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SCIENTIFIC AND METHODOLOGICAL APPROACHES TO LAND MANAGEMENT FOR ORGANIZATION OF ORGANIC FARMING IN UKRAINE

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Abstract. *The study focused on scientific and methodological approaches to land management in the context of organizing organic agriculture in Ukraine. Particular attention is paid to the formation of a systematic approach to ecologically balanced land use and its harmonization with the requirements for certification of organic products according to international standards, in particular, the regulations of the European Union.*

The author identifies the components of land management, including: selection of suitable land plots in compliance with environmental safety criteria; creation of buffer zones to prevent pollution from the outside; minimization of the impact of neighbouring farms engaged in traditional agriculture; spatial zoning; rational placement of crops and livestock facilities.

Approaches to the formation of crop rotations based on scientifically based crop rotation, the use of perennial grasses and green manure crops to restore soil fertility and improve the ecological balance within an organic farm are considered.

Particular attention is paid to the use of innovative technologies, such as geographic information systems and remote monitoring, which contribute to the *efficiency of management decisions. The author substantiates the importance of continuous monitoring of soil conditions, compliance with environmental standards, certification and implementation of product origin tracking systems as a prerequisite for transparency and quality assurance.*

Key words: *organic agriculture, land management, land use organization, soil protection, environmental safety, sustainable development, certification of organic products, buffer zones.*

Problem Statement. The demand for environmentally friendly products is increasing both in domestic and international markets, especially under wartime conditions. At the same time, the development of organic production faces a number of challenges that hinder its effective organization. These include:

1. the absence of an integrated model of land management adapted to organic farming;
2. underestimation of soil protection measures aimed at preserving fertility and preventing land degradation intended for organic use;
3. mismatch between the existing structure of land ownership and land use and the principles of ecological optimization, especially in terms of siting production facilities, ecological safety zones, and buffer zones;
4. limited scientific and methodological support for the implementation of international organic certification standards in land use planning.

These challenges underline the necessity to develop comprehensive approaches to land management that integrate ecological, social, and economic factors in organic agriculture, promote rational use of land resources, and ensure their protection.

Review of Recent Studies and Publications. In her study of organic agriculture, Hranovska V.H. analyses the current state of development in this sector, highlights key priorities, and substantiates its economic viability in the context of global adaptation. Particular attention is paid to the development of mechanisms to stimulate the growth of enterprises in the organic sector through subsidy-based, infrastructural, informational, and legal tools [1].

Hvozd O.M. explores the pricing of organic products, taking into account market specifics and the strategies of organic producers. In particular, she identifies factors that influence price formation, including the life cycle stage of organic goods and the feasibility of applying a premium markup, drawing on the experience of Switzerland, the United Kingdom, and Germany. Forms of government support for organic production are also analysed, with an emphasis on expanding compensation for certification costs [2].

The research by Novak T.S. and Melnyk V.O. focuses on examining the current state of legislation in the field of organic agricultural production in Ukraine. They justify the need to harmonize the regulations (detailed rules) of organic production and circulation of organic products with national legislation (especially in terms of environmental impact assessments) and international instruments (regarding specific labeling requirements for different types of organic products) [3].

Dorosh Y.M., Barvinskyi A.V., Dorosh O.S., Melnyk D.M., and Vysidalko A.A. note that current legal regulation in the field of organic land use is mainly concentrated on technological processes, certification, and the organic product market. The scholars propose introducing a new type of land management documentation – land use planning projects for the organization of organic land use (ownership) – by amending Article 25 of the Law of Ukraine “On Land Management” and defining the structure and content of such projects at the legislative level [4].

Dorosh O.S. and Dorosh A.Y. studied the challenges of organic land use in Ukraine under wartime conditions. They identified restraining factors, particularly the absence of a proper institutional environment. They also proposed incentives for producers and consumers (free pricing, preferential taxation and crediting, remote certification, etc.) and outlined potential directions for the development of organic land use that could be implemented simultaneously [5].

Research Objective. To develop scientific and methodological approaches to land management aimed at the effective organization of organic farming, taking into account the requirements of environmental safety, land resource protection, and the sustainable development of the agricultural sector.

Materials and Methods. This article employs the following research methods:

- Monographic method – for reviewing scientific sources on the selected topic;
- Systems analysis – to integrate factors influencing organic land use planning;
- Cartographic modelling – to identify suitable land plots considering restrictions related to organic production;
- Ecological and economic justification – to determine the feasibility of establishing buffer zones, protective strips, and special land use regimes.

Research Results and Discussion. Land management aimed at the organization of organic agriculture is characterized by unique features. Its ecological focus lies in accounting for agroecological zones, natural and climatic conditions, and soil fertility in order to identify the most suitable areas for organic production. A key component is assessing anthropogenic pressure, particularly levels of contamination from pesticides, heavy metals, and other toxic substances that may negatively affect product quality and the environment. Additionally, to prevent cross-contamination between organic and conventional lands, the establishment of environmental buffer zones is proposed to minimize the impact of agrochemicals and maintain ecological balance.

This approach is aligned with the requirements of the Law of Ukraine "On the Basic Principles and Requirements for Organic Production, Circulation and Labelling of Organic Products" (No. 2496-VIII) [6], as well as with EU regulations on the transition period and cadastral zoning for organic areas, and international standards (IFOAM, EU Organic Regulations) [7].

The main components of land management for the organization of organic farming include:

- selection of land plots;
- territorial zoning;
- development and implementation of crop rotations;
- monitoring of soil quality;
- environmental protection measures;
- land and soil conservation planning;
- certification process organization.

One of the most important elements is the **selection of land plots**, which should be based on specific criteria: compliance with environmental safety standards, absence of negative impacts from neighbouring farms, and favourable soil and climatic conditions.

A land plot is considered compliant with ecological safety standards for organic farming if it has not been contaminated by pesticides, herbicides, fungicides, or other chemicals. Contamination by heavy metals should be minimal or absent. The site must also meet radiological standards under established sanitary norms. Particular attention should be paid to the **ecological history** of the land: sites previously used for industrial activities, waste storage, or other potentially hazardous purposes require thorough environmental assessment. Additionally, plots near potential sources of pollution—such as roadsides, railways, industrial zones, or conventional farms using agrochemicals—should be avoided, as they may contaminate air, soil, and water.

To minimize negative effects from neighbouring farms, the location of the selected land is crucial. Safe distances from industrial zones and conventional farmland should be maintained to prevent drift of agrochemicals, pesticides, and other synthetic substances [6].

Besides spatial distancing, **environmental buffer zones** are planned to prevent cross-contamination between organic and conventional lands. These zones can take the form of shelterbelts, green plantings, or grass strips and act as natural barriers to prevent the movement of harmful substances via air, water, or mechanical means. This practice ensures both environmental cleanliness and compliance with organic production standards [8].

Special attention should be paid to land plots located near transportation routes, railways, and other zones with high anthropogenic pressure. To mitigate negative impacts, it is essential to conduct environmental assessments of potential pollution sources and implement protective measures. In particular, it is advisable to:

1. create buffer zones with tree and shrub plantings that purify air and trap dust particles;
2. introduce monitoring systems to assess soil and air pollution levels.

An important criterion for selecting land for organic farming is its **soil and climatic suitability**, which forms the foundation for producing environmentally safe products with minimal human intervention. This includes the soil's compatibility with organic farming requirements, optimal moisture levels, favourable temperature conditions, and natural fertility — all of which enable optimal crop growth without the use of agrochemicals.

Soils should have appropriate structure to maintain a balanced water-air regime and drainage. For instance, clay soils with poor aeration or sandy soils with low water retention require improvement through the application of organic matter. The content of macro- and micronutrients — such as nitrogen, magnesium, phosphorus, potassium, and calcium — must meet crop needs. Instead of synthetic fertilizers, natural sources of nutrients are used (e.g., compost, green manure, or organic livestock manure). Additionally, soils should be enriched with beneficial microorganisms that facilitate the decomposition of organic matter and help maintain soil fertility.

Equally important is maintaining **optimal soil moisture levels**, since excess water can lead to root rot, while deficiency slows plant development. In arid regions, the use of **irrigation systems** (such as drip irrigation) should be considered to conserve water and ensure adequate moisture.

Climatic conditions should provide a favourable **temperature regime** for heat-loving crops, supporting a long vegetation period without the risk of spring or autumn frosts, which can adversely affect crop growth and yields.

In the context of organic farming, **natural soil fertility** is a key criterion. A high humus content plays a crucial role, as it supplies essential nutrients and helps preserve soil structure. Soils prone to water or wind erosion require protective measures (e.g., shelterbelt planting or terracing). Organic production is typically carried out on soils with moderate fertility, which can be improved using biological methods. For example, **Polissia soils**, known for their low natural fertility, can be improved through crop rotation with green manure crops [9].

Thus, **soil and climatic conditions** are a priority in establishing an effective organic farming system, as they determine both productivity and the long-term environmental stability of agroecosystems. An optimal combination of natural soil characteristics, temperature, and moisture supports fertility retention and reduces the need for external intervention. A comprehensive analysis of these parameters forms the basis for selecting suitable land, minimizing environmental risks, and ensuring compliance with organic product quality standards.

An important component of land management for organic agriculture is **spatial planning** (territorial organization and zoning), aimed at ensuring the ecological sustainability of agroecosystems. This process includes: the creation of buffer zones to prevent potential chemical contamination of organic fields from external sources; rational placement of crops based on topography, soil types, and microclimatic conditions to ensure efficient use of natural resources and the preservation of biodiversity.

Well-designed **environmental buffer zones** between organic fields and conventional farming areas act as ecological barriers. These zones provide spatial isolation for organic plots, help stabilize the microclimate, and support ecological balance.

To prevent contamination of organic crops, spatial planning of sowing areas must consider several important factors. These include prevailing wind directions — to minimize the risk of pesticide or pollutant drift from adjacent areas — and **surface runoff analysis**, which helps prevent agrochemical infiltration from neighbouring land. To maintain soil fertility and control pest populations, it is advisable to implement scientifically grounded **crop rotation systems**, which enhance agro-landscape resilience.

In **mixed organic farms**, spatial planning should ensure the **efficient use of pastures** through balanced stocking rates, seasonal rotation, and restoration of grass cover. Careful planning is also required for the placement of livestock zones to minimize negative impacts on organic fields. It is also important to ensure convenient access to water sources and feed for animals, which reduces environmental risks and improves sanitary conditions on the farm. In **steppe regions**, where dust storms pose a serious risk, planting **woody and shrub shelterbelts** is a reasonable solution to curb wind erosion. In addition, effective zoning may involve alternating crop fields with perennial grasses to naturally restore soil fertility and increase the resilience of the agroecosystem.

The **development and implementation of crop rotations** is an integral component of land management for organic farming. Crop rotations not only ensure stable yield increases but also contribute to the ecological sustainability of agroecosystems. The use of scientifically justified crop rotation schemes is a mandatory requirement for organic production certification, as such systems help preserve soil fertility, prevent soil exhaustion, and reduce the likelihood of phytosanitary threats [10].

Organic crop rotations are based on several key principles:

- the use of perennial grasses and green manure crops to enrich the soil with organic matter, improve moisture retention, and enhance agro-physical properties;
- crop alternation (rotation) to ensure efficient use of soil resources and minimize the risk of disease buildup;
- avoidance of monoculture farming, which causes soil degradation;
- adaptation of crop rotation schemes to specific climatic and soil conditions of a region to optimize land use efficiency.

The use of **perennial grasses and green manure crops** allows for enriching the soil with organic matter, improving its structure, and restoring fertility. Sowing these crops also reduces erosion risks and helps retain moisture in the soil.

Crop alternation in a rotation is a crucial tool for maintaining soil fertility, as it prevents soil depletion and more effectively limits the spread of pests and diseases that often accumulate in monoculture systems. Organic farming requires the use of a wide variety of crops, which enhances both crop quality and biodiversity, while also improving the resilience of the agroecosystem. Effective crop rotation planning should take into account the **natural and climatic characteristics** and **soil features** of the region to achieve maximum land use efficiency.

Land management in organic agriculture is impossible without systematic assessment and monitoring of soil quality, as they are the basis of ecological sustainability and productivity of the farm. The main goal of such studies is to identify potential threats that may affect yield, environmental safety of products and compliance with organic production certification requirements.

Soil quality monitoring and assessment is essential in land management for organic agriculture, as soil is the foundation of both environmental sustainability and farm productivity. The primary objective of such assessments is to identify potential risks that may affect crop yields, environmental safety, and compliance with organic production certification standards.

Soil monitoring involves comprehensive analysis, including the determination of humus content and **macro-element concentrations** (such as nitrogen, phosphorus, and potassium), which are critical for maintaining fertility. Special attention is given to contamination assessments, including the detection of pesticide residues, heavy metals, and other toxic substances that may compromise product safety. Additionally, soil structure is analyzed to identify erosion processes and signs of degradation. The results of such studies not only help enhance soil potential but also ensure compliance with organic certification requirements—an essential condition for the competitiveness of organic products in the marketplace.

In modern organic farming, **soil monitoring is increasingly conducted using digital technologies** such as GIS (Geographic Information Systems) and satellite sensing, which allow for accurate analysis of spatial and temporal changes in soil cover, prompt detection of degradation processes, contamination, and shifts in agro-physical soil properties. In Ukraine, this activity is coordinated by the **Ukrainian Soil Information Centre**, which manages the national soil information network and provides organic farms with up-to-date data on soil fertility and environmental safety.

At the institutional level, **state soil and land monitoring** is regulated by the "Procedure for Conducting Soil and Land Monitoring," a normative act that defines procedures for evaluating, collecting, and analysing information on the qualitative condition of land resources. The monitoring system includes regular observation of pollutant content (such as heavy metals, pesticide residues, and organic toxicants), humus levels, physical soil properties, and erosion indicators. A key aspect of this process is the **integration of data into the State Land Cadastre**, which ensures transparency and public access to environmental information, supporting scientifically sound decisions for soil protection and restoration [11].

The **implementation of land and soil protection measures** is a multifaceted process that includes organizational, legal, engineering, and agro-technical mechanisms aimed at conserving soil resources, preventing their degradation, and promoting rational land use. These measures are implemented in stages to maximize efficiency and sustainability in land resource management:

1. Analysis of land and soil condition
2. Design of protection measures
3. Legal and organizational support
4. Information and educational activities
5. Monitoring and evaluation of results

The **analysis of land and soil condition** is carried out to determine priority directions for conservation and sustainable use. This involves identifying problem zones and assessing the degree of degradation using the following tools:

- **Soil surveys** to evaluate physical, chemical, and biological properties;
- **Agro-technical diagnostics** to assess agricultural practices affecting land quality;
- **Mapping of erosion-prone areas** to identify high-risk zones.

The outcome is the creation of detailed soil maps highlighting issues and a set of specific measures for their mitigation.

Soil protection and degradation prevention under organic farming require a set of environmental, engineering, and agro-technical interventions tailored to regional specifics in Ukraine. In the **Steppe zone**, effective solutions include establishing shelterbelts that act as windbreaks, retain moisture, and create favorable microclimates for crops. In the **Carpathian and Podillia mountain and foothill regions**, **terracing** is widely used to control water runoff, prevent erosion and gully formation, and make these lands suitable for organic production [12].

In the **Forest-Steppe zone**, fertility restoration is supported by the use of **organic fertilizers**, including compost, vermicompost, and green manure crops, which enrich soil nutrients and improve agro-physical properties. For instance, farms in **Poltava and Cherkasy regions** actively use organic compost to improve soil structure, increase humus levels, and optimize moisture balance.

In **southern regions of Ukraine**, where desertification risks are high, agro-technical methods play a vital role in maintaining soil productivity. Techniques like **minimum or zero tillage** help prevent soil exhaustion, reduce erosion, and preserve soil moisture. At the same time, scientifically grounded **crop rotations** involving cereals, legumes, and perennial grasses help maintain organic matter balance and prevent land degradation.

Legal and organizational support for land protection includes the development and implementation of regulatory acts governing rational land use, prevention of degradation, and the preservation of soil fertility. A key component is the implementation of **local land protection programs**, tailored to the regional characteristics of specific territories. These measures are financed through the state budget as well as **international grants and investment programs**. A critical element is the **monitoring and enforcement** of these programs, based on systematic observation of degradation processes, soil fertility levels, and other key indicators, as well as evaluating the effectiveness of implemented measures.

The formation of **environmentally responsible land use practices** depends significantly on effective **outreach and educational activities** in the field of soil and land conservation. These include conducting **trainings, seminars, webinars**, and **online courses** aimed at equipping stakeholders with practical knowledge about modern soil protection methods and the application of organic technologies. Disseminating such information through media and online resources helps expand the audience reach. Additionally, **demonstration projects** are created to showcase the advantages of sustainable farming practices. For example, in February 2022, the company “UkrAgroConsult” organized a **training seminar for agricultural producers in Luhansk region** on agribusiness planning under climate change. This initiative provided farmers with practical guidance for adapting their farms to contemporary challenges [13].

The **effectiveness of land and soil protection measures** is assessed using dynamic indicators, such as eroded land area reduction; yield increases on restored land; increased humus content, indicating the recovery of soil fertility.

Compliance with established standards and certification procedures is a crucial requirement for ensuring the quality of land management work and for aligning agricultural activities with environmental regulations and legal requirements. Organic farming is governed by **international standards**, such as those of **IFOAM**, which outline the principles and criteria of organic production. In Ukraine, legal regulation of these processes is conducted in accordance with the Law “On the Basic Principles and Requirements for Organic Production, Circulation and Labelling of Organic Products,” which ensures control over the **quality and authenticity** of organic products [6].

Within the framework of land management, specific measures are foreseen to ensure compliance with established standards, including:

- the **development of certification documentation** for farms;
- the **implementation of product traceability systems**.

The preparation of certification documentation includes the registration of land plots, verification of compliance with organic cultivation practices, and accounting for inputs such as fertilizers, seeds, and other resources. This step is essential in obtaining an organic certificate.

The introduction of **product traceability systems** enables full control over every stage of the product life cycle—from production and storage to distribution. These systems encompass the tracking of land resources and technological processes, ensuring transparency and compliance with environmental requirements through integration into electronic information platforms.

An example of successful implementation of such approaches is the **practice of German farmers**, who actively use individualized traceability systems. The use of **GIS tools** enables detailed monitoring of land conditions, optimization of soil treatment technologies, and real-time tracking of the productivity of each plot. This not only ensures compliance with high standards but also improves the **economic efficiency** of agricultural production, reduces resource costs, and enhances the **environmental sustainability** of farms.

Innovative technologies serve as key tools for enhancing the **precision, efficiency, and ecological balance** of agricultural production in the land management process. Modern monitoring methods allow for accurate assessment of land resource conditions, improvement of agricultural land productivity, and optimization of agro-technological processes.

One of the most important tools is **remote aerial surveying technologies**, particularly drones. They provide detailed field assessments, detect erosion processes, evaluate vegetation health, and monitor the effectiveness of fertilizer and plant protection applications. Thanks to high-resolution data, agricultural producers can promptly respond to problem zones and reduce crop losses.

Another vital tool is **Geographic Information Systems (GIS)**, which offer integrated solutions for land resource analysis and management. GIS technologies are used to create detailed field maps, model changes in soil cover, and predict yields. Additionally, they contribute to effective water resource management and help minimize environmental impacts.

Innovative digital technologies are transforming land resource management by enabling real-time monitoring and forecasting of future changes. In this context, **agroecological modelling** is a powerful analytical tool that allows the assessment of climate change impacts, tillage practices, and crop rotation structures over the long term. Such modelling helps adapt land use strategies to new challenges, identify potential risks in advance, and develop preventive measures.

The **integration of innovative technologies** into land management ensures a multi-level approach to land resource governance. The application of advanced technologies enables:

- **cost reduction** through precise selection of optimal agro-technological solutions;
- **enhanced land use efficiency** via adaptive planning and monitoring;

- **reduced environmental impact** through the rational use of natural resources.

The main directions of land management focused on the development of organic agriculture are given in Table 1.

Table 1

Key Aspects of Land Management for Organic Agriculture

Components of Land Management	**Content**	**Examples of Application**
Land plot selection	Comprehensive evaluation based on ecological safety indicators, including absence of agrochemical, heavy metal, and radioactive contamination	Use of environmental audits and GIS technologies to identify suitable plots for organic production
Functional zoning of the territory	Delimiting production and buffer zones, recreational and conservation areas; identifying prevailing wind directions and surface runoff to minimize contamination risks	Establishing buffer zones between organic and conventional fields (e.g., shelterbelts, grass strips)
Design of agro-technological measures	Developing crop rotation schemes, using green manure and perennial grasses, determining optimal field structure	In the Forest-Steppe zone, crop rotations with cereals, legumes, and green manure enrich soils with nitrogen and reduce pesticide use
Soil quality assessment and monitoring	Systematic control of humus levels, acidity, macro- and micronutrient content, presence of pollutants	Use of mobile laboratories and GIS systems to assess soil fertility and condition
Development of soil and land protection measures	Planning shelterbelts, implementing terracing on slopes, minimizing soil tillage	Terracing in the Carpathian region to prevent soil erosion
Organization of farm spatial structure	Planning land use with consideration of production, processing, and logistics infrastructure	Optimizing storage facility locations and organic raw material storage in compliance with certification requirements
Project documentation development	Creating land management documentation adapted to organic land use, incorporating	Use of cartographic modeling to develop

	international certification standards	integrated organic farming schemes
Certification process	Implementation of organic product traceability systems, auditing for compliance with environmental standards	Practice of German farmers using GIS to trace products; adoption of blockchain to record product origin and quality

This approach ensures effective spatial planning of organic agricultural production, contributes to the protection of natural resources, guarantees environmental safety and compliance with international standards.

Conclusions. Land management in Ukraine's organic agriculture is based on scientific and methodological approaches that ensure **ecologically balanced land use** and compliance with **international standards**. Effective functioning of organic agrosystems requires careful **land plot selection** according to ecological safety criteria, considering the influence of adjacent areas, creation of **buffer zones**, and **minimization of anthropogenic pressure**.

Rational spatial planning involves zoning, isolated placement of crops, livestock zones, and production facilities, contributing to **ecological resilience** and **microclimate stabilization**. The implementation of scientifically grounded **crop rotations** using perennial grasses and green manure crops is a key condition for preserving and restoring **soil fertility**, **biodiversity**, and the **resilience** of agroecosystems.

Integrating innovative technologies improves the efficiency of land management, resource governance, and environmental monitoring. Ensuring the quality of organic production requires a **systematic approach** to soil assessment, **compliance with standards**, **certification**, and the implementation of **traceability mechanisms** – all of which foster consumer trust and enhance competitive advantages.

A comprehensive combination of technological, ecological, and organizational solutions within the land management process forms the foundation for the **sustainable development of organic farming**, the conservation of **natural ecosystems**, and the

strengthening of Ukrainian organic products' positions in both domestic and global markets.

References

1. Hranovska, V. H. (2017). Mechanisms for encouraging the development of organic enterprises of the organic sector: an adaptation of the world experience. *Economy and Society*, (9), 384–390.

2. Hvozd, O. M. (2021). Peculiarities of pricing for organic products and state support of organic producers in market conditions of Ukraine. *Economy and Society*, (25). https://doi.org/10.32782/2524-0072/2021-25-22

3. Novak, T. S., & Melnyk, V. O. (2020). In regards to the issue of regulatory support to the organic agricultural production in Ukraine. *Law. Human. Environment*, 11(2). https://doi.org/10.31548/law2020.02.006

4. Dorosh, Y. M., Barvinskyi, A. V., Dorosh, O. S., Melnyk, D. M., & Vysidalko, A. A. (2021). Regulatory and legal support of organization of organic land useand ways of its improvement. *Land Management, Cadastre and Land Monitoring*, (3), 40–50. http://dx.doi.org/10.31548/zemleustriy2021.03.05

5. Dorosh, O. S., & Dorosh, A. Y. (2023). Factors influencing the development of organic land use under martial law. *Land Management, Cadastre and Land Monitoring*, (2), 82–91. http://dx.doi.org/10.31548/zemleustriy2023.02.08

6. Verkhovna Rada Ukrainy. (n.d.). Zakon Ukrainy "Pro osnovni pryntsypy ta vymohy do orhanichnoho vyrobnytstva, obihu ta markuvannia orhanichnoi produktsii" (No. 2496-VIII) [Law of Ukraine "On the Basic Principles and Requirements for Organic Production, Circulation and Labeling of Organic Products"]. https://zakon.rada.gov.ua/laws/show/2496-19#Text

7. European Commission. (n.d.). *Organic production and products*. Agriculture and Rural Development. https://agriculture.ec.europa.eu/farming/organic-farming/organic-production-and-products_en (Accessed May 4, 2025)

8. Naumova, K. (2023). The Role of Buffer Zones and Riparian Vegetation in Nitrate and Nitrite Mitigation. *Bio-Field*. https://biofield.com.ua/en/articles/role-buffer-zones-riparian-vegetation-nitrate-nitrite-mitigation_37 (Accessed May 4, 2025)

9. Horodyska, I. M., & Kravchuk, Yu. A. (2023). Sideration — a factor of the formation of the main indicators of the soil in organic agriculture. *Balanced natue using*, (4), 135–144. https://doi.org/10.33730/2310-4678.4.2023.292740

10. Dorosh, I., Dorosh, O., Barvinskyi, A., Kravchenko, O., & Zastulka, I. (2020). Ecological and economic aspects of organization of crop rotations in market type agricultural enterprises. *Scientific Papers. Series A. Agronomy*, 63(1), 263–270. http://agronomyjournal.usamv.ro/pdf/2020/issue_1/Art35.pdf

11. Kabinet Ministriv Ukrainy. (2024). Pro zatverdzhennia Poriadku provedennia monitorynhu zemel i hruntiv (Postanova No. 848) [On approval of the Procedure for monitoring land and soil (Resolution No. 848)]. https://zakon.rada.gov.ua/laws/show/848-2024-%D0%BF#Text

12. Tretiak, A. M., Budziak, O. S., Tretiak, V. M., et al. (2017). *Ekolohiya zemlekorystuvannia: Navchalnyi posibnyk* (A.M. Tretiak, Ed.) [Land Use Ecology: A Study Guide (A.M. Tretiak, Ed.)]. Instytut ekolohichnoho upravlinnia ta zbalansovanoho pryrodokorystuvannia. 178.

13. WWF Ukraina. (n.d.). Stvorennia, utrymannia i zberezhennia polezakhysnykh lisovykh smuh – Pryrodoorientovani rishennia – Platforma WWF Ukraina [Creation, maintenance and preservation of forest shelterbelts – Nature-based solutions – WWF Ukraine Platform]. https://nbs.wwf.ua/methodology/stvorennia-utrymannia-i-zberezhennia-polezakhysnykh-lisovykh-smuh/ (Accessed May 4, 2025)

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НАУКОВО-МЕТОДИЧНІ ПІДХОДИ ДО ЗЕМЛЕВПОРЯДНОГО ПРОЕКТУВАННЯ ДЛЯ ОРГАНІЗАЦІЇ ВЕДЕННЯ ОРГАНІЧНОГО СІЛЬСЬКОГО ГОСПОДАРСТВА В УКРАЇНІ

Анотація.

Дослідженню підлягали науково-методичні підходи до землевпорядного проектування в контексті організації ведення органічного сільського господарства в Україні. Особлива увага приділяється формуванню

системного підходу до екологічно збалансованого землекористування та його узгодженню із вимогами сертифікації органічної продукції за міжнародними стандартами, зокрема регламентами Європейського Союзу.

Визначено складові землевпорядного проектування, серед яких: вибір придатних земельних ділянок із дотриманням критеріїв екологічної безпеки; створення буферних зон для запобігання забрудненню ззовні; мінімізація впливу сусідніх господарств, що здійснюють традиційне ведення сільського господарства; просторове зонування; раціональне розміщення посівів і тваринницьких об'єктів.

Розглянуто підходи до формування сівозмін на основі науково-обґрунтованої ротації культур, застосування багаторічних трав і сидеральних культур з метою відновлення родючості ґрунтів та поліпшення екологічного балансу в межах органічного господарства.

Окрему увагу приділено використанню інноваційних технологій — геоінформаційних систем, дистанційного моніторингу, які сприяють підвищенню ефективності управлінських рішень. Обґрунтовано важливість ведення постійного моніторингу стану ґрунтів, дотримання екологічних стандартів, проходження процедури сертифікації та впровадження систем відстеження походження продукції як необхідної умови прозорості та гарантії якості.

Ключові слова: *органічне сільське господарство, землевпорядне проектування, організація землекористування, охорона ґрунтів, екологічна безпека, сталий розвиток, сертифікація органічної продукції, буферні зони.*