

**INFORMATION SUPPORT OF THE AGRICULTURAL LAND USE  
MANAGEMENT SYSTEM BASED ON CADASTRAL DATA**



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**Abstract.** In the scientific report, the authors considered the information support of the agricultural land use management system based on cadastral information. Legal, organizational, and scientific aspects of rational use of land resources are considered. The authors paid special attention to identifying the characteristic features of the agricultural land use management system and the process of information support for the agricultural land use management system. In their research, the authors also studied the sources of information for the purpose of organizing effective agricultural land use.

**Keywords:** land management, information support, cadastral information, system, agricultural land use.

**Purpose of (the) study:** consideration of information support for the agricultural land use management system based on cadastral information. Influence of the political aspect, implementation of socio-political, economic and environmental tasks of the state for the rational use of land resources.

**Object of study:** agricultural land use.

**Objectives of (the) study:**

- consider the information support of the agricultural land use management system based on cadastral data;
- to consider the theoretical and methodological aspects of rational use of land resources.
- identify the features of the agricultural land use management system
- formulate the process of information support of the agricultural land use management system;
- propose a scheme for systematization of land management;
- identify sources of information for the purpose of organizing effective agricultural land use;
- determine the role of cadastral information in the agricultural land use management system

### **Results of (the) study:**

- information support of the agricultural land use management system based on cadastral data is considered;
- theoretical and methodological aspects of rational use of land resources are considered.
- features of the agricultural land use management system are revealed
- the process of information support of the agricultural land use management system is formulated;
- the scheme of systematization of land management is proposed;
- identified sources of information for the purpose of organizing effective agricultural land use;
- the role of cadastral data in the agricultural land use management system is defined.

### **Introduction**

One of the most important tasks of the development of modern agricultural land use is the organization of its management on the basis of a system of information complex, including all registers, which determines the relevance of the topic of this study.

Land administration, like any other type of management, is a complex system. It is carried out by many means, is the subject of many Sciences, and includes many aspects. Let's look at them in more detail. The political aspect determines the implementation of socio-political, economic and environmental tasks of the state for the rational use of land resources.

Organizational, in turn, is associated with the formation of a system of state and municipal land management bodies, the definition of their competence, the organization of their functions that ensure consistency of their actions.

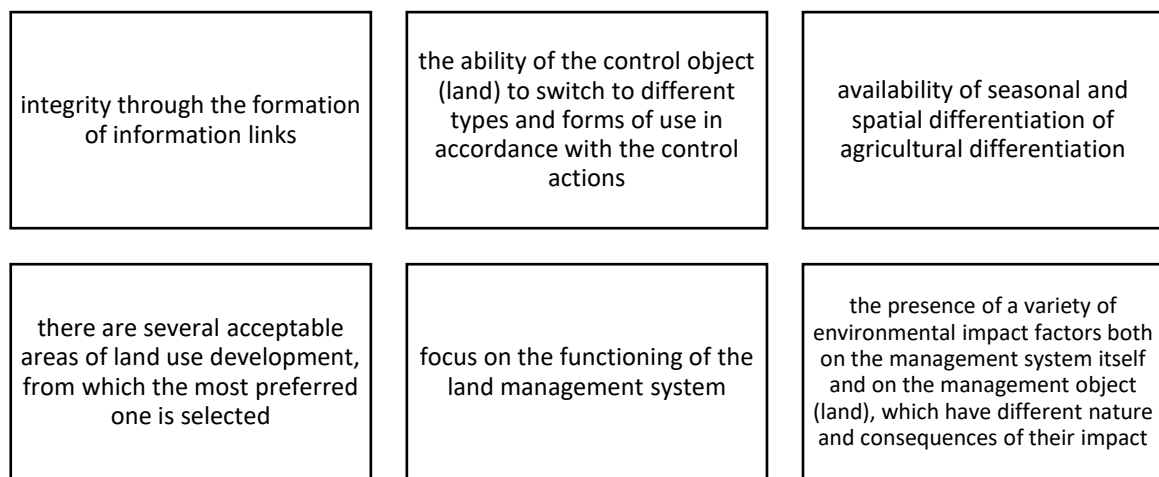
Legal promotes the rational use and protection of land on the basis of legal norms set forth in legislative acts. The scientific aspect is related to the development of scientifically based recommendations for land management, taking into account the achievements of scientific and technological progress. The economic aspect determines the procedure for conducting monetary valuation of land, the development and implementation of economic levers, incentives and measures for the rational use and protection of land. Thus, land management is the result of a certain combination of objective conditions and subjective factors, i.e. purposeful human activity [5,6].

At the same time, the land, as a natural body, develops according to its own laws, so it has its influence on the forms and methods of management, which is especially important for agricultural land use. Therefore, when performing management functions, it is necessary to take into account the main natural properties of the earth (space with its relief, forming the shape of the

earth's surface; soil with its fertility; natural vegetation; hydrographic and hydrogeological properties of the earth, soil with its characteristics, technogenic factors) in combination with the economic conditions of the territory's development.

Thus, agricultural land use management is complex, as it affects the economic and environmental interests of landowners and land users, taking into account the spatial and soil-climatic conditions of land masses, which requires a systematic approach from the management bodies in forming the process of using and protecting land resources based on organizational and technological solutions with consideration of their ecological and economic consequences. In this case, the management process in organizational systems is primarily considered as the process of receiving, processing, converting, transmitting and using information about the management object.

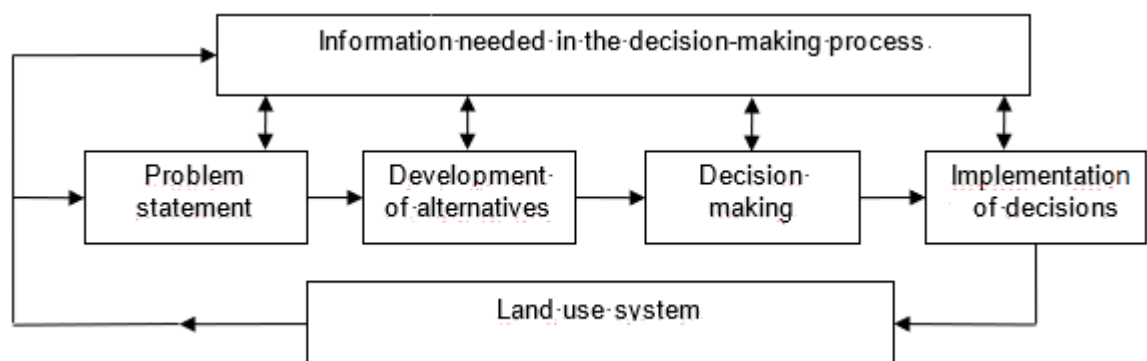
In contrast to other types of systems, according to the author, the agricultural land use management system, as part of the General land management system, has the following characteristics shown in figure 1.



**Fig 1. Characteristics of the agricultural land use management system**

The agricultural land use management system should consist of legal, administrative, technical and technological, economic, social, environmental and other subsystems.

Work on collecting, processing and evaluating information is carried out at all stages of the decision-making process (Fig. 2), but it has features that reflect the specifics of the actions performed and tasks to be solved.



**Fig. 2. Process of information support of the agricultural land use management system**

Information - a collection of various information about the internal and external state of the managed system (control object), used to assess the situation and develop management decisions. The availability and ability to move information is a necessary condition for management [3,7,8].

Management is carried out when there are both overlapping interests of people, and information about the nature of these interests and opportunities for their implementation. Information has certain properties: accumulation, movement, storage when used, cost, measurement, communication, variety of forms. These information properties play an important role in understanding the characteristics of management information support. These characteristics include: completeness and value of information, reliability, form of presentation, volume, timeliness, and structure of information. These characteristics together reflect the information potential of the management [3].

Various types of information are used in land use management practices. The main ones are: economic, organizational, social, socio-psychological, and technological information. In addition, an important role is played by the allocation of operational, current and strategic information, information on individual management functions (planning, statistical, personnel, etc.) [3,8,9].

The effectiveness of management is largely determined by the types and means of transmitting and processing information. Information may be transmitted orally, by paper or electronic means. In modern management, combined options are used. Part of the information used in the management has a documentary form, which is necessary for monitoring performance, as well as for research management in order to improve its effectiveness [7].

Information characteristics of management (volume of information, structure, methods of processing, etc.) are of great importance for the design of a management system and the organization of its functioning. Information characteristics of management determine the size of the management system links, their organizational status, the nature of the link, its interaction in management processes.

An important problem of modern land use management is the differentiation of information in the management system [8]. Each link of the management system should have all the necessary information to implement its functions and powers. The volume and structure of the necessary information reflect the professionalism of the activity, creative approach to work, independence and responsibility of officials, management style. Therefore, the information system should not be based on the principles of a monopoly on information or severe restrictions on information provision. It should include elements of both forced movement of information and proactive acquisition of information through an information (computing) center.

The distribution of information and the construction of a management information support system largely characterize the art of management [3].

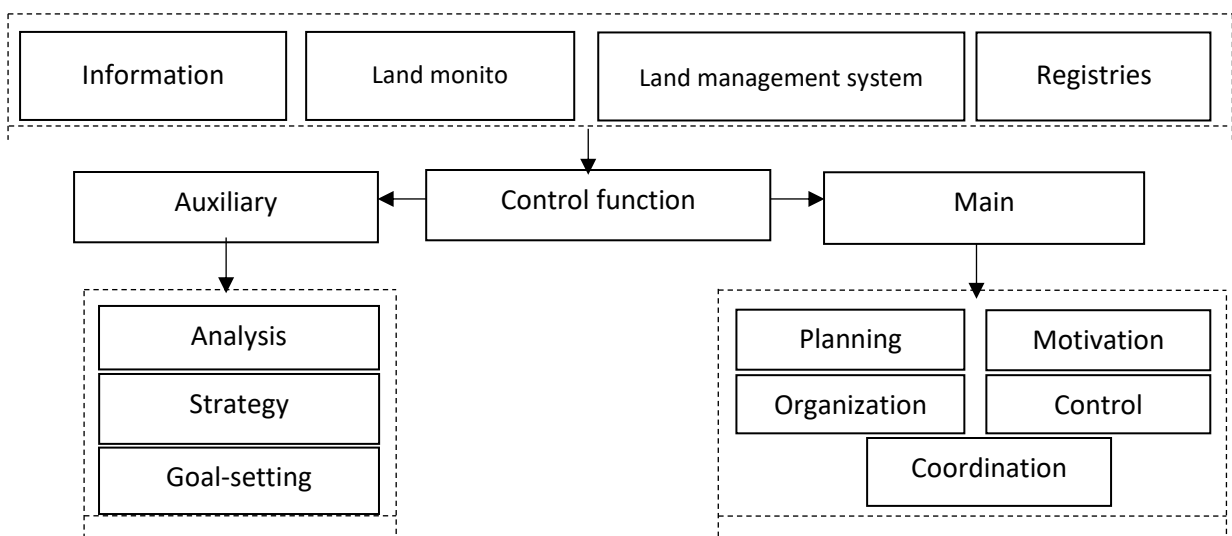
At present, the problem of effective management of agricultural land use is largely not solved due to the lack of objective information about the state and use of agricultural land, which should be obtained through the creation and operation of a permanent system of land registry and monitoring [10].

When organizing an agricultural land use management system, first, it is necessary to determine its functional features that determine the essence of the entire system. Second, determine the procedure for creating an information base. In our opinion, the information base of land

management should be based on cadastral data and land monitoring data, which form the information system, and then the organization of management accounting (Fig. 3).

The General concept of information can be defined as a measure of removing the uncertainty of knowledge in the recipient of a message about the state of an event. From the management point of view, information is presented as a set of information about the internal and external state of the managed system or object of management. At this stage, the management process itself is not implemented directly. But information is the basis for managing the entire system, in our case, the land management system, including agricultural land use management.

The search for ways of economical and efficient use, reproduction and protection of land causes a constant need for reliable information about land resources. In addition to data on the quantity, quality and spatial distribution of land, the information database on land resources should also contain information on climate, water and vegetation resources, including technical and economic indicators of land users, demographic characteristics, land assessment results and other data.



**Fig. 3. Scheme of land management systematization**

In many cases, information is required not only in alphanumeric form, but also in graphical form. The complexity of collecting and processing information is compounded by the fact that production development and other factors are constantly changing the composition, distribution and use of land. The relevant services in many countries of the world, as well as international organizations, are trying to create modern systems for collecting land information. Special attention should be paid to the experience of creating a system of global environmental monitoring, in which the problems of information about the earth take a leading place.

According to the author, the sources of information for the organization of effective agricultural land use are banks and databases of various departments:

- 1) state and local government bodies;
- 2) bodies that maintain the Unified state register of real estate;
- 3) bodies that carry out technical inventory and technical accounting of objects – bodies of technical inventory (Bureau of technical inventory (BTI));
- 4) territorial bodies of the Ministry of agriculture and organizations that carry out soil, geobotanical and other surveys;
- 5) organizations that carry out operations with real estate objects, as well as operations with information about the real estate market – real estate firms, notary offices, etc.;

6) legal entities and individuals who provide information about their land plots and real estate objects located on them when registering for state cadastral registration, registering rights to real estate and transactions with it;

7) information services and other sources.

However, the main role is currently played by the data of the usrn, since only these registers contain reliable information about land plots and other real estate objects of agricultural enterprises [1;11].

This is necessary in order to highlight the impact of cadastral information on the efficiency of agricultural land use among all the factors.

The complexity of building a system of information support for agricultural land use management-in particular, many authors note. Basically, the unique significance of the land, its multifunctional purpose and special legal status are pointed out as problems that complicate the work on building the system. From our point of view, this list should also include the not yet fully implemented division of managerial functions between different levels and structures of power, the presence of a large number of state and departmental information systems, often not interconnected and not interconnected, the lack of interdepartmental exchange of information, etc.

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