COMPETITIVE ENVIRONMENTAL STRATEGY OF AGRICULTURAL ENTERPRISES OF THE CARPATHIAN REGION OF UKRAINE

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Abstract. A comprehensive assessment of the level of environmental competitiveness of agricultural enterprises of the Carpathian region of Ukraine allows to recognise them as priority, important competitors of high quality and safe agricultural products with geographical indication. In this regard, the problem of developing and implementing an environmental competitiveness strategy of agricultural enterprises in the Carpathian region, which is characterised by a relatively low level of environmental pollution and has significant land and resource potential for the production of the main types of agricultural products, is being updated at the national level. Methodology. The article uses the methods of induction, deduction, analysis, synthesis, statistical sampling, comparison, expert opinions, associations and analogies. Results. The identified conceptual foundations of the competitive environmental strategy of agricultural enterprises at the regional level provide for improvement of the regulatory and legal support for their functioning. A grouping of farms in the Carpathian region of Ukraine was carried out according to two key criteria: the area of agricultural land and the number of farms. Based on the results of the analysis, a matrix of problematic aspects of the development of organic agriculture is formed, which is based on the following levels of management: legislative-institutional and organisational-economic. Practical implications. Implementation of a competitive environmental strategy in the Carpathian region of Ukraine requires active and coordinated work of government authorities, scientific institutions, NGOs and the private sector. This will help to preserve and rationally use the region’s environmental resources, ensure its sustainable development and improve the quality of life. Value/Originality. The paper suggests and evaluates the environmental competitiveness of agricultural enterprises in the Carpathian region of Ukraine using the integrated index of environmental competitiveness based on the data of the State Statistics Service of Ukraine.

Keywords: environment, strategy, region, state regulation, geographical indication.

JEL Classification: O17, K23, L51, R2

1. Introduction

In view of the deterioration of the ecological situation in Ukraine, caused by highly intensive agricultural production and the Russia’s military aggression, the concept of sustainable development is relevant, which requires effective management decisions in the process of carrying out production activities. Despite the high potential of natural fertility, the state of land resources in Ukraine is almost critical. Therefore, it is particularly important to develop and implement programme documents that include strategically important goals for environmental protection and the creation of a competitive economy through the production and sale of products with high added value. It should be noted that the Carpathian region of Ukraine is characterised by better environmental indicators than the national indicators. Therefore, in modern economic conditions, the role of this region...
in the production of high quality and safe agricultural products, in particular with a geographical indication, is growing. The development and implementation of regulatory and legal support, taking into account the ecological and geological features of the operation of agricultural enterprises in the Carpathian region of Ukraine, will contribute to their competitive development.

In the presented study, the competitive environmental strategy of agricultural enterprises is considered on the basis of the creation and use of a unique, sustainable competitive advantage – an ecological brand – products with a geographical indication. According to M. Porter in his 1990 work "The Competitive Advantage of Nations", an important aspect of ensuring the competitive advantage of the state is the creation of demand for the products of domestic producers. As a result of the research, it was found that unlike organic products, local products are not perceived as expensive. Nevertheless, consumers are willing to pay more for local food (Feldmann, Hamm, 2015).

However, in the domestic economic literature, insufficient attention is paid to the study of consumers' perception of local food products and their willingness to buy them depending on the place of sale. A review of foreign scientific publications shows considerable interest in this issue. Given the global environmental trends, the problem of improving the management of the agricultural sector of the economy by developing a competitive environmental strategy for agricultural enterprises at the regional level in the context of sustainable development is becoming extremely relevant.

In researching competitive strategies, scientists Ahmed R., Danso A., Leonidou L., Kreis K., Orsato R., Chater B., Bortnik S., Stepanenko A., Korobets O., Markova E., Shestakova T., Shkuratov O. emphasise the ecological component of strategy development, according to which competitive strategy is correlated with sustainable competitive advantage. Scientific works of famous Ukrainian researchers Yankovyi O., Kasych A., Kharkiv Zh., Bondarenko S., Lisovsky M., Taranenko L., Granovska V. support the conceptual position of M. Porter, according to which competitive strategy is correlated with sustainable competitive advantage. Domestic scientists Derii V., Polkovynchenko S., Soroka L., Zhuk V., Kaletnik H., Pravdyuk N., Ostapchuk S., as well as foreign researchers: Beroya-Eitner M., Restal B., Rid M., Liedgren T., Farley D. have paid considerable attention to the study of analytical support for environmental protection activities and their accounting.

In modern theories of competitive development, the research of the "historian of business and the father of strategic planning" Michael Porter plays a decisive role. In the 1980s, he revealed his own vision of the theoretical foundations of competitive advantages and substantiated the components of an ecological strategy: differentiation, costs, ecology (Porter, 1990). Taking into account the European integration course of Ukraine in the field of economy through the adaptation of current legislation to international standards, the development strategy of domestic agricultural enterprises should be aimed at ensuring the balance of economic and environmental processes. A sustainable level should correspond to an environmental security strategy aimed at preventing possible threats to the security object (Furdychko, 2016).

2. Environmental Protection Strategies

In the practice of the global economic system, there are two main strategies related to environmental protection: 1) defensive, which involves compliance with relevant laws, decrees and rules, or competition measures, and remediation only after a problem occurs; 2) offensive or proactive, which is aimed at implementing preventive approaches to solving the problem.

To ensure the sustainable development of the agricultural sector and the preservation of natural resources, economically developed countries use the following proactive strategies:

1. Sustainable land use. The use of effective soil cultivation methods, crop rotation and reduction of the impact of synthetic fertilisers and pesticides helps to preserve biodiversity and prevent erosion.

2. Organic farming. This approach is based on natural methods of plant protection and the prohibition of synthetic fertilisers and genetically modified organisms.


4. Recycling and reuse of waste contributes to its recycling.

5. Biodiversity protection. Maintaining natural ecosystems and areas with a high level of biodiversity contributes to the development of organisms that are beneficial to agricultural systems.

The strategies discussed may differ depending on regional characteristics, natural resources and conditions: their application is aimed at ensuring a balance between agricultural production and the environment and is usually implemented in combination with legal regulations, government support and educational programmes.

The concept of proactive development of enterprises and building business models that combine economic, social and environmental aspects is supported.
corporate departments, such as operational and strategic planning, research and development, design and marketing. However, a strong operational programme at the enterprise level ensures that the corporate sustainability agenda remains real” (Kashmanian, 2011).

3. Regional Development of Ecologically Oriented Agricultural Production

In the Carpathian region of Ukraine there is a significant proportion of farms that are potential adopters of organic farming. Accordingly, the use of the production and resource potential of small agricultural enterprises in the sense of ecological production creates favourable conditions for increasing the volume of traditional types of agricultural products with geographical indication. The Food and Agriculture Organization of the United Nations (FAO) announces the launch of a grant support programme, made possible thanks to funding from the European Union, aimed at providing investment grants to micro and small agricultural producers, cooperatives and associations of producers of geographical indications (Applications for participation in the FAO and EU grant support program, 2023, have been accepted through the state agrarian register, 2023). In addition to the legal protection of product names in the European Union (EU), it is also important to highlight the use of the quality term "mountain product", which emphasises the characteristics of a product produced in mountain areas with difficult natural conditions, but with improved environmental characteristics (Explanation of quality schemes).

In Ukraine, no legal act defines the conditions and criteria for classifying territories as mountainous, unlike the definition and criteria for classifying mountainous settlements, which are regulated by Article 1 of the Law of Ukraine "On the Status of Mountainous Settlements in Ukraine" (’The Law of Ukraine "On the Status of Mountainous Settlements in Ukraine", 2011). However, despite the relatively difficult economic conditions and, at the same time, the available land and resource potential of these enterprises operating in the Carpathian region of Ukraine, no economic instruments to stimulate agricultural production are provided for them at the legislative level.

Given the state support for small farms over the past five years (2017–2021), there is a tendency to increase the area of farms in the Carpathian region of Ukraine with a land area of 5 to 100 hectares and 100 to 500 hectares (Figure 1).

At the same time, over the same period (2017–2021), the number of farms with the size of 5 to 100 hectares decreased by 7.5 percentage points due to their transfer to the control of business entities that owned a larger land bank (Figure 2).
The data obtained on the concentration of land use in larger farms characterise them as potential producers of agri-food products with higher profits per unit of land area, which at the same time are able to ensure an adequate level of marketability of products for the formation of wholesale batches at the local or regional level.

The basic qualitative indicators of the ecological balance of landscapes, their stability and degree of transformation under the influence of economic activity are the coefficients of anthropogenic load and ecological sustainability. At the same time, in the field of land use, a methodological approach to the assessment of the level of ecological reserve of land has been proposed, according to which the land fund of Ukraine is formed by natural, productive, man-made types of land (Budziak, 2019). The coefficient of ecological balance of application of mineral and organic fertilizers is also important (Buzhyn, 2015). Taking into account the relevant indicators at different management levels of the assessment of the environmental competitiveness of agricultural enterprises, including farms, it is proposed to calculate by means of an integrated index:

\[ I_{ecc.} = \frac{R_{iecs} + R_{ierc} + R_{ieeb}}{3}, \]

where \( I_{ecc.} \) is an integral index of environmental competitiveness of agricultural enterprises;
Riecs. is the rating of the i-th regional (administrative, land valuation) district in terms of environmental sustainability; Riecr. is the ranking of the i-th regional (administrative, land valuation) district by the level of conservation; Riecb. is the rating of the i-th regional (administrative, land valuation) district in terms of environmental sustainability.

In order to comprehensively assess the level of environmental competitiveness of agricultural enterprises in the Carpathian region of Ukraine, the rating of the environmental competitiveness of agricultural enterprises in the studied regions was determined. To calculate the coefficient of ecological stability of the region, the approach proposed by the researcher O. L. Popova was used. The essence of this approach is to assess the environmental parameters of a balanced territorial organisation of land (natural areas, arable land, forests, built-up land, pastures and hayfields, shelterbelts). According to this methodology, the normative values of the environmental stability coefficient are as follows: “up to 0.33 – the territory is environmentally unstable; 0.34-0.50 – unstable and vulnerable; 0.51-0.66 – moderately stable; over 0.66 – environmentally stable” (Popova, 2012). The assessment concludes that, as of the end of the pre-crisis period (2021), Ukraine’s territory was moderately stable in general. The group of "moderately stable areas" also includes Lviv and Chernivtsi oblasts, and the group of environmentally stable areas includes Zakarpattia and Ivano-Frankivsk oblasts. The study calculated the coefficient of ecological balance in crop production, which is the ratio of organic fertiliser application to mineral fertiliser application. The ecological reserve coefficient calculated according to the methodology (Wambol, 2017) has the following normative value: if the value is greater than 0, the indicator characterises a high level of ecological reserve achievement, if it is less than 0, the ecological system is degraded with further deterioration. As shown in Table 1, the integral index of environmental competitiveness of agricultural enterprises in the studied region (Zakarpattia, Ivano-Frankivsk, Lviv, Chernivtsi oblasts) exceeds the same national indicator.

For agricultural producers operating in difficult conditions on the slopes of the Carpathian region of Ukraine, dairy and meat cattle breeding is a scientifically sound and traditionally important sectoral specialisation. In this region, the production and sale of products with geographical indications creates favourable organisational and economic conditions for the formation of an agro-industrial cluster and the development of a corporate trading network based on the use of an environmental brand.

### 4. Organic Products with Geographical Indication

The application of a price premium for products with a geographical indication allows not only to increase the profitability of production, but also to form a trade network for the sale of the relevant products. Such a systematic approach, in the context of the potential danger of intensive agricultural production and long supply chains, plays a key role in improving food security in the region.

It should be noted that the promotion of food products under a trade mark (brand) in the market has developed significantly in the global practice. The European Union protects almost 3,400 specific product names. These names are used within the EU quality schemes as Protected Designations of Origin (PDO), Protected Geographical Indications (PGI) and Traditional Products Guaranteed (TSG). In the case of the region under study, eco-labelling will provide consumers with information about the environmental priority of the products offered. In turn, the manufacturer will receive additional financial income, which will stimulate production and strengthen its position in the market.

Entering the market of products with a geographical indication, which corresponds to environmental friendliness and safety, allows producers and consumers to obtain additional benefits. Thanks to the Research Institute of Organic Agriculture (FIBL), the project "Development of the organic market in Ukraine"

<table>
<thead>
<tr>
<th>Oblast</th>
<th>Environmental sustainability ratio</th>
<th>Environmental reserve ratio</th>
<th>Environmental sustainability ratio in crop production</th>
<th>Integral index of environmental competitiveness of agricultural enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zakarpattia</td>
<td>0.73</td>
<td>3,24</td>
<td>0.25</td>
<td>1,41</td>
</tr>
<tr>
<td>Ivano-Frankivsk</td>
<td>0.80</td>
<td>1,48</td>
<td>0.48</td>
<td>0,92</td>
</tr>
<tr>
<td>Lviv</td>
<td>0.55</td>
<td>0,78</td>
<td>0,28</td>
<td>0,54</td>
</tr>
<tr>
<td>Chernivtsi</td>
<td>0.51</td>
<td>0,56</td>
<td>0,15</td>
<td>0,41</td>
</tr>
<tr>
<td>Ukraine</td>
<td>0,51</td>
<td>0,10</td>
<td>0,27</td>
<td>0,33</td>
</tr>
</tbody>
</table>

Source: calculated by the authors on the basis of data from the State Statistics Service of Ukraine
The state regional policy of Ukraine, which is aimed at activating the resource potential of rural areas. The presence of ecologically clean areas for the implementation of traditionally important specialisations, territorial localisation, as well as a sufficiently large segment of agricultural producers and potential consumers of GI products, allow for the development and implementation of a competitive environmental strategy of the Carpathian region of Ukraine, in which the agricultural sector will play a decisive role.

The development of a competitive strategy is very important for every entrepreneur, as the number of manufactured products is constantly increasing and, as a result, competition is growing. A company that implements a competitive strategy should take into account the use of internal potential opportunities for creating competitive advantages in order to respond in a timely manner to changes that occur in the environment, to anticipate the actions of competing companies and to ensure continuous development in the long term (Bortnik, 2016). The intensification of the use of the production and resource potential of the agricultural commodity producers of the Carpathian region of Ukraine can be ensured by the improvement of the procedure for the formation of a regional programme for the development of the agro-industrial complex in the part of the state support of entrepreneurship, which includes the determination of the capacity of the food market, differentiation of demand, selection of direct and indirect methods of state regulation.

At present in Ukraine the existing demand for high quality and safe products is limited by the low purchasing power of the population, therefore it is important to highlight certain factors that can nevertheless be regulated and accordingly stimulate ecologically oriented activities in agribusiness. Among the important negative factors that currently limit the demand for organic products are the lack of special departments in commercial food outlets; lack of awareness of consumer preferences for these products among certain socio-economic groups; economically unreasonable prices; and limited funds for the purchase of organic products in social institutions. The factors discussed above regarding the conditions of promotion of organic products on the market to some extent reflect the trends in the sale of agricultural products with a geographical indication, which may be in demand among a certain category of consumers.

The current state of organic production in agriculture at the national and regional levels is characterised by uncertainty or complexity in many aspects of its development (Table 2).

Financial support for sustainable development is formed under the influence of economic and ecological imperatives, which in modern conditions requires the use of a programme document to regulate ecologically oriented activities of agricultural
Table 2
Problematic aspects of organic agriculture development at different levels of management

<table>
<thead>
<tr>
<th>Legislative and institutional</th>
<th>In the regions, the issue of financial support for organic producers is considered differently due to the lack of systematic approaches at the state level.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The absence of a number of regulations necessary for the full implementation of the provisions (‘The Law of Ukraine “On Basic Principles and Requirements for Organic Production, Circulation and Labelling of Organic Products”, 2018’).</td>
</tr>
<tr>
<td>Organisational and economic</td>
<td>Greenwashing, or the so-called green camouflage, when non-organic products are presented as organic to mislead customers and increase sales volumes and prices.</td>
</tr>
<tr>
<td></td>
<td>Unclear or improper labelling of agricultural products, with labels that do not comply with Ukrainian legislation.</td>
</tr>
<tr>
<td></td>
<td>The educational training of specialists in this field in the provision of consulting services, control procedures, standardisation and certification of organic agricultural production does not meet modern requirements.</td>
</tr>
<tr>
<td></td>
<td>Lack of developed market infrastructure.</td>
</tr>
<tr>
<td></td>
<td>Relatively low demand in the agri-tourism market, which is significantly lower than in economically developed countries.</td>
</tr>
</tbody>
</table>

enterprises. The key role in ensuring sustainable development of the agricultural sector at the regional level is played by the competitive environmental strategy aimed at ensuring high profitability of enterprises and preservation of the environment.

With regard to the region under study, the defining conceptual foundations of the competitive environmental strategy of agricultural enterprises are as follows:

1. Social responsibility. Agricultural enterprises should operate on the basis of the principle of sustainable development, which implies a balance of economic, social and environmental components.
2. Efficient use of natural resources through the rational use of production and resource potential and reduction of negative environmental impact through compliance with environmental standards and environmental protection measures, and the introduction of green technologies.
3. Environmental certification, which contributes to the growth of production profitability by improving the efficiency of operational processes and image management.
4. Cooperation with stakeholders. Establishing partnerships with government agencies, the public, and scientific institutions allows to create organisational and economic preconditions for environmental protection activities and jointly address environmental issues.
5. Continuous improvement. A competitive environmental strategy should be permanent, adaptive and focused on the progressive organisation of production activities.
6. Development of a regulatory framework to define the criteria for classifying territories as mountainous.
7. Development and implementation of regional programmes for the development of the agro-industrial complex, which would reflect the current issues of agricultural production in mountainous areas.
8. Enshrine the concept of governance in the charters of business entities, taking into account the need for preventive environmental measures.
10. Establishing network trade in agri-food products with geographical indications, which, in the context of agri-tourism development, will help to reduce long supply chains.

Given the deteriorating environmental situation in Ukraine, the problem of developing and implementing a competitive environmental strategy for agricultural enterprises in the Carpathian region, which has not only sufficient land and resource potential but also a favourable geopolitical location, is becoming more and more urgent at the national level.

5. Conclusions
In the context of joining the global process of ensuring sustainable development, the role of domestic public authorities in the development and implementation of a competitive environmental strategy in the Carpathian region of Ukraine will increase. A comprehensive assessment of the level of environmental competitiveness of agricultural enterprises, including farms, in the context of the regions of the Carpathian region of Ukraine indicates its strategic importance in the formation and development of the regional market of agri-food products with geographical indication. The use and improvement of marketing tools in the production and sale of agricultural products with geographical indications will contribute to the competitive development of regional producers, expand the capacity of domestic and foreign markets by using environmental benefits, greening the production activities of SMEs and farms to stimulate and expand the scope of agricultural tourism.

The conducted research shows that a competitive environmental strategy in the Carpathian region of Ukraine can become not only an effective mechanism for realising the production and resource potential of agricultural enterprises, but also, given the tourist and recreational prerequisites, contribute to the expansion
of the agri-food market capacity. A prerequisite for the formation of a competitive environmental strategy for the Carpathian region of Ukraine is the implementation of regional programmes for agricultural production and food supply, which would reflect the role, features, organisational and economic foundations and prospects for the development of agricultural enterprises, taking into account the need to take into account the indicators of environmentally sound land use and environmental protection. In these programme documents, it is advisable to disclose the legal, financial and economic instruments for implementing the relevant measures, taking into account the production and resource potential of regional economic entities in the agricultural sector of the national economy.

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