

MAIN DIRECTIONS OF SCIENTIFIC RESEARCHES IN AGROECOLOGY

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In the context of implementation the Declaration of the UN Conference on environmental problems, national paradigm of sustainable development in Ukraine and transformation processes of human consciousness concerning reconsideration of the importance of environmental security and quality, natural resources usage, it is impossible not to recognize the high priority of Agroecology science at the present stage of national agrarian sector development.

Agroecology in today's complex environmental and economic conditions determines the development strategy of agriculture, which should be directed to the preservation and reproduction at the first instance soil, water and biological resources, environmental protection and provide people with high quality food products in sufficient quantity.

Environmental priorities in the current national agricultural production should be consistent with the new programming period 2014-2020 of Common Agricultural Policy of the EU for targeting to effective use of local resources in order to preserve ecosystems and prevent negative risks of climate change, that also corresponds to fundamental objectives of agrarian policy – viable food production, sustainable use of natural resources and climate change mitigation, sustainable rural development.

Agroecology is formed as an independent science at the intersection of many disciplines. Its foundation, on the one hand, is a set of natural sciences (general ecology, physiology, chemistry, physics, meteorology, biochemistry, mathematics, etc.), and on the other – manufacturing science of agricultural crops cultivation and livestock production (farming, plant-growing, agrochemistry and soil science, forestry, irrigation, livestock, animal science, biotechnology, etc.). Furthermore,

agroecology is closely connected with nature protection and social ecology. Although agroecology is an interdisciplinary science, it still belongs to the agricultural sciences with dominating emphasis on the development and scientific substantiation of measures that are necessary for obtaining qualitative and safe agricultural products, preventive assessment of undesirable consequences of the negative impact of human activities and their elimination on agroecosystems, in general to biogeocoenoses, landscapes.

Current agroecology, based on the complex systematic approach, determines the transition ways of agroecosystem to priorities of sustainable development. This means that stable receiving of required quantity of high quality competitive production must be carried out through usage limitation of anthropogenic energy, resumption of natural resources, formation of sustainable agroecosystems and minimal environmental pollution by taking into account the criteria of rational environmental management and bioethics principles.

The problem of forming a new well-balanced agrosphere is of particular importance for Ukraine. Now there is an urgent need for us to define a new strategy both for agricultural production and agrosphere in general. It is needed the decisive actions and support at the state level for the main provisions implementation of the Sustainable Development Concept, agrosphere formation on its principles, biosphere-noospheric approach that is based on the ideas of V. Vernadskyi. Primarily this requires developing a Ukrainian Agrosphere Model of XXI century that would be based on well-established principles of agroecological and economic science considering mechanisms that existing in the agricultural domain as a part of biosphere. It is necessary to consider qualitative changes in natural environment that occurs due to the significant strengthening of anthropogenic pressure on environment in XX century, current trends of global climate changes, etc.

Special attention requires an issue of implementation and adjustment of the nationwide agroecological monitoring by using modern information and space technologies, assessing the degree of contamination of all components of

agricultural landscapes by pathogenic organisms (viruses, bacteria, micromycetes), organic xenobiotic and heavy metals, the study of migration and transformation of toxicants in the soil and in the system of «soil - plant - animal – man», etc. No less important direction is the development of methods and technologies for remediation of contaminated soil and its returning to agricultural production.

To clarify the actual state of the subject structure of scientific researches in agroecology and ranking research directions for their prospectivity, it was used a cluster analysis and a method of expert assessments as the most available provided that subject structure as an object of research is analyzed for the first time. According to the research it is substantiated that for scientific support of eurointegration processes in Ukraine concerning sustainable development of agrosphere, the priority directions of scientific research of agroecology are:

- ecological assessment and rate setting of anthropogenic and technological burden on natural resources of agrosphere;
- ecological condition and optimization of the structure of agrosphere components;
- fundamentals of ecological safety in the agroindustrial complex;
- agroecological monitoring and scientific basis of ecological forecasting of agrosphere development;
- adaptation of agricultural production to the prognosticated climate changes.