SECTION: GEOLOGY AND GEODESY

METHODOLOGICAL ISSUES OF THE FORMATION OF AGROLANDSCAPES IN THE IMPLEMENTATION OF LAND MANAGEMENT

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The provisions of the relevant Law of Ukraine of 22.05.2003 № 858-IV "On Land Management" [1] are characterized by considerable declarative nature and contradictions, which in fact does not establish a clear procedural support for land management actions. The creation of a system of sectoral standardization in the field of land management, protection and valuation is at the initial stage. All of this requires a deep understanding of the content and purpose of modern land management in the context of the completion of land relations reform, as well as the development of unified approaches to the regulation of land management procedures. The problems of improving the current state of land management are addressed by such scientists as Drebot O. I., Dobriak D. S., Melnyk P. P. [2], Kazmir P. G., Stoyko N. E., Drozdiak M. V, Kysil V. G., Kazmir L. P., Zdorovtsov I. P., Bomba M. Y., Flekey Z. P., Yarmolyuk V. I. [3], Stupin M. G., Gulko R. I., Mykula O. Y. [4], Sopov D. S., Hainus D. D., Buzina I. M., Makeieva L. M. [5], and others. However, even among scientists and practitioners, there are still significant differences in the vision of the composition and content of certain types of land management documentation, the procedure for their development, coordination and approval, and the methodological principles of design, in particular, in land management projects that provide an environmental and economic justification for crop rotation and land management.

The types and types of crop rotation should be determined in accordance with the design specifications, the Laws of Ukraine of 19.06.2003 № 962-IV "On Land Protection" [6] and of 22.05.2003 № 858-IV "On Land Management" [1], the Resolution of the Cabinet of Ministers of Ukraine of 11.02.2010 № 164 "On Approval of Standards for Optimal Crops Ratio in Crop Rotations in Different Natural and Agricultural Regions", as well as Methodological Recommendations on Optimal Crops Ratio in Crop Rotations in Different Soil and Climate Zones of Ukraine, approved by the Order of the Ministry of Agrarian Policy and the Ukrainian Academy of Agrarian Sciences of 18.07.2008 № 440/71 [7].

At the same time, the methodological principles of designing crop rotation fields are practically not described in regulatory documents. Relevant provisions of a

recommendatory nature are currently available only in scientific and educational literature [8; 9; 10], and their compliance with the current regulatory framework is not always evident.

According to T. Yevsiukov [11], the ecological and economic justification of crop rotation should be preceded by a set of organizational and production measures for land management. In particular, information should be studied and systematized on the economic performance and specialization of the agricultural producer; the amount of available land, its structure, area; location of land plots; the relief of the territory, soil cover, human and material and technical resources, transport interchanges, the market for agricultural products and a number of other factors.

Given the increased focus on environmental issues, the efficiency of agricultural production is also assessed in terms of changes in the natural environment caused by human activity. The state of Ukraine's land resources is of growing concern due to the accelerated decline in soil fertility: the content and quality of humus is decreasing, erosion, secondary salinization and salinity are intensifying, and areas of technogenically contaminated and disturbed soils are expanding. These and other destructive processes destroy not only the soil cover, but also the entire landscape of Ukraine.

According to data from Ukraine as a whole, about 500 million tons of productive land is washed away from the slopes annually, with 24 million tons of humus, 1 million tons of nitrogen, 0.7 million tons of phosphorus, and 10 million tons of potassium lost irretrievably. The area of eroded land increases by 70-80 thousand hectares per year, causing economic losses only due to soil erosion [2].

The absence of a real owner of the land, a high degree of development of the territory for agricultural purposes, significant plowing of agricultural land, poor material and technical base and non-compliance with technologies in cultivating crops, and other problems have led to a significant deterioration in the ecological condition of the country's soils, so the urgent issue of today, not only for farmers but also for the country as a whole, is to restore order to the use of soils.

At the current stage of development of agro-industrial production, the creation of an environmentally sustainable and highly productive agricultural landscape is of particular importance [9].

At the same time, many ecological and economic aspects of landscape formation remain unresolved or controversial and necessitate further scientific substantiation in the context of improving land relations on a market basis.

Based on the generalized data of domestic and foreign scientific research in the field of ecological, geographical and agricultural sciences (A. Kaverin, M. Lopyrev, A. Rubtsiv and others), the principles of agrolandscape management used in land parceling and transferring them to private ownership are defined. These are the following principles: adequacy, compatibility, correspondence of the phytocoenosis to the habitat, priority of phytomelioration and optimization of the structure of the land ratio, spatial and species diversity of the environment, consideration of microzonation of natural conditions, material and energy balance and economy [7].

Fundamentals of ecological and landscape organization of the territory [12; 13]:

1) design from general to detailed based on an ecological and landscape approach. From the organization of the territory of the council, farm to the organization of the

agro-landscape, contour, ecologically homogeneous working area (landscape strip), to the land share (share). At this stage, the ecosystem of the territory is formed, and agricultural land - the territory of the agricultural landscape - is defined.

2) optimization of the structure of agricultural land.

3) designing ecologically homogeneous territorial units of agricultural landscapes.

The design is carried out taking into account [13]:

1) relief (steepness of exposure and shape of slopes);

2) geological composition (type and strength of soil-forming rocks, depth of water-resistant horizons);

3) moisture conditions of microclimatic zonation, which depends on relief and environmental impact (forest strips and other lands, water bodies);

4) common phytocoenoses in meadows and pastures.

Features of linear boundary placement. When designing different types of linear boundaries, the entire contour area is divided into landscape strips (working areas). Linear boundaries (forest strips, roads, ditch berms, etc.) should regulate surface runoff, prevent erosion processes, and serve as guiding lines for design [13].

One of the most promising methods of landscape development is the contour organization of the territory, which takes into account the natural structure of the territory to the fullest extent possible, and corresponds to the natural pattern of horizontal zonation and vertical zonation. These requirements are met by the soil protection system of agriculture with contour reclamation organization of the territory [14].

Begei S. V. and Shuvar I. A. [12] believe that as a result of the development and further implementation of the land management project, it is necessary to create an erosion-resistant framework of the agro-landscape, which should ensure the maintenance of the agro-ecosystem in a stable state through the implementation of special environmental measures and technologies, as well as the regulation of economic factors. The basis of modern land management is the landscape structuring of the agricultural territory with detailed characteristics of the relief, soil quality, and microclimatic regime.

In the end, the agricultural producer should receive a project that will ensure the rational and efficient use of all land, create favorable conditions for increasing labor productivity, minimizing investment, resolve the issue of suspending erosion processes, and determine the areas of land whose use is economically inefficient and environmentally dangerous.

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