

MODELING OF THE DESIGN OF AGRICULTURAL RESOURCE-SAVING CLUSTERS IN THE CONDITIONS OF A THREAT TO NATIONAL SECURITY AND A SPECIAL LEGAL REGIME

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Abstract

The last decades are characterized by the acceleration of the process of globalization, which requires business entities in the agrarian sphere to adapt to these conditions, in particular, to ensure the appropriate level of efficiency and competitiveness. In the process of improving the efficiency of the competitiveness of agricultural enterprises, it is advisable to introduce resource-saving technologies in the agro-industrial sector, based on the fact that the high efficiency of agricultural enterprises through ensuring the food security is a guarantee of national security. Since the introduction of a special legal regime due to the military aggression of the Russian Federation against Ukraine, provision of the effective functioning of agribusiness has become a critically important task. The construction of resource-saving clusters is one of the approaches that allows obtaining a synergistic effect from the collaboration of agricultural enterprises, thanks to which the efficiency of the respective enterprises and the agricultural sector as a whole will increase. The aim of the research is to develop a methodological approach to modeling of resource-saving clusters of agricultural enterprises.

The research was carried out on the basis of the analysis of empirical data characterizing the activities of 48 economic entities of the agrarian sphere of Ukraine. The analysis of empirical data made it possible to carry out clustering of these economic entities, taking into account the level of introduction of resource-saving technologies into economic practice and the level of the risk of implementing the activities in conditions of a special legal status. To solve the problem of clustering of agricultural enterprises, a neural network, namely Kohonen self-organizing map, was used.

As a result of the carried out research, a methodology for modeling the design of resource-saving clusters was proposed, which involves the analysis of indicators of the activity of agricultural enterprises that allows the distribution of agricultural enterprises by clusters, taking into account the level of implementing the resource-saving technologies in economic practice and the level of the risk of implementing activities in conditions of a special legal status. The analysis of empirical data made it possible to identify six clusters into which the studied agricultural enterprises were divided. Economic entities falling into the same cluster are characterized by similar values of indicators. The use of this approach allows creating an optimal design to develop recommendations for agricultural enterprises regarding collaboration, taking into account the characteristic level of implementation of resource-saving technologies in the production process and the risk of implementing economic activities in conditions of a special legal status.

Ensuring a high level of efficiency and competitiveness of agricultural enterprises becomes a particularly important task in the conditions of a special legal status. It is due to the application of the cluster approach and the proposed cluster design modeling methodology that agricultural enterprises obtain a chance to quickly adjust their functioning according to the requirements of a special legal status and reduce the risks associated with military actions. The application of the proposed methodology made it possible to divide the studied enterprises into six clusters, which are characterized by the corresponding levels of the introduction of resource-saving technologies and the risk of carrying out activities in war conditions, and to develop recommendations for their collaboration.

Key words: *Clusters, Agricultural Enterprise, Resource-saving Technology, Special Legal Status.*