UDC 631.95: 001.891 (477)

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Priority directions of research activities in ecology of agriculture

The purpose. Determination of priority directions of research activities in ecology of agriculture at the present stage of development of agrarian science and production in view of international quality standards or environment. Methods. Historico-scientific, problem-chronological, method of cluster analysis and expert appraisals. Results. Importance of ecology of agriculture as fundamental basis of forming balanced argosphere, protection of environmental natural habitat, woodland conservation and reproduction of natural resources for provision of environmental safety is opened. Conclusions. Priority directions or subjects of research activities in ecology of agriculture are justified.

Key words: ecology of agriculture, agrosphere. balanced development, environment, natural resources, subjects of researches, ranks.

In the context of the implementation of the Declaration of the UN Conference on Environment and national development paradigm staloho Ukraine and processes transforma¬tsiyi consciousness about the importance of rethinking the quality and safety of the environment, natural resources vykorystannya impossible not to recognize the priority of agroecology at the present stage of development of agrarian Industry. In the opinion of 0,0. Sozinova, MV Zubtsya, O.G. Tararika and other scholars, in Ukraine there are all signs of the ecological crisis, which is already considered as a crisis of the philosophy of being and spirituality. The degradation of the natural environment is a consequence of not only anthropogenic pressure on it, but also the impoverishment of the morality of society, a lack of clarity regarding the future consequences of conflicts of an established standard of living. In view of this environmental problems in the agrarian sector can be solved through the main directions of agroecology. Behind O.O. Sozinov modern ahroekolo¬hiya - a complex science, which is based on a synthesis of many sciences and based on sy-dark approach, using political, economic and other factors [6]. In the conditions of Ukraine, the implementation of agroecological developments will not ensure the efficient use of our natural potential. It is only important that it was the political will authorities in the implementation of the principles zhyttya biologization farmer-tion and formation of sustainable agro-ecosystems and agricultural landscapes. [6] The main objective of agroecology is to ensure balanced production of quality and safe products, preservation and improvement of the natural resources potential of the agrarian sector. It examines vzayemo¬diyu man and the environment in the process of agricultural production, including the impact of agriculture on natural-Lex computer, the interaction between the components of agro-ecosystems, energy transfer, especially in terms of agro-ecosystems functioning teh¬nohennyh loads [2]. The object of research in agroecology is ahrosfera and the subject - the human relationship with the environment in the process of agricultural production, the impact of agriculture on natural systems, relationships between components and specific agro-ecosystem cycle in which matter, energy and informa¬tsiyi Under the influence of anthropogenic loads.

The agrosphere is not only the main source of food and raw material supply for food and light industry (mainly due to the energy of the Sun and other natural resources - pounds, water, climatic factors, etc.), but also the habitat of a large part of the population. She owns a special fundamental regularity of internal development, which is the result of the interaction of various natural and socio-eco nomic factors [7]. And the agroecology itself, which aims to harmonize the relations of the agrosphere and the environment, determines the direction of balanced development of the agrarian sector [9]. The main task of agroecology is to find the formula of optimal ratio, balance and balance in the cultivation of plants and animals under certain environmental conditions. Agrosphere in Ukraine covers about 70% of the total territory. Its first islands arose as a result of the Neolithic revolution of about 8-10 thousand years BC (Trypillian culture). Significant development she acquired in the XIX century. The main contradiction between the agro-sphere and the natural environment in those days was its expansion as a result of the destruction of livestock, as well as damage to steppe ecosystems as a result of a significant increase in the sheep population in these areas. However, in general, the effect of anthropogenic factors in those days did not lead to a global disruption of homeostasis of

the natural environment. Despite this, VI Vernadsky, VV Dokuchaev, P.A. Kostychev, GM Vysotsky, OO Izmail and others still on the verge of the last century warned that increasing human pressure on the agro-sphere could lead to an environmental crisis. They substantiated the necessity of purposeful actions on preservation and restoration of natural resources, in particular agricultural lands and forestry, aquatic and forest ecosystems, etc. Among the reasons for the current complex environmental situation in the agro-industrial zone should also be noted the inefficiency of public administration, the unsatisfactory use of economic instruments for the implementation of environmentally sound technologies, low level of environmental culture of producers and population, low activity and effectiveness of environmental organizations And public movement. The agrosphere is created and is constantly maintained by man and in essence is inertial. Managing it requires a systematic approach and a scientifically sound strategy. Regardless of the fact that the agrosfera is largely anthropogenic system in its fundamental nature, it is part of the biosphere, and it has the basic mechanisms characteristic of the latter. It contains the circulation of nutrients and energy, the balance of the interaction of pathogenic factors (viruses, microorganisms, insects) with plants and animals. Violation of such a balance could have catastrophic consequences [4]. Biodiversity is the foundation and foundation for the existence and liveliness of the biosphere. Due to its impoverishment, the entire system becomes unstable, which can lead to its complete collapse. This is especially true for agroecosystems. Intensification of agrarian production has created in man the idea of the dominance of aerated man-made factors in solving all problems in the agro-sphere, in particular with regard to technology, fertilizers, chemical means of plant and animal protection, etc. However, they almost forgot about the fundamental principles of the functioning of biological systems and the mandatory availability of appropriate biodiversity in agroecosystems. The underestimation of this factor, the lack of research on determining the areas of conservation of biodiversity threatens the ability to achieve a balanced development of agroecosystems and welfare of the population [1]. This requires not only new directions in solving problems of socio-economic relations in the field of agroindustrial production, but also new interactions between agro-sphere, technosphere and urbosfera, application of high energy saving pro-protection technologies.

For Ukraine, the problem of the formation of a new balanced agrosphere has a special significance. There is now an urgent need to define a new strategy for the development of agro-industrial production and agrosphere in general. Looking for decisive action and support at the state level implementation of the main provisions of the Concept of sustainable development, the formation agrosphere its principles biosphere noo-sfernoho-based approach to ide¬yah VI Vernadsky You must first develop a model agrosphere Ukraine XXI century., Which would be based on the basis of established principles and agroecological eko¬nomichnoyi science based mechanisms operating in the agricultural domain as part of the biosphere. It is necessary to take into account qualitative changes in the natural environment, which occurred as a result of a significant increase in the XX century. Anthropogenic pressure on the environment, current trends in global climate change, etc. However, in Ukraine there are still no economic incentives for the introduction of environmentally sound technologies. The level of application of innovative, resource-saving and environment-friendly technologies, in particular technologies for the processing and utilization of waste from agricultural production, remains low. It should be noted that only usvidomlen¬nya Agroecology importance of science in modern agricultural production, thoughtful con Lynn environmental processes in the agricultural domain, balance the needs of economic devel-opment opportunities and restoration of natural resources, complex implementation ahroekolo¬hichnyh measures and technologies in agriculture is the foundation of sustainable The development of the state, the longevity of life and the sound health and well-being of present and future generations [8]. To clarify the actual state STRUCTURE-D research topics of ahroeko-nology research areas and ranking their prospects for used cluster analysis method and expert assessments as stupnishi Naidoo, provided that the structure of the subject as an object of study analyzed for the first time. In domestic and foreign literature, publications on the analysis of the structure of scientific topics were not revealed, in particular, from agroecology. To do this, the number of keywords and their slo¬vospoluchen that can recognize categories Agroecology, formed 11 conventional (without calculating the degree of similarity between them) klaste¬riv shaped areas of research facilities like the following expertise: ekolohich¬nyy state sphere resources (Land, water, biological); Optimization of the structure (agrolandscapes, agricultural lands, agrophytocenoses); Ecological assessment of systems (agriculture, soil cultivation, fertilization, plant protection); Estimation and standardization of anthropogenic loading on the natural resources of the agrosphere (agrotechnologies, agrochemicals, industrial enterprises); Regularities of migration of pollutants in agro-ecosystems; Ecological principles of waste management of agro-industrial production; Ecological

status of rural residential areas; Bases of ecological safety in agroindustrial complex; Adaptation of agricultural production to predicted climate change; Agro-ecological monitoring; Scientific fundamentals of ecological forecasting of agrosphere development. 2 groups of experts were questioned with a list of these 11 research areas. The first group consisted of actual members (academicians) and correspondent members of the National Academy of Agrarian Sciences of Ukraine (members of NAAS), selected in the directions and specialties "ecology" and "agroecology". The second group - members of the specialized academic council D.26.371.01 (members of the special council) at the Institute of Agroecology and Natural Resources of NAAS - specialists in the specialty "Ecology". The purpose of the survey was an exeptive assessment, in particular on the conditions of anonymity, the proportion of each of the directions in percentage in the general theme of scientific research on ag-roecology. In this way, 10 questionnaires were received from the members of the NAAS and 7 from the members of the special council that have undergone a statistical processing. The calculations were carried out in the program ETA-TIETISA with the estimation of the statistical reliability of the coefficient of concordance by the criterion y}. In the coming stages of the analysis, experts' suggestions regarding the feasibility of merging individual clusters (directions) were taken into account. In addition, publications on the problem of agroecology for 2000-2014 were examined: 116 avto-abstracts of protected dissertations on specialty 03.00.16 - ecology and 1109 articles in the specialized scientific and theoretical publication "Agroecological journal".

Taking into account comments and suggestions of experts on the association of some clusters (directions), we can conclude that the optimal structure of the subject of scientific research on agroecology has the following rank rank: 1. Environmental assessment and standardization of anthropogenic and technogenic loading Agricultural systems, obrobotnoy soil, plant protection, fertilization, agrotechnologies for the natural resources of the agro-sphere. 2. Ecological state and optimization of the structure of agricultural landscapes, agricultural lands, agrobiocenoses. 3. Fundamentals of environmental safety in the agroindustrial complex (pollutants, GMOs, waste products, biopreparations). 4. Agroecological monitoring and scientific bases of environmental forecasting of the agro-sphere (agricultural and forestry lands, lands of the water fund and rural residential territories). 5. Adaptation of agricultural production to predicted climate change.

Conclusions

It is substantiated that for the scientific support of the European integration processes in Ukraine related to the balanced development of the agrosphere, priority areas of research on agroecology are: ecological assessment and standardization of anthropogenic and technogenic loads on the natural resources of the agrosphere; Ecological status and optimization of the structure of components of agro-sphere; Bases of ecological safety in agroindustrial complex; Agroecological monitoring and scientific basis of environmental forecasting of agro-sphere development; Adaptation of agricultural production to predicted climate change.

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Released Feb 17, 2015