RESEARCH METHODS IN SOIL SCIENCE.

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Abstract: Like other sciences, soil science has its own research methods suitable for science. These methods are suitable for soil specification as a natural body. First of all, it is necessary to distinguish the systematic (complex) approach in the study of the soil, which means studying it without separating it from the surrounding objects and phenomena, that is, the soil as a component (subsystem) of a large system (biogeocenosis, biosphere). 'learning. At the same time, the soil itself appeared in the form of small systems.

Key words: Genetic method, morphology, vegetation container, modeling, laboratory, soil lysimeters, soil monliths, microscope, object, geographical regularity, physical modeling.

Enter. Profiling - a genetic method - forms the basis of all soil science research. It requires the study of the soil from the surface to the parent rock and the comparison of the studied properties and parameters of the soil section. This method reflects the natural laws of the development of soil formation processes. Morphological method - the study of the structure of the soil cross-section is the basis of soil science research and forms the basis of the diagnosis of soils in natural conditions. Three types of morphological analysis: macromorphological (examines the soil with the naked eye); mesamorphological (examines the soil using a magnifying glass and binoculars); micromorphological (studying the soil using microscopes) types are used. The morphological method makes it possible to study the soil and distinguish them from each other according to their external (morphological) signs. In this, the structure of the soil profile, the thickness, color, granulometric composition, structure, joint, new wound, joint, etc. of the soil and some horizons are studied. The comparative-geographical method is based on the comparison of soils and factors related to soil formation in their historical development and distribution in places, and allows to draw reasonable conclusions about the laws of soil genesis and their geography.

The comparative-historical method is based on the principle of actualism, allows to study the past of soil and soil cover based on the study of the current situation. Biogeocenotic (ecological) method - taking into account all components of biogeocenosis: soil, plants, animals, microorganisms, atmosphere, natural waters, rocks, specific conditions of the geographical environment and at the same time related to each other learning without is understood. Modeling is a method of researching some properties and signs of an object not directly in it, but in another object (model) that is similar to this object. The soil key method - the soil key is based on careful genetic-geographical analysis of smaller areas and application of the obtained conclusions to large areas with the same structure of soil cover. The method of soil monoliths is based on the principle of physical modeling (movement of moisture, salts, etc.) of soil processes in soil columns (monoliths) with their natural structure intact.

The method of soil lysimeters is widely used in the study of processes of vertical movement of substances in natural soils using lysimeters. The method of soil-regime indicators measures one or another parameter (indicator) (moisture, temperature, salts, humus) in the same soil over a long period of time (in a season, during the growing season, in a year, in several years). , nitrogen and other nutrients) is used in the investigation of current soil formation kinetics. The method of vegetation containers is widely used in the study of interdependence in the soil-plant system. Aerospace method. Aerospace methods in soil science include, on the one hand, the study of photographs of the earth's surface in different spectral ranges and from different heights with the help of instruments or with the naked eye, and on the other hand, the study of the spectral reflectance or absorptivity of the soil directly from aircraft and spacecraft. . The geography of soils, the dynamics of a number of important properties of the soil - moisture, density, salt content, humicity, etc. are checked by this method. The soil absorption method is used to isolate a certain group of compounds of interest to the researcher under controlled conditions under the influence of each solvent (water, various acids, alkalis or salt solutions of various concentrations, organic solvents - alcohol, acetone, benzene, etc.). based on In soil science, the method of radioisotopes is used to study migration processes of certain elements and their compounds in soils and ecosystems based on labeled atoms. Depending on the location of the study, it is divided into field and laboratory soil tests. Soil science research conducted in field conditions, expeditionary and stationary methods of soil research, routed soil inspections for the purpose of reconnaissance, obtaining a soil cover map on a given scale, long-term observations in special stations, experimental stations, experiments on soil reclamation and transformation (including in production conditions); includes model experiments under natural conditions (including using lysimeters and stock plots). In laboratory methods of research, the physical, mineralogical, micromorphological properties of soils are checked, soil processes are physically and mathematically modeled, field work data are developed. Physical, physico-chemical, chemical and biological analytical methods. It is used in studying the properties and composition of the soil.

Systematic methodological approach is widely used in soil science. On the one hand, the soil is considered as a whole system consisting of many interdependent small systems - blocks, and on the other hand, it is considered as a small system in the ecosystems of the biosphere and ecosphere..

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