Main features of farm land management at the municipal level

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Abstract. Establishment of favorable organizational and territorial conditions for land use of farms, elimination of violations in the use of agricultural land and effective implementation of state support measures aimed at the development of agricultural cooperation require studying the methodology of organizing the territory and production of farms, as well as developing a strategy for their development on the basis of land management projects. Actual approaches to improve the territorial development of farms were developed by the authors based on the experience of the Tula region.

1. Introduction
Currently, effective development of farms needs favorable combinations of organizational and territorial conditions for land use, the elimination of violations in the use of agricultural land and the prevention of tangible damage to agribusiness entities, a study of the main features of land use management of farms at the municipal level [1, 2].

The problems associated with the formation, functioning and development prospects of farms, with a certain degree observed in many countries of the world, include [3–10]:
• lack of a scientifically based strategy and the imperfection of the development program of peasant farms;
• violation of organizational and territorial conditions worsening the economic efficiency of production and the rational use of land;
• inadequate level of planning the territorial distribution of agricultural sectors;
• difficulty of ensuring access to government agricultural subsidy programs;
• presence of barriers to the development of cooperative ties of small agribusiness;
• insufficient level of state and municipal support for agritourism, local crafts;
• expansion of large agribusiness;
• low level of education among farmers;
• complexity of the documentation of loans and subsidies, the lack of documents on the right of ownership of land associated with long registration process and high financial costs.

Since 2018, comprehensive programs for the development of agricultural cooperation have been operating in the territory of the Russian Federation, and competence centers have been performing advisory functions.

The objectives of comprehensive programs, as well as the activities of the Competence Centers, are qualified assistance in the development of farms, agricultural cooperation, their technical equipment,
assistance in organizing the marketing of agricultural products, training and retraining of agricultural personnel, preferential taxation and lending to agricultural cooperatives.

Thus, the federal center took a number of steps to ensure the economic efficiency of production on farms, the social development of the countryside and the rational use of land.

At the regional level of government, financial support is provided to diversify the economic activities of farmers in order to create jobs, support traditional activities and economic land use, improve transport links between settlements.

Researchers emphasize that in order to improve regional strategies for the development of small business forms, it is necessary to solve the following main tasks [3, 4, 6, 9]:

- to develop a methodology for the formation and organization of the use of land for small forms of management;
- to substantiate the content of land management projects in order to develop small enterprises in the new economic conditions;
- to identify the organizational and territorial patterns of formation and development of small enterprises;
- to develop an algorithm (methodology) for establishing and changing the specialization and concentration of production of small enterprises;
- to develop algorithms for the processes of cooperation of small agribusiness in the areas of lending, material and technical and service support, sales of manufactured products and others;
- to develop algorithms for the development of activities related to small agribusiness, including agro-and ecotourism and local crafts;
- to improve the technology of state regulation of small agribusiness, the composition and content of reporting forms, control and supervision of the activities of small enterprises.

These issues should be worked out in detail in regional strategies for the development of farms based on district schemes and land management projects that provide scientifically substantiated consideration of the economic characteristics of the functioning of small businesses and the natural and economic properties of agricultural land.

This article presents the experience of the Tula region in the implementation of small agricultural business cooperation algorithms, the use of material and technical and service support tools, ways of selling products based on schemes and projects for land management of municipalities.

2. Materials and methods

The theoretical basis of the study was the scientific works of domestic and foreign scientists and specialists [1, 3, 5–9], official reports and resolutions, teaching aids, legislation of the Russian Federation and its subjects. The object of research was the rural territories of the Tula region of the Russian Federation.

3. Results

In 2019, 2,896 farms functioned on the territory of the Tula region (Table 1). The region has the same trends as the whole of Russia: a decrease in the number of farms with an increase in the size of the average land plot.

| Indicators                        | 2000 | 2010 | 2015 | 2017 | 2018 | 2019 |
|----------------------------------|------|------|------|------|------|------|
| Number of registered farms       | 3246 | 3257 | 3236 | 3252 | 3429 | 2896 |
| Area of land provided [thousand ha] | 101.9 | 110.5 | 110.6 | 114.6 | 136.1 | 125.9 |
| Average size of plot [ha]        | 31   | 34   | 34   | 35   | 40   | 43   |
| Average number of cows [pcs]     | 60   | 65   | 70   | 90   | 100  | 120  |

Currently, the effective allocation of land to farmers is one of the most difficult issues of land use management in the Tula region. On the one hand, this is due to the fact that each newly formed farm
should have optimal conditions for conducting its production, and on the other hand, the principle of maintaining equal economic conditions on the land of all other adjacent exploited land should be observed. It is also necessary to take into account the increased environmental burden of cattle breeding and the ban on the placement of these objects in nature protection zones [2].

Allocation of exploited land includes finding the optimal location of land use, giving the selected site the correct shape and configuration, justified orientation of the boundaries of the site on the territory, inclusion of land for various purposes in the land use.

It is advisable to design the new exploited farmland in a single compact land, with correct configuration and the smallest dimensions not divided by natural and artificial obstacles (rivers, ravines, etc.), with the inclusion of lands of all types of property and leases.

Each farmland should be allocated taking into account the existing road network, providing it with an independent access to a water source. The average distance from the farmland to the owner’s place of residence should not exceed 4 km for a farm with intensive animal husbandry.

Allocation of farmland should be subject to the requirements of the subsequent rational organization of its territory. Also, the allocation should not worsen the conditions for the rational use of land and adjacent lands of agricultural land use. The structure of the requirements for the location of the farm is shown in Table 2.

| Table 2. Requirements for allocation of farmland plots |
|---------------------------------|------------------|
| Indicators                      | Units            |
| Total area of exploited farmlands, including: | ha               |
| production area                 | ha               |
| farmland                        | ha               |
| Plot perimeter                  | km               |
| Number of plots                 | pcs.             |
| Location                        | -                |
| Arrangement in relation to settlement | km            |
| In terms of relief             | Higher/lower     |
| In terms of wind chart         | -                |
| Compactness facto              | -                |
| Remoteness of exploited land:   | km               |
| settlements                     |                 |
| public roads                    | km               |
| regional roads                  | km               |
| product distribution location   | km               |

When calculating the area of the farm, it is necessary to proceed from the number of cows planned in the business plan and take into account the need for the area of arable land for cows (0.5 ha) and pastures (1.85 ha). These standards also allow one to regulate the structure of agricultural land.

When placing new and regulating the allocation of existing farms, grant financing is used as the main management tool.

The grant support for small agribusiness in the Tula region is based on the regional target program “Cows in exchange for milk”, the prerequisites for the implementation of which were the lack of regional and federal programs for the massive involvement of private farms and peasant farms in the development of dairy farming without the use of their own financial resources, and the excessive cost of services for small manufacturers of veterinary support, lack of milk collection points and transport links.

The essence of this program is the profitable acquisition of cattle by the farmer, when 30 % of the cost of the cow is subsidized by the regional authorities, and 70 % is taken in payment for the delivered milk. The estimated payback period for one cow is 7 months.
More than 50 agricultural producers received the dairy stock under the program under consideration, including more than half of the farms, as well as personal subsidiary plots of citizens. Program participants have more than 2 thousand hectares of agricultural land under various rights, the number of employees is 150 people, the increase in the volume of milk delivered to milk collection points in 2017 is 280 tons, 730 tons in 2018 and 1000 tons in 2019.

A group of program participants is provided with a milk collection point located at an average distance of about 20 km from each participant. Milk collection points are interconnected by routes calculated using methods of mathematical modeling. Such attention to routes is due to the need for urgent transportation of products for processing, as well as the features of the road infrastructure and the ability to form large batches of milk. The existing milk collection route in the Efremovsky district of the Tula region includes 12 settlements, has a length of 200 km and a duration of 4 hours.

In turn, the location of milk collection points, the number and regularity of milk transportation routes correlate with the location of processing plants. Having determined the specific weight of transport costs in the purchase price of milk for the conditions of the Tula region based on the collected statistical data for 2017-2019, it was found that it is most beneficial to place milk collection points with a daily collection of 4-5 tons at a distance of up to 100 km from the dairy plant.

4. Discussion
During the formation of new farms and regulation of the location of existing farms with their inclusion in the Cows in Exchange for Milk program, it became possible to reduce the outflow of dairy stock and increase milk production through the acquisition of cattle outside the Tula region.

The results of the implementation of a comprehensive program in the municipal regions of the Tula region were:

- increased attractiveness of the agricultural business;
- reduction of population outflow from rural settlements;
- increased self-employment of rural residents;
- legal registration of private household plots as peasant farms with the legalization of commercial activities and the transition to cashless payments;
- additional tax revenues to the budget of the Tula region;
- increased independence of the region in the supply of dairy products to residents.

In our opinion, the implemented measures need to be supplemented by organizational and territorial measures of land management that increase the efficiency of land use by small enterprises:

- introduction of a model of rational land use at the level of small enterprises;
- design of arrangement and other infrastructure elements: a network of reception and procurement centers, cooperative markets, logistics facilities, agricultural parks, craft centers and other elements of cooperation;
- restoration of intra-farm and inter-farm relations between land use entities and the creation of organizational and territorial conditions for the use of various territories in the interests of agricultural producers, contributing to the growth of economic efficiency of production;
- development, as part of the territorial planning documents of the municipality, a scheme for inter-farm relations of small enterprises and other facilities;
- land management support for land use of farms in terms of cadastral registration, determination of boundaries and registration of ownership;
- development of a model project for on-farm land management of a farm in the Tula region.

5. Conclusion
Thus, the improvement of the territorial development of farms involves the further implementation of a set of economic measures of state support and stimulation of cooperation based on organizational and territorial land management measures that take into account the functioning of small businesses and the natural and economic properties of agricultural land.
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