How cooperativism and public policies can develop the olive oil industry in Ourique and Baixo Alentejo

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Dissertation written under the supervision of Professor Ricardo Reis

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Abstract

The olive oil industry is facing a period of profound transformation. In the face of climate change, rising global demand, and increasing production costs, regions with the potential to contribute to this market must strategically mobilize their resources. This master's thesis explores how cooperative models, and public incentives can serve as catalysts for the development of the olive oil industry in Baixo Alentejo, Portugal — a region with high productive potential yet underexploited.

Through an extensive analysis of the European and Portuguese olive oil sectors, this study highlights structural and climatic challenges, compares successful cooperative systems (especially in Spain), and identifies the limitations currently faced by small-scale farmers in Baixo Alentejo. Drawing upon case studies, interviews, and official statistical data, the research concludes that fostering agricultural cooperatives, combined with well-structured public policies and EU funding mechanisms, is essential to unlocking the region's potential.

The findings suggest that a robust cooperative framework — supported by local governments, national programs and EU agricultural policies — can increase competitiveness, improve sustainability, and enhance socio-economic resilience in rural areas. This thesis offers actionable recommendations for implementing these strategies in Ourique and Baixo Alentejo, aiming to establish the region as a significant player in the global olive oil market.

Disclaimer: For linguistic reasons, artificial inteligence in the writing of this thesis.

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Resumo

A indústria do azeite atravessa um período de profunda transformação. Perante as alterações climáticas, o aumento da procura global e o crescimento dos custos de produção, as regiões com potencial para contribuir para este mercado devem mobilizar estrategicamente os seus recursos. Esta dissertação de mestrado explora de que forma os modelos cooperativos e os incentivos públicos podem servir como catalisadores para o desenvolvimento da indústria do azeite no Baixo Alentejo, Portugal – uma região com elevado potencial produtivo, mas ainda subaproveitada.

Através de uma análise aprofundada dos setores oleícolas europeu e português, este estudo destaca os desafios estruturais e climáticos, compara sistemas cooperativos bem-sucedidos (com especial enfoque em Espanha) e identifica as limitações atualmente enfrentadas pelos pequenos produtores do Baixo Alentejo. Com base em estudos de caso, entrevistas e dados estatísticos oficiais, a investigação conclui que o reforço do cooperativismo agrícola, aliado a políticas públicas bem estruturadas e aos mecanismos de financiamento da União Europeia, é essencial para desbloquear o potencial da região.

Os resultados sugerem que um quadro cooperativo sólido – apoiado por autarquias, programas nacionais e políticas agrícolas da UE – pode aumentar a competitividade, melhorar a sustentabilidade e reforçar a resiliência socioeconómica nas zonas rurais. Esta dissertação apresenta recomendações práticas para a implementação destas estratégias em Ourique e no Baixo Alentejo, com o objetivo de posicionar a região como um interveniente de relevo no mercado global do azeite.

Nota: Por razões linguísticas, foi utilizada inteligência artificial na redação desta tese.

Título: Como o cooperativismo e as políticas públicas podem desenvolver a indústria do azeite em Ourique e no Baixo Alentejo

Autor: Diogo Bento

Palavras-chave: Indústria do Azeite, Cooperativismo, Apoio Público, Ourique, Baixo Alentejo, Andaluzia, Desenvolvimento Rural, Dynamic Capabilities, Competitive Advantages, Clusters, Resource Based View

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I would also like to dedicate this thesis to my region, not only Ourique, but also the whole Alentejo region, where I am so proud to be from and where I will always come back to. This thesis is a way of me trying to give back to a place that has given me so much.

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1. Introduction

The olive oil industry has gained prominence in recent decades as one of the pillars of Mediterranean agricultural economies. The growing global demand for high-quality olive oil, combined with the increasing appreciation for products with territorial identity, is creating new opportunities for producing regions that are able to align tradition, innovation, and strategic organization. Portugal, although internationally recognized for the quality of its olive oil, has faced difficulties in positioning itself competitively against countries like Spain or Italy, whose production and marketing models demonstrate higher levels of coordination, scale, and internationalization.

In the case of Baixo Alentejo, a region characterized by particularly favorable natural conditions for olive cultivation, a persistent paradox is observed: despite its high productive potential and the agricultural transformations of recent decades — notably investments in irrigation and the expansion of olive-growing areas — the region continues to face structural constraints that hinder its success in the sector. Among these constraints are the fragmentation of production, the limited capacity of small producers to process and market independently, the weak coordination among sector actors, and the underutilization of available public support instruments.

In this context, the present work seeks to investigate how agricultural cooperativism and government incentives can be mobilized as strategic tools to boost the development of the olive oil industry in Baixo Alentejo and, particularly, in Ourique. To this end, it draws on a critical analysis of the successful cooperative model of Andalusia, where the productive organization into cooperatives and coordinated institutional support have played a decisive role in positioning the region as a global benchmark in the olive oil sector.

The research is structured around four main objectives: (i) to characterize the olive oil sector in Baixo Alentejo and its main challenges; (ii) to analyze the historical and current role of agricultural cooperativism in the organization of production and marketing; (iii) to assess the impact of public and community incentives on the sector and on cooperativism ; and (iv) to propose strategic pathways for coordination among producers, public entities, and cooperative structures, aimed at sustainable regional development.

The relevance of this research lies not only in the contribution it may offer to the valorization of a strategic sector for the Alentejo rural world, but also in the potential practical application of its resulting proposals. By articulating theory, empirical evidence, and comparative case

studies, this thesis seeks to contribute to a more strategic and forward-looking perspective on olive cultivation in Ourique and Baixo Alentejo.

2. Methodology

This research adopts a qualitative and exploratory approach, suited to the nature of the research problem, which seeks to understand how cooperativism and public incentives can be mobilized to enhance the development of the olive oil industry in Baixo Alentejo. This approach aims not only to describe the existing reality but, above all, to identify critical success factors, institutional barriers, and strategic pathways for territorial transformation, based on the analysis of a concrete case study.

2.1. Methodological Structure

The methodology used is based on three main pillars:

(i) Documentary and statistical analysis of the olive oil sector in Portugal and Spain,
(ii) A case study of Baixo Alentejo, with a particular focus on the municipality of Ourique, and
(iii) A comparative analysis with the experience of Andalusia, as an international benchmark for successful cooperative organization in the olive oil sector.

The documentary analysis included the collection and interpretation of public reports, legislation, strategic plans (such as PEPAC and Portugal 2030), data from INE and Eurostat, as well as academic and technical studies on cooperativism and regional agricultural development.

In addition, semi-structured interviews were conducted with key stakeholders in the region and in Spain, including, cooperative leaders, representatives of local public entities, and producers, with the aim of gathering insights into the constraints and opportunities in the sector. This technique enabled the capture of tacit knowledge, local experiences, and perceptions regarding the role of public policies and cooperative structures in regional development.

The comparison with the Spanish model — particularly that of Andalusia — was based on the analysis of specialized literature and previously published case studies, as well as the identification of good practices and institutional factors that help explain the success of cooperative organization in that territory.

2.2. Theoretical Approach

The analytical framework of the research is based on a set of four interrelated foundational theories: the Theory of Competitive Advantage (Porter, 1985), the Resource-Based View (Barney, 1991), the Theory of Clusters and Territorial Development (Porter, Cooke), and the Theory of Dynamic Capabilities (Teece et al., 1997). These theories were used as an interpretative framework to analyze both successful cases and the reality of Baixo Alentejo.

2.3. Limitations

Since this is a qualitative approach, the results of this investigation are not intended to be statistically generalizable. The focus was placed on the depth of contextual analysis rather than the breadth of the sample. Furthermore, the comparison with the Spanish case is indicative and inspirational, but it is acknowledged that the structural, institutional, and historical conditions of the two countries are not directly equivalent.

3. Theoretical Background

This section presents the theoretical foundations and concepts that complement the case study and conclusions, helping to develop a clear understanding, establish connections, and apply insights to the practical case. The selected concepts aim to provide practical tools for analyzing the case.

3.1. Competitive Advantages Theory

The theory of competitive advantage was introduced by Michael Porter in *Competitive Advantage: Creating and Sustaining Superior Performance* (Porter M. E., 1985) and is based on the idea that organizations and productive sectors can gain an edge in a competitive market by adopting one of three generic strategies: cost leadership, differentiation, or focus. At the territorial level, this logic can be extended to analyze how regions and entire sectors position themselves within value chains.

This approach is frequently used to analyze productive sectors in mature markets, where margins are tight, competition is intense, and product differentiation or operational efficiency are essential for survival. A clear example of this application can be found in the work of Gereffi, Humphrey, and Sturgeon (2005) in *The Governance of Global Value Chains*, where the authors analyze how companies and regions strategically position themselves within international production chains, drawing on concepts such as differentiation, scale, and cost advantage — pillars of Porter's logic.

The same theoretical framework is used by Kaplinsky and Morris (2001) in *A Handbook for Value Chain Research*, which applies Porter's ideas to the agri-food sector in developing countries, showing how rural producers can integrate into global value chains by developing differentiating attributes (such as quality certifications or sustainable practices) or by reducing their costs through collective organization.

In the context of the olive oil sector, and specifically in the analysis of the Andalusian case, this theory can be applied to identify which strategies enabled the region to gain competitiveness — whether through differentiation linked to origin and olive oil quality, or through cost leadership made possible by cooperative scale. The same analytical framework can then be used to assess which strategic pathways are available for Baixo Alentejo, depending on its structural conditions.

3.2. Resource-Based View

The Resource-Based View (RBV), originally developed by Edith Penrose in *The Theory of the Growth of the Firm* (1959) and later systematized by Jay Barney (1991), argues that an organization's competitive advantage lies in the internal resources it is able to mobilize, provided these are valuable, rare, inimitable, and organized (the VRIO framework).

This perspective shifts the focus from the external environment to internal assets and capabilities, proposing that the sustainability of an advantage depends on how difficult it is for others to replicate the same resources. In practice, this means that the success of a territory or organization depends not only on having good resources, but also on its ability to combine, manage, and transform them into economic value.

This approach has been widely applied to the analysis of agricultural regions and local production systems. For instance, Ray (Ray, 1998) offers a territorial reading of RBV, analyzing "territorial capital" as a set of specific resources that a region can mobilize to build endogenous development strategies.

In the analysis of Andalusia's olive oil sector, RBV provides a lens through which the region's success can be understood as a result of leveraging local resources: native olive varieties, a favorable Mediterranean climate, olive-growing tradition, shared infrastructure, and a well-established cooperative culture. Rather than relying on exogenous factors, the Andalusian system built its advantage by effectively mobilizing its own assets.

In the case of Baixo Alentejo, this theory can be used to identify what types of endogenous resources exist—natural, social, productive—and whether they are organized in a way that generates economic value. It also serves to diagnose failures in the mobilization or organization of these resources, which may explain their underutilization to date.

3.3. Clusters and Territorial Development Theory

Cluster theory, introduced by Michael Porter in *The Competitive Advantage of Nations* (1990), presents a model in which the geographical concentration of interconnected companies, specialized suppliers, public and private institutions, research centers, and sectoral associations creates an environment conducive to innovation, productivity, and competitiveness. Later, authors such as Philip Cooke (1996) and Christian Ketels (2004) further developed this approach by applying the logic of clusters at the regional scale, incorporating the institutional, cultural, and political dimensions of the territory.

The cluster theory is based on the premise that economic development is not merely a function of classical production factors, but rather of how economic agents interact, learn from each other, and innovate collectively. The existence of trust-based networks, knowledge sharing, and institutional coordination mechanisms among companies, local governments, universities, and technical support centers are seen as key determinants of territorial success.

In the case of Andalusia, one can observe the formation of a robust agro-industrial cluster centered around the olive oil sector, where cooperatives, universities, public bodies, and private companies have created synergies that enhanced the region's competitiveness. This configuration enabled economies of scale, technological diffusion, innovation in packaging and marketing, as well as integration into global value chains.

Applying cluster theory to Baixo Alentejo allows for an analysis of the extent to which the region meets the conditions to develop a similar productive ecosystem. Through this lens, it is possible to assess the degree of coordination among producers, cooperatives, agricultural education institutions, research centers, public entities, and markets, as well as to identify gaps in institutional coordination that may hinder the emergence of a dynamic regional system.

3.4. Theory of Dynamic Capabilities

The Theory of Dynamic Capabilities emerges as an extension of the Resource-Based View (RBV), aiming to address its limitations in contexts of rapid change. Developed by David Teece, Gary Pisano, and Amy Shuen (1997), this theory argues that long-term competitive advantage

depends on an organization's ability to continuously adapt, integrate, and reconfigure internal and external competencies.

While the RBV focuses on the possession of resources, the dynamic capabilities approach centers on the capacity for transformation. It is particularly relevant in sectors exposed to market volatility, technological change, and regulatory pressures, such as agriculture within the European context. Authors such as Helfat et al. (2007) and Eisenhardt and Martin (2000) emphasize that dynamic capabilities involve processes like organizational learning, incremental innovation, development of collaborative networks, and strategic responses to changes in the institutional environment.

The experience of Andalusia provides a clear example of this theory in action. Over the past decades, the Andalusian olive oil sector has demonstrated adaptive capacity: it modernized its production processes, developed collective brands, leveraged incentives from the Common Agricultural Policy (CAP), invested in sustainability, and internationalized its production. These transformations did not stem merely from resource possession, but from the collective ability to reorganize those resources in response to new market demands and public policy requirements.

In the context of Baixo Alentejo, the theory of dynamic capabilities offers an analytical framework for assessing whether local actors—from farmers to public institutions—have mechanisms to adapt to changes such as water scarcity, new CAP requirements, or evolving consumer patterns. It also serves to reflect on the region's capacity to generate collective innovation, create cooperation models, or seize emerging opportunities such as agritourism or niche markets.

4. Olive Oil Industry in the European Union

4.1. Production and Productive Structure

Today, the European Union (EU) is the leading global player in the olive oil sector, accounting for approximately 67% of global production, with more than 1.5 million farms and around 4 million hectares dedicated to olive cultivation. (EC, Olive Oil, 2025)

Within the EU, the main producers are Spain, Italy, Greece, and Portugal, with Spain standing out by producing about 66% of the EU's total olive oil and 32% of the global total — around 1,300,000 tons. The remaining EU production is distributed as follows: 15% by Italy, 13% by Greece, and 5% by Portugal (Olive Oil Factsheet, 2025)

According to the International Olive Counsil (IOC), the biggest intergovernmental organization dedicated solely to olive oil and table olives, outside of Europe, the main producing countries are Tunisia, Turkey, Morocco, and Syria. Of the total olive oil production outside Europe, 32% comes from Turkey, 24% from Tunisia, 7% from Syria, and 6% from Morocco. (World Production, 2024)

Regarding its evolution, average global production has remained relatively stable over the years, with the average production from 2019 to 2023 being only 1.25% higher than the average from 2014 to 2018. However, this apparent stability actually reflects an 8% decline in European production and a 20% increase in production outside Europe during the same periods, highlighting the growing significance and competitiveness of non-European countries. (Finck, 2025)

The decline in European production is largely attributed to poor harvests in 2023 and 2024, which followed a record-setting season. Spain, for example, saw its annual production drop to less than half compared to 2022. (Finck, 2025)

As for the future of the sector, despite the weak performance in the past two years, according to the IOC (2024), global production is expected to recover in 2025, with a projected increase of 29% in Europe and 36% in the rest of the world, reaching a total of 3.5 million tons.

In Europe, all countries except Italy are expected to see significant production growth in 2024/25, with Italy forecasted to experience a 31% decrease (IOC, 2024).

4.2. Consumption

The EU is the largest consumer of olive oil in the world, which is expected given the importance of olive oil in the Mediterranean diet (EC, 2025). According to the International Olive Council (2025), the EU's share of global consumption has decreased, from 70% in 2005 to around 43% in recent years.

This decline has been offset by increased consumption in non-IOC member countries, as well as in other IOC member countries, which have shown continuous growth over the years.

This trend of producer countries consuming the majority of the olive oil they produce is observed globally. According to a study presented by Juan Vilar Consultores Estratégicos, SL (2019), 88% of global olive oil consumption takes place in producing countries.

This occurs because, historically, countries first adopt olive oil consumption, and only later—if geography and terrain allow—do they begin producing their own olive oil, which then leads to an even greater increase in consumption. Examples of this trend include countries such as Brazil, China, and Saudi Arabia.

The study also emphasizes that, for this reason, the emergence of new olive oil-producing countries does not represent a threat to the current major producers, but rather an opportunity to market their surpluses.

That said, according to official IOC data, after two years of below-average global olive oil consumption, it is expected to rise by 10% in 2025 compared to the previous year, returning to average levels (IOC, 2025). The outlook is even more positive considering that olive oil currently represents only 1% of global vegetable oil consumption and is widely recognized as the healthiest option among them. (Howard E. LeWine, 2024).

4.3. Exports and Imports

In addition to being a leader in production and consumption, the EU is also the world's largest exporter of olive oil, accounting for around two-thirds of global exports. The main destinations for these exports are the United States, followed by Japan, China, Canada, Brazil, and Australia. (IOC, 2025)

As mentioned earlier, due to the low product availability and high prices, caused by a poor harvest and climate change, European exports decreased in 2022/23 (IOC, 2024).

With the gradual recovery of production, EU exports are expected to grow by 10% in 2024/25 compared to 2023/24.

In addition to exporting, the EU also imports olive oil, mainly to balance internal supply and demand and for re-exportation purposes.

These imports mainly come from Tunisia, from which the EU imported 20% more in 2023/2024, accounting for 62% of all EU imports, and from Turkey, where imports also increased by 17% in 2023/2024 (Merino, 2024).

The main internal destinations for these imports are Spain and Italy, with the latter also being the largest recipient of intra-EU imports, mainly from Spain.

In contrast to the growing exports, European olive oil imports are expected to decrease by 6% in 2024/25, reflecting the rebalancing of supply in the main producing countries.

4.4. Prices

Price volatility has been a critical factor. Between 2023 and 2024, olive oil prices reached historic highs due to the scarcity of production: in Spain, they surpassed €900/100 kg, while in Italy they reached €968/100 kg. This surge compromised domestic consumption but also boosted export value, partially compensating for the volume decline. (IOC, 2025)

For the 2024/25 season, a return to average production levels is expected, which is already influencing market expectations and leading to a gradual decrease in prices.

In February 2025, in Spain and Greece, prices decreased by 53.7% and 51.2%, respectively, compared to the same period of the previous season. However, in Italy, prices remained exceptionally high, which is attributed to factors such as water scarcity in southern Italy, the impact of the Xylella fastidiosa bacterium, and the natural rest cycle of the olive trees (Vilar & Pereira, 2019). These constraints could lead Italy to lose positions in the global production ranking to countries such as Greece, Portugal, Tunisia, or Turkey.

If prices continue to decrease gradually, there could be a boost in exports and a recovery in domestic consumption within the EU. The global market is expected to benefit from a new balance, in which the competitiveness of countries like Tunisia and Turkey could also gain prominence, thanks to lower production costs (Finck, 2025).

The prices mentioned earlier referred to extra virgin olive oil, which, being the highest quality, is the most expensive. Lower quality olive oils, such as virgin and lampante, are priced lower (EC, 2017).

Another factor that also influences the price is the production systems. Farms with traditional cultivation systems, often in hard-to-reach areas and without irrigation, have much higher unit costs and lower profitability compared to intensive and irrigated systems, which are more efficient in terms of production per hectare (EC, 2017).

4.5. Climate and Geography

The European agricultural sector is facing unprecedented environmental challenges, caused by climate change and increasing competition for essential natural resources such as water and land.

According to the IPCC - Intergovernmental Panel on Climate Change, the planet's temperature has increased by 1.5°C compared to pre-industrial levels, and this rise has intensified the

frequency and severity of extreme phenomena such as heatwaves, heavy rainfall, and droughts (IPCC, 2018).

Drought is one of the main problems that is worsening in Europe. According to a report on agricultural prospects in the EU in 2023, between 2010 and 2019, the area affected by water scarcity increased, and in 2019, 29% of the EU's territory faced water scarcity for at least one season of the year (EC, 2023). With forecasts for more frequent droughts and less precipitation, the EU states that it is unlikely the situation will improve by 2030, and therefore, greater restrictions and competition for water use are expected.

All these factors compromise the total production potential, increasing instability in both the quantity and quality of olive oil. However, an average increase of 0.5% in olive grove productivity is still expected by 2035. This is mainly due to research and innovation, the introduction of more drought-resistant varieties, new plantations, moving in more northern areas to mitigate the effects of drought, and the modernization of traditional systems (EC, 2023).

While there are technological tools and agricultural practices that can mitigate some of these effects, structural adaptation is inevitable, and it will be critical to have investments, effective public policies, and agronomic innovation to ensure the resilience of this vital sector for the Mediterranean diet and the European agricultural economy.

5. Olive Oil Industry in Portugal

5.1. Production and Productive Structure

Currently, Portugal is the sixth-largest olive oil producer in the world and the fourth-largest producer in Europe, with an average annual production of around 150 thousand tons of olive oil, which accounts for 10% of European production (IOC, EU Production, 2024).

Over the years, Portugal has seen noticeable harvest cycles. Each year of lower production is followed by a higher one, and vice versa. The biggest difference was observed in the 2021/2022 season, when a historic maximum of 206,000 tons was produced, doubling the production compared to the previous season (IOC, EU Production, 2024).

In the 2023/2024 season, while other major European producing countries still presented below-average production, Portugal saw an above-average increase in its olive oil production, and of the four main producers, Portugal was the only one to experience a sharp increase in the average

annual production from 2019-2023 compared to the 2014-2018 period, with a growth of 55% (Finck, 2025), demonstrating some resilience to climate change.

For the current 2024/2025 season, an even greater increase in production is expected with more favorable weather conditions. It is estimated that Portugal will produce around 195,000 tons of olive oil, a rise of 21.19% compared to the previous season.

Regarding the structures responsible for production, according to data from INE (2024), Portugal currently has 376,428 hectares of olive groves, about 3% of the world's olive grove area.

According to data gathered by Juan Vilar Consultores Estratégicos (2019), 61.7% of the olive groves in Portugal are dryland, while the other 38% are irrigated. Additionally, 33.2% of the olive-growing area in Portugal consists of high-density groves, 29.6% of super-high-density groves, and 37% of traditional groves. As per Mariana Matos, general secretary of Casa do Azeite, the high percentage of dryland olive groves “represents a challenge but also an opportunity to maintain the authenticity and differentiation of Portuguese olive oil” (Matos, 2024).

Regarding the quality of olive oil, 95% of Portuguese olive oil is virgin or extra virgin, making Portugal the country that produces the highest percentage of high-quality olive oil in the world (Vilar & Pereira, 2019).

As for the olive tree varieties found in Portugal, there are varieties such as Cobrançosa, Picual, Galega, Cordovil (Trás-os-Montes), Verdeal, and Madural, which are the basis of the six Protected Designations of Origin (PDO) in Portugal (Vilar & Pereira, 2019). The Galega variety is the most predominant in Portugal and can be found throughout the country. It was widely planted due to its high resistance to drought (Matos, 2024).

5.1.1. Alentejo

In Portugal, Alentejo is the region where most of the country’s olive oil is produced, accounting for about 80%, and it also holds the majority of the agricultural land dedicated to olive cultivation, with 203,211 hectares. (INE, 2024)

Although Alentejo does not have the highest number of olive groves, with only 2,875 explorations, it is the region with the largest olive groves, with the average size of each grove being 65 hectares, larger than any other key player (Vilar & Pereira, 2019).

Thus, in this region, the percentage of the area occupied by super-high-intensity olive groves is higher compared to the rest of the country, accounting for 52% of the total olive grove area. On the other hand, traditional olive groves represent only 18%. Although super-high-intensity and high-intensity olive groves are responsible for 85% of the olive oil production, their high representation is concerning when it comes to the future of the groves and their soils.

From the total olive grove area in Alentejo, it is also known that the percentage of irrigated olive groves is higher, around 52%, compared to the rest of the country.

Within Alentejo, the area that produces the most olive oil and holds the majority of the olive grove area is Baixo Alentejo. More specifically, the municipalities that produce the most olive oil are Moura, Serpa, Beja, and Ferreira do Alentejo (INE, 2022).

According to Juan Vilar, Alentejo's growing role in global production is due to the ongoing modernization and innovation of olive growinghe installation of olive oil mills with the most advanced technology in the world. This has allowed for improvements in both productivity and the quality of olive oil.

5.2. Consumption

According to the IOC (2024), olive oil consumption in Portugal over the past two years has been around 50,000 tons, showing a decrease compared to previous years, primarily due to the inflation in olive oil prices.

Nonetheless, Portugal remains the country with the fifth-highest average annual consumption per person in Europe, at approximately 5.7 kg per person, with more than 75% of the consumption being virgin and extra virgin olive oils.

5.3. Exports and Imports

In addition to being a producer for domestic consumption, Portugal plays a vital role in the global olive oil market, being the fifth-largest exporter of olive oil in the world, with an average annual export of 200,000 tons. (IOC, 2024)

According to Mariana Matos, in the last 20 years, olive oil exports have grown 12 times in volume and 18 times in value. (Matos, 2024)

Besides being an exporter, Portugal also has a significant role as an importer, however, the evolution of exports and imports in Portugal over the last 4 years, as well as the forecast for the

current season, there is a clear trend for Portugal to grow as an exporter rather than an importer. (IOC, 2024)

The main destinations for Portuguese olive oil exports within the EU are Spain, Italy, France, and Germany, while outside the EU, the key markets include Brazil, the United States, and Canada. Spain is the largest destination for Portuguese exports, and the second-largest importer of Portuguese olive oil is Brazil, reflecting the strong historical and commercial ties between these countries s. Exports to markets outside the EU highlight the international recognition of the quality of Portuguese olive oil. (IOC, 2024)

Regarding Portugal's imports, historically, the majority of the olive oil imported by Portugal came from Spain, reaching up to 150,000 tons before 2023. However, with recent lower productivity in Spain, Portugal has diversified its intra-EU imports, sourcing olive oil from countries such as France, Italy, and Greece. Outside the EU, countries like Turkey, Argentina, Tunisia, and Chile are key suppliers, though in smaller quantities. (IOC, 2024)

For the 2024-2025 season, it is expected that Portuguese exports will continue to grow, reaching 211,300 tons of olive oil, with 60,000 tons going outside the EU and 151,300 tons destined for the EU (IOC, 2024).

5.4. Prices

The evolution of olive oil prices in Portugal shows a trajectory similar to that of other countries, with a sharp increase in prices over the last two years when production fell in Europe. Although production in Portugal did not decline as significantly, this price increase is explained by the fact that a large portion of olive oil imports come from Spain. (IOC, 2025)

5.5. Climate and Geography

Portugal, like Spain and other southern European countries, has also found itself in a difficult situation regarding the climate in recent years.

Since 1972, the trend of average temperatures in Portugal has been rising, with no signs of slowing down. According to the IPMA (Portuguese Institute for Sea and Atmosphere), in 2022 the annual average temperature was 1.09°C higher than the average value for the period from 1981 to 2010, marking the hottest years since 1931. (IPMA, Alterações Climáticas em Portugal, 2025)

Regarding drought, looking at the historical evolution in Portugal, depicted in the following graph with annual averages of the PDSI index since 1941, it can be seen that meteorological drought years are becoming more frequent. These periods have been covering a larger percentage of the territory, but this situation is more critical in the southern regions, especially in Alentejo. (IPMA, Monitorização da Seca, 2025)

Drought situations have serious consequences, particularly in agriculture. Therefore, the increasing frequency of these events is a bad sign for the Portuguese olive sector, especially for rainfed olive groves, which represent the majority of olive cultivation in Portugal, although they account for less than 25% of production, according to Mariana Matos. (Matos, 2024)

Despite the growing frequency of drought episodes, in fact, the situation in Portugal has improved considerably over the last two years. When analyzing the drought situation in Portugal in the month of April over the past 3 years, we can observe that the drought situation has improved across the entire Portuguese territory, to the point that in April 2025, most of the territory was experiencing heavy rainfall. This situation demonstrates that dry years can also be followed by rainy years, which generally benefit agriculture (depending on the severity of the rain and the agricultural product) and, in particular, olive groves. (IPMA, Monitorização da Seca, 2025)

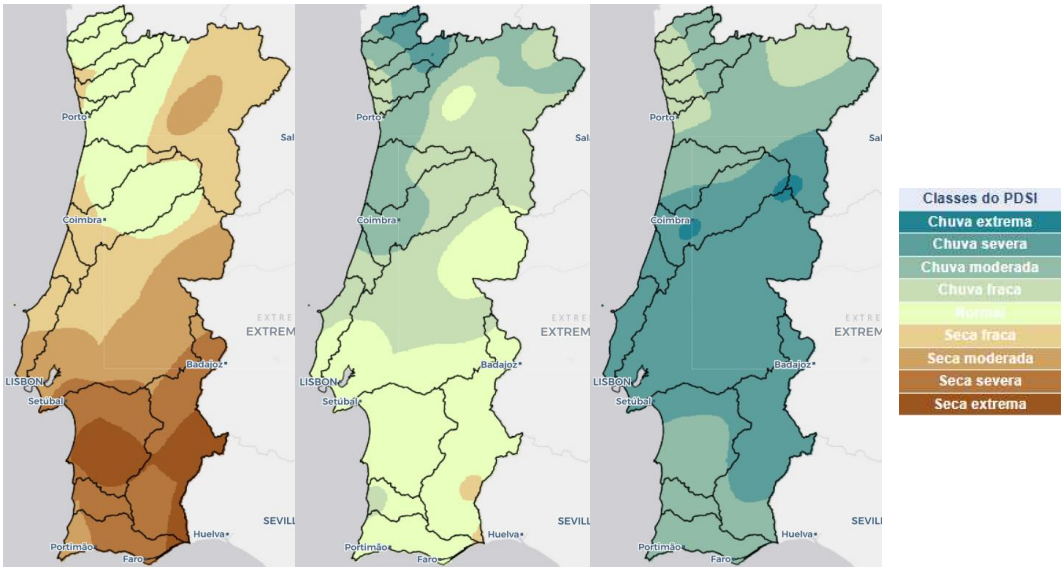

Figure 1 Dispersion of PDSI Classes in April by Year over the Last 3 Years (IPMA, 2025)

Furthermore, regarding water availability in Portugal, the situation in May 2025 is also promising. In this month, 84% of all reservoirs showed water levels above 80% of their total capacity. Only one reservoir, the Monte da Rocha Reservoir, had a storage percentage below 40%.

Finally, all river basins had water storage percentages higher than the average storage levels for the month of May from 1990 to 2024, with the exception of two. (APA, 2025)

In a country where more than 75% of production comes from irrigated olive groves, it is essential to maintain current high levels of water availability. This will be key to ensuring consistent production and establishing Portugal as a leading global producer.

6. Current Situation of Public Support

6.1. The EU Policy Framework

The olive oil sector, deeply rooted in the rural and cultural identity of several European regions, faces significant challenges in the context of the transition toward more sustainable, competitive, and resilient agricultural systems. In this context, public policies and support from the European Union, particularly within the framework of the Common Agricultural Policy (CAP) and specific funding programs, have a decisive impact on the development of the olive oil sector.

6.1.1. Common Agricultural Policy (CAP)

The Common Agricultural Policy (CAP) was established in 1962 and its main objective is to support European farmers, ensure food security in Europe, promote the sustainable development of rural areas, and guarantee stable, fair, and environmentally responsible agricultural production. (EC, 2025)

One of the main forms of support under the CAP consists of direct payments to farmers, which function as a financial safety net for olive growers, ensuring a minimum income and reducing their vulnerability to fluctuations in the sector. These payments are granted per hectare of eligible area and are conditional upon compliance with sustainable agricultural practices (EC, 2023).

In addition, the EU also promotes the adoption of greener farming practices through specific incentives, like financing investments in organic farming, soil conservation and improved water management (EC, 2023).

The EU also supports the modernization of olive-growing farms by funding investments in machinery, digital technologies, efficient irrigation systems, and processing infrastructure such as olive mills. These supports are vital to improving the sector’s competitiveness, increasing production efficiency, and reducing the environmental impact of farming activities (EC, 2023).

The European Union further supports the olive oil sector through promotional programs in international markets, funding marketing campaigns, trade fairs, and awareness-raising activities aimed at increasing the recognition of European olive oil as a quality product. These initiatives are particularly important for the internationalization of olive oil and help to gain new markets (EC, 2023).

In crisis situations, such as price collapses or production failures, the EU provides market stabilization measures, such as aid for the private storage of olive oil. These measures help reduce market pressure, stabilize prices, and protect olive growers' incomes (EC, 2023).

In the same line, also supports olive growers in combating phytosanitary threats, such as the Xylella fastidiosa bacterium, through prevention, eradication measures, and financial compensation for affected producers. It also funds research projects to develop more effective control solutions. (The EU olive and olive oil sector, 2017)

Also, agricultural cooperativism is recognized by the EU as a key element in organizing production and strengthening the competitiveness of the agri-food sector. As such, the EU funds the creation, structuring, and development of cooperatives, enabling these entities to improve their bargaining power, access new markets, and increase the added value of olive oil. Investments are supported in processing, storage, packaging, and marketing facilities, as well as innovation and digitalization projects that optimize processes and improve cooperative management (EC, 2023).

Finally, initiatives like the LEADER program — an EU initiative designed to promote local development in rural areas through local partnerships, territorial integration, innovation, and cooperation — are also worth highlighting. It is managed by local action groups, which are partnerships between public and private entities and associations. (EC, 2025)

6.2. Portugal's public support and incentives

6.2.1.CAP's Strategic Plan (PEPAC)

PEPAC is the national adaptation of the European Union's Common Agricultural Policy (CAP) and represents the main support instrument for the Portuguese agricultural sector for the 2023–2027 period. Developed based on an analysis of national and regional needs and approved by the European Commission, PEPAC organizes support for the economic, environmental, and social sustainability of agriculture (PEPAC, 2025).

In the economic sphere, PEPAC, just like the PAC, encourages the organization of producers into cooperatives and associations to strengthen their market orientation, improve farmers' position in the value chain, and increase their competitiveness. To foster modernization and innovation in agricultural production and rural areas, PEPAC provides support through "Agricultural Productive Investment" schemes. To stimulate the development of commercial strategies and promote market positioning through quality, such as the creation of protected designation of origin (PDO) products, the plan includes support for the "Promotion of Quality Products." (PEPAC, 2025)

There is also specific funding for sectors such as the olive oil one, notably under the "Permanent Crops and Traditional Landscapes" support, which aims to help farmers maintain traditional agricultural systems and thus prevent land abandonment. (PEPAC, 2025)

On the environmental front, PEPAC aligns with the objectives of the European Green Deal, promoting sustainable farming practices such as organic agriculture and the sustainable management of water resources. It provides considerable support for improving water use efficiency, rehabilitating irrigation infrastructure, and investing in the bioeconomy. (PEPAC, 2025)

6.2.2. Portugal 2030 e Alentejo 2030

In addition to this programme, there is also the Portugal 2030 programme, which complements the support from PEPAC, with focus on regional development, innovation, and digital and ecological transition. This programme highlights financing for research and development projects in partnership with universities and research centers, promoting farm resilience, as well as incentives for bioeconomy and circular economy (O que é o Portugal 2030, 2023).

Within Portugal 2030, there is still Alentejo 2030 which has an even more specialized regional focus and is designed to boost the region's economic competitiveness, environmental sustainability, and the improvement of both its territory and its people. The program's goal is to put into action the region's development plan as well as the strategies of the Intermunicipal Communities within the region by providing european and national funds to specific measures (Alentejo 2030, 2023).

7. Relevant Success Cases

7.1. Spanish Case of Cooperativism

7.1.1. Structural Characteristics of the Spanish Olive Oil Sector

To understand the factors contributing to the success of Spain's olive oil sector and the role of cooperativism in this success, it is necessary to examine the productive structure in Spain, and particularly in its main production region, Andalusia.

In 2018, according to Juan Vilar Consultores Estratégicos (2019), there were almost 976,000 olive oil production farms in Spain, with an average size of 2.76 hectares, however farms above 20 hectares represent 70% of olive production.

Of all farms, around 67% were traditional, 25.2% were high-intensity, 7.5% were super high-intensity, and 69.7% of these farms were rainfed.

In terms of productivity and quality, for each kilogram of olives harvested, 18% of it is converted into oil. Of the total oil produced, 70% is virgin or extra virgin.

The region responsible for the majority of Spain's olive oil production is Andalusia, contributing between 60% and 80% of the country's total output. If Andalusia were a country, it would be the largest olive oil producer in the world and would have the second-largest olive grove area globally, divided among 539,000 farms with an average size of 3 hectares.

In this region, compared to the rest of Spain, the percentage of traditional olive groves increases slightly to 69.5%, while the area dedicated to intensive olive groves decreases by almost 5%, and the super-intensive olive groves increase to 9.9%. Additionally, the proportion of irrigated olive groves rises to 38.5% (Vilar & Pereira, 2019).

In Andalusia, though the variation in the quality of the production remains, the productivity of the olive groves increases significantly, with the yield of olive oil per kilogram of olives reaching 21%.

A highlight is the sub-region of Jaén, a province in Andalusia, which has one-third of the region's olive groves.This region stands out not only for its olive oil production but also for the characteristics of its olive groves, which contribute to its performance.

The average olive grove in Jaén covers 1.57 hectares. Of the total olive grove area, around 80.1% is dedicated to traditional olive groves, while almost all of the remaining area is occupied by intensive olive groves, with only 0.6% being super-intensive olive groves. This requires a very well rooted cooperativism structure.

Even so, Jaén achieves record profitability. The percentage of olive oil produced per kilogram of olives reaches 22%, and each hectare of olive grove produces an average of 0.801 tons of oil, the highest yield worldwide.

This high profitability is due mianly to three factors: the significant representation of irrigated olive groves in the region, which make up almost half of the total olive grove area; the high level of modernization in the Spanish sector; and the very well strucutured cooperativism in the region that allows to bring the majority of producers together and leave no olive groove abandoned. Generally, the high productivity of Spanish olive groves can also be attributed to the harvesting season, which takes place in December and January. Harvesting olives during these months increases yield but slightly reduces the quality of the production.

7.1.2. Role of Cooperatives in the Spanish Olive Oil Sector

Cooperativism has played a central and strategic role in Spain's olive oil industry, emerging as a key force in the economic, social, and commercial structure of the sector.

Today, Spanish olive oil cooperatives account for 70% of the total olive oil production and own around 50% of the country's olive mills. These figures are higher than those of any other country with a significant share in olive oil production (Iliopoulos, Theodorakopoulou, & Tzouramani, 2012).

The presence of cooperatives in the leading groups and the existence of significant cooperative brands is crucial for producers as it gives them decision-making power and control, making them less vulnerable to market forces (Azcarate, 2025). Over the last ten years, the profit margins of producers associated with cooperatives have been higher than those selling to private buyers, demonstrating the ability of these organizations to combat speculation and add value to agricultural work. Another important economic factor is the cooperatives' capacity to attract strategic investment.

In Spain, cooperativism not only capitalized on the market's high fragmentation but has also magnified this factor. Cooperatives, meeting the needs of many established producers, have also encouraged farmers to cultivate olive groves, knowing that there is support in cultivation, production, and commercialization. The fact that Spain has more cooperatives than any other country highlights the positive relationship between cooperativism and olive oil production.

Furthermore, the role of cooperatives can be measured by other factors, such as the functions they perform in the production chain, modernization, and innovation in production.

In the olive oil sector, first-degree cooperatives process most of the harvest, their mills are larger than those of private companies, and they have played a crucial role in improving olive oil quality. Second-degree cooperatives, which belong to the leading groups in the sector, export, have their own brands, and work directly with large distributors. This enables them to impose the producers' needs on these distributors. These second-degree cooperatives are becoming the main instruments of concentration and modernization in the sector.

Olive oil cooperativism in Spain, and particularly in Andalusia, has been a fundamental pillar in the region's economic and social development, with tangible effects on territorial cohesion, employment, and the international projection of olive oil production. Cooperatives not only energize the rural economy but also promote innovation, sustainability, and social inclusion in areas often marked by limited opportunities.

Socially, the impact of olive oil cooperatives is equally significant. These organizations play an essential role in retaining populations in rural areas, helping to prevent demographic desertification. In regions such as the Sierra de Cádiz, Jaén, or Priego de Córdoba, cooperatives are often the main local employers. Furthermore, they promote an inclusive work model, creating opportunities for women and young people in areas with limited employment alternatives (Azcarate, 2025).

In terms of innovation and global competitiveness, Andalusian olive oil cooperatives have pursued a strategy of product differentiation through Protected Designation of Origin (PDO) certifications and a focus on organic production. This strategy has significantly increased the market value of Andalusian olive oil internationally (Azcarate, 2025).

Environmental sustainability is another key pillar of the cooperative model. Cooperatives have invested in circular economy projects, such as Oleícola El Tejar (Córdoba), which converts olive waste into biomass, reducing environmental impact and generating green energy. Andalusia accounts for 60% of Spain’s organic olive groves, with cooperatives leading this market segment. (Azcarate, 2025).

Thus, olive oil cooperatives are not just economic structures, but true engines of sustainable development, territorial cohesion, and international prominence for Spain’s olive oil sector.

7.2. Public Support to Spanish Cooperativism

To understand the success of cooperativism in Spain's olive oil sector and the role of public support in this success, it is essential to analyze its origins and evolution. This was based on the

studies of Alicia Navarro about the evolution of the presence of cooperatives in the spanish olive oil value chain and their strategies (2000) and recent olive oil history in Spain (2010).

One of the first factors that shaped cooperativism in Spain, and consequently the olive oil sector, was the agrarian reform, which consisted of redistributing unproductive land (latifundia) to landless people.

Later, agricultural colonization policies promoted the use of new irrigated lands, encouraging the creation of new family farms on public lands.

Spain, and especially Andalusia, was characterized by a very unequal structure and, therefore, although these policies were limited, they allowed the emergence of small and medium landowners, who now had a direct incentive to invest and produce but also faced the challenges of production scale and competitiveness. This fact drove the creation of cooperatives.

The most significant change came later with the State of Autonomies, which allowed the transfer of political powers to the regions, including the management of agricultural and rural development policies.

With this decentralization, the communities also became responsible for implementing co-financing and innovation programs with the ability to adapt these plans to the characteristics of their region. One such plan was the Olive Grove Restructuring Plan, whose central objectives were improving productivity and modernizing techniques and infrastructures. This stimulated the concentration and modernization of farms.

The Andalusian Regional Government, for example, took on an essential role, creating specific programs to support small and medium farmers and olive oil cooperatives, such as: aid programs for agricultural modernization through co-financing of modernization projects for oil mills, irrigation systems, and warehouses; support for the creation and consolidation of cooperatives through grants for mergers and cooperative integration processes; specific programs for the olive oil sector through direct aid for olive grove restructuring.

Since then, until today, both the autonomous communities and the Ministry of Agriculture have maintained an active role in supporting the sector and cooperativism through continuous subsidies for infrastructure modernization and the adoption of new technologies, creation and consolidation of cooperatives, sustainable practices, national and international promotion programs for cooperative products, and specialized technical consulting services.

A recent example is the Plan Director del Olivar (2015–2020), created by the Andalusian Regional Government for the development of the olive oil sector in the region. Through measures such as grants for the renewal of olive groves and irrigation systems and funding for investments in oil mills and storage, it aimed to increase olive oil productivity and quality, modernize farms, encourage technological innovation, cooperative integration, and enhance the environmental and social value of the Andalusian olive grove.

In addition to national support, policies and aid authored by the EEC and the EU had a huge impact on the sector and cooperativism in Spain.

Spain's accession to the EEC opened the door to access to European funds and subsidies, particularly through FEOGA-Guidance (European Agricultural Guidance and Guarantee Fund), which enabled the financing of strategic investments, such as the modernization of oil mills and the installation of irrigation systems and also brought access to the CMO and the European Single Market.

An example of the impact of joining the EEC on cooperativism is the case of the second-degree cooperative Oleostepa, which was founded after many farms gained access to EEC aid for olive grove modernization (Galande, 2022). These aids reached olive growers through effective management by the Andalusian Regional Government.

The implementation of the CAP, with generous production subsidies and guaranteed intervention prices over several years, provided a base of financial stability that encouraged the growth and modernization of the cooperative sector. Community measures replaced the former Spanish state regulation, ensuring access to direct income support, funds for modernization investments, and opportunities for international expansion.

In short, cooperativism in Spain flourished thanks to a specific agrarian context and the constant support of public policies and financial aid. Spain's entry into the European Community was a decisive milestone, transforming the commercial role of cooperatives, promoting modernization and competitiveness, while national programs complemented these efforts with training, incentives, and technical support, consolidating the cooperative model as a pillar of rural and agri-food development in the country.

7.3. The Reason for the Success of Cooperativism in Spain

Beyond climatic conditions, various factors made Spain an ideal place for cooperativism to grow and become the main driver of the sector in the country.

7.3.1. Favorable Historical and Structural Base

The Spanish agrarian context was decisive for the flourishing of cooperativism. Historically marked by strong land concentration, Spain experienced land redistribution policies that favored the emergence of many small and medium landowners, which made the sector highly fragmented. These farmers, faced with the difficulties of competing in a demanding market and with very high production costs, found in cooperatives a natural solution to join forces without losing productive autonomy. From there, a cycle began in which cooperativism also generated more interest among farmers to start cultivating, as they could produce at a lower cost.

This dynamic aligns with the Cluster Theory. The creation of a dense network of small and medium-sized producers, linked through cooperatives, allowed Spain to build a cluster effect where collective action amplified individual capabilities. Moreover, the Resource-Based View also helps explain how the historical fragmentation of land became an asset once it was leveraged by the cooperative model. In RBV terms, the fragmented land is: valuable, because it allowed for production at scale; rare, because the fragmented land and small farmers exists in a much larger scale in Spain due to the historical factors; difficult to imitate, because replicating the structure and fragmented land elsewhere requires a big change in a country's policies; and organized, through the cooperative system, which gives it structure and strategic direction.

7.3.2. Economic needs and the role of cooperatives

Due to the high number of small farmers, from an economic point of view, the cooperative model emerged as a response to the limitations of small-scale production. Individually, producers were unable to process, store, or market their products efficiently. Cooperatives made it possible to share infrastructure such as mills and warehouses, reduce costs, and collectively access markets, in addition to negotiating more favorable prices. This reflects the Theory of Competitive Advantage, where cooperatives function as strategic structures enabling cost leadership through economies of scale.

By managing a large portion of aggregated production, cooperatives also functioned as protection mechanisms against price volatility, enabling strategic storage and harvest planning, helping producers withstand market fluctuations. This resilience capacity embodies the essence of Dynamic Capabilities theory, as it demonstrates the ability of Spanish cooperatives to adapt and reconfigure internal and external resources to respond to changing market conditions and risks, ensuring long-term competitiveness.

7.3.3. Political, Institutional Support and Favorable Legislation

One of the most decisive factors was the role of European Union policies and Spanish public entities—and even more crucial was how these policies were implemented by each region.

With Spain's accession to the EU, the CAP became a fundamental pillar for the sector, directing subsidies and incentives mainly to collective structures such as cooperatives. This financial support was essential to modernize the sector, improve product quality, and strengthen marketing capabilities.

However, the success of cooperativism in Spain would not have been possible without adequate support from these public policies. The Spanish state and regional administrations, especially Andalusia, created specific support policies and made European aid quickly available to producers. Through incentives, technical support, training, and financing, they promoted the structural growth of the sector, equipping producers with the tools needed to produce more and better. This resulted in more producers needing to process their product and in commercial representation, which boosted cooperativism.

This strong policy backing also aligns with Cluster Theory, as it demonstrates how public policies can serve as catalysts for cluster formation by supporting infrastructure development, facilitating access to resources, and creating the conditions for innovation and cooperation. Furthermore, the implementation of CAP funds through cooperatives strengthened Dynamic Capabilities, enabling continuous adaptation through investments in technology, training and sustainability, crucial to maintaining competitiveness in an evolving global market.

Moreover, these policies also directly promoted the creation of cooperatives and encouraged them to organize into second- and higher-level structures. Examples like Dcoop show how this integration allowed the expansion of operational scale, the professionalization of management, and access to international markets, transforming small local producers into global players.

Cooperativism in Spain was successful because it was not imposed externally but adapted to local realities and the existing rural culture, which shows the inimitability aspect of the RBV.

7.3.4. Consolidation and Modernization Strategies

Spanish cooperatives knew how to evolve. They merged, invested in the modernization of oil mills and improved cultivation techniques, which contributed to the creation of cost leadership competitive advantages. They also invested in traceability, quality certification – such as Protected Designations of Origin, which constitutes a competitive advantage through

differentiation – and built strong regional brands, which according to RBV is a valuable, rare, inimitable and organized intangible resource.

Vertical integration, controlling all stages of the chain from production to export, was an important part of their strategy and allowed them to add value, conquer higher-value markets, and increase profitability. The creation of large cooperative groups, such as Dcoop, was essential to face the pressures of globalization, the concentration of distribution, and the need to negotiate with major supermarket chains.

This demonstrates the embodiment of dynamic capabilities, as cooperatives in Spain were able to sense market opportunities, such as the demand for quality and PDO-certified olive oil, seize these opportunities through traceability, and reconfigured their operations to maintain competitiveness over time through mergers and vertical integration. The continuous improvement of processes, investment in innovation, and professionalization of management also reflect the cooperative sector's ability to learn and adapt.

The success of Spanish cooperativism illustrates how Cluster Theory and RBV complement each other: the clustering of producers, cooperatives, and institutions creates an environment where resources (physical infrastructure, knowledge, branding) are collectively built and sustained, while dynamic capabilities ensure these resources are constantly refreshed, adapted, and mobilized to respond to new challenges.

Although some factors were more critical than others, the success of cooperativism in Spain, and particularly in Andalusia, was the result of a combination of historical conditions, economic needs, strategic public policies, local culture, and adaptability. The Spanish cooperative model proved to be an effective solution to address the challenges of small scale, improve competitiveness, and strengthen the rural socioeconomic fabric, becoming a model of sustainable collective development in the European agricultural sector.

8. Replication in Ourique and in Baixo Alentejo

8.1. Estructural Potential

8.1.1. Productive Estructure

Looking at INE data on the number of olive groves in Ourique in 2019, it can be observed that Ourique is one of the municipalities with the fewest olive groves, both in Baixo Alentejo and in Alto and Central Alentejo, with only 210 olive groves. These are mostly small-scale groves,

with an average size of 3.29 hectares per grove, accounting for a total of just 691 hectares of olive groves in the entire municipality. Following Barrancos, it is the municipality with the smallest number of hectares.

Through an interview with an olive grove owner in the region, it was concluded that the main reasons for the lack of more olive plantations in Ourique are the high costs associated with transforming olives into olive oil and the limited economic capacity of the farmers. They do not plant more olive trees because producing olive oil requires a significant investment—an investment that is only feasible in more developed regions or for farmers with greater financial resources.

This situation is also described by Milonas et al. (2011). According to these authors, small olive groves with less 5 hectares are unprofitable even after subsidies have been added to farm income and olive groves of 5-20 hectares are profitable only after subsidies that subsidies cover 50% of labour costs. Moreover, only olive farms above 20 hectares are profitable without subsidies.

If we analyze the growth in the number of olive groves alongside the growth in olive grove hectares per municipality, we can see that while the number of groves has remained relatively stable over time, the size of the groves has tended to double in the last 10 years. This shows that there are no new farmers entering the sector due to high costs, but larger farmers are expanding their groves. This discrepancy is also due to the limited number of cooperatives in Baixo Alentejo.

	Município	1989	1999	2009	2019
N.º de Olivais	Aljustrel	123	120	123	112
	Almodôvar	383	273	255	318
	Alvito	166	147	168	183
	Barrancos	276	234	186	164
	Beja	498	528	464	541
	Castro Verde	58	121	119	111
	Cuba	241	278	253	250
	Ferreira do Alentejo	319	230	217	226
	Mértola	222	242	345	248
	Moura	1 411	1 392	1 461	1 367
	Ourique	208	172	168	210
	Serpa	2 149	1 499	1 762	1 533
	Vidigueira	506	479	443	350

Figure 2 Evolution of the number of olive grooves in Baixo Alentejo in every census by municipality (INE, 2022)

8.1.2. Geography and Natural Resources

Another reason for the limited presence of olive groves in Ourique is its water resources. Although Ourique enjoys a privileged location that entirely encompasses the Monte da Rocha reservoir, this is one of the reservoirs most affected by drought in recent years. In 2024, it recorded only 8% of its total storage capacity, and currently, as previously mentioned, it has the lowest percentage of water storage relative to its total volume, registering 38% in May 2025.

As observed earlier in the Spanish context, water availability is one of the defining factors of highly productive olive oil regions. This is also evident at the national level, where the municipalities that produce the most olive oil are also those with the highest number of irrigated olive groves.

Therefore, being a critical factor, Ourique is not currently in an ideal position to hold a significant role in the olive oil sector. However, things may change, and coincidentally, a project is underway that could completely transform this aspect of the region, solving not only the issues of drought and irrigation but also exponentially increasing the region's potential for agricultural projects.

This project is the construction of a connection between the Alqueva system and the Monte da Rocha reservoir. This connection is already under construction and is expected to be completed in approximately one year. It will enhance agricultural activity in the region as, beyond remedying water scarcity, it will allow for additional connections to use the water for irrigation purposes.

A living example of this is the Roxo Dam, which in 2010, following the connection of its reservoir to the Alqueva system, recorded an increase in its irrigated area from 3,520 hectares (with further potential to grow) to currently 8,689 hectares, and an increase in distributed water volumes from 18 hm^3/year to 35 hm^3/year.

Through the analysis of maps showing the distribution of different crops across Portugal, it is evident that olive groves (represented in orange) are much more predominant and larger near water reserves, especially near the Alqueva and Roxo reservoirs, whereas in Ourique, smaller-scale farms are still the majority.

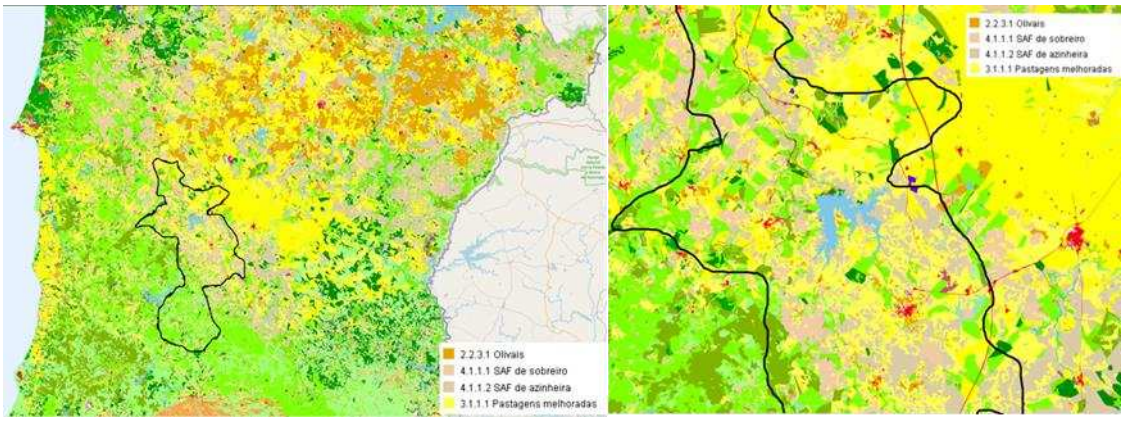

Figure 3 Dispersion of Agricultural Crops across Baixo Alentejo and Ourique

If we look at historical data, particularly from municipalities around the Roxo Dam—specifically Aljustrel, Ferreira do Alentejo, and Beja—it can be observed that in 2019 the area occupied by olive groves increased by an average of 79%, with a notable increase in Beja, where it more than doubled. (Associação de Beneficiários do Roxo, 2025)

	Município	1989	1999	2009	2019
Superfície de Olival (ha)	Aljustrel	819	750	3 148	4 917
	Almodôvar	826	593	548	730
	Alvito	1 126	1 486	1 518	3 147
	Barrancos	847	912	661	511
	Beja	3 629	3 872	10 093	23 571
	Castro Verde	423	549	1 151	650
	Cuba	746	989	1 169	2 001
	Ferreira do Alent	3 667	2 640	9 850	14 865
	Mértola	670	682	966	1 085
	Moura	12 697	15 924	19 304	20 709
	Ourique	558	679	513	691
	Serpa	18 151	17 630	23 189	25 680
	Vidigueira	2 901	3 685	5 448	7 295

Figure 4 Evolution of Olive Grove Area by Municipality in Baixo Alentejo over the Last Four Agricultural Censuses

Further analyzing the difference between 1999 and 2009, it can be noted that there was an even greater average increase—around 250%. Considering that between 1989 and 1999 there was no increase—in fact, there was a decrease in the surface area of olive groves—it is possible that the sharp rise recorded between 1999 and 2009 was driven by expectations and the identification of future opportunities, in this case, the connection of the Roxo reservoir to the Alqueva system.

Therefore, there is a strong possibility that the connection of the Alqueva to the Monte da Rocha reservoir will stimulate investment in agricultural operations in the region and consequently increase the surface area of olive groves.

Moreover, regarding the terrain, Ourique, consists largely of flat land, which is favorable for the cultivation of olive trees and facilitates the harvesting of olives, unlike Barrancos and Odemira. Additionally, much of this land does not fall within protected areas or ecosystems, as is the case in Castro Verde and Almodôvar.

8.1.3. Assesment of the Potential

It is possible to conclude that, although Ourique currently has a modest olive oil production and an underdeveloped olive oil sector, the scenario could change considerably in the future. The construction of the connection between Alqueva and the Monte da Rocha reservoir appears as a decisive factor to unlock the region's agricultural potential, allowing it to overcome water limitations that have so far hindered the growth of olive groves. The favorable terrain and the absence of significant environmental restrictions further reinforce the conditions for the development of modern and more productive olive-growing operations. Moreover, the lack of olive groves in the region can also be seen as space for development and growth of the sector in Baixo Alentejo. While in other municipalities most of the land suitable for olive cultivation is already occupied—possibly by private companies—in Ourique, the available surface is still quite large.

This set of characteristics fits within the logic of the Resource-Based View (RBV). The climate, soils suitable for olive cultivation, traditional olive groves, and accumulated knowledge are assets that, when effectively organized, can sustain a lasting competitive advantage, representing significant potential. Also, regarding the opportunity of the connection to the Alqueva dam, if the region shows the dynamic capabilities of sensing the potential for olive cultivation, seizing the opportunity and reconfigurate to sustain the competitive advantage that comes out of it, the resource bundle will increase significantly and so will do the potential.

8.2 Why the Potential Has Not Been Harnessed

Despite the high agricultural and climatic potential of Baixo Alentejo for the production of quality olive oil, this area of the municipality of Ourique remains underutilized in relation to its potential productive value, and this is due to several factors.

Firstly, the region is characterized by a high number of small producers who, on their own, lack the scale and capital necessary to invest in transformation infrastructure such as olive mills or in competitive commercial strategies.

Secondly, there is a weak culture of cooperativism and the absence of cooperatives in the region makes the sector less attractive to new producers and exacerbates the existing structural limitations. Unlike Andalusia, where agricultural cooperatives represent a significant share of olive oil production and commercialization, in Baixo Alentejo cooperatives are scarce and limited.

Another important barrier lies in the insufficient coordination and strategic support from local and national authorities. Although there are incentive programs and available funding — such as PEPAC or Portugal 2030 — their implementation has often been fragmented, making it difficult for small producers to access these supports.

Finally, factors such as the limited availability of technical training in rural areas and the aging farming population may also have contributed to the lower dynamism of the sector. In short, there is a vicious cycle of low economic attractiveness and lack of investment that perpetuates the underutilization of the region's potential.

This underutilization can be interpreted through the lens of cluster theory, as the absence of an articulated regional ecosystem in which producers, public entities, cooperatives, and knowledge centers are interconnected to generate innovation and efficiency. The lack of institutional coordination weakens the system as a whole. Furthermore, dynamic capabilities theory helps explain that, without mechanisms for collective learning and strategic adaptation, local producers remain stuck in inefficient models — even when they possess resources with high potential.

8.3. How to Follow Success Stories and Harness This Potential?

8.3.1. Promoting Agricultural Cooperativism

As seen in the Spanish case, cooperativism has been a major driver of the development of the olive oil sector. Therefore, for the sector to develop in the region, creating a cooperative is essential. In Ourique, in particular, a cooperative could help break the cycle of low economic attractiveness.

The presence of a cooperative would allow current olive grove owners to generate income from their groves and share production costs. The cooperative could also provide training to its members on available public support and help secure incentives to modernize their groves, increasing productivity. As productivity and profitability grow, more producers and investments would be drawn to the area, supporting the growth of the cooperative or the formation of

additional cooperatives. In this case, policies encouraging the creation of second-level cooperatives would help avoid fragmentation and keep power in the hands of producers.

This action is grounded in cluster theory, by fostering cooperation among producers, an environment conducive to mutual learning, production efficiency, and innovation is created. At the same time, the theory of competitive advantage reflects how cooperatives enable cost leadership strategy and differentiation by leveraging a collective brand with regional identity. Furthermore, the creation of local collaborative networks, in this case, the cooperatives, as described in cluster theory, helps consolidate an ecosystem where knowledge, innovation, and institutional support reinforce one another.

8.3.2. Public Incentives and Involvement of Local Authorities and Public Entities

Creating a cooperative requires facilitating access to existing public support for forming producer organizations or for improving olive grove cultivation and use, modernization, and agricultural entrepreneurship. To this end, it is recommended to establish local technical support offices, specialized in public funding, that provide consultancy to producers—helping them apply for funds, manage projects, and comply with legal requirements.

After the cooperative is established, additional support is essential to enhance its market competitiveness. Examples of such support include funding for infrastructure modernization and new technologies, incentives for renovating olive groves and irrigation systems, consolidation of cooperatives, promotion of innovation and sustainable practices, national and international marketing of cooperative products, and support for certification of Protected Designations of Origin (PDOs).

Furthermore, municipal governments and inter-municipal bodies should take a proactive role in creating synergies between producers, institutions, and companies. High-impact measures include allocating public land for the installation of cooperative olive mills or for olive groves managed by the cooperative.

This approach meets the need to strengthen the dynamic capabilities of the region – its ability to integrate external resources, adapt to new conditions, and strategically reorganize – and deal with challenges like climate change or new CAP requirements. Effective use of incentives allow for institutional flexibility, technical knowledge, and a culture of innovation – key elements in this theory. Their absence in Baixo Alentejo has been an obstacle to sector modernization.

Moreover, the Resource-Based View (RBV) justifies the importance of a strong collective brand as a valuable and inimitable intangible resource capable of generating competitive advantage through differentiation. A strong brand based on attributes like geographic origin, tradition, and sustainability can position the region's olive oil in higher value segments aligning with Porter's differentiation strategy.

8.3.3. Development of the Productive Structure

With financing from public programs, olive groves and mills must be modernized—starting with irrigation infrastructure to take advantage of the new water supply from the Alqueva–Monte da Rocha connection.

A regional strategic plan for the olive oil sector in the region is essential, with measurable goals for production, exports, number of cooperatives, certified hectares, and jobs created. This plan should be supported by an interinstitutional governance structure and regularly evaluated.

The dynamic capabilities theory emphasizes that sustainable competitiveness requires strategic vision, coordination, and continuous adaptability. A plan with clear goals and regular institutional monitoring enables efforts to be aligned and actions adjusted as the sector and external context evolve. Here too, cluster theory reinforces the idea that regional development depends on governance structures capable of promoting collective action and territorial innovation.

8.3.4. Investment in Training, Innovation, and Digitalization

As done in Spain, it is crucial to empower producers with technical knowledge. Partnerships with higher education institutions, research centers, and industry associations should be promoted to build competencies in sustainable agriculture.

In Andalusia, olive oil cooperatives have integrated new technologies in recent years to enhance efficiency, quality, sustainability, and marketing. Similarly, Ourique and Baixo Alentejo will eventually need to invest in innovation and digitalization—adopting tools like IoT sensors, drones, big data platforms for climate and farm monitoring, blockchain to prevent fraud, and advanced olive mills with cold extraction and automated control.

To adapt to increasing climate concerns and safeguard future harvests, investment in biomass and green energy is also important—such as using olive pomace and pits for electricity, reusing wastewater, and switching to organic production.

Leveraging the cooperative community, cost-sharing in R&D and logistics, participation in knowledge-sharing networks, and creating synergies—especially with Spanish cooperatives through mentorship programs—will be key.

This action is strongly backed by dynamic capabilities theory, which stresses the importance of organizational learning and continuous skill renewal to face changing contexts. Investment in training and innovation enables producers to meet environmental, technological, and market demands, while also strengthening the local production cluster by stimulating interaction with knowledge centers.

8.3.5. Development of a Commercial Plan

To take advantage of the region's varieties of olive trees which are different from the ones that are saturating the market. The cooperative should develop for the quality certification of PDO's and develop its brand around quality exploiting the fact that Portugal is the country that produces the higher percentage of the best quality olive oil. This will help to market the product, especially in international markets and to increase its margins as quality products are sold more expensive.

Moreover, to take advantage of close relationship with Brazil, the cooperatives and the region should promote and attend events in this country where they promote the high quality of the product and create synergies with some retailer brands in Brazil.

Finally, to expand the producing and comercial power of the cooperative that will be created in Ourique, the cooperative should promote the acquisition of new producers from other regions, for example Castro Verde, who will also benefit from the Alqueva connection. This would work just like the agricultural cooperative of Moura and Barrancos which includes partners from both municipalities. And if it makes sense consider fusion and partnerships with other cooperatives in Baixo Alentejo.

This strategy aligns with Porter's Competitive Advantage theory, as PDO certification and branding based on unique Portuguese olive varieties (valuable and rare resource) enable product differentiation and access to premium markets. The Cluster Theory supports the cooperative's expansion through partnerships, creating synergies with producers from other regions like Castro Verde.

This set of measures aims to create a more collaborative, competitive, and sustainable agricultural ecosystem, allowing Baixo Alentejo to position itself as a reference in olive oil

production, much like Andalusia. The path is clear—what remains is political will, local organization, and a well-executed strategy.

9. Conclusion

This thesis set out to explore how cooperativism and public policies can act as catalysts for the development of the olive oil industry in Ourique and Baixo Alentejo, a region with significant yet underutilized potential. Drawing on the theoretical foundations of Competitive Advantage, Resource-Based View, Cluster Theory, and Dynamic Capabilities, the research demonstrates that the sustainable growth of the olive oil sector relies on a combination of strategic positioning, the effective mobilization of unique local resources, the development of productive networks, and the adaptive capacity of stakeholders.

The case study of Ourique revealed that despite favorable natural conditions for olive cultivation, the region remains constrained by structural fragmentation, limited economies of scale, weak coordination among producers, and underutilization of available public support. Applying the Resource-Based View, it becomes clear that Baixo Alentejo holds valuable resources — such as climate, soil, olive-growing tradition, and agricultural potential — but has not yet transformed these into a sustained competitive advantage due to a lack of organizational capabilities and collective strategies such as the ones of the cluster theory.

The Spanish experience, particularly the success of cooperativism in Andalusia, illustrates the power of clusters and cooperative structures in enhancing competitiveness and resilience. The development of strong clusters around olive oil production, as observed in Andalusia, has enabled the formation of trust-based networks, knowledge sharing, innovation, and access to global markets. These dynamics highlight the importance of fostering cooperative frameworks that go beyond individual farms to encompass integrated value chains and regional systems of innovation.

Moreover, the theory of Dynamic Capabilities underscores the need for constant adaptation in the face of external challenges, such as climate change, market volatility, and evolving consumer preferences. The Spanish model demonstrates how cooperatives have been able to adapt production systems, adopt sustainable practices, invest in technology, and internationalize their products, anda demonstrates how public policies, such as the Common Agricultural Policy (CAP), PEPAC, and regional programs like Alentejo 2030, emerge as critical enablers in this process. These policies not only provide financial support but also provide flexibilty in a changing context.

Looking forward, the infrastructural investment in the connection of the Monte da Rocha reservoir to the Alqueva system represents a pivotal moment for the region. By improving access to water, it creates the conditions necessary for expanding olive cultivation and, when combined with cooperative organization and strategic public support, could transform Baixo Alentejo into a more competitive and resilient player in the global olive oil market.

Ultimately, this thesis concludes that fostering a strong cooperative culture — underpinned by effective public policies and aligned with the theoretical frameworks of Competitive Advantage, Resource-Based View, Clusters, and Dynamic Capabilities — offers a viable pathway for the development of the olive oil industry in Baixo Alentejo. This approach not only drives economic growth but also strengthens social cohesion, supports environmental sustainability, and contributes to the long-term resilience of rural communities.

10. References

Azcarate, T. G. (April de 2025). Spanish olive oil sector success. (D. Bento, Entrevistador)

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17(1)*, 99–120.

Cooke, P. (1996). The New Wave of Regional Innovation Networks: Analysis, Characteristics and Policy. *Small Business Economics, 8(2)*, 159–171.

Correia, J., Durão, A., Almeida, A., Pardal, A., Lopes, V., Parreia, A., . . . Carvalhos, T. (2021). Impacto da ligação ao alqueva na qualidade da água. *Congresso da Água*.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: what are they? *Strategic Management Journal, 21(10–11)*, 1105–1121.

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy, 12(1)*, pp. 78–104.

Helfat, C. E. (2007). *Dynamic Capabilities: Understanding Strategic Change in Organizations.* Blackwell Publishing.

Howard E. LeWine, M. (July de 2024). Is extra-virgin olive oil extra healthy? *Harvard Health Publishing*. Obtido de https://www.health.harvard.edu/nutrition/is-extra-virgin-olive-oil-extra-healthy

Iliopoulos, C., Theodorakopoulou, I., & Tzouramani, I. (2012). *Support for Farmers' Cooperatives.* Wageningen: Wageningen UR.

Vilar, J., & Pereira. J. (2019). A olivicultura internacional: difusão histórica, análise estratégica e visão descritiva. Juan Vilar Consultores Estratégicos, SL

Kaplinsky, R., & Morris, M. (2001). A Handbook for Value Chain Research. *Institute of Development Studies*.

Ketels, C. (2004). European Clusters. *Harvard Business School*.

Milonas, P. V. (2011). Olive Oil: Promoting Quality through Concentration and Standardization. *Sector Studies*.

Navarro, A. L. (2000). Las Cooperativas en la Cadena del Aceite de Oliva: Estrategias y Perspectivas. *REVESCO. Revista de Estudios Cooperativos, 72*, 151-173.

Navarro, A. L. (2010). El aceite de oliva en la historia reciente de España. *Distribución y Consumo, 114*, 66-85.

Penrose, E. (1959). *The Theory of the Growth of the Firm.* Oxford University Press.

Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance.*

Porter, M. E. (1990). *The Competitive Advantage of Nations.* Macmillan.

Ray, C. (1998). Culture, Intellectual Property and Territorial Rural Development. *Sociologia Ruralis, 38(1)*, 3–20.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal, 18(7)*, 509–533.

10.1. Other References

Alentejo 2030. (2023). Obtido de Alentejo 2030: https://alentejo.portugal2030.pt/o-alentejo-2030/

APA. (2025). *Boletim semanal de albufeiras.* Agência Portuguesa do Ambiente. Obtido de https://apambiente.pt/sites/default/files/_SNIAMB_Agua/DRH/MonitorizacaoAvaliacao/BoletimAlbufeiras/Semanal.pdf

Associação de Beneficiários do Roxo. (2025). *O Perímetro*. Obtido de Associação de Beneficiários do Roxo: http://abroxo.pt/index.php/o-perimetro

CONFAGRI. (2023). *Projetos*. Obtido de CONFAGRI:https://www.confagri.pt/temas/projetos/

Consulai. (2023). *Apoios ao investimento | PEPAC.* Consulai. Obtido de https://azeitedoalentejo.pt/wp-content/uploads/2024/09/04_Pedro_Falcato_CEPAAL_%C3%89vora_231209.pdf

EC. (2017). *The EU olive and olive oil sector.* European Parliamentary Research Service. Obtido de https://www.europarl.europa.eu/RegData/etudes/BRIE/2017/608690/EPRS_BRI(2017)608690_EN.pdf

EC. (2023). *Approved 28 CAP Strategic Plans (2023-2027).* European Comission, Agriculture and rural development. Obtido em May de 2025, de https://agriculture.ec.europa.eu/system/files/2023-06/approved-28-cap-strategic-plans-2023-27.pdf?utm_source=chatgpt.com

EC. (2023). *EU agricultural outlook for markets, 2023-2035.* European Comission, DG Agriculture and Rural Development, Brussels.

EC. (2024). *Short-term outlook Autumn 2024.* DG for Agriculture and Rural Development. Obtido de https://agriculture.ec.europa.eu/document/download/f0c4920c-3a42-45b6-a415-009c139b99b0_en?filename=short-term-outlook-statistical-annex_en.pdf

EC. (2024). *Short-term outlook for EU agricultural markets, Autumn 2024.* European Commission, DG Agriculture and Rural Development, Brussels.

EC. (2025). *Common agricultural policy*. Obtido em March de 2025, de European Comission: https://agriculture.ec.europa.eu/common-agricultural-policy_en

EC. (2025). *DG AGRI DASHBOARD: OLIVE OIL.* DG Agriculture and Rural Development.

EC. (2025). *Income support*. Obtido em March de 2025, de European Comission: https://agriculture.ec.europa.eu/common-agricultural-policy/income-support_en

EC. (2025). *LEADER/CLLD*. Obtido em April de 2025, de EU CAP Network: https://eu-cap-network.ec.europa.eu/networking/leader_en

EC. (2025). *Market situation in the olive oil and table olives sectors.* DG for Agriculture and Rural Development. Obtido de https://agriculture.ec.europa.eu/document/download/beb64ad4-c447-4fe3-92b8-7c0be682065b_en?filename=market-situation-olive-oil-table-olives_en.pdf

EC. (2025). *Olive Oil*. Obtido de European Comission - Agriculture and rural development: https://agriculture.ec.europa.eu/farming/crop-productions-and-plant-based-products/olive-oil_en

EC. (2025). *Olive oil balance sheet.* DG for Agriculture and Rural Development.

EC. (2025). *Olive Oil Factsheet.* DG for Agriculture and Rural Development. Obtido de https://agriculture.ec.europa.eu/document/download/cb848d45-397b-4266-ac32-3e2e4394f9cd_en?filename=factsheet-olive-oil_en.pdf

Finck, F. (2025). *Olive Oil Market Report.* Certified Origins. Obtido de https://www.certifiedorigins.com/olive-oil-market-report-january-2025-2/

GPP. (2025). *Newsletter - Azeite e Azeitona.* Divisão de Estatística. Gabinete de Planeamento, Políticas e Administração Geral. Obtido de https://regsima.gpp.pt/regsima/static/pdf/azei_News.pdf

INE. (2022). *Explorações agrícolas com culturas permanentes (N.º) por Localização geográfica (Região agrária/ Ilha), Tipo (culturas permanentes) e Classes de área (cultura agrícola); Decenal.* INE. Obtido de https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0010814&contexto=bd&selTab=tab2

INE. (2022). *Superfície das culturas permanentes (ha) por Localização geográfica (Região agrária/ Ilha), Tipo (culturas permanentes) e Classes de área (cultura agrícola); Decenal.* INE. Obtido em April de 2025, de

https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0010811&contexto=bd&selTab=tab2

INE. (2024). *Azeite produzido (hl) por Localização geográfica (Região agrária), Tipo de lagar de azeite, Grau de acidez e Sistema de extração utilizado; Anual.* INE. Obtido em May de 2025, de https://www.ine.pt/https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0000709&contexto=bd&selTab=tab2/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0000709&contexto=bd&selTab=tab2

INE. (2024). *Superfície das culturas permanentes (ha) por Localização geográfica (NUTS - 2024), Tipo (culturas permanentes) e Classes de área (cultura agrícola); Não periódica.* INE. Obtido de https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&indOcorrCod=0013666&contexto=bd&selTab=tab2

IOC. (2024). *EU Production.* International Olive Council. Obtido de https://www.internationaloliveoil.org/wp-content/uploads/2024/12/HO-CE901-15-12-2024-P.pdf

IOC. (2024). *Olive Oil Dashboard.* International Olive Council, Economic Research and Statistics Department. Obtido de https://www.internationaloliveoil.org/wp-content/uploads/2023/12/IOC-Olive-Oil-Dashboard.html#flows-20222023

IOC. (2024). *World Production.* International Olive Council. Obtido de https://www.internationaloliveoil.org/wp-content/uploads/2024/12/HO-W901-15-12-2024-P.pdf

IOC. (2025). *OLIVE OIL PRICES - February 2025 update.* International Olive Council, Economic Research and Statistics Department. Obtido de https://www.internationaloliveoil.org/wp-content/uploads/2025/03/IOC-prices-rev-0-1.html

IOC. (2025). *Sector Statistics – January 2025.* Madrid: IOC. Obtido de https://www.internationaloliveoil.org/sector-statistics-january-2025/

IPCC. (2018). *Painel Intergovernamental sobre Mudanças Climáticas.* Suíça: IPCC.

IPMA. (2025). *Alterações Climáticas em Portugal*. Obtido de Portal do Clima: http://portaldoclima.pt/pt/

IPMA. (May de 2025). *Monitorização da Seca*. Obtido de Instituto Português do Mar e da Atmosfera: https://www.ipma.pt/pt/oclima/observatorio.secas/

Matos, M. (2024). *Portugal é o pais onde se produz a maior percentagem de azeite virgem extra do mundo*. Voz do Campo. Obtido de https://vozdocampo.pt/arquivo/18437

Merino, Á. (2024). Las guerras del aceite de oliva. *El Orden Mundial*. Obtido de https://elordenmundial.com/guerras-aceite-oliva-espana-italia/

O que é o Portugal 2030. (2023). Obtido de Portugal 2030: https://portugal2030.pt/o-portugal-2030/o-que-e-o-portugal-2030/

PEPAC. (2025). *Como se organiza o PEPAC no Continente?* Obtido de PEPAC Continente: https://pepacc.pt/sobre-nos/o-que-esperar-do-pepac-continente/como-o-programa-se-organiza/

REA. (May de 2025). *Energia e Clima - Precipitação e temperatura*. Obtido de Portal do Estado do Ambiente: https://rea.apambiente.pt/content/precipita%C3%A7%C3%A3o-e-temperatura

SNIG. (2018). *Carta de Uso e Ocupação do Solo.* Direção-Geral do Território. Obtido de https://snig.dgterritorio.gov.pt/rndg/srv/por/catalog.search#/metadata/b498e89c-1093-4793-ad22-63516062891b

Appendice

Appendice I – Interview with Tomas Garcia – Phd in Agricultural Economics

Diogo: How would you describe the current landscape of the olive oil sector in Spain?
Tomás: Spain, and therefore Andalusia, is the world leader in olive oil, but it doesn't fully believe it yet, nor does it fully act as such—though its prominence is increasing. For many years, Italy—or more precisely, Italian traders—were the global leaders. But little by little, power has shifted to where the production is. Leading Italian brands such as Bertolli, Carapelli, and Pascalini are no longer Italian, and their dominance in the major export market, the United States, is a thing of the past (although the largest Spanish and global cooperative, Dcoop, sells under the brand Pompeian).

Diogo: How was the process of forming cooperatives in Spain? Was it different for olive oil cooperatives?

Tomás: The formation process was quite similar to that of other cooperatives: a product that requires processing, and the need in the supply chain for an agent to consolidate production from individual farmers.

For many years, cooperatives were leaders in primary olive oil production, but marketing was in the hands of private companies. The new element, linked to Spain's entry into the European Community, is the commercial role of cooperatives.

EU membership triggered an explosion in production, a significant improvement in quality, and the rise of two strong personalities: Álvaro Olavarría (Oleoestepa) and Antonio Luque (Dcoop).

Diogo: During the formation process, did they face any significant challenges?

Tomás: Farmers' natural tendency toward individualism was balanced by the need to process the product for sale. However, this is still reflected in the large number of small cooperatives - sometimes several in the same village.

Other challenges can be inferred from what's been said: a lack of commercial mindset and, therefore, a limited culture of product quality.

Before joining the EU, the main market for olive oil was domestic, with exports being a secondary activity. The Spanish market consumed (and still consumes a lot of) "Riviera oil" or "pure olive oil," now simply labeled "olive oil"—a blend of a small amount of virgin oil with a large amount of refined oil. In this context, the initial quality of the oil mattered less, as it was

refined.
Today, in a normal year, Spain produces 1.5 million tons and exports 1 million. The circumstances and the market have changed significantly.

Diogo: Are there regional differences in the structure and success of cooperatives in Spain? And differences between cooperatives in different industries?

Tomás: The bulk of olive oil production is in southern Spain—Andalusia, along with Extremadura and Castilla-La Mancha (and I'd even say Alentejo, where Andalusians have invested or served as a model for entrepreneurs in those regions). Catalonia (and part of Aragón) has a different dynamic, balancing local production and consumption with exports to Italy for blending. Outside this broad zone, cooperatives are mainly small-scale producers of quality oil or raw material suppliers for major players, whether cooperatives or industry. For other sectors, please refer to the bibliographic references mentioned earlier.

Diogo: What should a cooperative do in its early stages to succeed in the market?
Tomás: First, define which market(s) it wants to target. Second, seek the necessary allies to access these markets (direct sales clients, a second-tier cooperative, a regulatory council, etc.). Then, produce what that market demands: it could be standard oil if the market is the refining industry (where price is key) or high-quality oil, with or without a designation of origin.

Diogo: Did the government or the European Union play any role in the creation or development of cooperatives, for example, through European funds, financing, or public investment?

Tomás: As mentioned earlier, joining the EU was a major turning point. FEOGA-Orientación first, and then FEADER, have greatly supported investment in mills and irrigation.
European regulations, with substantial production subsidies and, for many years, intervention prices (guaranteed prices), have also been a powerful stimulus. Unlike Italy and Greece, olive oil production in Spain and Portugal has been driven by true entrepreneurs, enabling them to mobilize European market and investor support.

Diogo: Are there specific programs to promote innovation and modernization of cooperatives?
Tomás: Yes, several programs and policies in Europe and Spain promote innovation and modernization of cooperatives. Here are a few examples:

At the European level:

- FEADER (European Agricultural Fund for Rural Development): Supports cooperative modernization through investments in innovation, sustainability, and diversification.
- Horizon Europe: EU research and innovation program that funds projects promoting innovation in various sectors, including cooperatives—especially in sustainability and digitalization.
- Cooperative Innovation Initiatives: The European Commission encourages initiatives to enhance cooperative competitiveness through innovation and best practice exchange.

At the national level (Spain):

- Ministry of Agriculture, Fisheries and Food: Offers programs supporting agricultural sector modernization and innovation, including cooperatives. Funding includes support for facility modernization and new technology implementation.
- Agri-food Cooperatives of Spain: Provides training and advisory programs to promote innovation and competitiveness in cooperatives. They also encourage collaborative projects between cooperatives.
- Regional government programs: Many Spanish autonomous communities have their own cooperative support programs, including grants and incentives for innovation and modernization.
- Rural Innovation Network: Aims to promote innovation in rural areas by supporting cooperatives in adopting new technologies and sustainable practices.

Diogo: Does sector regulation and EU support benefit cooperatives more than private companies?

Tomás: EU programs don't differentiate by beneficiary, but as the second pillar is regionalized, Autonomous Communities can introduce such distinctions.

Diogo: Does the government view cooperativism as a model to strengthen in the future, or are there trends favoring other agricultural organization formats?

Tomás: This question would be better answered by someone in government. However, in general, all governments (left and right) have supported cooperativism.

Spain's Ministry of Agriculture, Fisheries and Food has several programs and measures supporting cooperatives, including:

- Subsidies for farm modernization: Grants for upgrading facilities and equipment in agricultural cooperatives.
- Funding for cooperative creation and consolidation: Targeted support for new and existing cooperatives, especially in strategic sectors.
- Training programs: Capacity building for cooperative members and leaders in management, marketing, and key areas.
- Support for cooperative integration: Projects fostering cooperation and synergies between cooperatives.
- Innovation and sustainability initiatives: Resources for cooperative innovation and sustainable practices (circular economy, environmental impact reduction).
- Product promotion programs: National and international promotion of cooperative products.
- Technical advisory services: Support to address challenges and optimize processes.

Diogo: What is the importance of cooperativism in the olive oil sector in Andalusia? Tomás: In economic terms and business volume, cooperativism in Andalusian olive oil is highly significant. Key points:

1. Production volume and share in Spain and globally:
    - Andalusia produces around 80% of Spanish olive oil and is the world's largest olive-growing region.
    - Cooperatives manage about 60–70% of Andalusian production (over 80% in provinces like Jaén).
    - In typical seasons, Andalusia produces 1.2 to 1.5 million tons of olive oil, with cooperatives leading this volume.
2. Economic impact and revenue:
    - The olive oil sector in Andalusia generates over €2 billion in annual production value.

- Cooperatives handle much of this, with some exceeding €100 million in revenue (e.g., Dcoop in Antequera, Jaencoop in Jaén, Oleícola El Tejar in Córdoba).

3. Employment and rural fabric:
    - Olive groves provide over 20 million workdays annually in Andalusia.
    - Cooperatives are key employers (direct and indirect).

Diogo: How has cooperativism contributed to Andalusia's economic and social development?

Tomás: Cooperativism in Andalusian olive oil has been a pillar of economic and social development, with tangible impacts in employment, territorial cohesion, and international outreach. Key contributions:

1. Economic development:
    - Rural GDP driver: The olive oil sector generates over 20% of Andalusia's agricultural GDP, mostly controlled by cooperatives. Jaén province depends on olive oil for 30% of its economy.
    - Reduced intermediaries: Cooperatives ensure better prices for farmers by selling directly, avoiding speculation. Example: Over the past 10 years, cooperative producers earned 15–20% more than those selling to private companies.
    - Investment attraction: They have secured EU funds (FEADER, CAP) to modernize mills and develop circular bioeconomy (biomass, waste reuse).
2. Employment and social cohesion:
    - Rural population retention: In areas like Sierra de Cádiz, Jaén, and Priego de Córdoba, cooperatives are the main employers, preventing depopulation.
    - Inclusive employment: Opportunities for women and youth in areas with few job options (35% of cooperative roles held by women, compared to 25% in the broader agricultural sector).
    - Professional training: Programs like *Olivares de Jaén Escuela* train farmers in precision agriculture and international trade.
3. Innovation and global competitiveness:

- Premium differentiation: Promoting PDO (Protected Designation of Origin) and organic labels increases product value (e.g., Baena or Sierra Mágina oils sell 40% higher than conventional).
- Field technology: Use of drones, smart irrigation, and blockchain for quality and sustainability.

4. Environmental sustainability:
    - Circular economy: Cooperatives like Oleícola El Tejar (Córdoba) turn olive pomace into biomass, reducing waste and generating green energy.
    - Organic olive groves: Andalusia holds 60% of Spain's organic olive groves, with cooperatives leading this niche (e.g., La Organic in Málaga).

Iconic examples:

- Dcoop (Antequera): The world's largest olive oil cooperative, producing 250,000 tons annually and present in 40 countries.
- Jaencoop: Unites 30,000 small producers, generating €500 million annually.
- Sierra Mágina: Olive oil tourism model linked to the cooperative, creating additional jobs.

Diogo: What are the main benefits for producers when joining a cooperative?
Tomás: Beyond the required product transformation and joint sales, the European study found that payment security is another important advantage. It also found that in regions where cooperativism is strong, producers receive higher average prices than in areas without cooperatives.

Diogo: What are the standout cases of cooperatives that have transformed and developed the regions where they operate?

Tomás: The mentioned study includes country-level analyses with concrete cooperative examples.

Diogo: How have innovation and technology been integrated into olive oil cooperative management?
Tomás: Andalusian olive oil cooperatives have adopted innovation and technology in recent years to enhance efficiency, quality, sustainability, and marketing. Main areas:

1. Digitalization and smart grove management:
    - IoT sensors and drones: Monitor moisture, pests, and olive ripeness to optimize irrigation and harvesting.
    - Big data platforms: Analyze climate and soil data to forecast yields and guide decisions (e.g., Dcoop's Smartfood).
    - Blockchain: Used by cooperatives like Oleícola San Francisco (Jaén) to ensure full traceability from tree to consumer.
2. 4.0 Mills and advanced processing:
    - Cold extraction with automated control: Robotic systems adjust temperature and mixing time for optimal quality and antioxidants.
    - Artificial intelligence (AI): Real-time analysis of chemical parameters (acidity, polyphenols) for automatic oil classification.
    - Smart packaging: Some brands use RFID tags or QR codes to provide real-time information to consumers.
3. Sustainability and circular economy:
    - Biomass and green energy: Cooperatives convert olive pomace and pits into electricity (e.g., Biomasa del Guadalquivir in Córdoba).
    - Alpechín reuse: Wastewater treatment to turn residues into fertilizers or biogas.
    - Organic certifications: Over 30% of Andalusian cooperatives now produce organic oil, with growing demand in Germany and the US.
4. Marketing and digital sales:
    - E-commerce and marketplaces: Cooperatives like La Organic (Málaga) sell directly via their own platforms or Amazon.
    - Augmented reality (AR): Some bottles include AR features to showcase the oil's origin with interactive experiences.
    - Data analytics: Track consumption trends to adjust production and exports (e.g., rising demand for extra virgin olive oil in Asia).

5. Organizational innovation and funding:
    - Cooperative groupings: Structures like Interoleo (Jaén) share R&D and logistics costs.
    - European funding: FEADER and LIFE funds have supported energy efficiency and carbon footprint reduction projects.

Examples:

- Dcoop (Antequera): Uses drones and AI to predict harvests.
- Sierra Mágina (Jaén): Blockchain for PDO guarantees.
- Olivarera Los Pedroches (Córdoba): First zero-waste mill.

Diogo: Are there disadvantages or challenges cooperatives currently face in the olive oil sector?

Tomás: The main challenge, in my opinion, is their limited coordination and insufficient unity. Two examples illustrate the consequences:

1. Olive oil production varies greatly between harvests. The lack of coordination prevents cooperatives from stabilizing the market through private storage policies without public support and with a business focus.
2. Often, cooperatives themselves weaken the market. What we're seeing this year with olive oil prices—much lower than production levels would suggest, but with much nervousness—is a good example.

Diogo: Do you think the Andalusian cooperative model can be replicated in other regions?

Tomás: Absolutely—the model is replicable, and Alentejo could be a clear candidate, as long as the human factor is there: a promoter or group with enough patience and energy.

Diogo: What would be the first steps to promote the growth of olive oil cooperatives in Alentejo?

Tomás: Identify existing cooperative initiatives and establish mentorships between a Spanish cooperative and one in Alentejo. Also, organize visits for Portuguese farmers and create joint marketing and operational agreements between cooperatives from both regions.

Diogo: Is there collaboration between cooperatives or entities in the olive oil sector in Spain and Portugal? How could this cooperation be strengthened?

Tomás: I don't know if such collaboration exists, but it should. The "how" is answered in the previous question.

Diogo: How do you see the future of cooperativism in the olive oil sector?

Tomás: I see it as bright, as the human capital has significantly consolidated in recent years. It's a product with great potential, and cooperativism is the only way for small-scale agriculture—the rural middle class—to take part in the technological and regulatory revolution we're experiencing, and which will accelerate in the future.

Appendice II – Email Interview with Fábio Batista – Director of Operations at Cooperativa Agrícola de Moura e Barrancos (CAMB)

Questions:

1. Origin and Structure of the Cooperative

- How did the Agricultural Cooperative of Moura and Barrancos come into existence?
- What was the main motivation behind its creation?
- What kind of organizational structure was adopted at the beginning? And how is this structure now?
- The founding members have/had a different role in the cooperative compared to other members.
- How is the cooperative's board of directors composed? Do the producers actively participate in the decision-making process?

2. Involvement of Producers

- How did you manage to mobilize the first producers to join the cooperative? What were the main challenges?
- What percentage of members, before joining the cooperative, did not cultivate their olive groves or did not cultivate for commercial purposes?
- What is the proportion of small olive groves versus large-scale olive groves?
- I noticed that Moura holds the majority, both in quantity and in area, of the olive groves. Are there different roles between the members of the two municipalities?
- How was the collaboration between members from both municipalities established?
- How was the process of selecting or integrating new members carried out?

- What types of incentives or benefits do you offer to olive growers to encourage them to join?
- What mechanisms do you use to keep members engaged and motivated?

3. Business Model and Services

- What methods of cultivation, harvesting, and production does the Cooperative use to achieve the best possible productivity and quality?
- Could you describe the stages of the production and commercial process? From the harvest to the sale of the olive oil.
- Does the Cooperative buy the olives from the members, or do the members produce for the Cooperative in exchange for a percentage of the profit?
- Does the Cooperative provide technical assistance to its members?
- Is the harvesting done by the members or by the Cooperative?
- How is the management of production and olive processing carried out?
- Does the Cooperative promote the modernization of the members' olive groves? How?
- How do you manage the issue of quality certification – DOP?
- Are there specific olive varieties that members must use for harvesting, or does the olive variety not affect the Moura DOP olive oil certification?

4. Marketing and Market

- How is the marketing of olive oil and other products carried out?
- Does the Cooperative sell directly to clients (supermarkets, restaurants, etc.) or is there an intermediary?
- Is any portion of the olive oil sold in bulk?
- What proportion of olive oil does the Cooperative export? What is the main country you export to?

5. Financing and Support

- How was the initial phase of the cooperative financed?
- How was the investment in your first mill funded? Did the members finance the project, or did you have to take on liabilities?
- At any stage, did you receive public support from the government or the European Union? If so, which ones?
- Did the municipalities of Moura or Barrancos have any role in the Cooperative?

6. Sustainability and Innovation

- What sustainable or innovative practices have been implemented over time?
- What type of research and innovation was necessary to build one of the most productive mills in Europe?
- Do you have partnerships with universities, research centers, or public entities?
- How is the Cooperative addressing issues such as increasing drought?
- How does the Cooperative ensure the long-term viability of its soils over multiple harvests?
- Where do you see the Cooperative and Alentejo olive oil in the next 10 years?

7. Feasibility in Ourique?

- What factors do you consider fundamental for the success of a cooperative?
- Which local factors (climate, soil type, profile of olive growers, production density) most influence the success of a cooperative? How can I study, for example, the soil's viability?
- What should I consider to assess whether this project is viable?
- Do you believe that the size of the territory or the number of producers affects the initial viability? Is there a "minimum viable size" (in number and size of olive groves)? I'm asking this because the municipality of Ourique has only 690 hectares of olive groves (according to INE in 2019), and I'd like to understand whether I would need to initially include producers from other nearby municipalities as well.
- What advice would you give to someone who is starting a cooperative?
- How would you approach the initial investment?
- What mistakes did you make at the beginning that could have been avoided?
- What do you consider to be the next steps that should be taken?
- Is there any kind of collaboration that could eventually happen with CAMB?

Answers:

1. Origin and Structure of the Cooperative

"The Agricultural Cooperative of Moura and Barrancos (CAMB) was founded in 1954 by the initiative of 45 olive growers. Initially, the organizational structure followed a classic cooperative governance model, based on democratic participation principles, where each member had one vote, regardless of their production size.

Currently, CAMB has evolved towards an Anglo-Saxon model, maintaining cooperative principles (general assembly of members as the highest decision-making body and elected board of directors) but has strengthened professional management. There are three main governance levels:

- General Assembly: composed of all members, it approves accounts, defines major policies, and elects the governing bodies.
- Board of Directors: elected by the Assembly, it acts as the executive body, responsible for strategic and operational management.
- Supervisory Board: oversees the accounts and ensures compliance with cooperative principles."

2. Involvement of Producers

"The initial mobilization of producers was driven by the clear identification of collective benefits. There is no precise data on members' previous activities, but the cooperative currently includes both small olive growers and large-scale operations. While Moura holds the majority of the olive groves, there is a strong and historic collaboration with Barrancos. Membership is open to producers aligned with the cooperative's mission, and incentives such as technical support, access to modern infrastructure, and value-added services for their production are offered. Members' motivation is further strengthened through innovation and continuous support."

3. Business Model and Services

"CAMB combines traditional and modern methods of planting and harvesting, always aiming to maximize productivity and quality. The process includes harvesting, delivery of olives, processing into olive oil, bottling, and marketing. Members deliver their harvest and share in the profits from the olive oil sales. The cooperative provides technical assistance to its members and encourages the modernization of olive groves. DOP quality certification is strictly managed, with certain olive varieties being preferred to maintain the designation."

4. Marketing and Market

"The olive oil is sold both directly to clients and through intermediaries. Part of the production is also sold in bulk. The cooperative exports a significant portion of its olive oil, with Europe as the main destination, as well as Brazil and Colombia."

5. Financing and Support

“The cooperative’s initial phase was financed with the members’ own capital, through the purchase of a small mill. Later, expansion was supported by public funding, particularly from European Union programs (PRODER). The municipalities of Moura and Barrancos provided institutional support, but the cooperative’s management and operations remain independent.”

6. Sustainability and Innovation

“The Agricultural Cooperative of Moura and Barrancos (CAMB) has implemented a solid strategy of sustainability and innovation, recognizing the importance of combining agricultural productivity with environmental responsibility and climate change adaptation. It modernized its mill, making it a European benchmark, standing out for the absence of liquid effluent emissions and its focus on water efficiency, soil conservation, and olive grove biodiversity.

This modernization extended to the entire production process, with the adoption of state-of-the-art olive oil extraction systems that combine high energy efficiency with improved product quality. At the same time, advances have been introduced in packaging, quality control, and traceability, strengthening the DOP certification of Moura olive oil.

CAMB has established strategic partnerships with universities, research centers, and public entities, promoting innovation projects focused on increasing productivity and adapting agricultural practices to climate challenges. In response to the increasing frequency and severity of droughts, the cooperative invests in more resilient varieties, efficient drip irrigation systems, and provides technical advice to producers to optimize water conservation.

In parallel, it promotes sustainable agricultural practices among its members, such as the use of cover crops and careful fertilization management, ensuring long-term soil viability and fertility.

Looking to the future, CAMB aims to strengthen its leadership in the production of high-quality olive oil, consolidating its commitment to environmental sustainability, continuous innovation, and the promotion of its product’s origin in both national and international markets.”

7. Feasibility in Ourique

“The creation of a new cooperative in Ourique requires a careful analysis of several factors, such as mobilizing producers, ensuring production quality, having suitable infrastructure, and providing technical support. The semi-arid Mediterranean climate and soil type demand specific

techniques to ensure efficient production, and it is also crucial to understand the profile of local olive growers and production density in the region.

The project's viability depends on a minimum production area, ideally over 1,000 hectares, to spread fixed costs and achieve the necessary scale. To start, it is essential to conduct a local diagnostic study, invest in training, develop a solid business plan, and ensure strong leadership.

Common mistakes include underestimating financial needs and ignoring the importance of commercial planning.

The Agricultural Cooperative of Moura and Barrancos is open to exploring and developing synergies, particularly in sharing knowledge and creating networks. We are committed to collaborating with initiatives that promote the growth and sustainability of the sector, offering our experience and know-how to support the development of new projects and the improvement of practices in olive cultivation."