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STRATEGIC LABELLING OF GEOGRAPHICAL INDICATIONS OF ALGERIAN TERROIR PRODUCTS: CHALLENGES AND OPPORTUNITIES

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Purpose. This study examines the strategic approach for assigning geographical origin labels to terroir agricultural product in Algeria within a defined purpose. It seeks to examine the related opportunities and challenges for setting up such a system. This study attempts to devise a workable solution by analysing global best practices and local realities to answer how Algeria can effectively use geographical labelling to enhance the market competitiveness and economic value of its terroir products at the local and international levels.
Results. The study's findings highlight the vast opportunities available to Algeria to develop a geographical labelling system for its terroir agricultural products as a result of the country's agrobiodiversity as well as its traditional agricultural systems. On the other hand, other factors such as weak regulations, poor institutional coordination, and low producer awareness are identified as numerous obstacles to adaptation. It is concluded that a broader approach is needed to create such a system; establishing appropriate legal frameworks, strengthening stakeholder engagement, providing market and financial support to producers, and strengthening robust promotion and certification systems. The impact of geographical indication (GI) will further enhance international consumer awareness of Algeria's terroir products.
Scientific novelty. This study contributes the scholarly discourse by analysing and examining the terroir marketing geography of Algeria. It assesses the feasibility and possible consequences more broadly than is traditionally done in the geography law by integrating cultures, legally codified economics, and heritage systems. The research also compares the approaches from other advanced countries to determine the most critical institutional, economic, and logistical barriers defined for Algeria. In addition, the study highlights importance of the institutional setting of the area, interaction of producers and transfer of information in the value captured and market acceptance of such branding.
Practical value. This study provides actionable insights for policymakers, agricultural authorities, producers, and key stakeholders in Algeria's agricultural sector. By outlining strategic priorities, it contributes to the formulation of policies that promote the implementation of geographical indication, fostering product distinction, enhancing export opportunities, and stimulating rural economic growth. Moreover, it provides practical guidance for policymakers and stakeholders to

develop regulatory and marketing strategies that enhance consumer trust, ensure product authenticity, and strengthen the competitiveness of Algerian terroir products.

Key words: geographical indication, terroir products, labelling, agriculture, sustainable development, innovation, international trade, Algeria.

1. Introduction

With the growing global interest in authenticity and sustainability, Geographical Indications (GIs) have become an effective tool for distinguishing agricultural products associated with specific geographic regions, thereby promoting rural development and preserving cultural heritage. Through the WTO's TRIPS Agreement (1995), GIs provide legal protection for products with unique characteristics linked to their geographical origin, enhancing their market value due to brand exclusivity. European countries, such as France and Italy, have successfully leveraged this mechanism to dominate premium markets, as seen with "Gruyère", "Bulgarsko byalo salamureno sirene" and "Parmigiano Reggiano". In contrast, developing economies, particularly in North Africa, face structural challenges that hinder the full realisation of this system's potential. Algeria stands as a compelling case for study due to its rich agricultural diversity and distinguished products such as "Kabylie olive oil", "Biskra dates", and "Saharan saffron". However, these products remain underutilised in global trade due to gaps in regulatory frameworks, weak institutional coordination, and limited market integration.

Given its vast and diverse geographical landscape, Algeria possesses significant potential for leveraging geographical indications (GIs) to strengthen its agricultural sector. The country's rich variety of terroir-based products, shaped by unique agro-climatic conditions, remains largely underexploited in international markets. Recognising the added value of GIs, many nations have successfully implemented regional branding strategies to guarantee product authenticity, foster consumer trust, and enhance market competitiveness. For Algeria, establishing a well-structured GI system could serve as a strategic tool to integrate local products into global trade, develop agricultural value chains, and support broader economic diversification efforts.

Despite its substantial agricultural potential, Algeria faces significant structural and operational challenges in implementing geographical indications (GIs) effectively. Unlike European countries that have successfully leveraged GIs to enhance product differentiation and market positioning, Algeria's regional agricultural products remain largely underutilised. Key obstacles include fragmented legislative frameworks, limited consumer awareness of product authenticity and added value, inadequate certification infrastructure, and weak institutional coordination among stakeholders.

Given these constraints, a critical question arises: How can an effective strategic framework be developed for labelling terroir agricultural products with geographical origin in Algeria, ensuring the integration of legal, institutional, and marketing aspects to enhance their competitiveness in international markets? Addressing this question requires a comprehensive analysis of the potential and challenges associated with implementing GIs in Algeria, as well as exploring strategic solutions to optimise their economic and social impact.

2. Review of literature

Drawing on a broad range of research, this article synthesises key insights from studies by Farina Briamonte et al. (2021) and Pilone et al. (2018), which reveal diverse strategies for harnessing geographical indications to fortify the competitive positioning of terroir agricultural products. Farina Briamonte et al. (2021) demonstrate that robust SME networks and strong institutional collaboration are crucial for overcoming logistical and regulatory challenges, thereby strengthening product legitimacy through collective governance. In contrast Pilone et al. (2018) emphasise the importance of targeted consumer education in building trust in GI certifications, which serves as a critical competitive asset. Unlike these studies – which primarily focus on the Italian context – this research proposes a strategic framework tailored to Algerian terroir agricultural products, addressing local challenges such as fragmented branding and underdeveloped marketing infrastructure while balancing global standards with cultural specificity.

In the context of leveraging geographical identity to enhance the value of traditional products, the study conducted by Chermat & Kheloufi (2024) offers a strategic model that highlights the ability of these products to boost consumer trust and achieve economic recovery under challenging conditions, demonstrating their resilience in turning crises into opportunities to capitalise on local advantages. The relationship with our study suggests that the Italian experience provides a practical model illustrating how terroir products can be utilised to confront crises and strengthen economic confidence, serving as an inspiration for developing comprehensive marketing strategies tailored to local challenges. In other words, the two studies reveal different facets of leveraging geographical identity – one focusing on crisis response and the other on enhancing market value through well-considered marketing and organisational strategies.

In the Turkish study of Eğe (2019), advanced quantitative methodologies and geographical indication registration were employed to assess the performance of agricultural exports, as exemplified by the analysis of the Aydin fig. The research demonstrated the critical role of GI registration in protecting local products from imitation and enhancing their cultural identity by disentangling internal factors, such as production quality, from external influences like global demand shifts. These findings align with insights from previous studies, such as Belletti et al. (2017), which emphasise the link between legal protection and market adaptation, thereby advocating for an integrated strategic framework. This approach provides a robust academic basis that can be applied in Algeria to develop a targeted GI policy for products such as Deglet Nour dates, ultimately enhancing market differentiation and adding value to terroir-based products.

The aforementioned previous studies – such as the analysis of the valuation of

Algerian terroir products (Ghizlane et al., 2024) and the impact of quality systems on enhancing them (Younsi & Benmebarek, 2022) provide a foundation for understanding the economic and institutional potentials associated with geographical indications in the Algerian context. Moreover, the study on e-marketing of Moroccan terroir products (Sadki & Mekkaoui, 2021) offers insights into tools for enhancing access to global markets, a critical area that intersects with the need for innovative marketing strategies in the current research. However, these studies remain fragmented, as each focuses on a separate aspect (valuation, quality, or marketing) without presenting an integrated strategic framework that links legal protection, production efficiency, and adaptation to global market demands. The distinctiveness of the current research lies in bridging this gap by designing an institutional-strategic model that integrates the analysis of potentials (such as terroir authenticity) with structural challenges (such as weak marketing infrastructure), based on a mixed quantitative-qualitative methodology to assess the viability of geographical indications in a unique Algerian context. While previous studies have relied on sectoral analyses or regional case studies, this research offers a comprehensive vision that accounts for the interplay between public policies, international competitiveness, and terroir identity, thereby enhancing its contribution to the literature on sustainable agricultural development.

Previous studies have addressed various aspects related to regional agricultural products in Algeria, yet each focused on a specific dimension without providing a comprehensive strategic framework for labelling these products based on geographical indications. For instance, Sahli (2009) examined the relationship between regional products and local development, highlighting that mountainous and foothill areas in Algeria are rich in high-quality products. However, the lack of organisation and institutional structuring has weakened the market dynamics of these products. Similarly, Hadjou & Cheriet (2013) explored the institutional and regional constraints hindering the labelling of products such as dates and wine, emphasising that successful labelling requires strong stakeholder engagement and legal protection. From a more localised perspective, lastly, Lamani (2014) studied the case of olive oil in Beni Maouche, underscoring the importance of institutional organisation and sustainability in ensuring the sector's competitiveness.

While these studies are valuable in highlighting the reality of regional products in Algeria, they do not provide a holistic vision that incorporates strategic dimensions for labelling at the national level. This is the gap our study aims to address. It seeks to develop an integrated strategic framework that considers institutional, regulatory, and economic challenges while drawing insights from successful international experiences. The goal is to ensure the integration of Algerian geographically indicated products into global value chains and enhance their contribution to sustainable development.

3. Methodology

This study employs a qualitative research methodology that integrates descriptive and analytical approaches with a multiple case study design to critically examine the economic, institutional, and regulatory conditions underpinning geographical indication labelling in Algeria.

Two international cases were selected as exemplars: "Mozzarella di Bufala" from Italy and "Aydininciri" from Turkey. Mozzarella di Bufala was chosen due to its geographical and climatic proximity, as well as its production processes that closely parallel those of Bouhaza cheese from Oum El Bouaghi, Algeria. In contrast, "Aydininciri" was selected for its longstanding tradition in implementing a labelling system and its congruence with the production conditions in Algeria, thereby offering valuable, practical insights.

Furthermore, the analysis encompassed two national cases – Beni Maouche figs and Bouhaza cheese – with field observations conducted in the Bejaïa and Oum El Bouaghi regions to elucidate production practices, organisational structures, and the challenges inherent in obtaining geographical indication certification.

4. Results and discussion

Geographical indications play a fundamental role in distinguishing regional products and linking them to their geographical source, thereby enhancing their market value and reputation. For example, Swiss "Gruyère" cheese, French "Camembert de Normandie" cheese, Italian mozzarella, Moroccan argan oil, Algerian "Deglet Nour" dates from Tolga, and Indian "Basmati" rice are all renowned for their strong association with their area of production. The international trade system has recognised the importance of these indications through the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). Article 22 of the TRIPS Agreement states that a geographical indication identifies a product by linking it to a specific area within a World Trade Organization member state, so that the product's quality, reputation, or other characteristics are essentially attributable to its geographical origin (WTO / TRIPS Agreement, n.d.). This definition aims to preserve cultural heritage, encourage fair competition, and enhance economic opportunities for local producers (WIPO, n.d.).

The chart illustrated in Figure 1 indicates a significant disparity in the number of agricultural products registered under the Protected Geographical Indication (GIP) system across different countries. France, Italy, and Spain lead with high numbers, reflecting robust legislative and institutional frameworks that support the documentation of geographically-originated products and strengthen their competitive positions in global markets. Conversely, other countries exhibit lower figures, suggesting legislative and regulatory challenges or limited awareness of the importance of such labelling.

4.1. Terroir products in Algeria. In the Algerian context, these indicators underscore the untapped potential for developing distinctive local products – such as olive oil and dates – within an integrated international marketing system (Faouzi et al., 2021). By drawing on the pioneering experiences of the leading countries highlighted in the chart, Algeria can formulate a comprehensive national strategy for

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geographical labelling aimed at enhancing the added value of agricultural products and boosting their economic competitiveness.

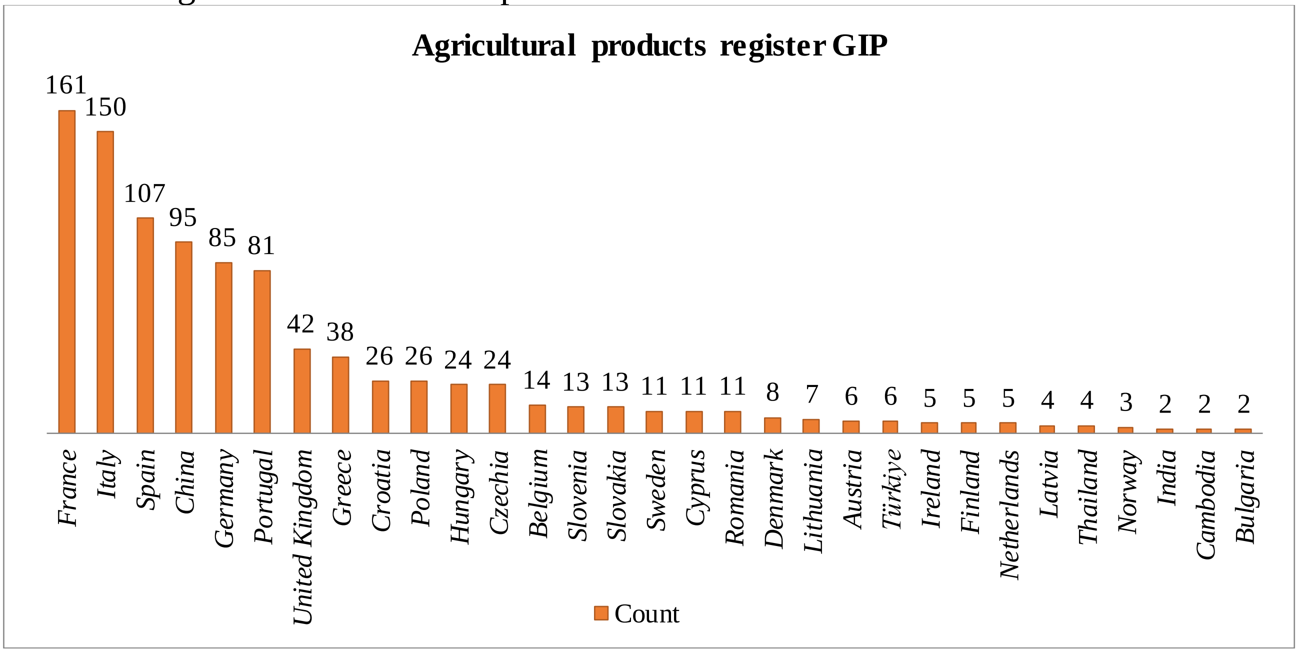

Figure 1. Number of geographical indicators by country

Source: prepared by the authors based on European Commission (n.d.).

Algeria has made significant progress in adopting a methodology for valuing regional products, resulting in the labelling of three products so far. This requires continued efforts to promote the remaining products, especially those with potential, such as "Idough" honey from Annaba or "Oulhaça onion" from Ain Temouchent, along with other locally distinctive products.

To recognise Algeria's potential in possessing numerous regional agricultural products, the map identifies them (Figure 2).

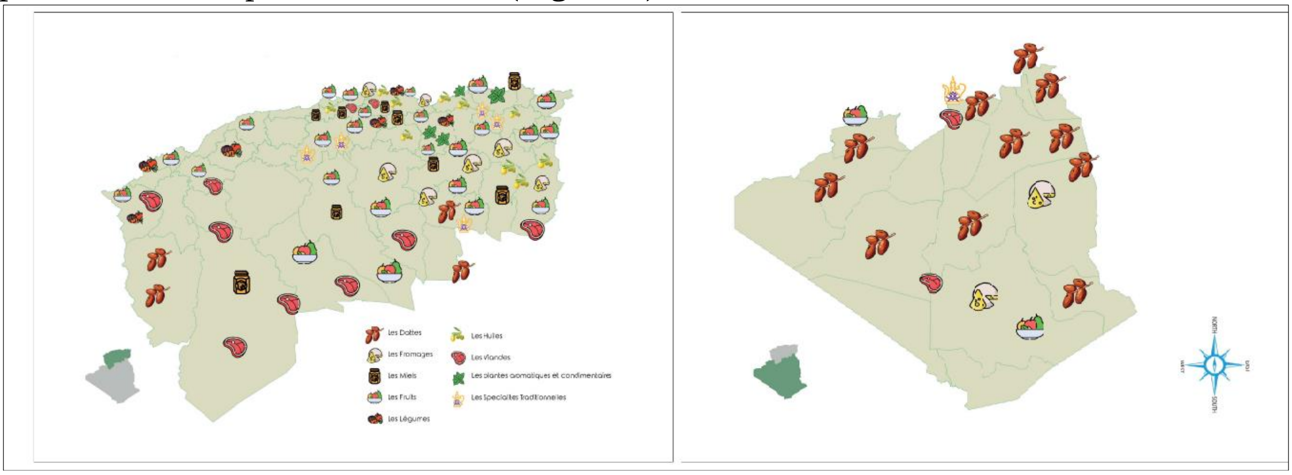

Figure 2. Terroir products identified with potential

Source: FAO (2024).

Terroir agricultural products in Algeria play a key role in sustainable rural development by enhancing economic growth, creating jobs, and reducing regional disparities. With its vast area of 2,381,741 km² and diverse climate, Algeria supports high-quality agricultural production. The country's policies focus on promoting these products through quality certification, boosting their competitiveness in both local and international markets while fostering rural stability and balanced economic development.

The national catalogue of local products includes 190 items classified into two sections. The first section contains identity cards for 98 products, providing information such as name, production areas, history, manufacturing methods, and uses (FAO, 2024). The second section presents an additional list of the recorded products. This project aims to document and classify local products based on their origin and characteristics while enhancing their economic value through specialised studies and the adoption of geographical indications (IG/AO). This contributes to facilitating certification and marketing procedures, highlighting the identity of these products, supporting their development, and playing a role in organising national competitions dedicated to local products.

***4.2. Potential markets for regional products*.** The identification of potential markets for regional agricultural products or those of agricultural origin was based on a set of criteria:

- Demand potential for terroir and organic products;
- Cultural and geographical proximity to Algeria;
- Accessibility to international markets in terms of logistics, administration, and trade.

Figure 3 shows terroir products potentially eligible for labelling.

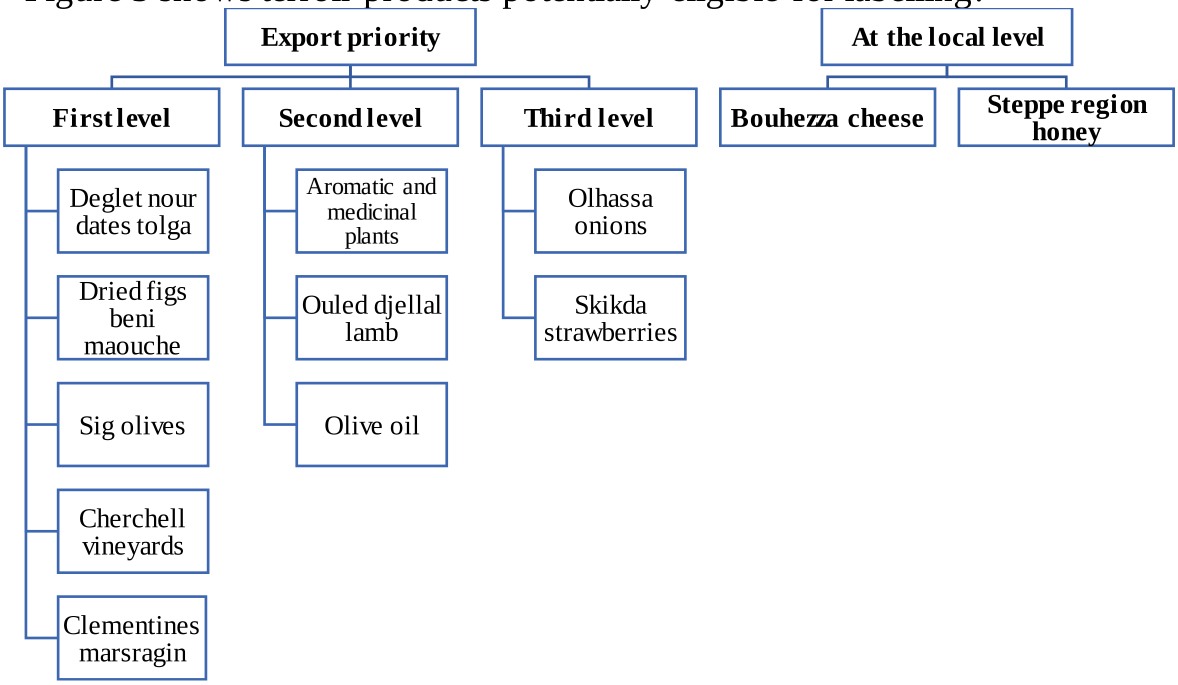

Figure 3. Terroir products potentially eligible for labelling

Source: prepared by the authors based on an interview with Mrs. Naima Bouras.

Through this analysis, several products with potential access to international markets have been identified, such as Deglet Nour Dates from Tolga, Dried Figs from Beni Maouche, and Sig Olives. These products hold significant export potential, particularly in regional markets where Algerian expatriates and migrants are present, such as France, Germany, and Canada, among others.

4.3. Implementation roadmap for geographical labelling of agricultural products. The Table 1 reflects a comprehensive strategic vision aimed at developing a geographical labelling system for agricultural terroir products, focusing on enhancing institutional recognition through independent certification bodies such as "Vinçotte International" and "Intertek Algeria". This approach emphasises quality improvement via auditing mechanisms supported by specialised laboratories (e.g., ITEM), ensuring transparency and credibility in certification processes. Such measures are designed to bolster local and international market trust in geographical indications (GIs), positioning Algerian products competitively in international trade.

The strategy prioritises the inclusion of diverse terroir-specific products, such as olive oil and dates, in a national catalogue to valorise local resources and strengthen rural value chains. By transforming territorial characteristics into competitive assets, the plan aims to boost export opportunities and attract agricultural investments. This integration of cultural identity with economic value underscores a balance between social heritage and developmental objectives, fostering sustainable rural growth.

A robust legal framework is central to the plan, with the Ministry of Agriculture collaborating with local and international entities to establish unified quality standards and regulatory mechanisms. Detailed timelines – such as launching the catalogue in August 2020 (but unfortunately, its release was delayed until February 2024) and periodic compliance audits ensure adherence to these standards. This structured oversight minimises regional disparities in product quality and enhances the consistency of catalogued items, aligning them with international market expectations.

The roadmap incorporates precise phased targets, including the adoption of five GI-labelled products by 2021 (however, the number remained unchanged, with only three terroir products), alongside adaptive monitoring mechanisms to address emerging challenges. Flexibility in implementation allows for dynamic adjustments, as noted in the table's observations, ensuring operational efficiency and mitigating deviations. This balance between rigid timelines and adaptive execution highlights the plan's responsiveness to practical constraints and evolving priorities.

Incentives such as streamlined certification procedures and a national database for premium products aim to empower producers. The strategy also emphasises collaboration among stakeholders – professional associations, research centers, and governmental bodies – to drive innovation and sustain the labelling ecosystem. By bridging traditional knowledge with scientific research, the plan seeks to enhance adaptability to international market demands, ensuring long-term viability for Algeria's geographically labelled agricultural sector.

The Algerian geographical indication (GI) labelling strategy relies on international partnerships and technical laboratories to enhance product quality. However, delays (e.g., the catalogue's 2024 launch) and unmet targets (3 products instead of 5) highlight bureaucratic and coordination challenges.

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Table 1

Implementation of the government plan 2020–2024, roadmap, planned actions

Actions	Objective	Impact	Volume	Deadline	Observation
Accreditation of certification bodies for quality signs	Externalise and professionalise the act of control and certification	Acceleration of control and certification processes, ensuring the sustainability of recognised quality labels	- 2 private potentials: Vinçotte International (VI, Algerie SPA) and Intertek Algeria Laboratories of the State Technical Institutes: - iITELV - ITAFV - ITCMI - ITDAS	First semester of 2021	Accreditation and certification bodies have established a rapprochement with ALGERAC
Development of the national catalogue of local products with the support of the FAO	Expand the range of products, identify and develop detailed sheets for potential products	Enhancement of the potential of terroir products	At least 60 products have been identified	Launch in August 2020 (duration: 1 year)	This catalogue will provide visibility on the products and the level of awareness among stakeholders. It will highlight the product's history, its terroir, and its cultural, social, and economic significance
Strengthening the regulatory framework governing organic agriculture	Establish the regulatory framework governing organic agriculture, including certification	Development of organic agriculture: environmental preservation, job creation, and health improvement	-	Second semester of 2021	-
Products to be labelled under Geographical Indications (GIAO)	Expand the recognition process to include a wider variety of products	Enhancement, exportation, and income improvement for knowledge holders	3 products 4 products 4 products 4 products	2021: 3 products (Oulhaça onion, SIG olive, Messerghine clementine); 2022: 4 products (Relizane purple artichoke, Achevali Ath Ghobri olive oil, Iddour honey from Annaba, Hamra breed sheep meat); 2023: 4 products (Bouira olive oil, Bejaïa olive oil Seddouk, Russicade strawberry from Skikda, Habra Thomson); 2024: 4 products (Ouled Djellal breed sheep meat, Cherchell Muscat, Roknia olive oil, Arris apple from Batna)	

Source: INVA (2020).

The approach prioritises linking cultural identity to market value while aligning flexible policies with global standards, yet urgent infrastructure improvements and streamlined implementation are critical to ensuring the plan's viability and sustaining its socio-economic impact.

4.4. Comparative Study of Bouhezza and Mozzarella di Bufala. A comparative

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https://is-journal.com

analysis between Bouhezza Cheese from Oum El Bouaghi and Mozzarella di Bufala will be conducted, focusing on their production similarities and exploring how the successful experience of Mozzarella di Bufala can be leveraged for development.

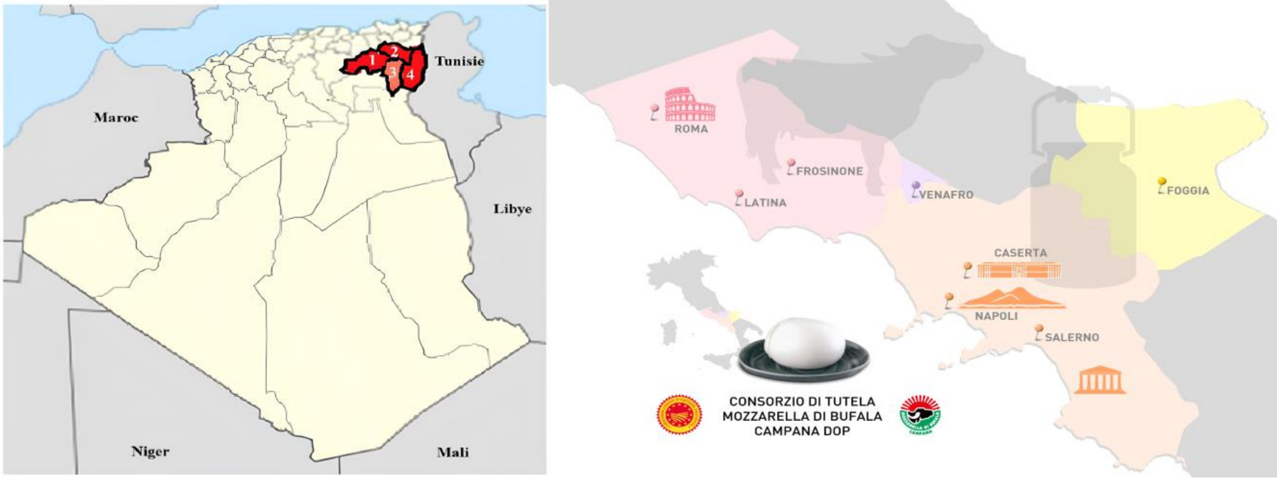

Figure 4. Map of production areas

Note. Batna (1), Oum El Bouaghi (2), Khenchela (3), and Tébessa (4).)

Source: prepared by the authors based on the website https://www.mozzarelladop.it/mappasoci and Aissaoui Zitoun-Hamama (2014).

Bouhezza cheese from Algeria differs from Italy's Mozzarella di Bufala in terms of geographical scope and legal recognition. Bouhezza cheese is produced exclusively in eastern Algeria, specifically in the provinces of Oum El Bouaghi, Batna, Khenchela, and Tebessa, within 37 main municipalities (Figure 4). However, it lacks legal protection or an official system that defines production standards (Aissaoui Zitoun-Hamama, 2022). In contrast, Mozzarella di Bufala is produced in several regions of Italy, including Campania, Lazio, Molise, and Apulia, and has been protected under the DOP (Denominazione di Origine Protetta) designation since 1996. This certification ensures its quality and grants it global recognition. This distinction impacts international marketing and export potential, as Mozzarella di Bufala enjoys widespread distribution in global markets, whereas Bouhezza cheese remains a locally consumed product with limited reach (Map of members, n.d.).

4.5. Historical development and cultural heritage of mozzarella di Bufala and Bouhezza cheese. Both Mozzarella di Bufala and Bouhezza Cheese are deeply rooted in the rich culinary heritage of their respective countries, reflecting a long history of production and cultural significance. The origins of Mozzarella di Bufala AOP are linked to the introduction of buffalo to Italy. Some believe that Norman kings brought these animals from Sicily – where they had been introduced by the Arabs – around the 11th century. Other studies suggest that buffalo might have been native to Italy, based on archaeological excavations in the countryside around Rome and genetic differences between Italian and Indian buffalo. However, the earliest recorded use of buffalo for Mozzarella di Bufala production dates back to the 17th century, with a significant increase in its consumption by the late 18th century, partly due to the Bourbon royal family establishing the first buffalo farm in San Tammaro, Caserta (Consorzio Di Tutela..., n.d.)

On the other hand, Bouhezza Cheese is closely tied to Algeria's cultural identity and history of resistance. In addition to being a product of ancestral knowledge passed down through generations in the Chaoui region, this cheese played a crucial role during the Algerian War of Independence. It served as a primary food source for the freedom fighters due to its unique ability to be preserved for up to four years with regular salting. Its ease of transport and lack of specific storage requirements made it an ideal food for fighters, who carried it with them, often hanging it on tree branches (Medjoudj et al., 2024).

Thus, both cheeses demonstrate a profound connection to their geographical and cultural origins, highlighting how local food production intertwines with historical events and societal transformations. This gives them a heritage value that extends beyond their role as mere consumable products.

The Imsenda Association for the Promotion and Protection of Bouhezza Cheese of Oum El Bouaghi plays a significant role in promoting this regional product through various activities aimed at raising awareness of its unique characteristics and strengthening its local presence. Additionally, the association seeks to explore export opportunities. Despite its limited resources, Bouhezza Cheese has managed to reach international markets twice since its recognition in 2020, with small quantities exported to Germany and Italy.

In contrast, the Consortium for the Protection of Mozzarella di Bufala Campana DOP (Consorzio di Tutela..., 2021) has adopted an expansive strategy to boost its exports post-COVID-19 (Chermat & Kheloufi, 2024). In October 2021, the consortium organised a series of international events, starting with its participation in Expo 2020 Dubai (Mozzarella Di Bufala..., 2020), followed by its presence at the Anuga Trade Fair in Cologne, Germany, the world's largest trade fair for food and beverages (Consorzio di Tutela..., 2021). This event attracts over 160,000 visitors and features more than 7,000 exhibitors from over 100 countries. The consortium leveraged these platforms to enhance the growing export trend of Mozzarella di Bufala, benefiting from a well-established global network.

This comparison highlights the stark contrast between the promotional approaches for the two products: while Bouhezza Cheese relies on local initiatives with a limited scope, Mozzarella di Bufala benefits from well-structured and internationally supported marketing strategies.

Mozzarella di Bufala Campana DOP is the most significant branded cheese in central and southern Italy and ranks third among Italian cheeses with Protected Designation of Origin (DOP) status. 40 % of its production is exported, primarily to France, Germany, Spain, and the United Kingdom, which together account for more than 60 % of total exports. In 2022, its sales volume reached 750 million euros, while certified production in 2023 amounted to 55.6 million kilograms (Table 2), maintaining stability compared to 2022, with nine out of ten Italians consuming it last year. This cheese is produced within a rich environmental context that includes three national parks and ten regional parks, reflecting a commitment to sustainable production. More than 1,300 farmers are involved in its production cycle, while the entire supply chain, including related activities, employs approximately 11,000 people, reinforcing its economic and social role as a pillar of Italy's agri-food sector (Buffalo Mozzarella…, n.d.).

Table 2

Economic data on Mozzarella di Bufala Campana DOP, 2023

Indicator	2022	2023	Change 2023/2022, %
Certified production, tons	55,815	55,588	-0.4%
Production value, million Euro	502	528	+5.1%
Consumption value, million Euro	893	889	-0.4%
Export value, million Euro	217	213	-2.1%

Source: prepared by the authors based on Qualivita (2024).

Despite its historical and traditional value, Bouhezza cheese remains relatively new compared to Mozzarella di Bufala Campana DOP, resulting in a lack of documentation and international recognition. This absence of available data, coupled with limited transparency in disclosing production, quality, and market-related information, makes it difficult to conduct an accurate comparison between the two cheeses. Given these challenges, it is crucial to build a strong brand identity for Bouhezza by developing clear marketing strategies, enhancing promotional efforts, and adhering to international standards in documenting production processes. Improving transparency, collecting precise data, and engaging in effective branding will help elevate Bouhezza's market position both locally and internationally, opening new opportunities in global markets and strengthening its competitiveness against other regional products.

The Consorzio di Tutela della Mozzarella di Bufala Campana consists of 84 producers actively engaged in the sector, along with 79 farmers and 9 brand users, reflecting a well-structured organisation that supports both production and marketing (Map of members, n.d.). In contrast, Imsenda Association comprises only a small group of founding members, along with some farmers who have inherited the traditional methods of preparing and producing Bouhezza cheese over generations. However, they lack sufficient expertise in brand management and development, posing a challenge to strengthening the market position of this product both locally and internationally.

4.6. Comparative analysis of Aydin Turkish dried figs and Beni Maouche dried figs. Turkey is one of the world's leading producers and exporters of dried figs. With a long history of fig cultivation, the country has perfected the art of fig drying over generations. While fig trees are grown in many countries, Turkey benefits from natural and human advantages that make it particularly well-suited for dried fig production. Its Mediterranean climate, characterised by hot, dry summers, provides ideal conditions for fig growth. Additionally, Turkey boasts a well-developed agricultural infrastructure and a skilled workforce, both of which contribute to the production of high-quality dried figs. Producing nearly half of the world's dried fig supply, Turkey ranks first in both production and export. The country's fig cultivation is primarily concentrated in large and small winding valleys, with Aydin and Izmir provinces being the main sources of dried figs for export (Figure 5).

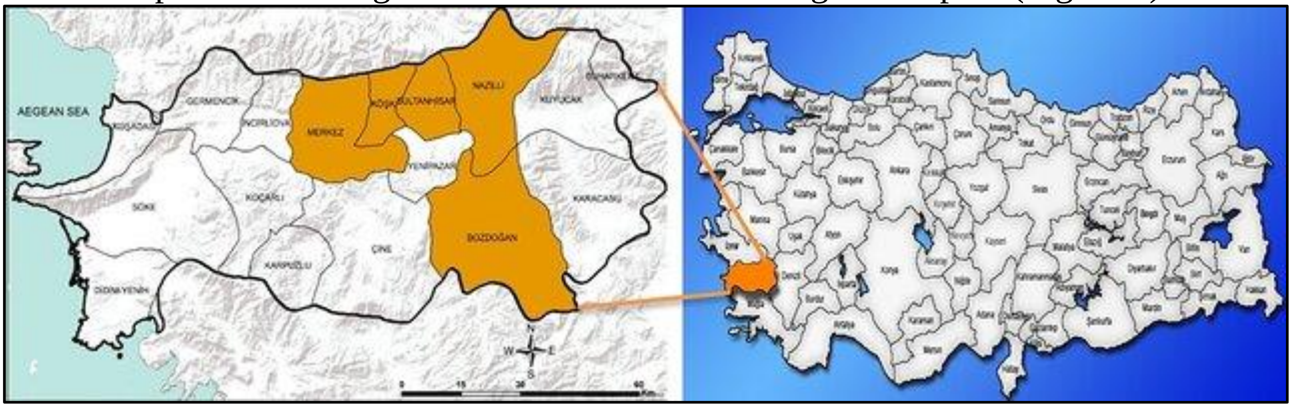

Figure 5. Geographical map of dried fig cultivation in Aydin Province

Source: Bozoglu (2020).

Aydin produces 65–70 thousand tons of dried figs annually, accounting for 85 % of Turkey's dried fig production and 60 % of the global supply (Table 3). "Aydin Figs" is also one of the eight Turkish products with an EU geographical indication. In 2022, exporting companies prepared 48,649 tons of dried figs for export, following inspections by the Provincial Directorate. The region hosts 170 fig enterprises and 166 fig warehouses (Turkey Meets..., 2023).

Turkish dried figs are a significant agricultural product in Turkey, primarily cultivated in the Aydin region in the western part of the country, the world's largest producer of dried figs. «Aydininciri» is distinguished by its unique flavour and natural sweetness, making it widely used in various culinary applications. The figs are harvested during the summer season and then dried post-harvest to maintain their quality and extend their shelf life.

Table 3

Turkey – dried fig market overview

Category	Details
Global market size	Expected to reach USD 599 million by the end of 2023 and USD 780 million by 2028
Turkey 's role in the market	Turkey is a key player in the global dried fig market, which is an important sector in its agricultural economy
World's leading producer	Turkey is the top global producer, contributing 27 % of global production and 53 % of dried fig production
main production region	Aegean region, especially Aydin city
2022 production	305 thousand metric tons of figs, of which 75 thousand tons were processed into dried figs
Fig varieties	The main variety is "Sanlop" (Smyrna fig), known for its large size and yellow-green skin
2022 EXPORTS	Turkey accounted for 63.3 % of global dried fig exports, with export revenues of USD 303 million in 2021 and USD 352 million in 2022 (+6.67 %)
Main import markets	European Union (Germany, France, United Kingdom), as well as North America, Asia, and the Middle East

Source: prepared by the authors based on Dried Fig Report (2023)

Turkey leads the global production and export of dried figs, supplying more than half of the world's output, with strong demand from European and American markets. Its leading position is reinforced by high quality and sustainable production, particularly in the Aydin region.

According toto the study by (Bozkıran Yılmaz & Armağan, 2024) which found that the sales prices and sales quantities of dried fig exporters per farm. Accordingly, the amount of dried figs sold by exporters directly to consumers in Turkey is 289.50 kg on average and the average sales price is 26.97 TL/kg. The average amount of dried figs sold abroad is 1,462 kg and the average selling price is 38.32 TL/kg. The disparity in prices and sales volumes reflects exporters' reliance on foreign markets, as exports generate higher revenues compared to the domestic market.

In general, the Turkish dried figs «Aydin inciri» outperform other varieties due to a combination of synergistic factors, such as superior quality, growing global demand, and the socioeconomic benefits linked to their production and export.

For its part, FAO reinforces the dried fig «Aydin inciri» industry in Turkey by which focuses on improving the quality of Turkish dried figs, their competitiveness, and their global export potential in the target markets, informed by an initiative spearheaded by FAO, entitled «Enhancing the Dried Fig Industry in Turkey». This project integrates training workshops to enhance farmers skill-acquisition, also focusing on advanced technological methods for fig production and processing, and promotes the adoption of contemporary agro-industrial practices. Moreover, the initiative prioritises enhancing the international competitiveness of Turkish dried fig in the global market by improving export logistics, aligning export frameworks with international standard, and implanting marketing strategies based on consumer-centric and cross-cultural marketing models (FAO, 2024).

Within the Turkish dried fid sector, the fig Exporters Association in Turkey (FEA) serves as a central coordinating body, driving the industry's international visibility and competitiveness. As a key institutional actor, the FEA also plays an active role in advocating for streamlined global exports of Aydin's special and premium figs. The FEA also ensures global consumers have continued access to high-quality Turkish figs, known for their distinctive flavour and adherence to strict production protocols.

The Turkish Dried Fig Producers Association (TKFIB) comprises over 10.000 actors in the dried fig supply chain, including producers, processors, and exporters. Established in 1979 and headquartered in Aydin, TKFIB is a non-governmental organisation dedicated to supporting and advancing the dried fig industry in Turkey. Its core mission is to enhance the production and export of high-quality dried figs by improving competitiveness through training programs, market development, and consumer outreach worldwide.

Similarly, the Turkish Dried Fig Exporters Association (TDEFA), founded in 1993 and also based in Aydin, serves as a key advocate for Turkish dried fig exporters. With a membership exceeding 100 major exporters, TDEFA plays a crucial role in maintaining quality standards, expanding market reach, and ensuring sustainable practices in the sector. The association actively organises trade fairs, conferences, and workshops to strengthen Turkey's position as a global leader in dried fig exports. Furthermore, it collaborates with governmental bodies to enhance export strategies and improve the livelihoods of farmers and industry workers.

By fostering innovation, sustainability, and market expansion, both TKFIB and TDEFA contribute significantly to the continued growth and international success of Turkey's dried fig industry.

Within Algeria's dried fig production, the municipality of Beni Maouche is recognised as one of the leading regions, ranking first nationally for its high-quality dried figs. The province of Bejaïa, particularly the Beni Maouche region, contributes approximately 34 % of the national market share, followed by the provinces of TiziOuzou, Boumerdes, and Setif. The cultivation of dried figs in Beni Maouche is deeply embedded in the local cultural heritage, with the inhabitants demonstrating unwavering commitment to preserving and advancing this tradition despite numerous challenges. This dedication has culminated in remarkable national and international recognition, most notably the attainment of the Geographical Indication (GI) label for "Dried Fig of Beni Maouche" in 2016, a distinction initiated by the Association of Fig Farmers in Beni Maouche.

The official application for this certification was submitted to the Ministry of Agriculture following twelve expert missions from the European Union, during which specialists conducted field visits to Beni Maouche and assessed the superior quality of its produce. As previously noted, this achievement was the outcome of a rigorous three-year collaboration within the framework of a twinning program with the European Union.

Geographically, Beni Maouche is located southwest of Bejaïa at an altitude of 1,000 meters above sea level, encompassing a total area of 9,486 hectares. The region boasts more than 1,000 hectares of fig orchards alongside a variety of other agricultural products, solidifying its status as a significant agricultural hub.

The geographical area of the Beni Maouche Geographical Indication (GI) includes 11 municipalities in Bejaïa province and 10 municipalities in Setif province, which are now part of the GI label. These municipalities are:

- In Bejaïa province: Beni Maouche, M'Cisna, Seddouk, Amalou, Bouhamza, Beni Djellil, Barbacha, Feraoun, Kendira, Timezrit, and Semaoun;
- In Setif province: Beni Ourtilane, Beni Chebana, Ain Legradj, Beni Mouhli, Bouandas, AïtNoualM'zada, AïtTizi, BouSellam, Tala Ifacene, and DraâKebila.

Figure 6 shows the location of the study area. The Communal Association of Fig Growers of Beni Maouche recorded 160members in 2022, compared to 73 before the introduction of the label. This indicates a significant increase in the number of members, both at the local level and across the wilaya. Consequently, there is a growing awareness among stakeholders. Their participation in discussions and decision-making demonstrates that the establishment of the label has led to the organisation of producers' actions and the creation of collective action. Producers are becoming accustomed to participatory approaches and even influence the decision-making process, which aligns well with the principles of territorial governance (Mansour & Belaid, 2019).

Figure 6. The Geographical area of the commune of Beni-Maouche

Source: Lamani (2014).

According to the available data on the exported quantities of dried figs from Beni Maouche, the region's direct export activity remains highly limited. At most, only 3 companies specialise in export, some of which – mainly citrus export firms – handle small quantities of dried figs. Additionally, some producers export limited amounts directly to specific consumers abroad through international exhibitions.

The primary reason behind Algeria's limited and declining dried fig exports lies in production capacity, as the total output barely meets domestic market demand. Furthermore, the international marketing of this regional product remains highly restricted.

To determine the competitiveness of Beni Maouche dried figs, several factors must be considered, particularly those influencing supply. These factors include the producers' ability to maintain competitive quality and pricing relative to other products. Among the key problems are:

1. Declining production volumes – the production phase is the first critical stage to examine, as it faces two major issues:

- The quantity produced not only fluctuates but also shows a downward trend.
- The productivity of Beni Maouche dried figs has been steadily declining over the past years.

This decline is primarily due to the heavy reliance of fig trees on rainfall. The scarcity of water resources and irregular precipitation levels, exacerbated by climate change in recent years, pose a significant threat to the development of this product. Additionally, rising annual temperatures lead to varying periods of drought, often

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2025, Vol. 9, No. 2
https://is-journal.com

accompanied by devastating wildfires, which have a severe negative impact on production in this region.

2. *The absence of professional organisation* is evident, as various social and economic factors hinder the expansion of production and productivity improvement. These factors include the aging of farmers, producers' preference for individual exploitation, which leads to a lack of collective initiatives, and the limited number of associations dedicated to producers. Additionally, the lack of advisory services represents another factor contributing to low productivity. Figure 7 illustrates the main obstacles.

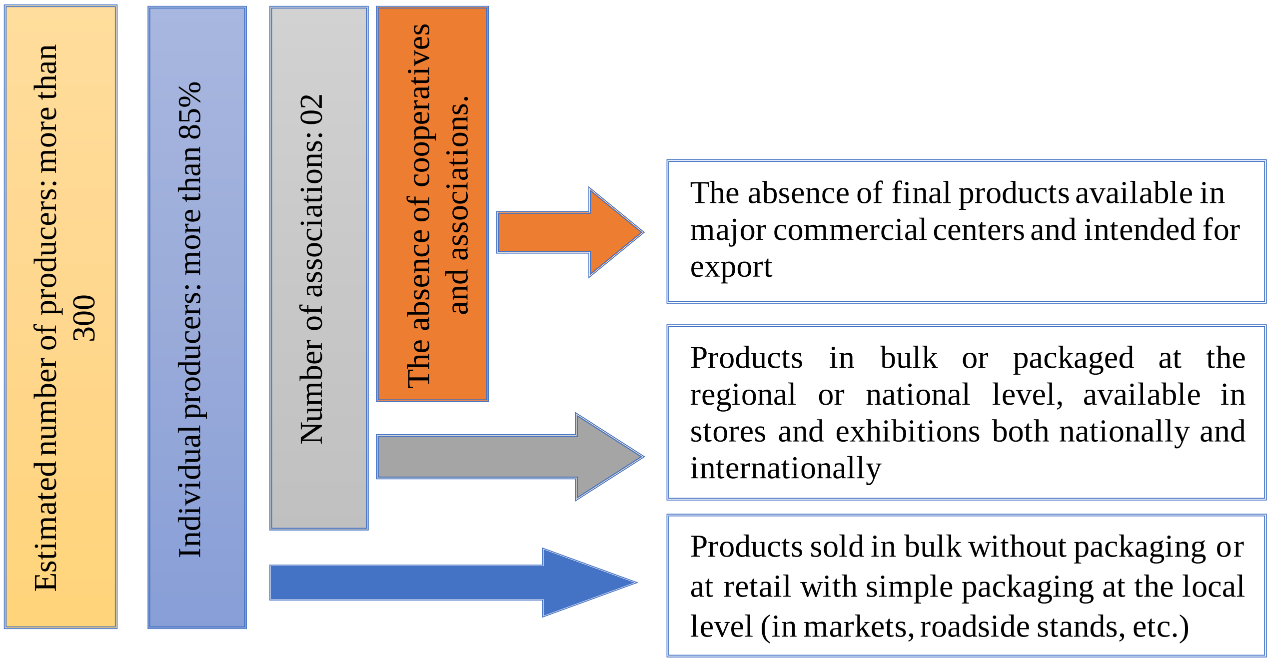

Figure 7. The level of organisation of dried fig producers in Beni Maouche

Source: prepared by the authors.

3. *Weak marketing services.* Marketing efforts remain constrained by the fragmentation of small-scale producers, which limits access to distribution and processing networks. Additionally, proper market positioning is crucial, requiring alignment with demand and adaptation to available resources. The positioning of the product determines its place in the market relative to competing products.

4. *Lack of supporting services*. Supporting services, particularly agricultural extension and scientific research, are essential for enhancing production efficiency and reducing costs. These services include training and capacity-building programs for farmers to improve productivity and guide them toward the production of high-quality regional products with strong market potential in international trade.

5. *Limited access to export markets.* Beni Maouche dried figs lack advanced support services essential for accessing international markets, including storage, transportation, packaging, and labelling. These logistical and infrastructural deficiencies hinder the smooth flow of the product from farmers to end consumers in export markets.

6. *One of the main obstacles to exporting* Beni Maouche dried figs is not the

absence of export markets but rather structural deficiencies within the export sector itself. The small scale and financial limitations of producers, along with their weak managerial and technical capacities, prevent them from engaging in large-scale export activities. Many producers struggle to adopt advanced technologies to reduce production costs, conduct market research, enhance fruit quality, and improve packaging and labelling methods.

Additionally, intense competition in European and global export markets – particularly from Turkish, Italian, and Greek dried figs – poses significant challenges. Furthermore, many farmers and exporters lack sufficient knowledge of export markets, importing countries requirements, prevailing consumer preferences, and demand levels for dried figs.

Table 4 presents a SWOT analysis based on four key indicators and determinants for each criterion:

- Enhancing production, labelling requirements, and product valorisation.
- Governance and organisation of stakeholders in the sector.
- Improving transport and logistics services.
- Responding to the expectations and requirements of international market.

Table 4

SWOT analysis of Algerian teroir products

Strengths	Weaknesses
Production and market advantages: - Improved production, labelling, and product valuation; - Strong governance and stakeholder organisation; - High-quality product due to Beni Maouche's location; - Low production costs compared to some countries; - Availability of national expertise (researchers, technicians, engineers); - Presence of public and professional support structures	**Production and market challenges:** - Unstable production levels year to year; - Aging workforce and shortage of young, skilled labor; - Weak packaging services that do not meet international standards; - Lack of professional relationships between producers and exporters; - Absence of agricultural guidance on modern production and marketing; - Weak sector representation and lack of digitisation in producer-consumer communication; - Poor coordination among logistics stakeholders; - Lack of updated data on production, transport, storage, and marketing; - Limited use of scientific research results
Trade and export benefits: - Improved transport and logistics services; - Meeting international market demands; - Customs facilitation for exports; - Government support for maritime and air transport; - Assistance from Algerian institutions in trade promotion;	**Transportation and logistics issues:** - High maritime transport costs, especially post-COVID-19; - Limited transport services from production sites to export centres; - Aging maritime and air transport infrastructure. - Lack of logistics zones near export hubs; - Low added value due to unstructured roadside sales;

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Continuation of Table 4

- Strengthened maritime transport infrastructure (GATMA); - Tax incentives and full export exemptions; - Diverse international markets; - Export and promotion support mechanisms (ALGEX/CAGEX); - Producers awarded medals at international exhibitions (e.g., Paris International Agricultural Show).	- No clear export strategy; - Local product price exceeding international competitors (e.g., Turkish dried figs); - Lack of market studies and strategic planning for global expansion.
Opportunities	**Threats**
Production and Market Expansion: - Large agricultural areas suitable for organic farming; - Strong research system supporting production improvement; - Availability of vast land to boost production and stabilise yields; - Potential for new services to support exporters' needs.	**Market and Competition Challenges:** - Strong government subsidies for leading dried fig-producing countries; - Risk of declining fig forest yields due to lack of afforestation programs; - Intense international competition; - Weak role of support structures due to overlapping responsibilities; - Absence of public-private partnerships.
Trade and export growth: - Several international trade agreements creating free trade zones (EU, GZAL, ZLCAF); - Presence of major maritime shipping companies in Algeria (CMA CGM, Maersk); - Diplomacy boosting trade relations and exports, especially to Arab and African markets; - Possibility of exporting via e-commerce platforms; - Promotion through social media channels.	**Economic and regulatory risks:** - Rising maritime and air transport costs due to industry consolidation; - Increased raw material costs impacting final pricing; - Rapid evolution of international market regulations and entry standards; - Lack of a domestic packaging industry.

Source: prepared by the authors.

The SWOT analysis highlights Algeria's leverage of agro-climatic diversity for high-quality terroir products, underpinned by robust governance and research institutions, and lower production costs than some neighbors. This aligns with the studies stressing Algeria's environmental assets in elevating products like "Kabylie olive oil" and "Saharan dates" on global markets. Belletti et al. (2017) emphasise that GI legal protection enables market adaptation and actor collaboration in value chains, while Eğe (2019) shows how Aydın fig's GI registration shields against imitation and bolsters cultural identity.

The SWOT analysis points to significant packaging and transport infrastructure gaps, production volatility, poor logistics coordination, and high maritime and air freight costs, alongside underutilised scientific research outputs. The study corroborates these issues, noting legislative fragmentation, bureaucratic delays (e.g., national catalogue postponed to 2024), and insufficient packaging/transport infrastructure. Hadjou & Cheriet (2013) examined institutional constraints hampering date and wine GI labelling in Algeria, emphasising the need for a coherent legal framework and stakeholder support, while Sahli (2009) demonstrated how weak institutional structuring in mountainous regions undermines local market dynamics.

5. Conclusions

Achieving success in the geographical indications system for Algeria's terroir products requires a comprehensive approach that addresses legislative and regulatory aspects, improves infrastructure, and enhances awareness and marketing mechanisms to fully capitalise on Algeria's vast natural and cultural potential. The study concludes that establishing a labelling system for Algeria's terroir agricultural products is a promising strategic step toward enhancing the economic value and cultural identity of local products. Through a comprehensive analysis of legal, institutional, and marketing aspects, and by comparing successful international experiences, the following results have emerged:

- Algeria draws its strength from its geographical and climatic diversity, enabling the production of a rich array of terroir agricultural products characterised by unique qualities and deep-rooted heritage. This natural and cultural legacy can be leveraged to enhance the position of these products in both local and international markets, transforming them into a strategic competitive advantage on a global scale.
- The study reveals that effective implementation of the geographical indications system requires a unified legislative and regulatory framework, yet current gaps hinder this goal. Therefore, reinforcing legal structures and unifying institutional efforts through reforms and enhanced governmental collaboration is imperative.
- The weak infrastructure for packaging and transportation is one of the main obstacles to the effective marketing of terroir products, while producers' limited awareness of the economic value of geographical indications negatively impacts their competitiveness. Consequently, investing in enhanced logistical services, adopting digital tracking technologies, and implementing specialised training programs is essential for improving production efficiency and elevating the market image of these products.
- Through international comparisons – such as between Algerian products and those like Mozzarella di Bufala, which benefit from international legal protection – it becomes evident that success in marketing terroir products relies on adopting comprehensive marketing strategies. This involves supporting governmental institutions and fostering partnerships with the private sector to develop campaigns that enhance cultural identity and highlight the unique features of the products, thereby contributing to the opening of new markets and the increase of exports.

6. Limitations and future research

This study's qualitative design and case selection approach limit the generalizability of its findings. While the cases of "Mozzarella di Bufala" and "Aydın figs" provide valuable analogues, they differ from Algerian terroir products in terms of scale, governance arrangements, and historical development. Moreover, our reliance on secondary data for certain economic indicators – particularly for

"Bouhezza cheese" – introduces the possibility of measurement inaccuracies due to data scarcity and lack of transparency. Field observations were also limited to two regions (Bejaïa and Oum El Bouaghi), which may not fully reflect the diversity of production systems and stakeholder configurations across Algeria's various agro-climatic zones.

Future research should adopt longitudinal designs to evaluate the effects of recent regulatory reforms – such as the 2024 GI catalogue – on producer incomes and export outcomes. Quantitative studies using econometric modelling could estimate the price premiums and yield improvements associated with GI certification. Comparative research across different Algerian regions and products (e.g., "Annaba honey", "Ain Temouchent onions") could help identify context-specific success factors. Additionally, action research partnerships with local producers and certification bodies could support the co-design and pilot testing of digital traceability platforms to assess their effectiveness in improving market access and strengthening consumer trust.

Conflicts of interest: the authors declare no conflict of interest in relation to this study.

Use of artificial intelligence: the authors confirm that they did not use artificial intelligence technologies during the creation of this work.

References

1. Aissaoui Zitoun-Hamama, O. (2014). Fabrication et caractérisation d'un fromage traditionnel algérien "Bouhezza" *(PhD Thesis)*, Université Constantine 1. Available at: https://bucket.theses-algerie.com/files/repositories-dz/2493589457829125.pdf.

2. Aissaoui Zitoun-Hamama, O., Benyahia-Krid, F. A., Saoudi, Z., Senoussi, A., Boullouf, A., Mansouri, S., Lazzouni, I., & Zidoune, M. N. (2022). Bouhezza goat skin bag cheese: traditional cheesemaking and microbial quality. *Algerian Journal of Nutrition and Food Sciences*, 2(3), 9–13. Available at: https://fac.umc.edu.dz/inataa/revue/files/ajnfs0203002.pdf.

3. Belletti, G., Marescotti, A., & Touzard, J.-M. (2017). Geographical indications, public goods, and sustainable development: the roles of actors' strategies and public policies. *World Development*, 98, 45–57. https://doi.org/10.1016/j.worlddev.2015.05.004.

4. Bozkıran Yılmaz, S., & Armağan, G. (2024). Value chain analysis in dried fig and chestnut: the case of Aydin province. *Tarım Ekonomisi Dergisi*, 30(2), 121–136. https://doi.org/10.24181/tarekoder.1522601.

5. Bozoglu, M., Baser, U., Eroglu, N. A., & Topuz, B. K. (2020). Comparative analysis of cost and profitability in the irrigated and non-irrigated chestnut farming: case of Aydin province, Turkey. *Erwerbs-Obstbau*, 62, 21–27. https://doi.org/10.1007/s10341-019-00467-9.

6. Buffalo Mozzarella DOP in numbers (n.d.). Available at: https://www.mozzarelladop.it/consorzio-tutela/numbers-and-results.

7. Chermat, I., & Kheloufi, A. (2024). The role of Italian “Terroir Products” in confronting emerging crises-e Covid-19 crisis as a model. *Management & Economics Research Journal*, 6(2), 801–816. Available at: https://asjp.cerist.dz/en/downArticle/615/6/2/247070.

8. Consorzio di Tutela Mozzarella di Bufala Campana DOP (n.d.). *The history of the Buffalo in Italy*. Available at: https://www.mozzarelladop.it/the-history-of-buffalo-in-italy.

9. Consorzio di tutela Mozzarella di Bufala Campana DOP (2021). *La bufala dop in Germania alla fiera anuga*. Available at: https://www.mozzarelladop.it/buon-ferragosto-dal-consorzio-di-tutela/la-bufala-dop-in-germania-alla-fiera-anuga.

10. Dried Fig Report: Türkiye 2023 (2023). Available at: https://www.tridge.com/market-reports/dried-fig-report-turkiye-2023.

11. European Commission (n.d.). *eAmbrosia – Union register of geographical indications*. Available at: https://ec.europa.eu/agriculture/eambrosia/geographical-indications-register.

12. Eğe, M. (2019). Coğrafi işaret tescilli Aydin inciri, Ege sultani üzümü, Giresun fındığı dış pazarlarında Türkiye’nin ihracat dekompozisyon analizi (*Yüksek Lisans Tezi*), Antalya, Akdeniz Üniversitesi. Available at: https://yucita.org/file_sub_277_yucita-uyeleri-cografi-isaret-tescilli-aydin-inciri,-ege-sultani-uzumu,-giresun-findigi-dis-pazarlarinda-turkiyenin-ihracat-dekompozisyon-analizi.pdf.

13. FAO (2024). *Catalogue des produits du terroir algerien*. INVA. Available at: https://www.calameo.com/books/005430160605c22c2c71b.

14. Faouzi, H., Boujrouf, S., & Bouslikhane, A. (2021). Du terroir au territoire: Les enjeux de la patrimonialisation des produits de terroir. Paris, L'Harmattan. Available at: https://www.torrossa.com/it/resources/an/5093290.

15. Farina Briamonte, M., Matricano, D., Augurio, A., & Sorrentino, M. (2021). Le reti e l’internazionalizzazione delle Pmi: Il caso del consorzio di Tutela della Mozzarella di Bufala Campana DOP. In *Le politiche per la competitività dei sistemi produttivi campani: mappatura delle reti e analisi degli strumenti al fine di rafforzare l’azione amministrativa* (pp. 79–88). Napoli, UniorPress. Available at: https://www.regione.campania.it/assets/documents/07-reti-rev-31-08.pdf.

16. Ghizlane, A., Abdellatif, C., & Hajoui, L. (2024). Role of the e-Marketing strategy in the promotion and marketing of terroir products: case of Moroccan agricultural cooperatives. In Y. Farhaoui (Ed.), *Artificial intelligence, Big Data, IOT and block chain in healthcare: from concepts to applications. BDBI 2024. Information Systems Engineering and Management* (pp. 332–346), vol. 6. Springer, Cham. https://doi.org/10.1007/978-3-031-65018-5_31.

17. Hadjou, L., & Cheriet, F. (2013). Contraintes institutionnelles et labellisation des produits algeriens de terroir: cas du vin et des dattes. *Les Cahiers Du CREAD*, 103, 65–84. Available at: https://www.ajol.info/index.php/cread/article/view/124513.

18. INVA (2020). *Mise en œuvre du plan du gouvernement 2020–2024, Feuille*

de route, Actions projetees. Institut National de la Vulgarisation Agricole. Available at: https://agri-info.inva.dz/wp-content/uploads/2022/01/FEUILLE-DE-ROUTE-2020-2024.pdf.

19. La mozzarella di bufala DOP vola all'expo di Dubai (2021). Available at: https://www.mozzarelladop.it/la-bufala-dop-vola-allexpo-di-dubai.
20. Lamani, O. (2014). Institutions and local actors in the valorization of local product: what local approach to the valorization of olive oil Beni-Maouche in Kabylie? (*PhD Thesis*). Montpellier, SupAgro. Available at: http://www.theses.fr/2014NSAM0061.
21. Mansour, S., & Belaid, A. (2019). L'Economie sociale et solidaire et la labellisation des produits du terroir: cas de la figue de Beni-Maouche. *El-Bahith Review, Query*, 19(1), 671–685. Available at: http://elbahithreview.edu.dz/index.php/bahith/article/view/146.
22. Map of members (n.d.). Available at: https://www.mozzarelladop.it/members.
23. Medjoudj, H., Derouiche, M., Grama, B., Zidoune, M. N., Attia, H., & Hayaloglu, A. A. (2024). Lipid profile, texture and sensory properties of Algerian traditional Bouhezza cheese made using raw goat's milk. *Journal of Food Science and Technology*, 62, 1296–1305. https://doi.org/10.1007/s13197-024-06101-1.
24. Pilone, V., Stasi, A., & Prosperi, M. (2018). Quale qualità i consumatori riconoscono nelle certificazioni di origine? Il caso della mozzarella di bufala campana DOP. Available at: https://fair.unifg.it/handle/11369/376869.
25. Qualivita (2024). *Rapporto Ismea-Qualivita 2024 sulle produzioni agroalimentari e vitivinicole italiane DOP, IGP e STG*. Edizioni Qualivita. Available at: http://www.qualivita.it.
26. Sadki, A., & Mekkaoui, S. (2021). Use of terroir products as a tool for online destination branding experience: case of Moroccan terroir products. *Journal of Tourism and Heritage Research,* 4(1), 309–322. Available at: https://www.jthr.es/index.php/journal/article/view/256.
27. Sahli, Z. (2009). Produits de terroir et développement local en Algérie: cas des zones rurales de montagnes et de piémonts. In Y. Tekelioglu, H. Ilbert, S. Tozanli (Ed.), *Les produits de terroir, les indications géographiques et le développement local durable des pays méditerranéens* (pp. 305–338). Montpellier, CIHEAM. Available at: https://om.ciheam.org/om/pdf/a89/00801099.pdf.
28. Turkey meets 58 percent of the world's dried figs need (2023). Available at: https://raillynews.com/2023/01/Turkey-meets-58-percent-of-the-world%27s-need-for-dried-figs.
29. WIPO (n.d.). *Geographical indications*. Available at: https://www.wipo.int/web/geographical-indications.
30. WTO (n.d.). Overview: the TRIPS Agreement. Available at: https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm#geographical.
31. Younsi, A., & Benmebarek, A. (2022). L' impact du système qualité sur la

valorisation des produits de terroirs et le développement rural. *Les Cahiers du Cread*, 38(3), 441–471. https://doi.org/10.4314/cread.v38i3.16.