

Unique specialization of agricultural clusters in the regions of the Russian Federation

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Abstract. The article considers the possibilities of conducting agricultural production within the framework of cluster structures. The advantages of agricultural clusters specialization in the conditions of agriculture digitalization in Russia are highlighted. The geographical structure of the agricultural territories division in the country, taking into account the unique conditions characteristic of a particular area, is presented. The fundamental factors influencing the choice of agricultural specialization are identified: land resources, climatic conditions, availability of technologies, equipment, and staffing. The article presents examples from the implementation of the unique competitive advantages of participants operating within the framework of agricultural clusters. The implementation of the specialization principle in agricultural production made it possible to create an organic territorial cluster in the Krasnoyarsk region to increase the production of ecologically safe products in the territory of the region. The article contains the requirements for organic farming technologies, a list of regulatory documents, a list of information systems necessary for the development of a strategy for the unique specialization of the agricultural cluster in the region.

1. Introduction

In modern conditions of agricultural development, digitalization is an important factor in increasing the efficiency of agricultural production sectors. Digitalization in agriculture includes robotics technologies, big data analysis, the introduction of artificial intelligence, e-commerce, and the Internet of things. Digitalization can help simplify the relationship between agricultural producers and the state (facilitating document flow, obtaining preferential loans, gaining access to digital platforms); improve the situation in the supervision and certification of agricultural products, and ecological control [1-4].

Agriculture in the regions of the country is developing under the influence of specific factors related to the availability of conditions for conducting agricultural production [5]. The main factors influencing the choice of agricultural specialization are: land resources, climatic conditions, availability of technologies, equipment, and staffing [6,7]. Geographically, the Ministry of Agriculture of Russia identifies the following regions:

- Southern;
- Central;
- Ural;
- Siberian;
- North-Caucasian;
- North-West;



- Privolzhsk;
- Far Eastern.

Each of the regions, due to its location, has special, unique conditions for farming that are characteristic of a particular area [8-10]. With regard to geographical and climatic factors of influence, it is advisable to concentrate agricultural production on certain branches of agriculture, relying on the specialization of agricultural producers. Specialization helps you to set priorities for creating a competitive advantage in the region. In the context of increasing the technological efficiency of production in European countries, the Concept of smart specialization has been implemented since 2009.

The condition of the Concept can also be implemented in the agriculture of the Russian regions. Each region can identify a unique agricultural resource based on the accumulated potential of agricultural production, innovative technologies, resource-saving technologies, and human resources. To do this, it is necessary to direct efforts and resources to the specialization of agriculture, an industry in which leadership can be achieved. The importance of agricultural enterprises specialization is due to the correspondence of the industries composition and their ratios to the peculiarities of natural and economic conditions for production, so that the enterprise receives an additional effect in the form of additional products or a lower cost of production for each unit of goods [11].

2. Materials and methods

The uniqueness of agricultural production is achieved by a combination of internal and external factors of the economic system. An example is the regions of the world with a high degree of specialization in the production of unique agricultural products:

- Swiss cheese;
- Indian, Chinese tea;
- Brazilian coffee;
- Moroccan tangerines;
- Egyptian potatoes;
- Bulgarian tomatoes, etc.

In the Russian Federation, in order to realize the unique competitive advantages and accumulated agricultural potential, agricultural producers are united in agricultural clusters [12-16]:

- "Altai cluster of agricultural machinery", which united the potential of 23 local agricultural machinery enterprises.
- "Industrial innovative biotechnological (cheese) cluster of the Yaroslavl region" specializes in the creation of bio-economic producing deep processing of whey.
- Bashkortostan, a regional agro-industrial cluster that unites producers, processors and the trade sector. The advantages of the cluster are the republic Bashkortostan will receive a unified information system for product flows accounting, and the ability to ensure sustainable rural development and increase production volumes.
- Flax clusters in the Smolensk, Vologda, and Ivanovo regions contribute to the implementation of coordinating intersectoral processes (field-flax and plant-flax plant). Clusters make it possible to create a single complex of flax-processing and waste-free production based on fibre flax, which provides deep processing of flax raw materials to expand the range of products with export potential.
- Scientific and industrial cluster based on the "Nizhny Novgorod state agricultural academy". The purpose of the cluster is to link together enterprises of the agro-industrial complex and processing industry, forest and fruit nurseries, nurseries of decorative and deciduous species, as well as secondary educational institutions, institutions of additional education and universities, whose activities are in the direction of biotechnology and agroengineering, with enterprises and research institutions working in the field of modern science-intensive technologies to work together on the creation and implementation of innovations useful for agriculture, forestry and processing industry.

On December 26, 2019, an organic territorial cluster was created in the Krasnoyarsk region. Cluster participants are Business Development Agency, Ministry of Agriculture and Trade of the Region, Krasnoyarsk Agrarian University and the Regional Center for Standardization, Metrology and Testing.

Additional state support measures have been developed to form an organic territorial cluster in the Krasnoyarsk region, support agricultural enterprises working in the organic direction, and develop the export of organic products [17,18]. These include:

- reimbursement of the costs part from obtaining a certificate of conformity verifying the status of "organic" in crop production, and for the production of organic products;
- assistance in the implementation of joint cluster projects;
- providing information, educational and administrative support to cluster members
- The factor contributing to the creation of an organic cluster is the high interest of entrepreneurs and investors in the production of organic products in the Krasnoyarsk region [19-22]. Participants also face problems with certification, positioning, promotion and marketing of products [23-25]. The main tasks of improving the cluster performance indicators:
- growth of production of ecologically friendly products in the region;
- creation of new directions in the industry;
- development of cooperation relations within the cluster itself.

For greater recognition and promotion of local organic products, a single brand name has been specially developed – a green snowflake with the inscription "Siberia organic".

There are such cluster participants: the "Healthy Food Production" company (they produce natural muesli, cereals, fruit bars and juices), the "Siberia Without Borders" company (cold – pressed oils, natural teas, jam, liquid salt), the "East Siberian" company (sbiten, coniferous extract, oil, balsam, author's cheeses, dried mushrooms, berries), the "Honey" company (a range of products made from honey), the "Vegetables from the dacha" company (they produce semi-finished products from dried vegetables and herbs), the "Seedling" company (micro-green and granola).

3. Regulatory and legal support for the creating unique specialization of agricultural clusters in the regions of the Russian Federation

The Federal Law "On Organic Products and on Amendments to Certain Legislative Acts of the Russian Federation", developed by the Ministry of Agriculture of the Russian Federation, entered into force on January 1, 2020 [26]. The technologies used in the production of organic products differ significantly from those used in traditional agriculture. In particular, when conducting organic agriculture, the use of agrochemicals, pesticides, antibiotics, growth stimulants, animal fattening, hormonal drugs, genetically modified organisms, etc. is restricted [27-29]. The labeling of organic products provided for by law includes a combination of inscriptions and a graphic image (sign) of organic products of a single sample on the packaging, consumer and (or) transport packaging of organic products or on other information carriers attached to it or placed in it.

Labels used to label organic products may contain the word "organic", as well as its abbreviations or words derived from this word, separately or in combination with the name of organic products. In the case of placing a label that is a distinctive feature of organic products on the packaging, consumer, transport packaging of products, the conformity of production which is not confirmed in accordance with Article 5 of the Law or the validity of the production conformity certificate of which is suspended or terminated, the manufacturer of such products, who placed the specified marking, is liable in accordance with the legislation of the Russian Federation. The criteria that must be met by the production of organic products that receive the Russian mark "ORGANIC" are defined by the interstate standard "GOST 33980-2016 Organic products. Rules of production, processing, labelling and sale". "GOST R 57022-2016. Organic products. The procedure for conducting voluntary certification of organic production" regulates the procedure for conducting the relevant certification. Certification is carried out by certification bodies accredited by Rusaccreditation.

When creating agricultural clusters and developing a unique specialization strategy, you should use the specialized information provided in the list of information systems of the Ministry of Agriculture of

the Russian Federation:

- Federal State Information System for accounting and registration of tractors, self-propelled vehicles and trailers to them (FSIS).
- System for monitoring and forecasting food security of the Russian Federation (SM FS).
- System for providing public services in electronic form of the Ministry of Agriculture of the Russian Federation (PC "Electronic Public services").
- Automated information system of registers and normative reference information (AIS NRI).
- Information system of planning and control of the State program (IS PC SP).
- Integrated information system for the collection and processing of the accounting and reporting of specialized agricultural producers, generate aggregate reports, monitoring, accounting, control and analysis of subsidies to support the agro-industrial complex (AIC "Subsidies in agriculture").
- Central information and analytical system - System of state informational support in agriculture (CIAS SSIS A).
- The unified Federal Information System on Agricultural Land (UFIS AL).
- State information System "Information and analytical system for operational monitoring and risk assessment of the state and risks of scientific and technical support for the development of agriculture.
- Contacts of the unified technical support service for information systems of the Ministry of Agriculture of the Russian Federation.

4. Conclusion

Digitalization of agriculture has helped to accelerate the integration process of agricultural enterprises into agricultural clusters and to give their participants access to unique resources and technologies. The unique specialization of the country's agricultural clusters contributes to improving the quality of agricultural products and meeting consumer demand for organic products. The integration of agricultural enterprises into an agricultural cluster makes it possible to carry out agricultural production on the basis of innovative, resource-saving technologies, use the unique resource potential and implement the concept of specialization of agricultural production. The participation of agricultural enterprises of the region in the agricultural cluster increases the competitiveness and recognition of agricultural products with unique characteristics due to the use of the agricultural potential of the territory.

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