

ECONOMY AGRIBUSINESS AND AGRICULTURE, RURAL SOCIOLOGY

DOI: <https://doi.org/10.23649/jae.2022.4.24.03>

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Received: 04.07.2022; Accepted: 21.07.2022; Published: 19.08.2022

ANALYSIS AND PROSPECTS OF SUSTAINABLE DEVELOPMENT OF AGRICULTURE IN THE NORTH CAUCASUS FEDERAL DISTRICT

Research article

Abstract

The article is dedicated to the assessment of the state and directions of agricultural development of the subjects of the North Caucasus Federal District (NCFD). The analysis of specialization in the system of regional economic relations is carried out, the subjects of the NCFD are structured by gross regional product (GRP). In the territorial framework, GRP has a significant specificity due to the diversity of spatial, climatic, socio-economic, demographic conditions. The regions of the NCFD are among the five leaders in grain production, vegetable growing, horticulture, sheep and poultry husbandry. The evaluation of the state of agricultural potential and the analysis of the effectiveness of its use by manufactures have been carried out. In the district there was a distinct differentiation of the initial conditions indicators (capital-labor ratio, power supply capacity, power equipment and labor supply), as well as indicators of economic efficiency of agricultural activities, performance and balanced financial result. The region is characterized by relatively low economic efficiency, insufficient level of social development of rural areas and rural population's life quality. It is necessary and important to adjust the strategic directions for the development of agriculture in the North Caucasus Federal District for the period up to 2030, which are determined in accordance with the analysis of the fundamental statutory and regulatory and program documents of the state and tendencies of spatial development of the country, the federal district and its subjects for the period up to 2025–2040. Their implementation will facilitate an increase in the investments volume, an increase in production and in the level of marketability of production, an increase in revenue from the sales of crop and livestock products, the profitability of economic subjects and the share of profitable farms in the industry.

Keywords: agriculture, sustainability, spatial development, economic efficiency, multi-structured agrarian economy.

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Получена: 04.07.2022; Доработана: 21.07.2022; Опубликована: 19.08.2022

АНАЛИЗ И ПЕРСПЕКТИВЫ УСТОЙЧИВОГО РАЗВИТИЯ СЕЛЬСКОГО ХОЗЯЙСТВА СЕВЕРО-КАВКАЗСКОГО ФЕДЕРАЛЬНОГО ОКРУГА

Научная статья

Аннотация

Статья посвящена оценке состояния и направлениям развития сельского хозяйства субъектов Северо-Кавказского федерального округа (СКФО). Проведен анализ специализации в системе региональных экономических отношений, субъекты СКФО структурированы по валовому региональному продукту (ВРП). В территориальном разрезе ВРП имеет выраженную специфику, обусловленную разнообразием пространственных, природно-климатических, социально-экономических, демографических условий. Регионы СКФО устойчиво входят в пятёрку лидеров по зерновому производству, овощеводству, садоводству, овцеводству и птицеводству. Проведена оценка состояния потенциала сельского хозяйства и анализ результативности его использования производителями. В округе сложилась резкая дифференциация изначальных показателей условий (фондовооруженности, энерговооруженности, энергооснащенности и трудообеспеченности), а также показателей экономической эффективности сельскохозяйственной деятельности результативности и сальдированного финансового результата. Регион характеризуется сравнительно низкой эффективностью хозяйствования, недостаточным уровнем социального обустройства сельских территорий и качеством жизни сельского населения. Необходимо и важно скорректировать

стратегические направления развития сельского хозяйства СКФО на период до 2030 года, которые определены с учётом анализа основополагающих нормативно-правовых и программных документов состояния и тенденций пространственного развития страны, федерального округа и его субъектов на период до 2025–2040 годов. Их реализация обеспечит увеличения объема инвестиций, наращивание производства продукции, повышения уровня товарности производства, рост выручки от реализации продукции растениеводства и животноводства, рентабельности хозяйствующих субъектов и доли прибыльных хозяйств отрасли.

Ключевые слова: сельское хозяйство, устойчивость, пространственное развитие, экономическая эффективность, многоукладная аграрная экономика.

1. Introduction

The development of agriculture and food security today acquires a global, planetary scale. Russia actually ensures the balancing of world food markets. The state of the domestic agro-industrial complex determines the stability of economies and the well-being of people on all continents. This is a very important emphasis for the North Caucasus Federal District, since the high significance of the agricultural sector both in economic development and food self-sufficiency, and in achieving the social well-being of the rural population implies the industry's priority in investments and technical and technological equipment. The current state of the agrarian economy of the subjects of the North Caucasus Federal District, despite its important role, does not contribute to the resolution of the above-mentioned problems. In theory and practice, for many years, the point has been put forward about the need to equalize the socio-economic development of the country's regions. It is also included in the country's Spatial Development Strategy for the period up to 2025 (hereinafter referred to as the Strategy). Its practical implementation will require, first, a detailed study of the potential for development accumulated in each of them and of the level of its use in order to identify unused opportunities, directions of strategic development, criteria and performance indicators [1].

The article focuses on an objective evaluation of the state and ways to improve the economic specialization of the regions of the North Caucasus Federal District on the basis of publicly available information. Based on the analysis, practical proposals for the development of the AIC of the NCFD as a complex socio-ecological and economic system have been drafted, promising directions of development, their probabilities and estimates have been scientifically justified.

2. Materials and methods

Monographic, analytical, abstract-logical, systemic, logical modeling, graphic and other general scientific methods were used in the work. On this basis, the complex of conditions and results of spatial development of agriculture of the subjects of the North Caucasus Federal District has been studied, organizational and economic aspects of sustainability and efficiency of agricultural production have been identified, a concept for achieving the goals of successful development of the industry has been proposed. The information base was formed by regulatory legal acts, materials of the Ministries of Agriculture and Economic Development of the Russian Federation and the subjects of the North Caucasus Federal District. The empirical basis of the research includes the materials of the Federal State Statistics Service of the Russian Federation, of the Federal State Statistics Service Office for the North Caucasus Federal District, periodical materials and primary information gathered and systematized by the author.

3. Results

To determine the place of the subject of the NCFD in the system of regional economic relations, to identify patterns and disproportions of development, an evaluation of the gross regional product structure (hereinafter – GRP) for 2020 was made (Fig. 1) [2], [3].

Number Regions	I	II	III	IV	V
North Caucasian Federal District	Trading (17,9%)	Agriculture (15,6%)	Industry (13,6%)	Construction (11,3%)	Public administration (9,6%)
Republic of Dagestan	Trading (23,2%)	Agriculture (17,6%)	Construction (16,4%)	Industry (7,7%)	Public administration (6,6%)
Republic of Ingushetia	Public administration (24,1%)	Agriculture (12,7%)	Construction (11,9%)	Education (11,9%)	Industry (11,5%)
Kabardino-Balkarian Republic	Agriculture (19,2%)	Trading (16,3%)	Industry (15,2%)	Construction (11,1%)	Public administration (10,6%)
Karachay-Cherkess Republic	Industry (22,1%)	Agriculture (19,4%)	Public administration (14,4%)	Trading (8,7%)	Education (7,3%)
Republic of North Ossetia–Alania	Trading (18,9%)	Public administration (17,6%)	Agriculture (12,0%)	Industry (9,5%)	Healthcare (9,1%)
Chechen Republic	Trading (15,8%)	Public administration (15,7%)	Construction (14,8%)	Education (12,5%)	Agriculture (11,1%)
Stavropol Krai	Industry (20,2%)	Trading (18,9%)	Agriculture (14,7%)	Healthcare (8,8%)	Transport and storage (8,2%)

Fig. 1 – Ranking of the main branches of the NCFD regions by GRP structure

The agricultural production of each subject depends on the edaphoclimatic, organizational and technical, technological, socio-economic conditions and the existing relation between labor resources and land. Many of them significantly affect the performance of agriculture [4]. Table 1 provides information on the achieved performance indicators of the industry in the subjects of the NCFD [2], [3].

Table 1 – Economic performance of the subjects of the North Caucasus Federal District on average for 2010-2020

Name of the Federal District, subject of the NCFD	Per 1 ha of farmland, thousand rubles:		Profitability of sold goods, products (works, services) of organizations, %	
	Gross output	Profits	Crop production	Animal husbandry
Russian Federation	215,7	1121,4	19,7	10,9
North Caucasian FD	233,3	1101,0	23,3	13,2
Republic of Dagestan	262,4	52,8	1,1	-0,8
Republic of Ingushetia	321,8	33,7	-7,5	5,4
Kabardino-Balkarian Republic	209,1	473,5	12,1	9,1
Karachay-Cherkess Republic	196,4	421,2	5,3	11,2
Republic of North Ossetia-Alania	143,1	18,1	-16,3	-0,6
Chechen Republic	256,3	23,3	-16,1	-12,0
Stavropol Territory	242,4	2158,7	25,7	14,2
The scope of the asymmetry, times	2,2	119,3	X	X

Financial results are even more informative in terms of agricultural performance characteristics, which have formed under the influence of their spatial factors (Table 2) [2], [3].

Table 2 – Balanced financial result by activity type "Agriculture, forestry, hunting, fishing and fish farming" in million rubles.

Name of the Federal District, the subject of the NCFD	2016	2017	2018	2019	2020	2020 as % of 2016
North Caucasian	18672,6	13736,9	17838,7	12250,0	7102,8	38,0
Republic of Dagestan	67,1	220,7	352,2	174,8	232,1	by 3,4 times
Republic of Ingushetia	-1,7	2,3	5,4	-31,3	7,7	—
Kabardino-Balkaria	0,4	266,9	123,4	167,1	153,9	by 38 times
Karachay-Cherkessia	338,9	464,4	595,4	182,3	32,3	9,5
Republic of North Ossetia – Alania	35,7	—	—	—	111,8	by 3,2 times
Chechen Republic	-60,2	2,9	-17,1	-78,2	-1400,6	by 23,3 times
Stavropol Territory	18292,4	12779,7	16779,4	11835,3	7965,4	43,5

The main influence on the development of agriculture is due to spatial factors of agricultural activity itself (natural and climatic conditions, fertile land, labor resources, technical and technological equipment). This leads to significant differences in the factors of agricultural production, its place and role in the economy of the subjects of the NCFD [5]. This ultimately determines the development directions for which the most favorable combination of competitive advantages has developed in aggregate of their spatial factors, with the implementation of which results can be achieved in crop production (Fig. 2), in animal husbandry (Fig. 3) and in the agrarian economy as a whole (Fig. 4).

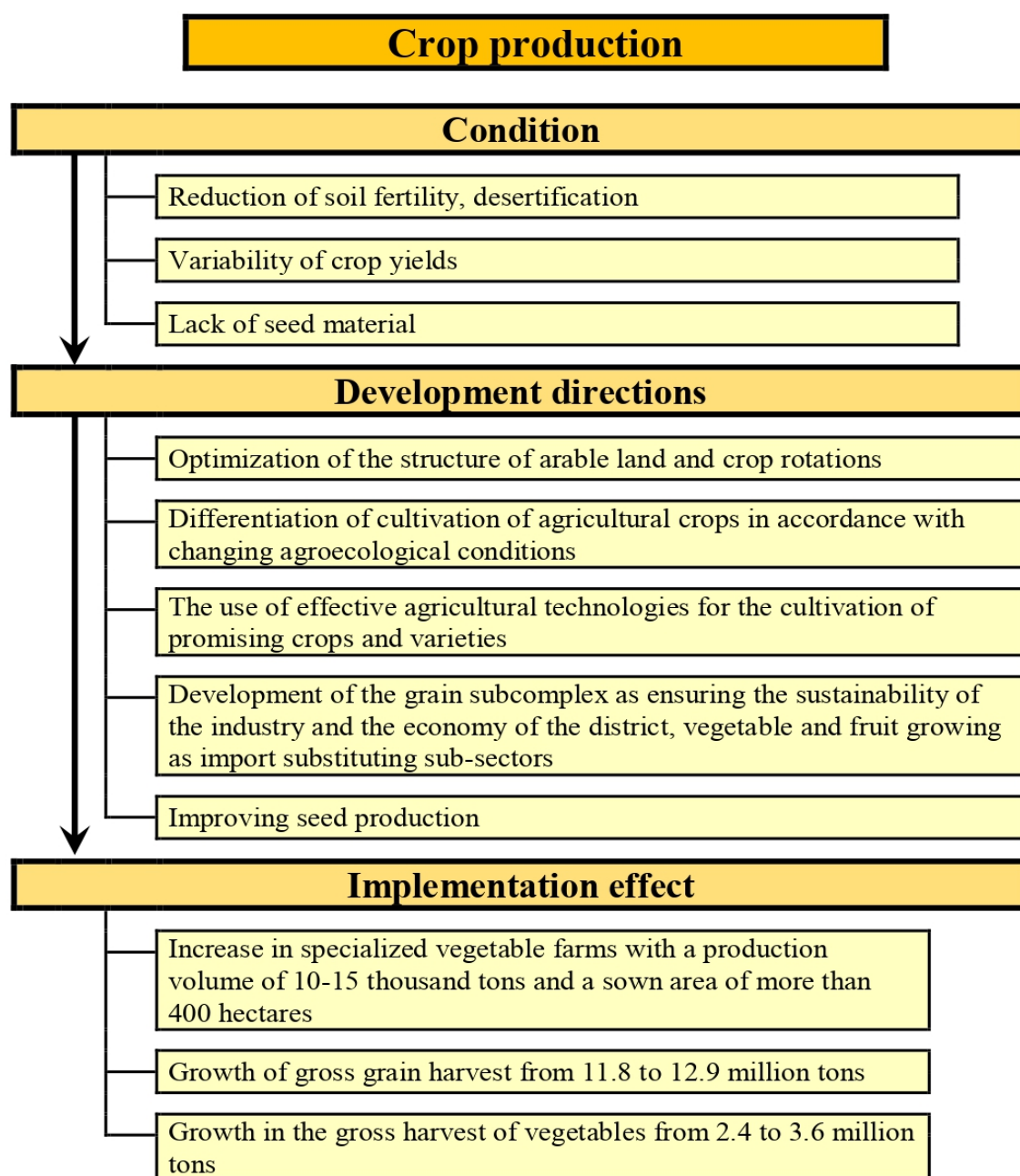


Fig. 2 – Directions and indicators of sustainable development of crop production in the NCFD for the period up to 2030 [6], [7]

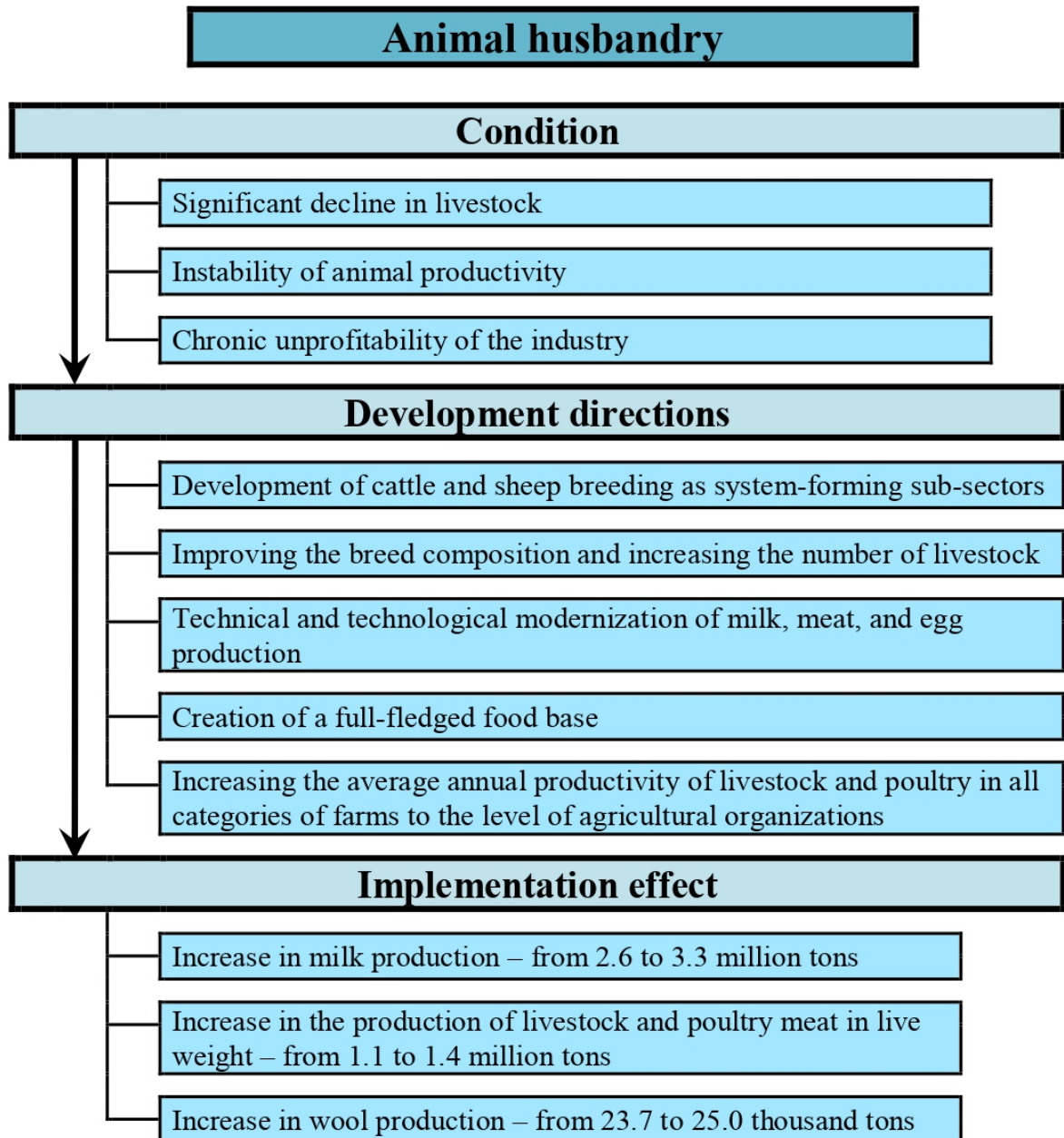


Fig. 3 – Directions and indicators of sustainable livestock development in the NCFD for the period up to 2030 [6], [7]

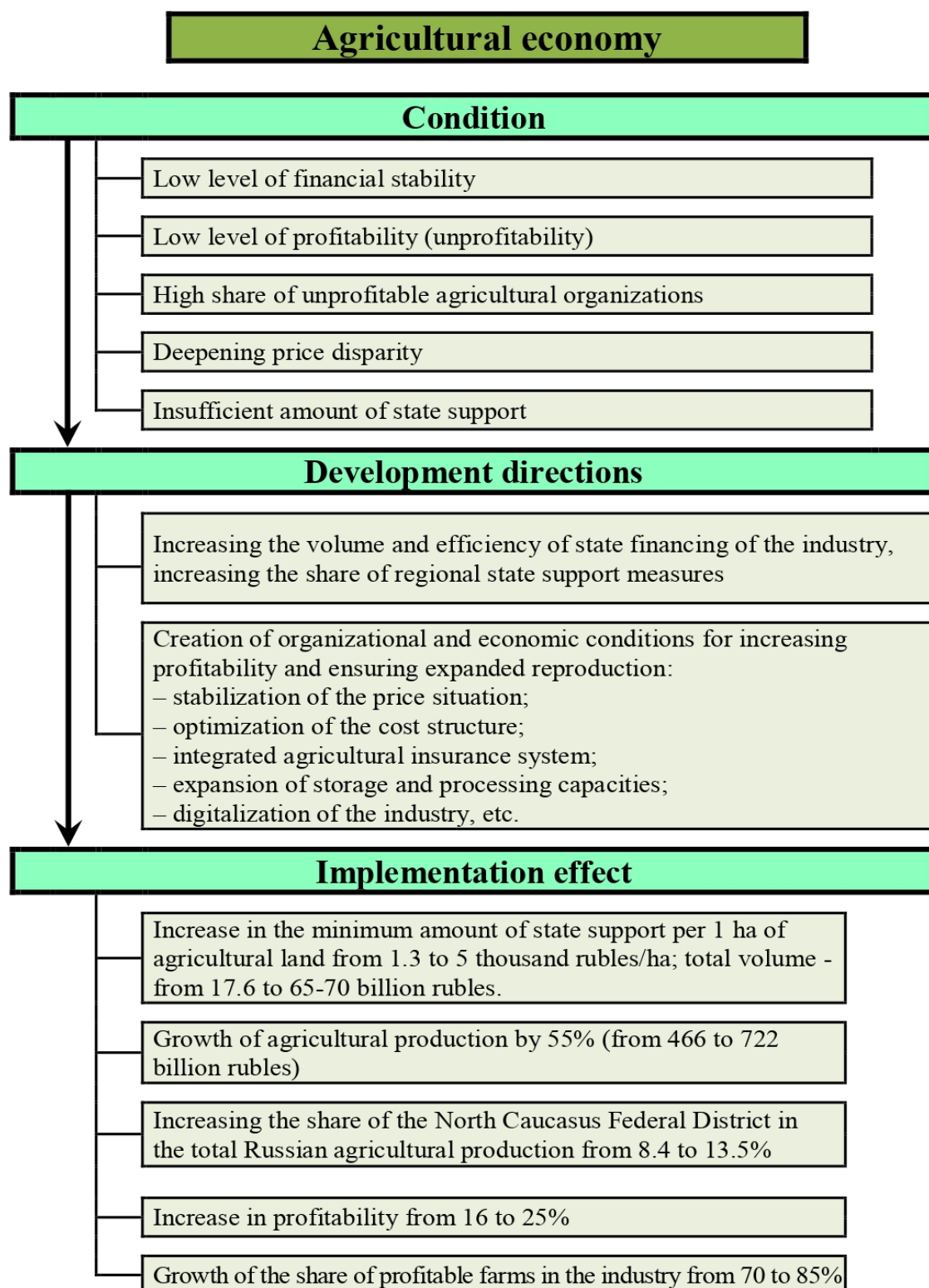


Fig. 4 – Directions and indicators of sustainable development of the agricultural economy of the NCFD for the period up to 2030 [6], [7]

4. Discussion

The perspective economic specialization of the regions, which in the Strategy is understood as "a set of enlarged types of economic activity", is determined by the degree of its accordance with the existing spatial factors. Almost 70% of the total GRP of the NCFD is formed by five main industries: trade (18,0%), agriculture (15,6%), industry (13,6%), construction (11,3%), public administration (9,6%) [3], [6]. In the territorial context, the sectoral structure of the GRP has a significant specificity. The specifics of the geographical location and climatic conditions of the Republics of Dagestan, Kabardino-Balkaria and North Ossetia-Alania determine the dominance of trade and agriculture in the sectoral structure of GRP (respectively 40,8%, 35,5% and 36,5% of the total gross product). In the Stavropol Territory – 36,1% of GRP consisted of industry and trade. Industry and agriculture are the leading activities in the Karachay-Cherkess Republic (41,5%). Most of the subjects of the NCFD have been highly subsidized regions for a long time, therefore, in the Republic of Ingushetia, the Chechen Republic and the Republic of North Ossetia-Alania, the share of budget-dependent industries (public administration,

education and healthcare) is rather high in the GRP structure: 36%, 28,2%, and 26,7%, respectively. The structure of the branches of the Kabardino-Balkarian Republic, the Republic of North Ossetia-Alania, and the Chechen Republic prevailing in the GRP is the most homogeneous [3].

Table 1 presents the main indicators of the economic efficiency of agricultural activity in the regions of the District, expressed by the profitability of the land used by gross agricultural products, profit from its sale, as well as the level of profitability in crop and livestock production and the calculation of the asymmetry scope for some of them. If on average in the NCFD their indicators are close to the average in Russia, then within the region there is a high variation in the values of the analyzed indicators. The Republic of North Ossetia-Alania has the worst values in all indicators of the table, and the Stavropol Territory has reached the highest levels of indicators in the region in three out of four positions. It should also be noted that in a number of regions, the level of profitability (loss ratio) of crop production is lower than that of animal husbandry. This is due to both significant differences in the availability and quality of elements of productive potential, and in the structure of agricultural production. Grain production in the Stavropol Territory, Karachay-Cherkessia, Dagestan determines the high profitability of crop production in the region. Vegetable growing and other labor-intensive industries reduce the efficiency of crop production as an industry, sometimes making it unprofitable in Ingushetia, North Ossetia -Alania, and the Chechen Republic. The payback on profit of the agricultural land used, due to the aforementioned circumstances, has a higher scope of asymmetry compared with the output of agricultural products on the same unit of land resource.

The data in Table 2 generally confirm the conclusion about the low efficiency of agricultural production in the subjects of the NCFD and, accordingly, the inefficient use of production factors in the industry. Only four subjects of the District during the reviewed period had a balanced financial result – the Stavropol Territory, the Republic of Dagestan, the Karachay-Cherkess Republic and the Kabardino-Balkarian Republic, the rest were unprofitable either throughout the entire period or in some of the years. To a large extent, this is due to the sectoral structure of agriculture and the pricing of products.

In such a situation, the prospects for the successful spatial development of agricultural production at the level of subjects drop significantly, therefore, we propose to develop a strategic new conceptual program of sustainable development and modernization of the agricultural sector at the district level, where there is, although differentiated, but still a potential, the effective implementation of which will allow (to level) to balance the asymmetry and increase the financial and economic efficiency of the main industries of the district [8].

Based on the analysis of the legal and regulatory and program documents of the state and tendencies of spatial development of the country, the Federal District and its subjects for the period up to 2025–2040, we propose conceptual directions for the sustainable development of agriculture in the NCFD for the period up to 2030 [9], [10], [11]. Priorities are defined for the following sections:

- analysis of social and labor, industrial and infrastructural, natural and climatic potential of the industry and the District, its sufficiency for food and socio-economic security;
- sustainability of agriculture of the subjects of the NCFD in the differentiation of socio-economic development;
- financial condition of the subjects of the NCFD, financial stability of agriculture, financial results of the AIC;
- social factors of sustainable development of agriculture in the region;
- evaluation and directions of improvement of the economic mechanism of sustainable development of agriculture of the NCFD (technical modernization, state support, import substitution, priority specializations, etc.);
- modeling of sustainable agricultural development in the NCFD [12].

Consistently continuing the analysis, it is possible to systematize the data of various legal and program documents and present them in the form of a summarized predicted effect from the implementation of concepts, doctrines, strategies, programs generally in the NCFD.

5. Conclusion

Calculations allow to predict the strengthening of the strategic positions of the Federal District in the country's AIC for the manufacture of crop production (grain, vegetables, potatoes, fruits, grapes), animal husbandry (milk, carcass weight meat, eggs), as well as their processed products.

The implementation of the main directions of development will ensure:

- annual increase in the investment volume at the expense of funds of agricultural producers by 3,1%;
- growth of revenue from the sale of crop production per employee by 9 times; livestock products – by 1.3 times;
- increasing the level of marketability of production to an average of 60%;
- reduction of product losses (1,5–2 times);
- diversification of the activities of the individual production sector;
- creation of new jobs, development of beekeeping, rabbit breeding, non-traditional poultry farming, fish farming, commercial horse breeding;
- increase in the volume of state funding by 3,8–4,6 times;
- improvement of the organizational and economic mechanism of management (pricing, taxes, loans, insurance, leasing, state support);
- increase in labor productivity to the average Russian level of up to 1216 thousand rubles;
- increase in production volumes by 1,6 times (the contribution of the NCFD to the all-Russian production will reach 13,5%);
- rise in wages in agriculture by 1,5 times (up to 80% of the average for the economy of the Russian Federation);
- increasing the profitability of economic subjects of the industry to 25%, the share of profitable farms – up to 80%.

Effective development of agricultural production of the subjects of the NCFD will increase the level of food self-sufficiency of the population with food, increase the investment flow, reduce the level of interregional differentiation and provide a multiplier effect from the development of related sectors of the economy in the South of Russia.

Conflict of Interest

None declared.

Конфликт интересов

Не указан.

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