
The Resource Potential of the Agro-industrial Complex of the North-Caucasian Federal District as a Factor of Innovative Development of the Macro-region

Submitted 08/02/19, 1st revision 16/03/19, 2nd revision 17/05/19, accepted 07/06/19

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Abstract:

Purpose: Innovative development of the region is largely determined by the available resources and the ability of the economic system to reproduce them. The article deals with the problem of increasing the efficiency of the use of the resource potential of the North-Caucasian Federal District (NCFD).

Design/Methodology/Approach: The elements of the structure of the resource potential of the agro-region, including natural, material, technical, labor and innovation component are revealed. An important factor in the sustainable socio-economic development of the North-Caucasian Federal District (NCFD) is the production of high-quality products of the agro-industrial complex based on maximum use of local raw materials and own resources.

Findings: To modernize the agricultural regional economy, it is necessary to base agro-industrial production mainly on innovative activities that allow the creation of a single production space.

Practical implications: The results of the study can be used in the target complex programs of development of regional economy with the aim of strengthening and enhancing the effectiveness of regional institutional and industrial transformations.

Originality/Value: The resource potential is proposed to be determined in the context of the availability and limitations of regional production conditions.

Keywords: Resource potential of the region, agro-industrial complex, agriculture, North Caucasus Federal district, innovative development, state regulation of agriculture.

JEL Codes: Q10, O39.

Paper Type: Research article in Special Issue dedicated to Russian Economy.

Section 7: Economic Development.

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1. Introduction

The implementation of the regional policy aimed at ensuring the economic development of the regions, puts forward as the main direction of sustainable development the effective use of the resource potential, ensuring the process of regional reproduction. Due to the fact that agricultural regions are mainly a group of problematic, as well as the growing demand for the main types of crops in the national and world markets, there is an urgent question of improving the efficiency of the use of the resource potential of regions with a significant agricultural component, which include the regions of the North Caucasus Federal district (NCFD) - (in 2016 the share of GRP agriculture in the GRP of the NCFD amounted to 25%, the area of farmland in the total land area - 70%, the share of the rural population - 50.9%) (Regions of Russia, 2018).

Often, under the resource potential of agriculture, researchers assume a set of production resources. Some authors (Dokholyan and Umavov, 2011; Yunusova, 2015) considering the resource potential of the agricultural sector of the region, take into account not only the quantitative but also the qualitative side of the resources necessary for the expanded reproduction of the ecological, social and economic system of the region, which determine the limits of the total social product of the agricultural sector. The disadvantage of this approach is that it involves looking at the resource potential in terms of agricultural resource requirements, while the term "capacity" itself implies the possibility, the ability, assuming a certain level of return on the resources used, as well as unrealized reserves. Based on this, a more reasonable approach to the disclosure of the concept of resource potential, assume the definition of it as opportunities limited by the conditions of regional production. It is also necessary to distinguish between the resource and agricultural production potential of the region, as the production involves only the productive part of production, which can produce enterprises, and the resource is a total assessment of the used resources.

2. Key Trends in the Use of the Resource Potential of Agro-industrial Complex

The structural elements of the resource potential of the agricultural sector are the natural, labor, material, technical and innovative potential (Dokholyan and Farmanov, 2011). Natural and environmental resources largely determine crop yields, product quality, production costs, especially agricultural activities, territorial specialization. The main quantitative characteristic of the natural potential is the area of agricultural land. The North-Caucasian Federal district has a significant resource base in agriculture. The presence of extensive arable land, good agro-climatic conditions, a significant distance from industrial centers and as a result, high environmental friendliness of products – important pre-emptive factors that enable the region to become one of the leaders in agricultural production in Russia.

Agricultural lands of NCFD make up 3.5% of the land in this category of the Russian Federation. The largest share of them in the region accounts for the Stavropol territory - 45% and the Republic of Dagestan - 32%. The remaining subjects of the district are to a much lesser extent provided with farmland; the Republic of Ingushetia has the least resource - a little more than 1%.

Table 1. Land distribution of the North-Caucasian Federal District by categories (as of January 1, 2018, thousand hectares) (Regions of Russia, 2018)

	Agricultural land	Lands of settlements	Industrial lands and other special purpose	Lands of specially protected territories and objects	The lands of the forest Fund	Water Fund lands	Reserve lands	Total land in administrative borders
Russia	383227,7	20453	17454,9	47694,2	1126288	28069,9	89330	712519,1
North-Caucasian Federal District	13537,9	709,3	182,3	307,6	1744	107,3	455,5	17043,9
Republic of Dagestan	4344,5	160,5	43,3	28,7	421,6	26,6	1,8	5027
Republic of Ingushetia	150,9	39,2	6,7	0,2	32,7	0,6	32,5	362,8
Kabardino-Balkar Republic	711,5	57,6	11,3	54,8	260,5	2,8	148,5	1247
Karachay-Cherkess Republic	316,8	38,7	15,1	125,4	390,7	10,2	30,8	1427,7
Republic of North Ossetia - Alania	418,7	59,7	16,7	98	177,4	2,5	25,7	798,7
Chechen Republic	993,1	104	33,9	0	296,6	3,7	128,4	1564,7
Stavropol Region	5102,4	249,6	55,3	0,5	114,5	55,9	37,8	5616

The distribution of the land fund by land categories by subjects of the NCFD showed that the predominance of agricultural land is observed in the Stavropol territory - 92%, in the Republic of Dagestan - 86%, to a lesser extent - in the Chechen Republic 63%, Karachay-Cherkessia Republic - 57%, Kabardino-Balkar Republic-57%, in the Republic of North Ossetia - Alania - 52%. The lowest share

of agricultural land accounts for the Ingush Republic -41% (Baliyants *et al.*, 2018; Regions of Russia, 2018). In general, 67% of the lands subject to irrigation are not in good condition: in satisfactory - 27% and in unsatisfactory condition - 40% of the lands. Of the subjects, the largest number of lands in poor condition is the Republic of Dagestan - 53% of all reclaimed land in the Chechen Republic - 76%, the Republic of Ingushetia - 78% (Baliyants *et al.*, 2018; Regions of Russia, 2018).

Table 2. *Agricultural products of the North-Caucasian Federal District (Regions of Russia, 2018) (in farms of all categories; in current prices; million rubles)*

	2005	2010	2011	2012	2013	2014	2015	2016	2016 to 2015 %
North-Caucasian Federal District	104073	205337	246424	258231	299940	341517	408625	450671	110
Republic of Dagestan	25197	48701	57182	66054	76814	87915	99541	113363	114
Republic of Ingushetia	1958	3218	4476	3903	4640	5464	6691	8590	128
Kabardino-Balkar Republic	13581	24136	27738	30286	32699	34330	38992	43697	112
Karachay-Cherkess Republic	6633	16225	19197	19722	22430	23837	30487	32164	106
Republic of North Ossetia – Alania	7639	17801	21464	23448	25877	25719	26653	24484	92
Chechen Republic	4552	10993	12897	13605	14706	15250	17704	21291	120
Stavropol Region	44513	84263	103470	101214	122775	149001	188556	207082	110

Over the past 10 years, the North-Caucasian Federal District in general increases the production of agricultural products, but the rate of growth in this period slowed significantly and fell from 19% to 10%. Considering the region in the context of the subjects, it should be noted that the growth rates increased only in one of them – the Chechen Republic (4%), the rest showed a steady decline (Table 2). As can be seen from Table 3, the gross regional product of the NCFD tends to grow, as does the gross regional agricultural product of the region. The share of GRP in agriculture in the total GRP increased by 4 % and accounted for a quarter of it.

Table 3. The share of gross regional product in rural agriculture in the gross regional product (Baliyants, 2018; Regions of Russia, 2018), mln RUB.

	2015			2016			
	Gross regional product		the share of GRP in agriculture GRP, %	GRP	GRP AG	the share of GRP in agriculture GRP,	Rating among the regions of the Russian Federation
North-Caucasian Federal District	1704331	408625	24	1797972	450671	25	5
Republic of Dagestan	559673,1	99541	18	597096,7	113363	19	15
Republic of Ingushetia	54330,4	6691	12	50882,9	8590	17	75
Kabardino-Balkar Republic	125393,1	38992	31	132706,9	43697	33	38
Karachay-Cherkess Republic	67355,2	30487	45	73151,3	32164	44	50
Republic of North Ossetia – Alania	127543,9	26653	21	125498,3	24484	20	57
Republic of Chechnya	160503,2	17704	11	166711,2	21291	13	64
Stavropol Region	609531,9	188556	31	651925	207082	32	5

Production of livestock products increased over the period from 5 to 20%. For the production of milk and eggs, the region retained its values, but in previous years there was a stable growth. For meat production, the leading indicators with a growth trend (11%) belong to the Stavropol territory, which is due to the best of the district's land and traditional specialization. The Republic of Dagestan in recent years has significantly increased its position in the production of livestock products and holds the leadership in the production of NCDF milk, wool and honey with a growth trend (respectively 3%, 6%, 85% compared to the previous period) (Dokholyan *et al.*, 2018).

Considering the location of the district, where in most subjects moderately cold winters with a large number of Sunny days and warm temperatures, it is important to develop large-scale production, while maintaining other forms of management – farm and private individual enterprises. Personal subsidiary farms occupy a significant place in the economy of agriculture of all the republics of the region, but

with the emergence of large commodity farms and the emergence of stable jobs and earnings in rural areas, their role in the production of commodity products will decline (Kurbanov *et al.*, 2016).

The contribution of the North-Caucasian Federal District in the production of agricultural products in Dagestan is 17.9%, the proportion of the Karachay-Cherkess Republic – 7,3%, the proportion of the Kabardino-Balkarian Republic is 13.6%. In these subjects, the food and processing industries provide more than 50% of the food products of the regional food market, are the Central links in the structure of the economy of these republics (Regions of Russia, 2018). In the final top list analyzed the largest agricultural enterprises of the North- Caucasian Federal district, which for the year produced the largest number of products in its segment. The data were based on two main criteria – the volume of production and design capacity and collected based on information from regional ministries (Ministry of agriculture of the Russian Federation, 2018; Ministry of agriculture and food of the Republic of Dagestan, 2018).

Table 4. *The security of the agricultural organizations of North-Caucasian Federal district tractors (Bulletins on the State of Agriculture, 2018)*

	Tractors account for 1000 hectares of arable land, pieces		Account for arable land on 1 tractor, ha	
	2016	2017	2016	2017
Russian Federation	3,1	3,1	318	327
North-Caucasian Federal District	3,7	3,6	274	281
Republic of Dagestan	4,4	4,2	228	241
Republic of Ingushetia	5,6	5,7	177	174
Kabardino-Balkar Republic	3,6	3,6	275	276
Karachay-Cherkess Republic	3,4	3,3	291	301
Republic of North Ossetia – Alania	2,2	2,7	459	373
Republic of Chechnya	3,1	3,0	324	332
Stavropol Region	3,7	3,5	273	282

The insufficiency of the material and technical component of agriculture in the region is a limiting factor in the formation of its resource potential. From the data of Table 5 it follows that the provision of agricultural organizations with harvesters either has not changed in the last two years or continues to decrease.

Table 5. The security of the agricultural organizations of the NCFD harvesters (Bulletins on the State of Agriculture, 2018)

	Account for combines per 1000 hectares of crops (planting) of the respective crops, pieces							
	Combine harvesters		corn harvesters		potato harveste		beet harvesters (without toppers)	
	2016	2017	2016	2017	2016	2017	2016	2017
Russian Federation	2	2	0	0	15	17	2	2
North-Caucasian Federal District	3	3	0	0	9	10	3	3
Republic of Dagestan	6	6	25	21				
Republic of Ingushetia	5	7	2	1				
Kabardino-Balkar Republic	2	2	1	2	9	10		
Karachay-Cherkess Republica	2	4		0	5	2	13	3
Republic of North Ossetia – Alania	2	3	0	0	2	5		
Republic of Chechnya	3	2	0	0	8		2	1
Stavropol Region	3	3	0	0	14	18	3	3

Agricultural production is based not only on natural and climatic factors. Man takes a constant active part in this process, i.e. it is human labor that is the main source and condition of agricultural production. The labor potential of agriculture in the region is the number of people of working age who have the ability and opportunity to work in this area. Energy security plays an important role (Table 6).

Table 6. Energy supply of agricultural organizations (energy capacity per 100 hectares of acreage), HP (horsepower) (Bulletin on the State of Agriculture, 2018)

	2012	2013	2014	2015	2016	2017	2017 as % of 2016
North-Caucasian Federal District	254	240	235	223	212	206	97,3
Republic of Dagestan	797	585	494	435	423	434	102,5
Republic of Ingushetia	177	179	195	192	181	230	127,2
Kabardino-Balkar Republic	291	214	259	272	283	268	94,8

Karachay-Cherkess Republic	282	256	280	240	277	288	104,0
Republic of North Ossetia – Alania	153	128	120	125	119	102	86,1
Republic of Chechnya	210	198	121	111	120	105	87,2
Stavropol Region	244	237	236	224	210	206	98,2

And although the rural population in the NCFD prevails over the urban one, the scope of activities of the region's residents is very different. One of the factors of this phenomenon is the fact that wages in the agricultural sectors do not perform their functions - reproductive and motivational. This situation displaces workers from this sphere in more profitable (financial services, trade, public service, transport, communications), which inevitably leads to a weakening of the labor resource potential of the agricultural sphere (Bulletin «North Caucasus» 2015).

The problems of demography, underdevelopment of rural areas, the weakening of the country's economic development, reforms in education – all this contributed to the strengthening of the problem of staffing agricultural producers. Based on the Russian statistics as a whole (Yarkova, 2015; Average salary in the North-Caucasians Federal District, 2018), we can say that over the past 23 years the dynamics of the number of workers has developed in a far unfavorable way - the problem of aging personnel and low level of their professionalism.

Studies show that in the crop sector about half of the employed (44.9%) have primary vocational education, secondary vocational education have 21.5 % of the employed. In the livestock sector, the number of workers with primary vocational education and without vocational training is almost equal and amounts to slightly more than 30% each (32.9 and 33.3%, respectively). Agricultural producers are facing severe shortage of staff.

3. Conclusion

The analysis made it possible to conclude that in the regions of the North-Caucasian Federal District there is almost a full range of resources necessary for the effective operation of the agricultural economy. There are all prerequisites for the effective functioning of grain products, fruits and vegetables, grape-wine, meat, dairy, fat-and-oil production. The creation of a favorable economic climate for agricultural producers is not a temporary norm associated with the imposition of sanctions, but a clear strategy of the state. State support should consist in providing agricultural producers with the necessary amount of funds for the implementation of the program, a clear coordination of actions for the production of food, the organization

of guaranteed sales for agricultural producers in full, the organization of storage of purchased products and the supply of its consumers all year round.

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