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CURRENT STATUS AND PROSPECTS FOR THE DEVELOPMENT OF ORGANIC LIVESTOCK PRODUCTS MANUFACTURING IN THE CONTEXT OF PHILOSOPHY OR TECHNOLOGY IN EASTERN EUROPEAN COUNTRIES

Abstracts

The aim of the work was to determine the current status and prospects for the development of organic livestock products manufacturing in the context of philosophy or technology in Eastern European countries (review material) with an emphasis on the situation in Ukraine and Romania. Organic livestock farming combines care for the environment, human health, and livestock welfare, and is an ethical and strategic vector for the development of the agricultural sector in the 21st

century. Organic livestock farming is not just a technology for raising livestock, but above all an ethical and ecological system that seeks to maintain a balance between productivity, nature, and livestock welfare. The philosophy of organic production cannot be fully "scaled" as an industrial technology, because it is not about mass production, but about awareness, locality, and sustainable development. However, the gradual spread of organic principles is entirely feasible thanks to environmental education, certain agricultural policies, and consumer demand. Organic production is a philosophy, a marketing strategy, and a way of thinking. Organic livestock farming in Eastern Europe is an unformed, emerging but strategically important sector. In Ukraine, it remains a niche market but has growth potential due to export demand, political integration with the EU, and the growth of conscious domestic consumers. Global climate threats have somewhat changed the role of organic products, with organic products evolving from an "elite" product to a tool for environmental responsibility. In times of climate turbulence, organic livestock farming is not only an alternative to intensive industrial production, but also an essential factor in the preservation of agroecosystems. At the same time, consumer demand is a key driver for the development of organic livestock farming, especially in regions with a high level of environmental awareness. Despite its many advantages, organic livestock farming is not a universal solution for all countries and types of farms, as it requires a specialized approach, a balance between ideals and reality (economics, livestock health), and has potential but also objective limitations in terms of productivity, accessibility, and sustainability. Global climate threats have somewhat changed the role of organic products, with the organic products evolved from an "elite" product to a tool for environmental responsibility. In times of climate turbulence, organic livestock farming is not only an alternative to intensive industrial production, but also an essential factor in the preservation of agroecosystems. At the same time, consumer demand is a key driver for the development of organic livestock farming, especially in regions with a high level of environmental awareness. Organic livestock farming is not a panacea, but it is less vulnerable to some climate change impacts in terms of global warming, is more environmentally sustainable in the long term, and requires adaptation to new climate realities in terms of breeding, agroecology, digital tools, etc.

Keywords: *organic production, livestock products, Eastern Europe, current status, challenges, prospects, global warming.*

The purpose of this article was to determine the current status and prospects for the development of organic livestock products manufacturing in the context of philosophy or technology in Eastern European countries (review material) with an emphasis on the situation in Ukraine and Romania. To achieve this goal, the following tasks were set, which were determined by analyzing the available sources of information, namely:

- The role of organic livestock farming in the world;
- Theoretical foundations of organic livestock farming;
- Organic livestock farming – technology or philosophy?
- Prospects and limiting factors for scaling up the philosophy of organic production;
- Issues of unification of organic production standards between the US and the EU;
- Is the ethical component of organic production being lost under market pressure?
- Is organic production a marketing strategy or a philosophy?
- The main features of the philosophical approach to organic production;
- The role, status, and prospects for the development of organic livestock farming in Eastern Europe and Ukraine in particular;

- Current issues and prospects for the development of organic livestock farming in Eastern European countries (summary);
- Some 'weak spots' of organic livestock farming;
- Demand for organic products in the context of the environmental crisis and global warming;
- Overall prospects for organic livestock farming in the context of global warming;
- Prospects and challenges for organic livestock farming in the near future (2025–2035).

The relevance of organic livestock farming on a global scale. The role of organic livestock farming in the world is multifaceted and is growing in importance every year due to global challenges in the areas of global ecology, human health, livestock welfare, and sustainable development of the agricultural sector. It is worth summarizing the key aspects of organic livestock farming [1, 2]:

Environmental component:

- Reduced environmental impact: organic livestock farming prohibits the application of synthetic fertilizers, pesticides, antibiotics, and GMOs, which reduces the risk of soil, water, and air pollution.
- Improved soil fertility: manure and organic fertilizers from livestock farms are applied to fields, maintaining the nutrient cycle;
- Preservation of biodiversity: organic farms help maintain natural ecosystems (preserving rare plant and animal species).

Livestock welfare:

- Principles of humane treatment: mandatory provision of free grazing, natural behavior, high-quality feed without GMOs and growth stimulants.
- Less stress – better quality of life: healthy animals are less prone to disease, have stronger immune systems, and do not require constant treatment with antibiotics.

Socio-economic component:

- Support for small farmers: organic production is often based on family farms, which strengthens rural communities.
- Job creation: organic livestock farming requires more manual labor and maintenance, which promotes employment.
- Premium market segment: organic products are more expensive, allowing producers to earn higher profits.
- Organic production is relevant for the development of so-called “depressed areas,” where people are leaving in droves due to a lack of jobs, infrastructure, etc.

Global impact:

- Response to climate challenges: reduction of greenhouse gas emissions, carbon farming, introduction of agroforestry, etc.
- Food safety: organic meat, milk, and eggs are less prone to antibiotic, hormone, and chemical residues.
- Contribution to the UN Sustainable Development Goals (SDGs): in particular, Goal 2 (Zero hunger), Goal 12 (Responsible consumption), and Goal 13 (Climate actions).

It is worth noting certain trends in the development of organic agricultural production worldwide in recent years. According to FiBL and IFOAM, in 2022-2024, more than 90 million hectares worldwide will be used for organic farming. The leading countries in terms of organic cattle stock are India, Australia, Argentina, the United States, and Germany. Demand for organic products is growing by 5-10% annually, especially in the EU, the United States, Canada, and Japan. [3].

Thus, organic livestock farming is not just an alternative to traditional farming, but part of a global transition to sustainable agriculture. It combines care for the environment, human health, and livestock welfare, and serves as an ethical and strategic vector for the development of the agricultural sector in the 21st century.

Theoretical foundations of organic livestock farming. Organic livestock farming is a system of agriculture based on an ecologically balanced, ethically responsible approach to the breeding and keeping of livestock animals [4, 5]. It emerged as an alternative to intensive, industrial livestock farming, which is characterized not only by high productivity but, unfortunately, also by a high impact on the environment and on the animals themselves. The International Federation of Organic Agriculture Movements (IFOAM) identifies four basic principles of organic production (ideological basis), which are presented in Table 1, and the key criteria for livestock farming are presented in Table 2.

Table 1

Basic principles of organic production (ideological basis IFOAM) [6]

Basic principles	The essence (philosophy) of the principle
Health	Organic livestock farming must preserve the health of soils, animals, people, and the planet.
Ecology	Practices must be in harmony with natural cycles and ecosystems.
Justice	Ensuring livestock welfare, social justice, and fair relationships.
Care	Production must be based on the principle of harm prevention and long-term sustainability.

Table 2

Basic criteria for organic livestock farming [5]

Criteria	Requirements
Feeding	Use of organically grown feed; prohibition of synthetic additives.
Animal Care	Provision of space for natural behavior, grazing, ventilation, and light.
Reproduction	Natural reproduction methods, prohibition of hormonal stimulation.
Veterinary	Prevention, phytotherapy, restriction or complete avoidance of antibiotics.
Certification	Control of compliance with organic standards (e.g., EU Reg. 2018/848).

It is important to mention the theoretical foundations of agroecology and ethics, since agroecology is the science examining the interaction between agricultural systems and the environment. Organic livestock farming views farming as an open system that interacts with the ecological environment. The issue of bioethics is also an important component, since the focus here is not only on profit, but also on animal welfare. In addition, the systematic nature of organic production means that all elements (soil, plants, animals, people) are interdependent [7-9].

Therefore, organic livestock farming is not just a technology for raising animals, but above all an ethical and ecological system that seeks to maintain a balance between productivity, nature, and animal welfare.

Organic livestock farming: technology or philosophy? There are two views on organic products manufacturing. The first one assumes that it is not just a technology based on certain requirements for breeding, feeding, and livestock keeping methods, but a changed worldview—a form of self-awareness of individuals and society, a system of generalized views on the place of a human in the world and relationship with him/her. The second is that it is a profitable business that leads consumers towards health, and the technology itself is subordinate to existing organic requirements and standards. Which view is correct? It is quite important to understand this, even within the scope of this article [1].

Organic production is not just a technological process, but a philosophy (a clear and purposeful adherence to certain important principles at all production and life stages) aimed at growing agricultural products in the plant and livestock breeding sectors using only biological resources in complete harmony with the environment. The philosophy of organic agricultural production does not imply the permanence of such production, but serves only as a component of social and environmental dimensions. On the other hand, sustainable agricultural production technologies contribute to the acceleration of economic, environmental, and social development, but in the present conditions, there is no clear strategy for increasing crop yields and labor productivity, which determines the different senses of these two concepts**.** [2].

To better understand the fundamental issue of whether organic products manufacturing is a philosophy or a technology, it is necessary to understand the existence of certain contradictions and, at the same time, synergies between these two vectors. In doing so, it is important to answer the following questions:

- Is it possible to scale the philosophy of organic production?
- Understand the problems of standardization (e.g., US and EU);
- Is the ethical component of organic production being “lost” under market pressure?
- What is organic production – marketing or philosophy of thinking?

Organic livestock farming as a technology. From the perspective of technology of organic livestock products manufacturing, the following production cycles are envisaged: feed cultivation → livestock keeping → production → certification.

At the same time, specific technological restrictions apply: prohibition on the use of antibiotics and hormones; certain increased requirements for housing and grazing areas; availability of organic feed; use of local livestock breeds. Examples of technological solutions in organic livestock farming include mobile pastures, biological disinfection, natural ventilation, etc.

Prospects for scaling up the philosophy of organic production. Scaling up the philosophy of organic production in the near future is entirely possible, but limited by a number of factors. However, this is not only a technological issue, but primarily a socio-economic, environmental, and cultural one. Summarizing

information from various sources [9-14], we note that the further scaling of the philosophy of organic
production is facilitated by:

- An existing global demand for “organic” products (consumers are increasingly paying attention to ethical production, carbon footprint, and food safety (according to IFOAM, the organic production market is growing by 5–10% annually in developed countries);
- Political support. There are plans in the EU to convert 25% of agricultural land to organic status by 2030 (Farm to Fork). This includes government subsidies, eco-schemes, and bonuses for organic products;
- Increased flexibility of small and medium-sized farms (local producers are quicker to adapt to organic principles, and socially responsible farmers see organic production as a long-term strategy for preserving the land and consumer trust).

Limiting factors for scaling up organic production [15-16]:

- Incompatibility with the industrial approach (large agricultural holdings often operate according to the principle of maximum productivity at minimum cost, which contradicts organic principles; the problem lies in the conflict between philosophy and the economic model of mass production.
- High production costs and prices (organic production is usually 30–60% more expensive than traditional production);
- Limited demand for organic products due to low incomes of the vast majority of the population in general in various countries around the world and, in particular, in Ukraine due to the war with Russia.
- The issue of control and honesty (scaling up requires an effective certification, monitoring, and trust system; organic fraud is a serious threat (pseudo-ecological marketing).
- Climate risks (organic systems are less resistant to extreme events without external assistance (irrigation, vaccination, etc.).

Small and medium-sized farms have significantly better prospects for gradually scaling up organic production, especially with the support of cooperation and government programs, international financing, etc.

The EU, Canada, and Japan markets have moderate but steadily growing demand for organic products due to the financial stability of their societies, which bodes well for the prospects of gradually scaling up organic production.

As for large agricultural holdings, the prospects for scaling up organic production are low, with only partial integration of certain principles possible.

The prospects for scaling up organic production in countries with arid climate that are increasingly affected by global warming depend on financing, knowledge, and adaptation to local conditions.

Therefore, the philosophy of organic production cannot be fully “scaled” as an industrial technology, since it is not about mass production, but about awareness, locality, and sustainable development. However, the gradual spread of organic

principles is entirely possible thanks to environmental education, certain agricultural policies, and consumer demand.

Problems of organic production standards harmonization between the US and the EU [18-21]:

- Different philosophy in approaches (the EU is more focused on sustainable development, animal welfare, and ethics; the US focuses on the acceptability of technologies in the absence of synthetics).
- Lack of mutual recognition (EU Organic certification is not automatically recognized in the US, and vice versa, which creates barriers for exporters, especially from third countries (e.g., Ukraine, Turkey, Chile, etc.);
- Technical differences (e.g., permitted substances in feed, veterinary medicine, and product processing methods are often incompatible);
- Unequal consumer expectations (in the EU, organic products are often associated with ethics and naturalness; in the US, they are associated with the absence of substances of chemical origin, but less attention is paid to animal welfare conditions).

Examples of attempts to harmonize legislation between the US and EU countries were seen in 2012, when the "EU–US Organic Equivalence Arrangement" [17] was signed, which was in force until 2020 but had many exceptions and restrictions. In 2022–2023, negotiations were held to update the terms of mutual recognition of organic products, but full harmonization of standards was unfortunately not achieved.

Therefore, complete harmonization of organic standards between the US and the EU is unlikely in the short term due to different concepts of organic farming; differences in political and economic philosophy; national interests of the agricultural sectors, but partial harmonization through mutual recognition of certificates is possible, taking into account key criteria: animal welfare, use of veterinary medicine, origin of feed.

Is the ethical component of organic production lost under market pressure? Yes, the ethical component of organic production is partially lost or relegated to the background under market pressure, especially in the context of industrialization, growing global demand, and competition. This phenomenon is called “commercialization of organic products” or “organic integrity erosion”) [6].

The essence of the ethical component of organic farming. The philosophy of organic production is based on: concern for animal welfare; environmental justice; social responsibility (working conditions, local communities); trust between producers and consumers. Practical examples of the loss of ethics in organic livestock production. In the US, "Organic Milk CAFOs" are large dairy farms that are formally certified but keep up to 5,000 cows in buildings with no real access to the outdoor grazing. Organic Chickens LLC keeps chickens in huge hangars with “access to pasture,” but in reality, this means micro-doors to a closed courtyard. In the EU, there have been cases of imports of “organic” soybeans from third countries that did not

comply with the basic principles of animal welfare and organic production [22]. The reasons for the "ethical erosion" of organic production are highlighted in Table 3.

Possible ways to solve this issue are as follows [22, 24]: intensified audits (not just checking paperwork, but field supervision of animals); voluntary "ethical sub-standards" (e.g., Bioland, Demeter (Germany) or Animal Welfare Approved (USA)); short supply chains (direct sales from farmer to consumer restore trust); consumer education (people who understand the value of ethical organic products support quality products manufacturers, even if they are more expensive).

Table 3

Reasons for "ethical erosion" in organic production

Factor	Impact on the ethical component
Scaling and industrialization	Large organic farms often imitate the intensive model with minimal ethical considerations (e.g., keeping animals indoors without access to outdoor space).
Retail demand	supermarkets demand low prices and large volumes → farmers save on maintenance costs.
Pseudo-organic	using "green" branding without true ethical practices (greenwashing).
Certification as a formality	In large systems, control boils down to "ticking boxes" rather than actual compliance with ethical standards.
Market globalization	organic products from China or Latin America may not comply with local ethical standards.

Thus, under market pressure, the ethical component of organic livestock products manufacturing may lose its original characteristics, especially with the expansion of profit-oriented agribusiness. To improve the situation, the following conditions should be met: intensifying public control; developing alternative types of certification; conscious consumer choice.

Organic production – marketing or philosophy?

Organic production is not just a technology, but a multifaceted phenomenon that includes marketing, philosophy, and even a way of thinking. Its nature depends on the perspective from which we look at it: consumer, producer, business, state, or scientist [2]. Organic production emerged as a philosophical alternative to the chemical-industrial agricultural system. The essence of organic production is to live and produce in harmony with nature, with respect for: animal biology; ecosystems; soil and climate; people (both consumers and employees) [6].

Main features of the philosophical approach [25]:

- Ethics: animal welfare, social justice;
- Sustainable development that does not deplete the earth or harm future generations;
- Integrity: valuing the process, not just the result.

Organic thinking is when a farmer does not simply "produce a product," but coexists with the environment, understanding his/her impact on the world [25].

Marketing or an "eco-label for consumers"? The other side of any production is marketing. In the 21st century, organic products have become a brand

that promises safety, naturalness, no chemicals, higher quality, and status (for consumers with above-average incomes) [26].

For some companies, organic is a sales tool rather than a belief. This is why questions arise as follows:

• Greenwashing – when something that is not organic is called organic.

• "Ethical erosion" — simplifying standards to suit the needs of the large market.

So, there is a dilemma: which prevails — philosophy or marketing for organic products manufacturing? (Table 4).

Table 4

Fundamental differences between the philosophy and marketing of organic livestock products manufacturing [27]

Criterion	Philosophy	Marketing
Goal	harmony with nature	profit from using an eco-friendly image
Values	ethics, sustainable development	packaging, certification, advertising
Orientation	humans as part of the ecosystem	a human as the end buyer
Duration of impact	long-term (for generations)	short-term

Thus, organic production is a philosophy, a marketing strategy, and a way of thinking. Which aspect prevails depends on who is promoting the idea: a farmer who adheres to the philosophy of organic production sees livestock farming as having not only material value but also a spiritual and social mission; a commercial brand is a tool for expanding the market; a conscious consumer needs the essence, not just a logo.

The role, status, and prospects for the organic livestock farming development in Eastern European countries, particularly in Ukraine. Organic livestock farming in Eastern European countries (Ukraine, Romania, Bulgaria, Poland, Serbia) executes strategic functions [28-32], namely:

- an instrument for agricultural diversification (moving away from chemical-intensive production);
- an opportunity for small and medium-sized farmers to produce competitive products;
- integration into international markets of organic production: EU, Switzerland, USA;
- preservation of local breeds and natural resources (pastures, water resources, climate zones);
- implementation of a "green transformation" of the agricultural sector.

The state of organic livestock farming in Eastern European countries in 2023–2024 (Table 5):

- Ukraine (the total number of organic operators is about 600 (data from *OrganicInfo.ua*, 2023), including livestock farms: less than 2%. Main areas: organic dairy farming, goat farming, poultry farming, less frequently – pig farming. The most active regions are Volyn, Rivne, Lviv, Kyiv, and Zakarpattia [15];

- Poland has about 17,000 organic farms, 60% of which are livestock farms. Dairy, beef cattle farming, pig farming, and beekeeping are well developed [30];
- Romania – about 10% of organic farmers are engaged in livestock farming, most of which are small farms. The country has high export potential but poor processing capabilities [31];
- Bulgaria and Serbia are in the development stage, with crop farming predominating, but the governments of these countries are actively developing programs to support livestock farming starting in 2023 [32].

So, organic livestock farming in Eastern Europe is a sector that is still evolving but is strategically important. In Ukraine, it remains a niche market but has potential for growth due to export demand, political integration with the EU, and the growth of conscious domestic consumers.

Table 5

Current problems and prospects for the organic livestock farming development in Eastern European countries (summary)

Indicator	Example
Current problems in the development of organic livestock farming	
Small share in production structure	In Ukraine, less than 2% of organic farms have cattle
Poor processing infrastructure	Dairy farms do not have organic cheese dairies
Limited access to veterinary services	Lack of organic vaccines or licensed products
High production costs	Due to certification, feed, grazing costs
Low level of state support	Especially compared to other EU countries
Prospects for the development of organic livestock farming	
Export opportunities:	The EU, Canada, and UAE markets are experiencing a shortage of organic meat and dairy products with a low carbon footprint.
Access to financing	In 2023–2027, the EU Green Recovery for Agriculture program is launched in Ukraine, which includes components for organic farming.
Transition to regenerative land husbandry	Increased demand for humane livestock breeding + restoration of ecosystems through open grazing
Education and agricultural clusters	Educational programs on organic livestock farming are emerging in Ukraine at the National University of Life and Environmental Sciences of Ukraine (NULES) and the Lviv Agricultural Academy.

Let us summarize some of the weaknesses of organic livestock farming:

- Lower productivity, i.e., meat, milk, and egg production is usually 20–40% lower than in traditional livestock farming, also due to feed restrictions (ban on GMOs, synthetic additives), animals grow more slowly and convert feed into products less efficiently. There are known examples where cows on organic farms produce 1,000–2,000 liters less milk per lactation than in intensive industrial production.
- Higher production costs and prices, as organic production is significantly more expensive due to higher labor intensity; longer rearing periods for young animals; the need for certification and inspection; significantly lower stocking densities per unit area, the need for outdoor access, grazing, etc.;

- Selling prices for organic meat/milk are 30–80% higher, which limits access to such products for the general population;
- Restrictions on animal treatment. At the same time, restrictions on the use of antibiotics and synthetic veterinary drugs can lead to: reduced treatment effectiveness; higher risk of chronic diseases; loss of animals in the event of epidemics. This raises a dilemma: which is more important – humanity (treatment) or certification (avoiding antibiotics)?
- Dependence on natural conditions due to the mandatory use of pastures/grazing in organic farming makes it somewhat more vulnerable to droughts, flooding, and soil degradation, which may result in less stability during years of climate stress.
- Limited biosecurity measures due to the rejection of chemical disinfectants, insecticides, and pesticides, making it more difficult to control parasites, helminths, and ectoparasites; an increased risk of infection and reduced productivity.
- Regulatory complexity and control, consisting of the need to obtain an "organic" certificate, which is a rather time-consuming process. In addition, this requires detailed record keeping and compliance with requirements, and there is a high risk of abuse or fraud in conditions of poor supervision.
- Limited scalability, as organic livestock farming requires more space per animal, lower stocking densities, and access to organic feed, all of which complicate scaling up in conditions of high demand, especially in densely populated regions.
- Lack of knowledge and experience, as many countries still have underdeveloped science, education, and agricultural consulting in the organic sector, and farmers are often unaware of or afraid of the risks involved in transitioning.

Therefore, despite its many advantages, organic livestock farming is not a universal solution for all countries and types of farms, as it requires a specialized approach; it requires a balance between ideals and reality (economics, animal health); it has potential, but also objective limitations in terms of productivity, accessibility, and sustainability.

Demand for organic products amid environmental crisis and global warming.

1. The environmental crisis as a catalyst for changing consumer habits. The environmental crisis is a systemic disruption of natural balances caused by intensive production, greenhouse gas emissions, soil degradation, and biodiversity loss. This is particularly acute in the livestock sector. According to FAO (2021), livestock farming generates more than 14% of global greenhouse gas emissions. The intensive agro-industrial model (especially meat production) contributes to water scarcity, land degradation, and rising temperatures. In response, organic production has become associated with a sustainable way of consumption that is less harmful to the environment, cares for animal welfare, and supports the local economy [34].

2. Global warming as a factor in the increase of the organic matter value. Global warming disrupts the stability of agricultural production (droughts, diseases); causes climate anxiety among the population, especially in the EU and North America; stimulates the development of "conscious consumption." According to surveys by IFOAM and the EU Commission (2023): 78% of

Europeans believe that organic products have less impact on the environment. More than 60% are willing to pay more if products are environmentally friendly [35].

3. Trends in the growth of global demand for organic products with the organic market reaching €142 billion in 2022 (*FiBL & IFOAM*, 2024 [40]). The largest markets are the US, Germany, France, and China. In the EU, following the adoption of the Farm to Fork Strategy, the EU has set a target of 25% of agricultural land being organic by 2030. Accordingly, the demand for organic livestock products such as milk, meat, and eggs is also growing [36, 37].

It should be stated that demand for organic products is growing more slowly in Ukraine, but every year more and more consumers are looking for “eco-friendly,” “farm-grown,” or “organic” products (*OrganicInfo*, 2023 [15, 38]). In addition, the war has brought significant changes to organic production, as part of the country's territory has been occupied and lost its ecological status. However, those organic producers who continue to operate are focusing on exports to EU countries, where demand is steadily growing thanks to the stable economic well-being of citizens.

Thus, global climate threats have somewhat changed the role of organic products, with organic products becoming a tool for environmental responsibility rather than an “elite” product. In times of climate turbulence, organic livestock farming is not only an alternative to intensive industrial production, but also a necessary condition for the preservation of agroecosystems. At the same time, consumer demand is a key driver for the development of organic livestock farming, especially in regions with a high level of environmental awareness.

The prospects for organic livestock farming in the context of global warming are twofold: on the one hand, organic production systems are more resilient to climate change, but on the other hand, they are also under considerable pressure from new climate challenges [40-43].

1. **Organic livestock farming as a response to the climate crisis.** Organic livestock farming is based on an ecosystem approach to production; local resources (pastures, natural feed); exclusion of synthetic substances; and improved animal welfare. This ensures: a smaller carbon footprint; greater resistance of pastures to degradation; better moisture retention in soils (through permanent green cover and biodiversity). Threats to organic livestock farming due to global warming are summarized in Table 6.

Table 6

- **Threats to organic livestock farming due to global warming**

Potential issues	Impact factor
Rising temperatures	Heat stress in animals, reduced productivity
Droughts	Feed base (grazing, hay harvesting, silage, etc.) reduction
Water shortages	Complications in watering animals and optimizing hygienic conditions
Spread of disease	Increase in epizootics due to climate and restrictions on the use of antibiotics
High space requirements	Pastures are degrading faster due to climate depletion
Risk of losing certification	Extreme conditions may force farmers to resort to prohibited measures

2. Advantages of organic livestock farming in the context of climate change: Adaptability (organic production uses less intensive systems that respond better to climate instability). **Grazing** (less dependent on imported feed, which is becoming more expensive due to logistical and climatic risks). **Biodiversity conservation** (organic farms often function as islands of ecological stability, supporting local fauna and flora); **Consumer loyalty** (demand for ethical, "green" products is growing, especially in the EU).

Promising areas for development are presented in Table 7. We have an actual example where, in southern Ukraine, there has already been a reduction in hayfields and pastures due to desertification and a general decline in farming in the region, which is engaged in the cattle breeding for various industrial purposes. But local farmers interested in preserving and increasing their existing livestock numbers are forced to switch to mobile pastures, shade for animals, biological minerals, and probiotics [15, 44]. In addition, organic farms are introducing natural straw coverings and water-saving systems to counteract various stresses in livestock farming.

Table 7

Promising areas for development [45, 46]

Potential sectors	What is required to resolve the issue
Drought-resistant feed	Cultivation of Italian ryegrass, sudangrass, sorghum
Adaptation of feed production	Switching to the production of silage from winter cereal crops that use autumn, winter, and spring moisture for their vegetation
Mobile grazing systems	Rotational grazing systems
Alternative veterinary medicine	Search for natural antiparasitic and immunomodulatory agents
Breeding	Breeding of local stress-resistant breeds
Digitalization	Smart farms for monitoring stress, water, feed
Insurance	Development of insurance products for farmers in risk areas

Thus, organic livestock production is not a panacea, but it is less vulnerable to some climate changes in terms of global warming, more environmentally sustainable

in the long term and requires adaptation to new climate realities in terms of breeding, agroecology, digital tools, etc.

Prospects for organic livestock farming in the near future (2025–2035) [11, 47-48]:

- Growth in global demand (according to *IFOAM* and *FiBL*, the organic market is growing by 5-10% annually). The greatest demand is for milk, eggs, beef, and poultry, especially in the EU, the US, Canada, and Japan. A new consumer culture is also emerging: “ethical meat,” “antibiotic-free milk,” “free-range animals,” etc.
- Eco-integration with climate policy, where organic livestock farming is positioned as part of regenerative agriculture, *carbon farming* (farming that binds carbon), and sustainable food systems.
- EU countries and international programs (*FAO, UNEP*) are integrating organic farming into their climate change adaptation strategies.

- An opportunity for small and medium-sized farms, as organic production is most beneficial for farmers with limited resources who focus on quality rather than quantity;
- Short supply chains (farmer-consumer) ensure profits and trust;
- Increased government support (EU: the Green Deal aims at increasing the share of organic farming to 25% of all agricultural land by 2030. In addition, Ukraine's new agricultural strategy provides for support for organic production and export certification.

Challenges for organic livestock farming in the near future (2025–2035) [11, 47-48]:

- High production costs and limited purchasing ability (organic products are on average 30–80% more expensive). In addition, domestic demand is getting down due to inflation and the war in Ukraine.
- Inaccessibility of veterinary medicines and feed (lack or limited availability of organically approved vaccines, feed additives, and animal medicines).
- Lack of infrastructure and processing facilities, namely organic slaughterhouses, certified cheese diaries, and temperature-controlled logistics, which is exceptionally relevant for Eastern European countries and Ukraine in particular.
- Risk of "commercialization" without ethics (Under market pressure, there is a rise in mass organic production without an ethical approach or large “organic” farms without real grazing; lowering of certification standards; "greenwashing".
- Lack of knowledge and human resources (shortage of personnel and professional training), as organic livestock farming requires a new way of thinking, specialized veterinarians, technologists, and managers.

Thus, organic livestock farming has real potential to become a key segment of the sustainable agricultural sector, but only under the following conditions: enhancing state policy and support; developing local processing and logistics; preserving the ethical and philosophical basis of organic products manufacturing; forming the balanced demand: conscious consumer – ethical producer.

Conclusions

1. Organic livestock farming is not just an alternative to traditional farming, but part of a global transition to sustainable agriculture. It combines care for the environment, human health, and animal welfare, and is an ethical and strategic vector for the development of the agricultural sector in the 21st century.
2. Organic livestock farming is not just a technology for raising animals, but above all an ethical and ecological system that seeks to maintain a balance between productivity, nature, and animal welfare.
3. The philosophy of organic production cannot be fully "scaled" as an industrial technology, as it is not about mass production, but about awareness, locality, and sustainable development. However, the gradual spread of organic principles is entirely possible thanks to environmental education, specific agricultural policies, and consumer demand.
4. Complete harmonization of organic standards between the US and the EU is unlikely in the short term due to different concepts of organic farming; differences in political and economic philosophy; national interests of the agricultural sectors, but partial harmonization is possible through mutual recognition of certificates, taking into account key criteria: animal welfare, use of veterinary medicine, and feed origin.
5. The ethical component of organic livestock products manufacturing may indeed lose its original characteristics under market pressure, especially with the expansion of profit-oriented agribusiness. To improve the situation, the following conditions should be met: strengthening public control; developing alternative types of certification; conscious consumer choice.
6. Organic production is a philosophy, a marketing strategy, and a way of thinking. Which aspect prevails depends on who is promoting the idea: a farmer who adheres to the philosophy of organic production perceives livestock farming as obtaining not only material value but also a spiritual and social mission; a commercial brand perceives it as a tool for market expansion; conscious consumers want the essence, not just a logo.
7. Organic livestock farming in Eastern Europe is still an emerging but strategically important sector. In Ukraine, it remains a niche market but has growth potential due to export demand, political integration with the EU, and the growth of conscious domestic consumers.
8. Global climate threats have somewhat changed the role of organic products, with organic products becoming a tool for environmental responsibility rather than an "elite" product. In a period of climate turbulence, organic livestock farming is not only an alternative to intensive industrial production, but also a necessary condition for the preservation of agroecosystems. At the same time, consumer demand is a key driver for the development of organic livestock farming, especially in regions with a high level of environmental awareness.
9. Despite its numerous advantages, organic livestock farming is not a universal solution for all countries and types of farms, as it requires a specialized

approach; it requires a balance between ideals and reality (economics, animal health); it has potential, but also objective limitations in terms of productivity, accessibility, and sustainability.

10. Global climate threats have somewhat changed the role of organic products, transforming them from an "elite" product into a tool for environmental responsibility. In times of climate turbulence, organic livestock farming is not only an alternative to intensive industrial production, but also a necessary condition for the preservation of agroecosystems. At the same time, consumer demand is a key driver for the development of organic livestock farming, especially in regions with a high level of environmental awareness.

11. Organic livestock farming is not a panacea, but it is less vulnerable to some climate change impacts in terms of global warming, is more environmentally sustainable in the long term, and requires adaptation to new climate realities in terms of breeding, agroecology, digital tools, etc.

12. Organic livestock farming has a real potential to become a key segment of the sustainable agricultural sector, but only under the following conditions: enhancing state policy and support; developing local processing and logistics; preserving the ethical and philosophical basis of organic products manufacturing; forming the balanced demand: conscious consumer – ethical producer.

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СУЧАСНИЙ СТАН І ПЕРСПЕКТИВИ РОЗВИТКУ ВИРОБНИЦТВА ОРГАНІЧНОЇ ПРОДУКЦІЇ ТВАРИННИЦТВА У КОНТЕКСТІ ФІЛОСОФІЇ ЧИ ТЕХНОЛОГІЇ В КРАЇНАХ СХІДНОЇ ЄВРОПИ

Анотація

Мета роботи полягала у визначенні сучасного стану і перспектив розвитку виробництва органічної продукції тваринництва у контексті філософії чи технології в країнах Східної Європи (оглядовий матеріал) з акцентом на ситуацію з цього питання в Україні та Румунії. Органічне тваринництво поєднує турботу про довкілля, здоров'я людей і добробут тварин, виступає етичним і стратегічним вектором розвитку аграрної галузі у XXI столітті. Органічне тваринництво – це не лише технологія вирощування тварин, а перш за все етична та екологічна система, що прагне зберегти баланс між продуктивністю, природою та добробутом тварин. Органічне виробництво – це і філософія, і маркетинг, і мислення. Органічне тваринництво у Східній Європі – ще не сформований, але стратегічно важливий сектор. В Україні воно залишається нишевим, але має потенціал зростання через: експортний попит, політичну інтеграцію до ЄС, зростання свідомого внутрішнього споживача. Глобальні кліматичні загрози дещо змінили роль органічної продукції, коли із «елітної» органічна продукція стала інструментом екологічної відповідальності. У період кліматичної турбулентності органічна система тваринництва виступає не лише як альтернатива інтенсивному промисловому виробництву, а як необхідна умова збереження агроекосистем. При цьому споживчий попит є ключовим стимулом для розвитку органічного тваринництва – особливо у регіонах із високим рівнем екологічної свідомості. Попри численні переваги, органічне тваринництво не є універсальним рішенням для всіх країн і типів господарств, оскільки потребує спеціалізованого підходу; вимагає балансування між ідеалами та реальністю (економікою, здоров'ям тварин); має потенціал, але й об'єктивні обмеження щодо продуктивності, доступності та стійкості. Глобальні кліматичні загрози дещо змінили роль органічної продукції, коли із «елітної» органічна продукція стала інструментом екологічної відповідальності. У період кліматичної турбулентності органічна система тваринництва виступає не лише як альтернатива інтенсивному промисловому виробництву, а як необхідна умова збереження агроекосистем. При цьому споживчий попит є ключовим стимулом для розвитку органічного тваринництва – особливо у регіонах із високим рівнем екологічної свідомості. Органічне тваринництво не є панацеєю, але воно є менш вразливим до деяких змін клімату в плані глобального потепління, є більш екологічно стійким у довгостроковій перспективі та вимагає адаптації до нових кліматичних реалій щодо питань селекції, агроекології, цифрових інструментів тощо.

Ключові слова: *органічне виробництво, продукція тваринництва, Східна Європа, сучасний стан, виклики, перспективи, глобальне потепління.*

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