

which, in turn, indicate photosynthetic rates and the overall productivity of forest ecosystems.

Furthermore, ERS can be employed to detect pests and diseases that spread within forested areas. Alterations in the spectral properties of vegetation can signify the presence of diseases or pests, enabling the prompt implementation of measures for their eradication .

Through ERS, data can be acquired regarding the quantity and distribution of forested areas, as well as the degree of degradation in forest ecosystems. Information obtained through remote sensing permits the determination of forested areas that have been logged or devastated due to forest fires or other natural catastrophes. Additionally, ERS allows for the evaluation of forest health and the monitoring of its changes in response to various factors, such as climate change and human activities.

The application of ERS also enables the detection of changes in the structure of tree stands, including crown size and shape, forest density, and the presence of diseases and pests. This information is valuable for assessing the condition of the forest and its potential for biodiversity conservation. Moreover, ERS can help monitor changes in forest vegetation and identify the risks of forest fires.

All of this data can be useful for formulating strategies for the conservation and management of forest resources. Thus, the development of ERS plays a pivotal role in forest preservation.

REFERENCES

1. A Layman's Interpretation Guide to L-band and C-band Synthetic Aperture Radar data 15 November, 2018. page 2-5.

DYNAMICS OF CHANGES IN THE QUALITY OF AGRICULTURAL SOILS IN THE CONTEXT OF THE USE OF BIOPESTICIDES

*Tatiana Kirik, D.Sc. of Engineering, Prof.,
Vladyslav Deineka.
National Aviation University, Kyiv, Ukraine
vlad.deyneka11@gmail.com*

Agriculture is one of the key areas of human activity that directly affects the environment and soil resources. Ensuring the productivity of agricultural soils is one of the most important tasks for ensuring food security and sustainable development. In this context, the use of biopesticides is becoming an increasingly important aspect of modern agricultural production.

Biopesticides are biologically active substances used to control plant pests and diseases. They are produced from living organisms such as bacteria, fungi,

other microorganisms or studied natural substances. Until now, many studies have been devoted to the study of the impact of biopesticides on the quality of agricultural soils and their dynamics of changes.

An important result of the use of biopesticides is the observed improvement in the biological activity of agricultural soils. Biopesticides promote the growth of beneficial microorganisms, such as microbes that break down organic matter and improve soil structure. This can lead to an increase in the availability of nutrients for plants and a reduction in the negative impact of chemical pesticides on the soil microbial ecosystem.

Pesticides or chemicals are designed to control pests such as insects, nematodes, diseases, weeds, etc. However, overuse of pesticides not only leaves residues in soil, water and air, but also adversely affects non-target organisms such as pollinators, parasitoids, predators and wildlife. This negatively affected the ecological balance, which led to the revival of pests, the development of resistance in pest species and environmental pollution. Pest resurgence and resistance have resulted in high cost of production and low income, especially for cotton farmers in the state of Maharashtra [1].

Food security and more conscious consumption are driving companies and governments to support sustainable agriculture. The global agricultural biologics market is projected to grow at a CAGR of 13.6% to reach USD 18.9 billion by 2025, with Europe, Australia, and the Americas accounting for the lion's share. Markets in Asia and Africa are also increasing the use of biocontrol products in agricultural practices [2].

One of the key advantages of using biopesticides is their ability to reduce the negative impact of chemical pesticides on agricultural soils. They can interact with chemical pesticides and reduce their toxicity to biological systems. This helps to preserve the ecological balance in the soil and reduce the risk of accumulation of chemicals in the environment.

Research shows that biopesticides can improve the physical and chemical properties of agricultural soils. In particular, they can improve soil structure and water conductivity, which contributes to better conservation of moisture and nutrients. This can be beneficial for agricultural production, especially in regions with limited water resources.

An important result of the dynamics of changes in agricultural soils after the application of biopesticides is the preservation of soil fertility and an increase in yield. Reducing the negative impact of chemical pesticides, improving soil structure and increasing the availability of nutrients for plants lead to improved yields.

REFERENCES

1. https://agritech.tnau.ac.in/farm_enterprises/Farm%20enterprises_%20bio%20pesticides.html
2. <https://svgr.gov.ua/news/1666084314/>