TOOLS FOR INCREASING THE COMPETITIVENESS OF AGRICULTURAL ENTERPRISES IN ALBANIA IN THE CONTEXT OF THE OPENING OF EU MARKETS

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Abstract

The purpose of this study was to substantiate the directions for increasing the efficiency of agricultural enterprises in Albania in the context of the opening of European Union markets by implementing modern economic, organizational and digital solutions. The study analyzed the volume of agricultural exports to the European Union countries, identified the main product groups, barriers to competitiveness, the role of state policy and international support, as well as the effectiveness of digitalization, financing and cooperation tools. The study found that the volume of agricultural exports to the European Union in 2024 reached about 570 million euros, which is 20% more than in 2022 (473 million euros), and the share of exports to the European Union was stable at 71.5%. Tomatoes, peppers, cabbage, onions, as well as medicinal plants had the greatest export potential, which is explained by favorable climatic conditions and logistical proximity. The Pre-Accession Assistance in Rural Development III program with a budget of EUR 146 million covers 600 projects, the average investment was EUR 109 thousand, of which EUR 31.4 million was directed to the material assets of farmers, EUR 30 million to processing, and EUR 21.3 million to entrepreneurship development. The introduction of a state credit program in 2025 with a volume of EUR 250 million allowed farmers to receive loans at 2-3.5% up to 25 million lek, with a 70% state

guarantee. The practical significance of the study lies in the formation of a holistic strategy for adapting Albanian agricultural enterprises to the requirements of the European Union market.

Keywords: Innovation; export; market; institutional support; certification; financing

INTRODUCTION

Agriculture is one of the major sectors of the Albanian economy, contributing significantly to employment and gross domestic product. In the process of opening access to European Union (EU) markets, agricultural enterprises are faced with the need to increase efficiency, comply with product quality and safety requirements in accordance with European standards, as well as strengthen their competitive positions. The development of new markets requires the introduction of production modernization tools, certification systems, expanding access to financing and strengthening institutional support from the state. In Albanian agriculture, there is a low level of innovation implementation, weak interaction between scientific institutions and producers, as well as ineffective institutional support. This issue has already been studied by R. Kolaj *et al.* (2024), who analyzed the role of the Knowledge and Innovation System (AKIS) and proved that the country's innovative capacity and the activity of universities determine the effectiveness of agricultural management. The authors highlighted the presence of such barriers as weak social capital, fragmentation of farms and insufficient knowledge exchange. Agricultural producers in Albania face difficulties in accessing financial resources, which hinders their investment activity and modernization. This issue was considered by E. Shahini (2024), who identified that the key barriers are strict bank lending conditions, high collateral requirements, unstable farmers' income and low financial awareness. The author also emphasized the lack of specialized financial instruments for agriculture and the weak level of interaction between farmers and financial institutions.

Albanian agricultural enterprises remain poorly integrated into modern market structures, especially regarding marketing, digitalization, and management. These aspects were examined by G. Uldedaj and G. Gjeloshi (2024), who emphasized the limited use of digital tools, weak institutional support in rural areas, and insufficient producer involvement in value chains. The study also revealed a mismatch between educational programs and real business needs, highlighting the necessity of a comprehensive agribusiness development policy. Low management efficiency, which restricts adaptability and growth, was analyzed by A. Demneri Kruja (2020), who underscored the role of strategic goal

setting, external environment analysis, and leadership. The research demonstrated that long-term planning and change management are vital for competitiveness. Albanian agriculture is characterized by a low level of resource efficiency, which negatively affects productivity and production stability. This was investigated by Z. Sinaj *et al.* (2023), who analyzed the level of labor productivity, cost structure and support mechanisms for rural producers. The work revealed that a significant part of farms does not have access to modern technology, does not use agricultural innovations and faces high production costs. The authors also pointed out the inconsistency between state policy and the real needs of producers, which hinders the implementation of resource-saving technologies. Albanian agricultural enterprises face challenges in the process of digital transformation, which limits their ability to compete effectively in the European market. This issue was analyzed by I. Tomorri et al. (2024), who assessed the state of implementation of digital tools in agriculture, focusing on the insufficient level of digital skills among farmers, weak infrastructure and limited access to information and communication technologies. The study determined that digitalization has the potential to increase the efficiency of accounting, logistics and marketing, but these opportunities remain under-realized due to the lack of a systematic policy in the field of digital education and innovation stimulation.

The lack of competitiveness of small-scale agricultural producers in Albania is due to the fragmentation of production, limited access to finance and weak participation in agri-food chains. This was analyzed by A. Martinovska Stojcheska *et al.* (2024), who proved the effectiveness of cooperation, logistics development and digital solutions to increase market integration and attract investment. D. Qorri *et al.* (2024) examined the impact of modern management models and digital technologies on the productivity of agricultural enterprises and pointed out the need for adaptive capacity and institutional support to implement such approaches. Despite the growing interest in European integration, Albania lacks comprehensive research on instruments, financial mechanisms and management approaches that can optimize costs, expand export potential and ensure sustainable development of small and medium-sized agricultural enterprises in accordance with EU standards. The objective of this study was to identify and justify effective approaches for enhancing the performance of agricultural enterprises by applying contemporary economic, managerial, and technological instruments. To achieve this goal, the following tasks were defined: to analyze the current challenges and opportunities for the agrarian business of Albania in the conditions of European integration processes; to identify the most effective competitiveness tools adapted to the requirements of European markets.

MATERIALS AND METHODS

The study was empirical in nature and covered the time period from 2022 to May 2025. In the process, the level of integration of the Albanian agricultural sector into European markets was determined by analyzing export indicators to EU countries for 2022 and 2024 based on the sources "Albanian agricultural exports to the EU…" (2023) and "Albanian Agricultural Exports Increase…" (2024). A nomenclature of the main commodity groups of agricultural exports was established using materials from P. Qosej (2023) and F. Blanco & L. Qorlazja (2024), which allowed classifying products by category and identifying key areas of expansion into EU markets. Barriers to the competitiveness of enterprises were also identified by generalizing findings on land fragmentation, limited access to financing, low cooperation, and institutional instability.

The study analyzed the role of state policy and international support in the adaptation of enterprises to EU standards. The functioning of the central coordinating body – the Ministry of Agriculture and Rural Development (Ministry of Agriculture and Rural…n.d.), the activities of the Pre-Accession Assistance in Rural Development (IPARD) II and IPARD III programs (The EU greenlights the start of the implementation…2018; Instrument for Pre-Accession Assistance…2022) were considered. As well as the distribution of funding and priority areas of support within IPARD III (Ministry of Agriculture and Rural…n.d.; Taylor-Braçe, 2022; Gjeçi, n.d.). In addition, technical support from the Food and Agriculture Organization of the United Nations (FAO) (Food and Agriculture Organization…n.d.), Center International de Hautes Etudes Agronomiques Méditerranéeennes (CIHEAM) Bari (Center International de Hautes…n.d.) and European policy within the new Common Agricultural Policy (CAP) 2023–2027 (Key policy objectives of the CAP…2023) were taken into account. To illustrate practical results, the cases of Albaponik (Albaponik, revolutionizing sustainable…2025) and Liles Agritourism (Story of change – Albania: investing in agritourism…2024) were analyzed, which demonstrate the adaptation potential of enterprises to EU standards.

Special attention was paid to digital tools, in particular the platforms Agroalbania.al (Agroalbania.al., n.d.), ABA (ABA online digital…n.d.) and e-Albania (e-Albania, n.d.), which were studied as means of integrating small farmers into a single information ecosystem, access to financing, consultations and certification. The parameters of preferential agricultural financing (Albania launches €250 million agricultural financing…2025; Government's 3 Billion Lek Sovereign Guarantee…2025) were also analyzed, including the volumes, conditions and access mechanisms. As part of the final stage of the study, a typology of enterprises was carried out according to the level of development and support needs, effective mechanisms for adapting to

European requirements were identified, and a strategic model for increasing competitiveness in EU markets was formed, taking into account financial, organizational and technological factors.

RESULTS

Current status of development of agricultural enterprises

in the context of European integration

A key development priority for Albania's agricultural sector in the context of EU market access is the effective integration into the European Economic Area. The significance of export orientation, product compliance with quality, safety, and certification criteria, as well as businesses' capacity to function efficiently in cross-border logistics networks, is growing in the context of growing adaption to EU standards. The degree of Albania's agricultural sector's integration into European markets shows steady and gradual development in recent years, which is a result of both the expansion of export volumes and the fortification of the institutional and infrastructure foundation for accessing EU markets. During 2022–2024, there is a clear trend of growth in supplies of Albanian agricultural products to EU countries: from 473 million euros in 2022 to approximately 570 million euros in 2024 (Albanian agricultural exports to the EU…2023; Albanian Agricultural Exports Increase…2024). The share of agricultural exports directed to European markets has remained stable for a long period and amounted to about 71.5%. This indicates the high dependence of the Albanian agricultural sector on access to European consumers, which, in turn, creates the need to achieve appropriate standards of quality, product safety and logistical efficiency (Blanco & Qorlazja, 2024).

The main export efficiency is made up of fresh fruits and vegetables, in particular of thermal origin: tomatoes, cucumbers, peppers, cabbage, onions and leeks. In addition, a significant part of the export portfolio is made up of medicinal plants, as well as primary processing products. This composition of exports is due to both the natural and climatic conditions of Albania, which contribute to early harvest and high quality products, and the geographical proximity to major European markets, which provides logistical flexibility and reduced transportation costs (Qosej, 2023). The competitive cost of labor is also a significant factor that allows Albanian producers to obtain prices at levels attractive to European importers. The agricultural sector of Albania has about 359 thousand farms, a significant part of which are small, petty or fragmented (Blanco & Qorlazja, 2024). In this regard, integration into European markets often does not occur, but through intermediary structures, in particular export companies or cooperatives, which have stable ties with European partners. Despite the accurate statistics on the number of enterprises with direct export contracts, a significant total volume of exports to the EU indicates that a wide network of producers is involved in the supply

system. Thus, although most Albanian agricultural producers do not have formalized direct contracts with European distributors, they are indirectly integrated into European and value chains.

A significant factor in the integration process is support from the state and international donors. Efforts are aimed at developing infrastructure for exports, in particular the construction of collection points, cold storage facilities, and improving transport logistics. The participation of certification and compliance with EU standards in the field of sanitary and phytosanitary control is also important. These measures increase the ability of Albanian enterprises to meet the technical requirements of the European market, and also contribute to the growth of trust on the part of importers. The dynamics of exports confirms the effectiveness of the measures taken: at the beginning of 2025, an increase in export volumes of 26% compared to the same period last year was recorded. Such an increase is an indicator of not only a multivariate, but also a qualitative improvement of the agricultural export system. The expansion of the market is mainly due to the strengthening of accounting positions in their existing markets, especially in Italy, Greece, Germany and the Netherlands (Albanian fruit and vegetable exports…2025). Regional specialization plays a separate role. Also, the regions of Berat, Lushnje, Fier and Divjaka are distinguished by intensive agriculture, active investments in greenhouse production and the development of modern logistics. It is these territories that demonstrate the greatest activity in the formation of sustainable supply chains for European partners. Consolidation of production on the basis of cooperatives or partnership farms allows for large volumes of products that meet the requirements for Europeanness, safety, and volume (Albanian agricultural exports to the EU…2023).

The competitiveness of Albania's agricultural enterprises is constrained by a combination of structural, financial, institutional, and technological factors. One of the most critical issues is land fragmentation: the average farm size is about one hectare, often split into several non-contiguous plots, making mechanization difficult and hindering the use of modern technologies. Legal uncertainty over land ownership further complicates access to credit and investment (Topalli & Papavangjeli 2025). Another significant limitation is weak cooperation among producers. The absence of strong horizontal and vertical associations prevents smallholders from pooling resources, accessing investment, or improving market positioning. Without cooperatives, small farms struggle against large buyers and lack market insights. Knowledge gaps also hinder development. Farmers often lack information on EU standards related to quality, safety, traceability, and certification. With weak advisory services and limited access to training or technical assistance, the adoption of best practices remains low. Additionally, a shortage of accredited laboratories and certification bodies curbs export

readiness even among willing producers. Market instability compounds these problems. Enterprises lack long-term contracts and typically export raw materials with minimal value-added processing. Contract terms are unstable, and producers bear most of the risk, reducing profitability. Demographic challenges worsen the situation: rural depopulation, youth migration, and an aging farming population undermine labor availability and slow innovation. Climate change further threatens agricultural stability, with rising risks of droughts, floods, and inadequate irrigation systems (Osmani *et al.* 2022). Finally, public policy shortcomings exacerbate these challenges. Subsidies remain limited, and support mechanisms for digitalization and EU adaptation are fragmented or underdeveloped. Altogether, these interlinked factors weaken the competitiveness of Albanian agriculture and highlight the urgent need for a coordinated, systemic reform of the sector.

The adaptation of Albania's agricultural sector to European Union standards has become one of the key directions of national policy in the context of integration into the European market. The Albanian government, together with international organizations, is implementing a comprehensive strategy to modernize agriculture aimed at increasing competitiveness, aligning legislation with the EU acquis, promoting rural development, and ensuring sustainable growth. The central coordinating institution in this process is the Ministry of Agriculture and Rural Development (MARD) (Ministry of Agriculture and Rural…n.d.), which oversees legislative harmonization, management of funding programs, and policy development for small and medium-sized farms. One of the central elements in the modernization of Albania's agricultural sector is the application of the IPARD III Instrument (2021–2027), which is financed through a combined contribution of €146 million—€112 million from the European Union and €34 million from the Albanian state (Instrument for Pre-Accession Assistance…2022). The program is designed to facilitate investment in key areas such as the acquisition of agricultural equipment, the development of processing and marketing chains, promotion of organic production methods, rural infrastructure enhancement, agritourism, and the diversification of income-generating activities (Taylor-Braçe, 2022). IPARD III is expected to support approximately 600 projects, a notable increase compared to the previous IPARD II cycle (The EU greenlights the start of the implementation…2018). In the agro-processing domain alone, funding allocations are projected to reach €81 million. Furthermore, the average investment per project has slightly declined from €120,000 under IPARD II to €109,000 in the current cycle, reflecting a strategic emphasis on small and medium-sized farms (Gjeçi, n.d.). According to the IPARD III program structure, funding is distributed across several key areas of agricultural development, as shown in Table 1.

Table 1. Key Areas of Support and Funding Volumes within IPARD III (2021–2027)

Main Support Areas within IPARD III (2021–2027)	Funding Volume (€ million)
Investments in farmers' physical assets	31.4
Processing and marketing of agri-products	30
Business diversification and entrepreneurship development	21.3
Rural public infrastructure	12
Organic agriculture	2.1

Source: Compiled by author based on Ministry of Agriculture and Rural…n.d.;

Taylor-Braçe, 2022; Gjeçi, n.d.

In addition to financial assistance, international technical support plays a significant role. The FAO (Food and Agriculture Organization…n.d.) implements projects to develop policies for family farms, assist in harmonizing legislation related to product quality, organic farming, and agricultural registries. Another important institutional partner is CIHEAM Bari (Italy) (Center International de Hautes…n.d.), which, funded by the Italian Ministry of Foreign Affairs, supports Albania in EU accession negotiations in the areas of agriculture and fisheries, providing technical expertise and implementing pilot projects aligned with Common Agricultural Policy (CAP) 2023–2027 (Key policy objectives of the CAP…2023). These efforts contribute to strengthening administrative capacity for budget implementation, data collection (such as the Farm Accountancy Data Network (FADN)), food safety assurance, and upgrading laboratory infrastructure and inspection systems in line with veterinary, phytosanitary, and environmental standards. Legislative harmonization covers areas such as product quality, organic production, certification, pesticide control, veterinary certificates in accordance with EU Regulation 2020/2235 (EU Regulation 2020/2235, 2020), and environmental protection requirements aligned with the Green Deal. The results of these programs are positive: labor productivity in IPARD-supported projects increased to €10,986 per Annual Work Unit (AWU), compared to the sector average of €9,080 in 2019. The expected increase in gross value added from IPARD III investments is around €16.2 million (Gjeçi, n.d). A strong focus is also placed on the social dimension—job creation, especially for youth and women in rural areas. Examples of successful adaptation confirm the effectiveness of the chosen strategy. For instance, the hydroponic farm Albaponik, supported by the EU4Innovation program, demonstrates high water efficiency, process automation, and environmental sustainability (Albaponik, revolutionizing sustainable…2025). Another example includes the collective adoption of solar-powered irrigation systems among olive growers, supported by Resource and Environmental Center (REC) Albania (REC Albania, n.d.). The Liles Agritourism family enterprise, with assistance from Rural Association Support Programme (RASP) (RASP, n.d.), expanded greenhouse production and transitioned to

organic farming methods (Story of change - Albania: investing in agritourism…2024). All of these cases confirm that the combination of national policy and international support ensures the deep transformation of Albania's agricultural sector in line with EU standards.

Practices for increasing the efficiency and competitiveness
of agricultural business

The digital transformation of Albania's agricultural sector is gradually gaining momentum, shaping new approaches to farm management, increasing production efficiency, optimizing resource use and adapting to climate change. Although the overall level of digital adoption among Albanian farmers remains relatively low, there is a growing interest in smart solutions, supported by both state and international programs. The proliferation of tools such as satellite monitoring, sensor systems, automated irrigation, mobile farm management applications and cloud platforms provides the basis for the development of precision agriculture in certain sectors, including apple, vegetable and olive growing. Among the most common digital solutions used in Albanian agriculture, satellite platforms such as Farmonaut should be highlighted, which provide farmers with data on soil conditions, moisture levels, the presence of pests or diseases, and also predict yields using artificial intelligence algorithms. The use of drones with Red, Green, Blue (RGB), Light Detection and Ranging (LiDAR) cameras, multispectral and thermal imaging sensors is becoming increasingly widespread, allowing for monitoring of microclimate, soil water levels and targeted agronomic interventions. With the development of the Internet of Things (IoT), farms equipped with humidity, temperature and lighting sensors are appearing in Albanian agriculture, which transmit data in real time to mobile or web applications, which provides dynamic management of irrigation and plant nutrition.

At the Uka farm near Tirana, the use of digital technologies has already produced measurable results, including substantial reductions in water and input use, as well as enhancements in product quality (Spotlight Stories: Digitalizing Uka Farm…n.d.). A further advancement involves automated irrigation systems that utilize sensor and drone-generated data to tailor water delivery to plant-specific requirements, thereby improving resource efficiency. In parallel, the digitalization of administrative services is supported through platforms such as Agroalbania.al (Agroalbania.al., n.d.), ABA (ABA online digital…n.d.), and e-Albania (e-Albania, n.d.), which offer farmers streamlined access to agricultural information, subsidy programs, digital documentation, and advisory support. Simultaneously, mobile tools like Agro Finanza function to evaluate farms' financial performance and facilitate access to rural credit schemes (Albania – Digitizing Agricultural Client…2020).

Digital solutions are most intensively implemented in farms specializing in high-value crops, such as apples, vegetables, olives, or participating in pilot projects. For example, in the regions of Korçë, Dibra and Vlorë, groups of farmers using the Farmonaut platform have achieved significant results: in Korçë, yields increased by 20% and pesticide costs decreased by 30%; in Dibra, farmers saved up to 25% of their water; in Vlora, early disease detection in apple orchards reduced fungicide applications by 40%. These examples demonstrate the real benefits of a digital approach to production management (Revolutionizing Albanian Agriculture: Smart Precision…n.d.). Although individual cases demonstrate successful implementation, the widespread use of digital technologies in Albania's agricultural sector remains constrained by several factors, such as the predominance of small-scale farms, insufficient funding, limited digital literacy among farmers, and disparities in infrastructure development. To some extent, these challenges are being addressed through national and international support mechanisms, including the Digital Agriculture and Rural Transformation (DART) initiative (Digital Agriculture and Rural Transformation…n.d.), which will be implemented in 2024–2027 and aims to reach over 320,000 farms (Mobilizing Digital Innovation for Agriculture…2024).

The increase in productivity in Albania's agricultural sector is closely linked to three interrelated elements: the level of cooperation development, access to financial resources, and the effectiveness of management practices. The prevalence of small-scale production, high land fragmentation, and uneven access to resources limit the potential of individual farmers. At the same time, the combination of collective farming models, state and donor support, and the implementation of modern management practices enables certain enterprises to demonstrate significantly higher levels of efficiency, product quality, and market adaptability. Cooperation in Albania's agricultural sector includes production, marketing, credit, and cluster interaction. Although over 95% of the country's farms are small or semi-subsistence, participation in cooperatives remains low. The main barriers include small land plots, limited trust in joint management, lack of knowledge, and insufficient resources. However, efforts by the FAO and the Ministry of Agriculture to reform legislation, create training programs, and provide grants for collective projects are gradually stimulating cooperative growth. Programs requiring joint applications from at least three farmers encourage collaboration in processing, marketing, storage, and modernization (Boshnjaku, 2025).

Clusters, as a form of integration between farmers, science, and business, are gaining importance. For instance, AgriNet Albania implements projects on digitalization of farmer services and promotes improved product quality through shared technologies. In terms of access to resources, cooperation enables farmers to share the costs of equipment, such as solar-powered irrigation systems, shredders for olive pruning, seeds, and fertilizers. This

reduces financial burdens and supports sustainable modernization. In marketing, cooperation allows farmers to aggregate production for short supply chains, which raises selling prices and stabilizes incomes. Financing is another critical factor for productivity in Albania's agricultural sector. Traditionally, farmers have faced difficulties such as high interest rates (6–9%), lack of collateral, and poor financial literacy. However, the situation has improved since may 2025 with the launch of a large-scale government credit program worth €250 million (Albania launches €250 million agricultural financing…2025). This program provides preferential loans for agri-investments (greenhouses, processing, agritourism, innovation) with interest rates of 2–3.5% and state guarantees covering up to 70% of collateral value. Loans are available for terms of 3–5 years with a limit of 25 million Albanian Lek (ALL) (~€225,000) (Government's 3 Billion Lek Sovereign Guarantee…2025). This is evidenced by the key parameters of the preferential agricultural financing program in Albania in 2025, as summarized in Table 2.

Table 2. Key Parameters of Preferential Agricultural Financing in Albania (2025)

Parameter	Terms
Interest rate	2–3.5% (below market rate, state-supported)
Loan size	Up to 25 million ALL (~€225,000)
Loan term	3–5 years
Collateral	State guarantees up to 70% of asset value
Purpose	Greenhouses, fisheries, processing, agritourism, innovation

Source: Compiled by author based on Albania launches €250 million agricultural financing…2025; Government's 3 Billion Lek Sovereign Guarantee…2025.

In addition to loans, the "Mountain Package" ("The Mountain Package": A Golden Opportunity…2025) subsidy program offers tax incentives, certification cost compensation (e.g., GLOBAL GAP), and support for organic production, beekeeping, and greenhouses. More than 50,000 farmers benefit annually from state support, which complements credit initiatives (When will applications for the National Agricultural Support…2025). IPARD grants are allocated to support production upgrades and improvements in agricultural infrastructure. Nevertheless, financial constraints persist: smallholders often lack access to guarantees, land ownership rights are frequently absent, limiting collateral potential, and financial illiteracy slows the application process. Some regions also suffer from limited institutional capacity among banks and microfinance institutions to evaluate agricultural projects. A third factor determining agricultural enterprise productivity is the quality of management. Most small farms still follow traditional practices based on personal experience and intuition. Strategic planning, risk management, and

digital systems are mostly implemented at the cooperative or medium-sized enterprise level. Risk management elements are increasingly present in climate-smart projects, including agroforestry and water-saving systems.

The adoption of digital tools for accounting, soil monitoring, and resource management remains at the pilot level. EU programs and organizations like REC Albania conduct training, demonstration activities, and promote access to digital platforms. The education level of farm owners is a strong predictor of innovation adoption: young farmers with formal agricultural training tend to be more inclined toward implementing new technologies and engaging in sustainability-oriented initiatives. Efforts to improve management include advisory service reform, practical training, Non-Governmental Organization (NGO) support, and technical assistance projects. Participation in EU programs enhances capacity in financial planning, accounting, cost optimization, and digital integration. In summary, the productivity of agricultural enterprises in Albania is directly influenced by the level of cooperation, access to affordable financing, and the implementation of modern management practices. The support of collective models, state credit and guarantee instruments, and educational initiatives forms the foundation for transforming agriculture into a competitive, sustainable, and market-oriented sector (How Albania's farmers are embracing eco-friendly technology…2025).

Overall, the development of Albania's agriculture is undergoing profound transformations, with digitalization, financial support, and cooperation playing key roles in enhancing the operational efficiency and long-term viability of agricultural enterprises. Success stories of innovation, farmer engagement, and access to credit demonstrate the gradual strengthening of the agricultural sector. However, there is a need to further develop advisory services, adapt management models to modern challenges, and address structural barriers that limit the effective participation of smallholders in market processes. A comprehensive approach to reforms, focusing on the integration of institutional, technological, and financial support, provides the foundation for sustainable development of Albania's agriculture in the medium term.

Policy tools and organizational models for boosting competitiveness
in the context of EU accession

With the entry into European markets, Albanian agricultural enterprises are faced with an urgent need to increase their competitiveness by adapting to EU standards. In contrast to individual digitalization or financing initiatives, the main emphasis here is on developing a systemic vision and applying practical tools that allow them to integrate into complex supply chains, meet cross-border regulatory requirements and effectively respond to market challenges. An effective response to these challenges is the implementation of certification

management models, the development of horizontal integration, strengthening trade branding of products and a focus on geographical indications, in particular through the support of quality schemes recognized by the EU.

For the majority of enterprises, a major challenge is the limited compliance with food safety standards, sanitary and phytosanitary regulations, product traceability protocols, and the proper preparation of technical documentation. These requirements are not only regulatory, but also strategic in nature: compliance with European standards opens up access to new partners, intervention purchasing programs, export subsidies and tenders. Accordingly, adaptation mechanisms include not only the introduction of standards (Global Good Agricultural Practices (GLOBAL GAP), Hazard Analysis and Critical Control Points (HACCP) (HACCP Certification in Albania, n.d.), International Organization for Standardization (ISO) 22000) (ISO 22000 – Food Safety, n.d.), but also accompanying measures for staff training, adaptation of IT infrastructure and participation in professional associations. With the support of European partners, sectoral roadmaps are being carried out for key areas (dairy farming, olive plantations, honey, vegetables), within which technical templates for subsequent certification have been developed.

Differentiation of support policies is also of great importance, given the heterogeneity of the agricultural environment in Albania. Instruments such as credit guarantees, vouchers for advisory services, technical support programs should be distributed according to the level of maturity of the enterprise. Based on the analysis of current programs and institutional experience, the following typology of enterprises is proposed (Table 3).

Table 3. Typology of Albanian Agricultural Enterprises by Readiness for EU Market Integration

Category of Enterprises	Key Characteristics	Targeted Support Instruments
I – Export-Oriented Farmers	Experience in accessing international markets, preliminary certification, participation in grant projects	IPARD grants, certification support (GLOBAL GAP, ISO), logistics and marketing consulting
II – Farmers with High Growth Potential	Transitioning beyond subsistence farming, interest in cooperation, initial investments in modernization	Preferential loans, educational vouchers, equipment modernization subsidies, cluster development
III – Micro-Farms in the Activation Phase	Subsistence production, low level of market interaction, lack of professional knowledge	Knowledge exchange programs, demonstration platforms, subsidies for basic infrastructure

Source: Compiled by author based on Government incentivizes farmers through the…2022;

Characteristics of farming systems…2015; Food and Agriculture Organization of the United…2023.

This classification allows to clearly establish the directions of state influence: support for exporters should be strategic and based on internationalization, and for small farmers – as practical as possible, with an emphasis on knowledge, pooling of resources and initial institutional integration. It is for the second group that it is worth developing innovative forms of cooperation – contracts with marketing cooperatives, pilot clusters, agro-incubators, etc. While for the first group, the priority is inclusion in supply chains (supply chain integration), the formation of export partnerships, the creation of brands with geographical indications. The formed strategy for entering European markets should also include support for the transformation of product positioning. Albania has high potential in niche ecological goods, regional delicacies, medicinal and aromatic plants, products with a high content of organic elements. Attracting support from EU quality schemes (PDO – protected origin, PGI - geographical indication, TSG – traditional specialty guaranteed) creates the prerequisites for bringing these products to a new level. Products from the regions of Korçë, Vlorë, Shkodra already demonstrate readiness for labeling and require only administrative support in the formation of applications, development of business plans and marketing strategies (Food and Agriculture Organization of the United…2023).

A separate focus in the strategy should be given to the institutional capacity of supporting structures – chambers of commerce and industry, agricultural clusters, advisory services. It is these organizations that form the environment in which a farmer can receive not only technical, but also mentoring, marketing, and legal assistance. It is also important to introduce a system of cross-training for farmers who already have successful export experience and those who are just starting the transition to EU standards. An innovative element could be the implementation of "export agricultural producer schools" – intensive training programs on adaptation to the European market, with a focus on document management, certification, logistics and positioning. Thus, increasing the competitiveness of the Albanian agricultural sector in the context of the opening of EU markets should rely on a multi-level system of instruments – from targeted support for small producers to a comprehensive strategy for the integration of export-oriented companies. The application of certification schemes, geographical labeling, cluster-based organization, cooperative models, and branding strategies serves as a foundation for improving the long-term market positioning of Albanian agricultural enterprises within the competitive environment of the European Union.

DISCUSSION

Modern research in the field of agricultural development is increasingly focusing on studying the role of digitalization, innovation, and public policy as key factors in increasing the efficiency of agriculture. The focus is on the integration of small producers into the market, the expansion of digital systems and connectivity, and the institutional support for transformation processes in the agricultural sector. This study coincided with the study by E. Abad-Segura *et al.* (2024) in recognizing the key role of technological innovation for the competitiveness and sustainability of agriculture. Both studies emphasized the importance of digitalization (drones, sensors, platforms), support from the state and international programs, as well as the integration of small producers into markets through cooperation. By contrast, the study conducted by Abad-Segura *et al.* adopted an analytical approach, concentrating on the correlation between innovation implementation and the level of corporate social responsibility across Spanish regions. A composite CSR index was formed, regression and cluster analysis were performed. No less revealing is the comparison with the study by I. Kravčáková Vozárová and R. Kotulič (2025), which shows a similar focus on the modernization of agriculture with state participation. Both studies recognized the importance of supporting small producers, access to financing and digital solutions. However, in the work of the Slovak authors, the emphasis was shifted to a broader socio-economic dimension – in particular, demographic challenges, employment in rural areas and sustainable development. Meanwhile, this study was more applied, with a clear focus on adapting the agricultural sector to the requirements of the open European market.

Comparable findings are presented in Chinese studies, including the work of K. Wu et al. (2022), which analyzed the influence of innovation and Information and Communication Technologies (ICT) on farm productivity. As in the Albanian case, the authors confirmed the effectiveness of solutions such as IoT, Global Positioning System (GPS) and digital databases. At the same time, the Chinese study used statistical modeling taking into account age, education level and farm size, which gave the analysis a clearly expressed quantitative dimension. In this case, instead, the emphasis was on practical initiatives, such as the implementation of Agroalbania.al, certification systems and educational tools for farmers. The study by L. Zhou and G. Tong (2022) focused on ensuring China's food security through technological innovation and agricultural policy. Both studies converged in acknowledging the significance of state involvement, technological innovation, and the pursuit of sustainability in agriculture. At the same time, the Chinese study had a macro-political focus and focused on the domestic market, while this study focused on access to external markets and applied mechanisms to support small businesses.

Another important point of intersection is the study by H. Tang *et al.* (2024), which examined digitalization as a means of optimizing agri-food chains in China. Here, the authors focused on the efficiency of platforms and logistical data, in particular in the interaction between producers, suppliers and markets. In this study, digital solutions also played a leading role, but their application was associated with the process of European integration, standardization and institutional strengthening. Thus, the similarity was manifested in the importance of state participation and digital transparency, but the difference was in the scale: in China – the system level, in Albania – support for small-scale farming. In turn, the study by Y. Yuan *et al.* (2025) complements the previous observation: digital technologies and inclusive policies can significantly improve the efficiency of agri-food chains. Particular attention was paid here to small-scale producers, their integration into the market and increased access to knowledge. This echoes the Albanian case, which also focused on developing service infrastructure, training farmers, and connecting them to digital tools. Both works recognized the role of public policy as a driver of change in agriculture. Y. Lu and Y. Chen (2021) analyzed how e-commerce and digital platforms influence the formation and growth of agricultural brands in China, with particular attention to direct online sales, logistics systems, and digital marketing strategies. The study focused on institutional and investment mechanisms to enhance the competitiveness of the Albanian agricultural sector in the context of the opening of the EU market. A common feature of both studies is the emphasis on digital technologies as a growth driver: both the Chinese and Albanian studies recognized the importance of online platforms, digital services, and technological innovations in improving the market efficiency of farms.

The issue of digital transformation of agriculture has gained particular relevance in the work of X. Li and M. Zhang (2024), where the authors analyzed the influence of digital infrastructure on the productivity of the agricultural sector in China. Their study was based on the effects of regional development, while this work focused on mechanisms for strengthening the market position of the agricultural industry in Albania in the context of European integration. Despite the difference in contexts, both works unanimously emphasize the importance of digitalization and state support as drivers of agricultural growth. The difference lies primarily in the direction: the infrastructure effect in China is contrasted with adaptation strategies to external standards in Albania. The relevance of climate challenges was clearly manifested in the study of F. Sgroi (2022), where innovation and diversification were considered as means contributing to the improved climate resilience of agricultural systems. In comparison, this work focuses on digital and institutional mechanisms for adapting to EU requirements. Despite different thematic emphases – ecological sustainability in Sgroi and market adaptation in the

Albanian case – both approaches converge in recognizing the role of innovation and state intervention.

The advancement of agribusiness via digital transformation processes has been the subject of attention of Italian researchers M. Remondino and A. Zanin (2022), who emphasized the role of big data, automation, and artificial intelligence. This work, in turn, demonstrates a similar commitment to digital tools, but in the context of supporting small farms and aligning the management system with European requirements. Common to both approaches is the idea that digitalization is a catalyst for profound transformations in the agricultural sector. Compared to the globally oriented study of A. Gamage et al. (2024), this work has a more local character, but both recognize digitalization as a determining factor in the development of farming. In addition, the role of institutions is another unifying motif. At the same time, Gamagé discussed open data in a global context, while the Albanian study demonstrates the adaptation of digital solutions to specific EU regulatory requirements.

The work of S. Abilda *et al.* (2024), in which researchers confirm the positive impact of agricultural innovations on the efficiency and sustainability of production. What is common with this study is the emphasis on supporting small farmers and the need to adapt technologies to the specifics of the regions. However, Abilda focused on field experiments and economic profitability, while our work focused on policy instruments and institutional support for reforms. Comparing this study with the analysis of M. Yuan *et al.* (2024), it is worth noting the similarity in recognizing the need for adaptive strategies in the face of external crises. Both works emphasize the importance of digital tools, innovations in logistics, and support for management decisions in times of instability. Meanwhile, Yuan investigated smart supply chains in China, while this study focused on the adaptation strategies of enterprises in Kazakhstan during the COVID crisis. Accordingly, the main difference lies in the focus: systemic logistics innovations are contrasted with tactical management measures.

Both studies, this one and the work of P. Plummer *et al.* (2024), focus on the resilience of agri-food systems to climate challenges, but the emphases differ. Plummer analyses regional planning, while here the focus is on business models and logistics. A similar resonance is observed with the study of K. Karner *et al.* (2024), which focuses on innovative management of rural regions. While Karner used qualitative approaches, the this study utilized quantitative methods to assess the effectiveness of implemented technologies.. The work of E. Quendler *et al.* (2024) also emphasizes the combination of technological innovation and institutional planning, which echoes this study, but in different national contexts: in Austria – through interdisciplinary approaches, in Albania – through supporting competitiveness within the framework of EU integration. The theme of market integration connects this work with the study

of W. Ma *et al.* (2024), although Ma focused on farmer welfare and marketing channels, while the emphasis here is on applied mechanisms for adapting to EU norms. Similarly, agritourism in the study of D. H. Sean Keefe *et al.* (2024) is also considered as a tool for rural development in this work, but the functional approaches differ: social concern versus economic efficiency. Digital technologies, recognized as a critical factor in the sustainability of the agricultural sector, became a common theme with the study of G. M. Ningsih *et al.* (2024), although the latter considered infrastructure challenges in Indonesia, namely institutional support and certification in the context of the EU market.

A related thematic orientation is evident in the work of A. I. Suroso et al. (2023), which concentrates on improving the market competitiveness of agricultural products by applying certification and standardization practices. Both studies recognize the critical role of these processes in expanding markets and improving quality. However, while the authors focus on farmer motivation, social barriers and local context, this work approaches the issue from a macroeconomic and institutional perspective, linking standards to EU integration processes. In the study by P. Lasaksi (2024), digitalization is also presented as a leading factor in increasing the competitiveness of the agricultural sector. Both works emphasize the importance of online platforms and overcoming the digital divide. However, in Lasaksi, the analysis is limited to the regional level of Southeast Asia, with an emphasis on inclusiveness and the development of digital infrastructure in rural areas. While in the Albanian case, state instruments and European integration prospects play a major role.

Digitalization, innovation and institutional support are critical elements for enhancing the agricultural sector's competitiveness and adaptive capacity amid external market integration. Ensuring access of small producers to technologies, financing, certification and educational resources contributes to their effective inclusion in modern agri-food chains. A systematic combination of state policy, digital solutions and market mechanisms creates the basis for sustainable development of agriculture.

CONCLUSIONS

The analysis revealed that Albania's agricultural enterprises are in a phase of profound transformation, driven by the desire to integrate into the European Union markets. The volume of agricultural exports to the EU countries in 2024 reached approximately 570 million euros, which shows an increase of 20% compared to 2022 (473 million euros), and the total share of exports to the EU is stable at 71.5%. At the same time, the competitiveness of the Albanian agricultural sector is limited by a number of systemic problems: the average farm size is only about 1 ha, which makes mechanization difficult; most farms remain fragmented, and the lack of

legal clarity regarding land ownership makes it difficult to attract investment. Financial constraints also significantly hinder modernization: by 2025, high interest rates (6–9%) and the lack of collateral were the main barriers. The situation has been partially changed by a government lending program worth 250 million euros, which allowed agricultural producers to obtain loans at 2-3.5% for up to 25 million Albanian lek (approximately 225 thousand euros), with state guarantees of up to 70% of the collateral value. At the same time, support for modernization is provided by the IPARD III program with a budget of 146 million euros, covering 600 projects, with an average investment of 109 thousand euros, of which 31.4 million are directed to the physical assets of farmers, 30 million to product processing, and 21.3 million to entrepreneurship development.

The implementation of digital solutions, although mostly pilot in nature, has already had a tangible effect: in the Korçë region, yields increased by 20%, and pesticide costs decreased by 30%; in Dibra, water savings reached 25%, and in Vlorë, the reduction in fungicide treatments was 40%. These outcomes were achieved through the application of satellite platforms, sensors, drones and mobile applications. Success stories such as the Albaponik farm, which introduced hydroponics and process automation, demonstrate the effectiveness of combining digitalization and sustainable development. The development of cooperation also has a positive impact on productivity: although more than 95% of farms are small, state policy stimulates the creation of clusters, the sharing of equipment and access to short supply chains. As part of the "Mountain Package" program, more than 50 thousand farmers annually receive compensation for certification (including GLOBAL GAP, HACCP, ISO), tax benefits and support for organic production. To conclude, enhancing the competitiveness of agricultural enterprises in Albania amid EU market integration necessitates a comprehensive, multi-tiered strategy encompassing access to finance, digitalization, certification systems, the promotion of cooperative models, and strengthened institutional frameworks. Prospects for future research include expanding the empirical base by including quantitative assessments of the effectiveness of specific support instruments by enterprise type and region. Future research should build upon the empirical foundations of this study by conducting a broader quantitative assessment of how financial, organizational, and digital support instruments affect agricultural competitiveness across different regions and enterprise types in Albania. Comparative analyses between IPARD-supported and non-supported farms could provide valuable insights into the real effectiveness of state and EU interventions in enhancing productivity, sustainability, and market integration.Additionally, future studies could explore the long-term socio-economic impacts of digital transformation in agriculture, particularly its role in reducing rural-urban disparities, empowering youth and women, and fostering environmentally sustainable practices. The

inclusion of longitudinal data would allow for measuring the persistence of benefits derived from digitalization and cooperative models over time.Further investigation is also needed into the institutional dimensions of competitiveness—especially the interaction between farmers, advisory services, research institutions, and financial organizations. Mixed-method approaches combining quantitative surveys and qualitative case studies could identify which institutional frameworks most effectively support innovation and EU market compliance.Lastly, cross-country comparative research with other Western Balkan nations could help identify best practices in policy design and regional cooperation mechanisms, offering a broader perspective on how Albania's agricultural sector can consolidate its position within the evolving European agri-food landscape.

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