctic zone and sufficient moisture during the growing season ensure rapid growth and the ability of plants to accumulate a large supply of organic matter in a short time. Due to the long daylight hours, the grasses here grow with increased intensity, which allows for 70-80

growing days to accumulate such an amount of green mass, which is formed in the southern regions within 180 days [14, p. 24].

The republic has the potential for the production of organic products [15]. Factors that have a positive effect on the development of organic agriculture include: a significant reserve of agricultural land suitable for the production of organic products; favorable ecological situation in rural areas; the cold climate of the republic determines a smaller set of pests and diseases of plants in the open field than in the more southern regions of Russia; sufficiently developed potential of agricultural science to conduct research in the field of agricultural biologization; availability of technologies for the production of organic products, high demand of the population for organic products [16]. From the sale of organic products, you can get a kind of rental income.

Exceptionally favorable conditions are created for the development of greenhouse vegetable growing on an industrial basis using the thermal waste of gas compressor stations. The heat of such stations can also be used for artificial drying and briquetting of herbs.

The products of traditional industries (reindeer husbandry, fishing, hunting, picking wild mushrooms and berries) are competitive not only on the regional, but also on the national and international markets. In addition to reindeer meat





and products of its processing, antlers, endocrine-enzyme raw materials and reindeer blood are in great demand abroad, primarily in Asian countries.

As a prerequisite for the technical, technological and socio-economic development of the agricultural sector, the industrial nature of the economy is used, which makes it possible to channel significant financial resources for the modernization of the industry and the comprehensive development of rural areas.

Agrarian science is well developed in the Komi Republic. At present, the Institute of Agrobiotechnology, the Institute of Biology, the Institute of Physiology, the Institute of Chemistry and the Institute of Socio-Economic Energy Problems of the North of the Federal Research Center of the Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences are engaged in the study of agricultural issues. Scientific research on agriculture in the republic is carried out by more than 50 employees, including 12 doctors and 20 candidates of sciences.

Economic science has always been distinguished by increased attention to the development of northern agriculture and rural areas. Agro-economic research in the Komi Republic for more than 70 years is shown in [17]. In their research, agricultural economists proceed from the following basic provisions:

- the village and the agricultural sector perform the most important national economic functions - production (food security), socio-demographic, cultural, environmental,

recreational, spatial and communication, social control, political;

- the socio-economic development of the village is considered in close relationship with the city, which provides the village with industrial goods and services, training of qualified personnel, scientific and information services;

- rural areas and the agrarian sector in the North and the Arctic can develop steadily with all-round state support;

- State policy for the development of rural areas and agricultural policy should be interconnected and take into account local conditions.

Assessing the prospects for agricultural economic research, we note the following. Reform of higher education destroyed the "root system" of the reproduction of scientific personnel in the periphery.

The 30-year period preceding the market reforms of the 1990s was the most favorable in the development of agriculture in the Komi Republic. In the republic, the average annual growth rate of production per capita in the period 1960-1980. amounted to 1.5%, per unit of land area - 4.3, labor productivity in the public sector - 4.4%. Moreover, the indicators of agricultural crop yield, milk yield, average daily gain in live weight of pigs exceeded in general in the Northern region.

The dynamics of gross agricultural output and livestock production (excluding milk production for 1981-1985) was positive, as evidenced by the data in Table 2.

Table 2 – Average annual growth in agricultural production in the Komi Republic, %

Years	Potatoes	Vegetables	Milk	Meat of all kinds	Eggs
1961-1965	7,4	5,8	2,8	5,2	25,8
1966-1970	1,7	-0,8	3,0	2,3	19,8
1971-1975	3,7	2,5	1,7	5,1	18,8
1976-1980	-1,7	1,1	1,6	5,1	11,0
1981-1985	-1,1	1,3	-0,5	4,2	6,7
1986-1990	-0,2	0,9	1,0	5,0	4,6

Source: calculated by the author

The highest growth rates were observed in the volume of poultry and pork. In 1970-1990, with a general increase in meat of all types by 2.4 times, the production of poultry meat increased by 10.8 times, pork - by 4.2 times. This is the result of the implementation of the program for the industrial development of poultry and pig breeding.

In the pre-reform period, five poultry farms functioned in the republic: (four for the production of eggs and one for growing broilers) and one pig complex in the village of. Zelenets Syktyvdinsky district. Poultry farms with established industrial production were located near Syktyvkar, Vorkuta, Inta and Ukhta. All production processes were mechanized. The share of poultry farms in the production and sale

of products by public sector farms reached 99.7%. The transfer of poultry farming to an industrial basis made it possible to practically solve the problem of meeting the needs of the population in eggs and poultry meat.

The strategy for the development of the agri-food sector in the pre-reform period was determined by the intensification of agriculture based on the development of its material and technical base, which was gradually aligned with industry. The development of the material and technical base was achieved by the investment policy. The volume of investments in comparable prices on average for 1986-1990 compared to 1976-1980. increased by 38%, which made it possible to significantly strengthen the material and technical base of the industry.

For 1965-1990 capital-labor ratio increased 11.4 times, capital-labor ratio - 9.4 times, electric-labor ratio - 12.4 times. The fleet of tractors increased 2.7 times, forage harvesters - 4.2 times, potato harvesters - 25 times, milking machines - 3 times. The level of mechanization of sowing and planting of vegetables increased from 18 to 91%, mowing of all types of plants - from 30 to 100, harvesting of potatoes - from 42 to 100, including combines - from 5 to 38%. In 1990, the level of complex mechanization at cattle farms was 54%, at milk production complexes - 75% and pork - 80%.

The consequence of the mechanization of production processes was a significant reduction in labor costs for the production of a unit of the main types of agricultural products.

Conclusions and prospects for further research. The study of the state of the agricultural sector and food self-sufficiency in the pre-reform and market periods allows us to draw the following conclusions and recommendations. The objective prerequisites for the development of the agri-food sector in the northern and arctic territories are due to the provision of the population living here with fresh biologically complete food, the solution of the employment problems of indigenous ethnic groups, their preservation of the historical way of life, the control of prices for imported food, sustainable development of rural areas, and ensuring the country's food sovereignty. Maintaining the social function of the agricultural sector in areas with unfavorable conditions will require incommensurably less government spending than creating new jobs in other areas of the rural economy.

1. Unfavorable extreme conditions of agriculture, low rural population and poor provision of biological resources, underdevelopment of the agro-food sector, high dependence of agriculture on financial support restrain the population's self-sufficiency in food. The basis of food supply is formed by the import of food from other regions of the country and imports.

2. The most favorable for the development of the agricultural sector and the provision of local food products was the 30-year period preceding modern market reforms. The agrarian policy of the 1960s-1980s, aimed at accelerating the pace of intensification and industrialization of agricultural production, ensured a steady increase in production, labor productivity, and an increase in the level and quality of life of peasants. In the early 1990s. in the republic, the normative minimum volume of foodstuffs necessary for sustainable life support was produced.

3. Market transformation was accompanied by the destruction of the material and technical base of agriculture, a sharp reduction in cultivated land, livestock, number of workers, deterioration of their professional level and quality of life, a drop in agricultural production, especially in collective farms in the rural periphery. The decline in livestock production led to a decrease in the food self-sufficiency ratio. Now the share of imports of food of animal origin from the size of our own production significantly exceeds this indicator in 1990.

4. Sustainable development of the agricultural sector and increasing self-sufficiency of the population with food will require the creation of an innovative system and acceleration of the modernization of the industry, improvement of living conditions and overcoming poverty of peasants, the formation of an effective organizational and economic mechanism.

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