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Innovative Marketing Tools and Strategies for the Promotion of Green Agribusiness Branding

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Abstract

Amid escalating environmental challenges and increasing public demand for sustainable development, environmentally friendly agricultural systems must adapt to evolving conditions. The rise in ecological awareness and the need for rational use of natural resources make it necessary to explore tools that support "green" branding and support environmental initiatives. This study aims to analyze innovative environmental tools that can effectively promote environmentally friendly agriculture. A mixed-methods approach was employed, including correlation and regression analysis, SWOT analysis, questionnaires, and interviews. The results showed that environmental communication, educational campaigns, and activity in social networks significantly affect the formation of trust in eco-products ($r = 0.76$). Notable strengths of the ecological approach include the use of organic raw materials and energy-saving technologies. However, key limitations persist, such as the high cost of eco-packaging and the lack of resources for implementing eco-standards. The study recommends that environmental cooperation be strengthened, sustainable practices be implemented, and transparency be ensured in environmental reporting. The scientific novelty lies in the comprehensive analysis of environmental tools for forming a "green" brand. Prospects for further research include strategies for increasing the ecological sustainability of rural areas.

Keywords

Green products; Social networks; Competitiveness; Green branding; Environmental Awareness; Green Agri-business; Sustainable development

Introduction

The demand for green products and services has increased significantly in recent years. This trend is driven not only by the

effects of global climate change and environmental disasters, but also by increasing consumer awareness of their health and environmental impact. People are increasingly striving for a healthy lifestyle, which includes the consumption of natural, organic foods that do not contain harmful additives and are grown without the use of pesticides and other chemicals (Arivazhagan *et al.,* 2023). The agricultural sector, in particular green agribusiness, is becoming an important element of the economy, as it not only provides the population with quality food but also contributes to the preservation of the environment. Green initiatives, such as organic farming, sustainable development of agriculture, and environmental technologies, help minimize environmental harm. These practices also contribute to improving the quality of soils, water, and air and preserve biodiversity (Linde *et al.,* 2024; Mahmood and Rauf, 2024).

In the context of increased market competition, where increased attention is paid to environmental protection and the rational use of natural resources, the effective promotion of a nature-oriented green brand in the agricultural sector requires implementing innovative strategies. Keys among these are modern digital technologies, social networks, and content marketing to increase environmental awareness and responsibility (Ilchuk *et al.,* 2023; Melović *et al.,* 2020). The use and influence of marketing tools help attract opinion leaders who can support environmental initiatives and contribute to forming an environmental image or brand. Active interaction in social communities on environmental issues helps to strengthen trust in the brand and form sustainable environmental values in society (Bilousko *et al.,* 2024). Analyzing environmental trends and consumer demands allows the market to adapt strategies to modern environmental conservation challenges. Implementing such innovative environmental practices helps strengthen the position of enterprises as responsible stewards of natural resources and supports the development of a positive identity for green agriculture (Buryk, 2024; Kernecker *et al.,* 2019).

At the same time, despite the growing relevance of green marketing, traditional marketing approaches often fail to meet the complex demands of environmentally conscious consumers. Most existing strategies focus on generic digital tools or branding, without sufficiently integrating sustainable values or technological innovations adapted to the needs of green agribusiness (Gavkalova *et al.,* 2024). This indicates a gap between the growing public expectations for environmentally responsible production and the limited capabilities of existing promotion tools. In this regard, it is urgent to find new approaches that combine innovative marketing tools with the principles of environmental awareness to increase the effectiveness of green agribusiness brand promotion.

Therefore, the study of innovative tools for marketing strategies to promote a green agribusiness brand is extremely relevant. This allows the industry to meet the needs of the modern consumer and contribute to the sustainable development of the agricultural sector and the preservation of the environment. This research will be a step in developing effective strategies that can be put into practice to achieve success in a competitive environment. The study aims to investigate and analyze innovative tools of environmental orientation that contribute to the formation of a "green" brand/image and the popularization of environmentally responsible agriculture in the context of sustainable development. To achieve this aim, the study sets out the following research objectives:

- To explore modern approaches to environmentally-oriented communication in agriculture with an emphasis on "green" initiatives that contribute to sustainable development and increase environmental awareness.
- To assess the impact of digital tools, social network information, and educational campaigns on promoting environmentally friendly products, particularly in the context of attracting the target audience and forming a positive attitude towards environmental practices.
- To analyze the strengths and weaknesses of innovative environmental strategies for forming a "green" brand and to determine their role in increasing trust in nature-oriented production and the overall effectiveness of environmental communication.

Literature Review

The study of innovative product promotion strategies in the green agro-sector is relevant to current global challenges, including climate change and the growing demand for green products. In recent years, many researchers have paid attention to new marketing tools that help brands to compete effectively in this market. Kaminskyi, Nehrey and Komar (2020) studied the role of digital platforms in promoting sustainable agriculture. They note that social networks and internet marketing assist small agricultural enterprises in forming an environmentally conscious brand and attracting new consumers. Khurdei *et al.* (2023) analyzed the impact of environmental labelling on consumer decisions. The study found that consumers are more likely to choose products with environmental responsibility certificates, even at a higher price. This confirms the importance of environmental labelling as an effective marketing tool for ecologically friendly agriculture.

Knierim *et al.* (2019) analyze the impact of social and environmental initiatives on the formation of customer loyalty to agricultural product trademarks. They found that companies that actively implement corporate social responsibility (CSR) practices, particularly environmental initiatives, have significantly higher levels of consumers' trust. This is explained by the fact that environmentally conscious consumers prefer companies that demonstrate their responsibility to society and the environment. Latif, Mushoddad and Azmai (2020) and Maksym *et al.* (2022) examine the importance of partnerships between green agribusiness brands and non-governmental organizations (NGOs). These partnerships serve as a strategy to increase trust among consumers and strengthen the companies' market positions. The main thesis of this study is that cooperation with public organizations allows agricultural companies to use their experience and resources. This contributes to the implementation of social and environmental projects that go beyond the scope of ordinary business. Such partnerships may include joint ecosystem restoration projects, climate change mitigation, environmental impact reduction, local community development, and educational programmes.

Some researchers, in particular Mazaraki *et al.* (2021), Mohamed *et al.* (2021), and others studied the role of innovative technologies, particularly blockchain, in relation to increasing supply chain transparency of ecologically clean agricultural products. They emphasize that blockchain enables tracking every stage of production and supply of a specific product, from farm to consumer. This process increases the level of trust among

consumers, who can easily verify the origin of a product, its environmental friendliness, and compliance with sustainable development standards. Consumers who can verify the authenticity of a product's environmental standards become more loyal to those brands.

According to Reddy *et al.* (2021) and Sumets *et al.* (2020), brand differentiation strategies in the organic market are significant. They enable companies to stand out from competitors and attract environmentally conscious consumers. The researchers emphasize that the key elements of success in this market are the development of unique selling propositions (USP) and the creation of a brand story that demonstrates the company's environmental responsibility. Svitovyi (2022) analyzes how strategies that involve customer interaction help promote eco-friendly agro-brands with an emphasis on environmental responsibility. The study highlights that interactive platforms, which enable consumers to actively engage in the production process or decisions regarding products, are effective tools for enhancing customer loyalty. This helps to strengthen the connection between the brand and customers, which, as a result, increases the level of consumer loyalty and satisfaction. On the other hand, Williams and van Triest (2023) and Tykhenko (2022) studied the impact of environmental activism on brand positioning in the field of green agribusiness. Their research demonstrated that active campaigns aimed at solving environmental challenges, such as environmental protection or reducing greenhouse gas emissions, have a positive effect on brand perception among consumers. They note that such campaigns not only strengthen the brand's reputation but also help to attract new customers who support environmentally responsible behaviour.

Kotykova, Babych and Nadvynychnyy (2021) emphasized the importance of sustainable branding through cooperation with social media influencers within social networks or other online platforms. The author establishes that environmentally conscious influencers can significantly increase the effectiveness of marketing campaigns for green agricultural brands. Influencers who support environmental values and actively promote the ideas of sustainable development help companies to achieve greater visibility and trust among target audiences. Research shows that advertising through influencers who have a positive image in the field of ecology is a powerful tool for attracting new customers and creating an emotional connection with consumers. Another study by Li *et al.* (2021) and Latif, Mushoddad and Azmai (2020) consider the role of big data (Big Data) in the marketing strategies of green agricultural production. They demonstrate that data analytics allow agricultural companies to better understand the consumers' needs and adapt their services to changes in the market. The use of big data helps to identify trends, consumers' preferences, and behaviours, which enables the creation of personalized marketing campaigns.

Research on innovative marketing strategies in green agribusiness is advancing quickly, but several aspects still require further study. In particular, the impact of using artificial intelligence (AI) to automate the promotion of green brands has hardly been considered in the current literature. Additionally, there are some contradictions in the findings regarding the effectiveness of socially responsible initiatives: some researchers consider them key to success, while others doubt their direct impact on sales. Additional research is also needed to further analyze the impact of emerging digital tools such as blockchain and big data on long-term consumer loyalty to green agribusiness brands. Further

research is needed on specific factors to enhance understanding of marketing innovations and their effects on the sustainable development of agricultural companies.

Materials and Methods

Research design

The research was conducted in three stages: data collection, analysis, and interpretation. Data collection was performed by a team of 5 researchers with experience in agricultural production and marketing between January to June 2023, followed by data analysis and interpretation. The results were discussed at academic seminars, where graphs and tables illustrating the obtained data were presented.

Sampling

The sample for the study consisted of 50 agricultural companies engaged in the green agricultural sector in Ukraine. Selection criteria included mandatory certification as organic or eco-friendly and a minimum of three years of continuous market operation. The sample size consisted of 50 companies, to allow for statistically significant results and ensure a diverse sample, such as farms, manufacturers, and distributors. The companies were selected using a random sampling method from the Green Product Certification Organization database. Table 1 presents the independent and dependent variables used in the study that influenced the observed outcomes.

Table 1: The variables of the study of green agricultural production

Variable type	*Variable*	*Description*
Independent variable	Information campaign costs	The total amount spent on environmental awareness
Independent variable	The number of promotions	The number of marketing campaigns carried out
Independent variable	The number of social media followers	The number of followers on the company's pages on social networks
Independent variable	Expenses for participation in exhibitions	General expenses for participation in exhibitions and fairs
Dependent variable	Sales volumes	The number of units of green products sold

Research methods

This study employed a combination of quantitative and qualitative methods to comprehensively assess the impact of innovative marketing tools on the performance of green agribusiness enterprises. The research utilized several methods:

Correlation analysis was used to study the relationship between various marketing tools and their impact on the sales of "green" products. The formula used for calculating the Pearson correlation coefficient is as follows:

$$r = n(\Sigma xy) - (\Sigma x)(\Sigma y) / \sqrt{[n\Sigma x2-(\Sigma x)2][n\Sigma y2-(\Sigma y)2]}, \quad (1)$$

Where r = Pearson correlation coefficient, y = dependent variable, x = independent variable, n = the number of observation pairs (sample size).

Regression analysis was used to model the influence of various factors on the volume of green product sales. The linear regression model is:

$$Y = a+bX+eY \quad (2)$$

Where Y = sales volume, X = independent variables (advertising costs, the number of shares, etc.), a = free term, b = regression coefficient, and e = error.

SWOT analysis was used to examine the strategic positioning of the selected companies by identifying internal strengths and weaknesses, as well as external opportunities and threats related to their green marketing practices. Questionnaire surveys (Appendix-A) and interviews were conducted to obtain qualitative, detailed information on the impact of different marketing strategies with regard to the volume of sales in ecological agriculture.

Instruments

Quantitative data were processed using SPSS (Statistical Package for the Social Sciences), which facilitated the correlation and regression analyses. The use of SPSS enabled the accurate computation of statistical relationships and ensured reliability in interpreting the numerical results. Qualitative data from interviews were thematically analyzed to supplement and validate the quantitative findings.

Results

The results of the correlation and regression analysis demonstrate the impact of various environmentally oriented communication strategies on the sales volumes of products in green agriculture. Correlation analysis revealed a close relationship between the costs of environmental promotion, the number of informational events, activity in social networks, and the volume of sales. The highest correlation coefficient (0.76) was in environmental information expenses, which indicates a strong positive relationship. As a result, increased investment in educational campaigns contributes to a significant increase in interest in products, confirming the effectiveness of events as an impactful strategy to attract public attention.

The number of promotions shows a positive relationship with the volume of sales (coefficient 0.68), although it is not as strong as raising environmental awareness. This suggests that promotions can stimulate demand, but their effect is less significant. At the same time, the number of social media followers is also positively correlated with sales

volume (coefficient 0.74). This confirms the importance of social networks for product promotion (Table 2).

Table 2: Results of correlation analysis

Variable 1	*Variable 2*	*Correlation coefficient*
Environmental awareness	Sales volumes	0.76
The number of promotions	Sales volumes	0.68
The number of social media followers	Sales volumes	0.74

The regression analysis provides more detailed information on the effect of these variables on the volume of sales. The results show that funds directed towards environmental awareness, the number of promotions, and the number of social media followers have a positive effect on sales. Funds for environmental awareness proved to be the most significant factor, as their growth led to a significant increase in the volume of sales. The number of shares and subscribers also contributes to growth, but to a lesser extent (Table 3, Figure 1).

Table 3: Results of regression analysis

Variable	*Coefficient (b)*	*Explanation*
Environmental awareness (X1)	0.5	An increase of UAH 1.5 thousand sales for UAH 1 thousand of environmental awareness
The number of promotions (X2)	0.3	An increase of UAH 0.3 thousand sales per promotion
The number of followers (X3)	0.2	An increase in UAH
Free term (a)	200	Basic level of sales volume (UAH 200,000)

Figure 1 illustrates the dependence of sales volumes of environmentally friendly products on factors such as investments in environmental information campaigns, the number of environmental educational events, and the number of supporters in social networks. The graph highlights that the most significant impact on sales is financing nature-oriented initiatives to promote environmental conservation. It also confirms the trend of the regression model, which reflects a stable growth in interest in products with an increase in investments in environmental information events. However, the number of reposts in networks does not seem to have a significant relationship with the dynamics of demand; regardless of their number, the volumes remain relatively stable. The number of supporters also has a less pronounced effect; however, as those variable increases, so does the interest in nature-oriented products.

The statistical analysis confirms that the obtained results are significant. The regression model demonstrates a high explanatory power, because 85% of changes in sales volumes can be explained by changes in marketing factors. These data indicate that effective marketing strategies, in particular advertising, promotions, and activity in social networks, can significantly improve sales results in sustainable agricultural production (Table 4).

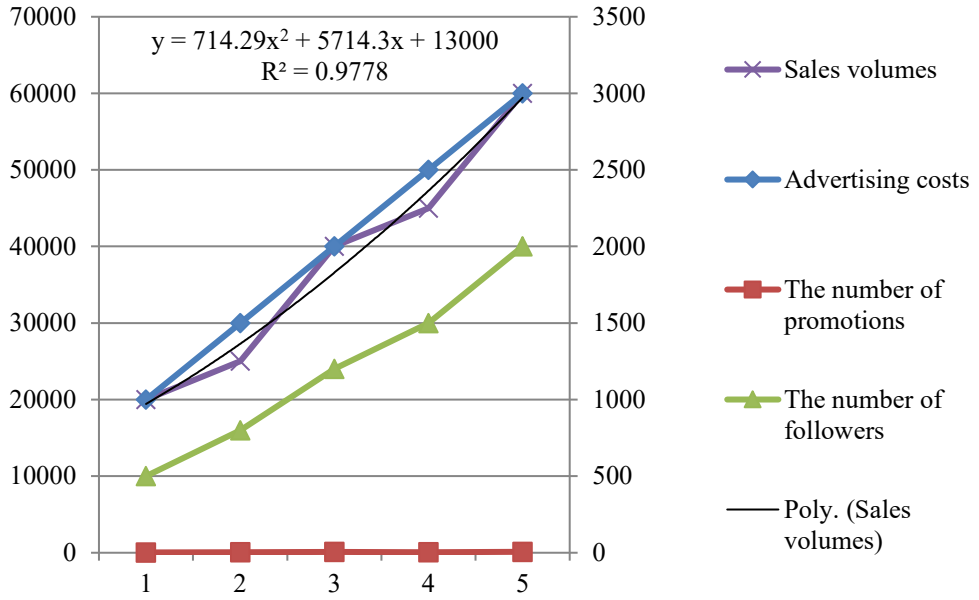

Figure 1: Dependence of sales volumes on selected factors
Source: developed by the authors

Table 4: Statistical analysis of the regression model of sales volumes of environmentally friendly products

Parameter	*Value*
Regression model	(Y = 200 + 0.5X_1 + 0.3X_2 + 0.2X_3 + e)
R-squared	0.85
Statistical significance (p)	< 0.05

Given these results, it is recommended that the focus should be on optimizing advertising costs and activating promotions for further business development. Attracting new social media followers can also have a significant impact on sales growth. On these grounds, it can be argued that funds for environmental awareness are the most significant factor affecting the sales volume of green products in the promotion of the ecological agricultural brand. Investment in advertising ensures brand visibility and attracts consumer attention. In addition, promotions stimulate interest in products, and an active presence in social networks increases brand trust and attracts new customers. Therefore, agricultural companies seeking to increase their sales must integrate these elements into a single marketing strategy that will allow them to achieve maximum results.

A key aspect of analyzing a company's internal factors is the assessment of its strengths and weaknesses in the context of the formation of a green identity. This assessment clarifies which aspects of the company's operations support its environmental initiatives and which require improvement. In this context, the Internal Factor Evaluation (IFE) Matrix serves as an important tool for identifying the key internal elements that influence the enterprise's environmental strategy. Table 5 presents the IFE Matrix, which reflects both the company's strengths and weaknesses with its green identity. The overall

strength score of 2.6868 indicates the presence of several positive internal factors that support the company's environmental activities.

Table 5: Matrix of evaluation of internal factors (IFE)

Item No.	*Internal factors*	*Weight (a)*	*Ranking (b)*	*Score (c = a × b)*
STRENGTHS				
1	Use of eco-friendly raw materials	0.0700	4	0.2800
2	Organic product certificates	0.0650	4	0.2600
3	High-quality products	0.0600	5	0.3000
4	Enhancing environmental education among consumers	0.0550	3	0.1650
5	Implementation of renewable energy sources	0.0620	4	0.2488
6	Availability of a quality management system	0.0570	3	0.1710
7	A variety of assortment of green products	0.0580	4	0.2320
8	Cooperation with environmental organizations	0.0540	5	0.2700
9	Waste disposal systems	0.0530	3	0.1590
10	Transparency in reporting on environmental indicators	0.0500	3	0.1500
TOTAL (STRENGTHS)		1.0000		2.6868
WEAKNESSES				
1	High costs for eco-friendly packaging	0.0650	2	0.1300
2	Lack of ISO 14001 certification	0.0600	1.5	0.0900
3	Limited availability of resources for green technologies	0.0550	2	0.1100
4	Insufficient consumer awareness about environmental friendliness	0.0620	2.5	0.1550
5	Lack of a carbon footprint reduction strategy	0.0580	2	0.1160
6	Low level of employees' involvement in environmental initiatives	0.0610	1	0.0610
7	Lack of transparency in reporting on environmental indicators	0.0590	1.5	0.0885
TOTAL (WEAKNESSES)		1.0000		0.7405

A company's main strengths include the use of eco-friendly raw materials, possession of organic product certifications, and the production of high-quality products. These factors received high ratings (4 and 5), which confirms their significant influence on the formation of a positive brand image. Enhancing environmental education among consumers and cooperation with environmental organizations are also important elements that contribute to raising awareness of a company's environmental initiatives. However, the companies also face significant weaknesses that may impede their green

development. The overall weakness score of 0.7405 highlights the need to address key challenges, including the high costs of eco-friendly packaging and the absence of ISO 14001 certification. Additionally, the lack of carbon footprint reduction strategies and the low level of employee engagement in environmental initiatives are critical areas requiring further attention.

The External Factor Evaluation (EFE) Matrix, which analyses opportunities and threats facing companies in the context of developing green branding for environmentally friendly agricultural production, shows an overall score of 2.4464. This score indicates a mixed external environment in which companies operate (Table 6).

Table 6: The External Factor Evaluation Matrix

Item No.	*External factors*	*Weight*	*Ranking*	*Score*
OPPORTUNITIES				
1	Growing consumer interest in green products	0.1607	3.5	0.5625
2	Local government policy on environmental protection	0.1786	3.5	0.6250
3	Strategic and accessible location of the enterprise	0.1429	3	0.4286
4	Easy access to solid waste disposal	0.1190	2	0.2381
THREATS				
1	Prices for products are higher than those of competitors	0.1548	1	0.1548
2	Competitors also use an ecological image	0.1012	1.5	0.1518
3	Consumers are not always aware of the advantages of green products	0.1429	2	0.2857
TOTAL		1.0000		2.4464

One of the most significant opportunities is the support provided by local government in the area of environmental protection, which creates new possibilities for implementing eco-friendly practices. The growing interest of consumers in green products is also worth noting, which indicates the positive dynamics in the market. Producers can leverage this to promote their products, aligning with the growing demand for environmentally friendly products. However, certain challenges remain the higher price of products compared to competitors can become a serious barrier to attracting consumers. This is especially relevant in a competitive environment where other market participants also use an environmentally friendly or responsible image. Furthermore, insufficient consumer awareness of the benefits of ecological products can complicate the sales process.

Discussion

The aim of this study was to assess the impact of various factors on the sales volumes of green products. Although the research presented significant findings, it is important to acknowledge several limitations associated with the study. The research was carried out in a dynamic external environment, which can quickly affect its results. Changes in

legislation, the economic situation, as well as fluctuations in public attitudes to environmental issues, can significantly change consumer preferences.

Modern agricultural production is undergoing significant transformations, particularly in the field of marketing and consumer demand for green products. A review of recent studies on marketing strategies for promoting green agribusiness brands shows both common trends and varying approaches. Masud *et al.* (2022) found that advertising is less effective in crop production than in other sectors, showing a correlation of 0.50. In this study, a higher coefficient reflects Ukraine's growing demand for green products, likely due to improved environmental education and targeted marketing.

Similar approaches can be found in the works of Sobko (2024), who investigated green entrepreneurship strategies by integrating clean energy technologies with the digital economy, and IMaksymova (2024), who developed strategies for adapting business processes to climate change in order to minimize risks in the context of global climate challenges. Both studies emphasize the need for proactive adaptation of business models and marketing strategies in response to environmental and economic transformations, based on the results of this study.

In contrast, the study of Panitz and Glückler (2020) found that investment in eco-friendly packaging negatively affected a company's profitability due to increased costs. A published study proved that consumers are willing to pay more for eco-friendly packaging, which highlights changes in consumer preferences and the need to adapt business models to this growing trend. It is also important to consider the findings of Romero-Padilla *et al.* (2022), which showed that higher prices for green products do not necessarily result in decreased sales when consumers are aware of their environmental benefits. These results are consistent with our findings, which demonstrate that consumer awareness of the environmental impacts of products can offset price increases. This suggests that green products are more attractive to buyers; therefore, agricultural production technology should focus on communicating the environmental benefits of their products so that consumers are willing to accept higher prices.

Furthermore, a study by Slobodianyk, Abuselidze and Lymar. (2021) points to the importance of social media as a channel for promoting green initiatives. This emphasizes the importance of modern communication platforms for attracting new consumers and forming a positive brand image, which also reflects the results of the conducted research. Compared with the study of Havlíček *et al.* (2020), who found that ecological certification has a positive effect on consumer trust, the conducted study emphasizes that trust in the brand can significantly increase the sales volume of green products. In turn, the results of Hedija and Kuncová (2021) demonstrate that ethical consumption has a strong influence on purchase decisions, which is also consistent with our findings on the importance of consumers' environmental awareness.

The study by Peci and Sanjuán (2020) examines the relationship between branding and consumer behaviour, supporting our point that brands that focus on their environmental initiatives gain a competitive advantage. This emphasizes the importance of proper communication of a product's environmental impact in forming a positive image. The research of Beyer and Hinke (2020) is also worth noting, highlighting that growing

consumer awareness about environmental issues stimulates the demand for green products. The obtained result of this research emphasizes this trend and indicates the importance of environmental education.

Research by Chemerys *et al.* (2020) indicates that adaptation to new technologies in communication enables brands to more effectively reach their target audience. This is consistent with our results, which emphasize the importance of innovative solutions in the field of packaging and communication. Furthermore, the work of Tykhenko (2022) emphasizes the influence of social media on consumer decisions, which is confirmed in this study conducted on the importance of modern platforms for promoting green initiatives. Our research aligns with existing studies, confirming a growing demand for green products in Ukraine. This requires agribusinesses to intensify their marketing strategies and implement innovative solutions in the field of packaging. It is also important to actively use new media platforms to increase the efficiency of promoting brands in environmentally friendly agricultural production.

The obtained results in the present study clearly show that active marketing strategies and the environmental awareness of consumers play a decisive role in increasing sales. Moreover, the results suggest that new communication channels, such as social networks, significantly increase the effectiveness of advertising. The results of the EFE Matrix obtained in this study highlight the strategic importance of proactively responding to opportunities created by government support and shifts in consumer preferences. The findings indicate that, alongside leveraging these opportunities, agricultural enterprises must develop targeted strategies to mitigate risks related to market competition and consumer perception. This research confirms that the successful development of ecologically friendly and socially responsible agricultural production requires the integration of innovative marketing approaches that address both internal and external factors influencing the business environment. Such strategies not only contribute to sales growth but also strengthen the company’s ecological image, enhancing its reputation as a socially and environmentally responsible actor. The positive trend observed in the adoption of green initiatives in the surveyed companies demonstrates that environmental practices can significantly improve business performance. Moreover, the effective use of tools such as digital marketing, eco-friendly packaging, product certification, partnerships with environmental organizations, and blockchain technologies for transparency has been shown to increase brand awareness and attract environmentally conscious consumers, aligning with the growing global demand for sustainable products.

The practical significance of the research results specific recommendations lies in providing agricultural enterprises with effective implementation and improvement of their "green" initiatives. This includes the enhancement of marketing strategies, which allows attracting new consumers and increasing sales, as well as the development of environmental education, which contributes to conscious consumption.

Conclusion

Environmental issues are becoming increasingly relevant in the modern world. Studying consumer preferences for sustainable development is extremely important. The research

results confirm that environmental factors influence consumer decisions, which indicates the need to adapt business strategies to new conditions. This study established that funds for environmental awareness are the most significant factor affecting sales volumes in environmentally friendly agricultural production, with a correlation coefficient of 0.76 indicating a strong positive relationship between these variables: an increase in funds for environmental awareness by UAH UAH 1,000 (USD 27) leads to an increase in sales by UAH 500 (USD 13.5). The number of promotions also has a positive effect on sales, with a correlation coefficient of 0.68, while the number of social media followers shows a coefficient of 0.74.

The regression analysis confirms that 85% of the variation in implementation volumes can be explained by changes in marketing factors. This highlights the importance of effective advertising strategies, promotional activities, and social media engagement in driving sales. The assessment of internal factors showed an overall strength score of 2.6868, indicating that positive internal variables, such as the use of eco-friendly raw materials and organic product certification, have a positive outcome. Additionally, the overall weakness score is 0.7405, indicating challenges related to the high costs of eco-friendly packaging and the lack of ISO 14001 certification.

The assessment of external factors revealed an overall score of 2.4464, indicating a mixed environment for companies. Opportunities include growing consumer interest in green products, while threats include higher product prices compared to competitors and a lack of consumer awareness of the benefits of green products. Therefore, agricultural companies seeking to succeed in the green agricultural sector should focus on optimizing advertising costs, holding promotions, and attracting new social media followers. It is also important to develop strategies to overcome challenges related to competition and consumer perception.

The research findings can be applied to the development of new audience engagement tactics that consider the growing consumer demands for the sustainability of products. Companies implementing sustainable development principles are able to significantly improve their reputation and, accordingly, competitiveness. To further improve efficiency and profitability, a company should focus on strategic opportunities, in particular improving product promotion activities and developing cooperation with environmental organizations. It is also crucial to enhance educational initiatives to increase consumer awareness of environmentally friendly products.

Based on the findings of this study, the following recommendations are proposed to guide companies in aligning their marketing strategies with evolving consumer behavior in the context of increasing environmental awareness: adapt marketing strategies to reflect environmental values, conduct regular research on consumer preferences, and foster collaboration with environmental organizations.

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Appendix-A: Questionnaire to study the impact of marketing strategies on sales volumes in green agribusiness

1. General information about the company:
   - Company name: _____
   - Year of establishment: _____
   - Type of activity (farming, production, distribution): _____
   - Number of employees: _____
2. Marketing strategies:
   - Which of the following marketing tools do you use? (check all that apply)
   - ☐ Advertising (television, radio, printed publications)
   - ☐ Social networks (Facebook, Instagram, others)
   - ☐ Participation in exhibitions and fairs
   - ☐ Promotions and discounts
   - ☐ Others Specify): _____
3. Advertising costs:
   - What are the average advertising costs in the last year? (UAH)_____
   - Which advertising channels are the most effective for your company? (specify): _____
4. Number of promotions:
   - How many promotions have you held in the last year?_____
   - What types of promotions have been most successful? (specify): _____
5. Social networks:
   - How many followers do you have on your main social networks? (specify quantity for each platform)
   - Facebook: _____
   - Instagram: _____
   - Others: _____
6. Sales volume:
   - What volume of sales of green products did your company have in the last year? (UAH) _____
7. Strengths and weaknesses:
   - What do you think are your company's strengths in the context of green agribusiness? (specify):_____
   - What weaknesses do you see? (specify): _____
8. Environmental initiatives:
   - What environmental initiatives does your company implement? (specify):_____
   - Does your company have organic certification?
   - ☐ Yes
   - ☐ No
9. Additional information:
   - What additional measures do you consider necessary to improve the sales of your green products? (specify):_____

10. Contact information (optional):
    - Name and surname: _____
    - Position: _____
    - Telephone:_____
    - Email: _____

Authors' Declarations and Essential Ethical Compliances

Authors' Contributions (in accordance with ICMJE criteria for authorship)

Contribution	*Author 1*	*Author 2*	*Author 3*	*Author 4*	*Author 5*
Conceived and designed the research or analysis	Yes	No	Yes	No	Yes
Collected the data	No	Yes	No	Yes	No
Contributed to data analysis & interpretation	Yes	No	No	No	Yes
Wrote the article/paper	No	No	Yes	Yes	No
Critical revision of the article/paper	No	Yes	No	No	No
Editing of the article/paper	No	No	Yes	No	No
Supervision	No	No	No	Yes	No
Project Administration	Yes	Yes	No	No	No
Funding Acquisition	No	No	No	No	No
Overall Contribution Proportion (%)	20	20	20	20	20

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Research involving human bodies or organs or tissues (Helsinki Declaration)
The author(s) solemnly declare(s) that this research has not involved any human subject (body or organs) for experimentation. It was not clinical research. The contexts of human population/participation were only indirectly covered through literature review. Therefore, an Ethical Clearance (from a Committee or Authority) or ethical obligation of Helsinki Declaration does not apply in cases of this study or written work.

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