

Article

The Role of Knowledge in Constructing the Quality of Olive Oil in Spain

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Abstract: The sustainability of a large proportion of Spanish olive oil-producing territories depends to a great extent on their capacity to fit into a specific model of food quality. The strategies used in the different territories differ with respect to their adherence to the objectifiable conception of quality, based on scientific-technical knowledge, or subjectivating conception of quality, based on tacit and practical knowledge. In this paper, we analyse the route taken by two territories with olive oil protected designation of origin (PDO) status in Spain to construct their quality model, the type of knowledge that has been applied and how knowledge processes affect the construction of sustainable quality models. This study applies a qualitative methodology based on participative observation and semi-structured interviews with key actors of the territories. The results indicate that processes of production, reproduction and dissemination of knowledge are basic pillars for the construction of sustainable quality projects. The degree of understanding of the objectifiable and subjectivating conception of quality in olive-producing territories and the interaction between them depend on the specific characteristics of the territory, the objectives set in connection to the olive oil quality method, the importance given to the different types of knowledge, and its standing on the issue of territorial sustainability.

Keywords: agrifood systems; food quality; olive oil; Spain; knowledge

1. Introduction

The sustainability of Spanish olive oil-producing territories depends to a great extent on their capacity to fit into a specific model of quality. A large proportion of them are traditional rain-fed and/or mountain groves that cannot compete with the high productivity of irrigated intensive groves [1,2]. Many of these olive oil-producing territories have opted for quality production, which enables them to add value and increase profits on the basis of the differential qualities of the oil [3,4]. Some of these producers additionally believe that this strategy gives them greater capacity for adapting to climate change, or at least allows them to compensate the negative externalities generated by the productivist model [5–7].

Olive oil can be seen as a “border” product, associated with different dynamics [8,9]: productivism that focuses on the production of large amounts of featureless, uniform oil (commodity), post-productivism that promotes the production of quality oil with distinct characteristics deriving from a particular territory, know-how or specific variety of olive, and non-productivism that opts for aligning the production of olive oil to the agrosystem’s ecological rhythms.

The productivist model focuses exclusively on the intensification and standardisation of agricultural production. This process has resulted in a disconnection between agriculture, food, nature, territories, work processes and rural societies [10,11]. From this perspective, the territory is

reduced to its agricultural dimension and production value and becomes a homogenous agroindustry landscape. The links between agricultural produce and food products are weakened, given that the former plays a secondary role in the production of increasingly industrialised, standardised and delocalised food products [12], creating what is known as “Food from Nowhere” [13]. The establishing of super-intensive olive groves and irrigation systems are some examples of the introduction of this model in Spanish olive grove agrosystems. This has allowed a significant increase in their productivity but has also brought with it multiple environmental (pollution, soil loss, degradation of biodiversity), social (inequalities between olive grove producers and territories) and cultural impacts (loss of traditional knowledge and practices, loss of landscape and heritage), which pose a threat to sustainability [2,4,6].

The post-productivist model gives priority to local specificities and to a diversity of sectors and actors in the generation of development processes. The added importance of the social, environmental, cultural and heritage values of the rural world is promoted [14,15]. This logic gives priority to the territory and to the production of “culturally intense” food [13], due to its dimension of symbolism and identity. Understanding of the post-productivist model in the olive oil sector is evident in the development of olive oil protected designations of origin (PDOs), oleotourism experiences and museums on olive groves and olive oil [16,17].

The non-productivism narrative is overcoming the productivism and the post-productivism paradigms as it promotes the multiple functions of agriculture and its sustainability [18–20]. Global environmental change has evidenced that it is no longer possible, in the Anthropocene era, to continue to apply a model based on productivism and growth [21,22]. This is why the non-productivist model opts for extensive, low-intensity farming systems, the re-localisation of food production and the promotion of practices and knowledges which enable increased resilience of agrosystems [23,24]. In the case of olive oil, in Spain, this model is represented by a number of experiences of organic olive oil, low input management of olive groves and soil management with cover crops [5,7,25].

Olive oil production becomes a space where different logics—productivism/non-productivism, localisation/delocalisation and standardisation/differentiation—coexist and come into conflict over the control of the material and symbolic dimensions of quality. Within this orientation towards quality production, the strategies used in the different territories differ with respect to their adherence to objectifiable or subjectivating conceptions of quality, and the importance given to formal and/or informal knowledge.

The objectifiable model considers that quality is built on the basis of standardised criteria that can be codified and measured. By selecting a series of physical, chemical and organoleptic properties, a ranking is carried out to determine categories and levels of quality. The aim is to construct a quality that can be reproduced in any territory, irrespective of any social and environmental specificities, by applying specific techniques and processes [26]. This objectifiable quality relies on scientific-technical knowledge, formal, explicit, coded or expert knowledge and is carried out by experts who belong to scientific-technical networks and quality control departments. It is defined and determined independently from the territory by institutions and markets and is usually associated with sectoral and productionist dynamics [27]. This model is not based exclusively on “objective” variables, but rather aims to formalise and standardise the criteria, knowledge and processes involved.

From this perspective, olive oil quality is determined by carrying out a series of physical, chemical and organoleptic analyses aimed at measuring a number of different parameters: acidity, moisture and impurities, peroxide index, etc. [28]. Based on scientific-technical information from laboratories and tasting panels, olive oil quality has been classified into three standards: Extra Virgin Olive Oil (EVOO), Virgin Olive Oil and Olive Oil. These objectifiable standards have been regulated and standardised by the European Union (Regulation 2568/91) and by the commercial standards of the International Olive Council (IOC) [29]. Such standards of quality can be achieved through changes in production processes, processing, storage and distribution [30–32]. Oil of the highest quality is obtained from healthy olives picked at the optimum point of ripeness, straight from the tree (not picked from the

ground), where pressing is carried out as quickly as possible following collection (<24 h), where processing at the oil mill takes place in less than 90 min and at temperatures below 28 °C, among other factors. Any changes implemented will be established in “best practice manuals” applicable to all stages of production.

This objectifiable quality model has been promoted by a number of institutions and research centres. In Spain, and specifically in Andalusia, the Consejo Superior de Investigaciones Científicas (CSIC) and Instituto de la Grasa have, together with the IOC, played a key role in the creation of the method for organoleptic analysis and the development of specialised training in fats and oils for panel leaders and tasters. The work of technical agricultural extension services staff from the Andalusian Instituto de Investigación y Formación Agraria y Pesquera (IFAPA) has been crucial in promoting agricultural modernisation and the changes in practices and handling required for promoting standardised and objectifiable quality [33].

The subjectivating model considers that food quality is associated to territorial dynamics and processes for localisation and differentiation. Under this model, quality shifts from the product to the territory, and different aspects of the olive oil come into play: family legacies, collective heritage, landscape, climate, biodiversity, history, tradition or taste [3,4,16]. This subjectivating quality is structured around patrimonial, informal, tacit and practical knowledge, where importance is given to the dimensions of interpretation and identity [34]. Thus, knowledge is not limited exclusively to the productive sector, but brings together the memory, experience and life stories of the different actors within the territory.

This model is deeply engrained in certain areas that highlight the value of “terroir” oil [17]. Nevertheless, the dimensions of this subjectivating quality have also been submitted to objectifiable and standardising processes as a protection against unfair competition [35]. In 1992, the EU approved a regulatory framework for the protection of geographical indications and designations of origin for agricultural products and foodstuffs (Council Regulation [EEC] 2081/92). Spain has extensive experience in this respect, with specific regulations for olive oil, cheese and cured ham since 1974, and currently has 29 protected designations of origin (PDO) for olive oil. In order to achieve certification, the various territories have had to identify, select, unify and standardise the elements that differentiate their respective products. These specifications construct a common representation of the values that make up the olive oil produced in a given territory. The process for selection and status building involves a network of social and institutional actors that are, in most cases, part of the PDO regulatory boards. However, negotiations between different interpretations of territorial quality have also come into play, and in many cases have gone beyond the scope of the Designation of Origin. New social actors emerge, operating outside the PDO or attempting to set the quality according to other factors [36–38].

Both of these models imply a specific representation of food quality, but also the development of specific practices, knowledge and imaginaries [39]. What is striking about these two different concepts of quality is that they do not appear independently in the territories, but rather interact in a dynamic manner [24,40,41]. We believe that the degree of understanding of these two models in olive-producing territories, and the interaction that develops between them, will depend on the specific characteristics of the territory, the objectives set in connection to the olive oil quality method, the importance given to the different types of knowledge, and its standing on the issue of territorial sustainability. The aim of this research is to analyse the route taken by two territories with PDO status for olive oil in Spain to construct their quality model and the variables they have relied on; to examine the type of knowledge that has been brought into play and how the system of experts driving the process has been configured; to analyse what type of representations have been created around the quality and “culture of olive oil”; and to explore the extent to which knowledge processes affect the construction of sustainable quality models.

2. Conceptual Framework

Scientific-technical knowledge constitutes one of the pillars of the paradigm of modernity. Giddens [42] points out that “expert systems” structure large areas of the material and social

environment. Today's societies are organised as societies of knowledge, given the increasing social relevance gained by science [43,44], by the significant dominance of scientific over other types of discourse, essentially those relating to tradition, and by the important role taken on by the figure of the expert [45]. Expert culture becomes institutionalised, building up a network comprised of actors, practices, protocols, techniques and technologies [46]. Such expert systems are structured as abstract mechanisms that support processes of homogenisation and standardisation, including deterritorialisation and delocalisation.

The separation between scientific and non-scientific knowledge and the "scientific bias" that dominates analysis of the knowledge society have been criticised [34,47]. Science studies what is deemed "possible" and "relevant", which is then named and defined. The "irrelevant" or "impossible" is ignored. Thus, non-scientific knowledge has been subjected to processes of devaluation and depreciation. In the agri-food sector, there has been a clear separation between these two spheres, since expert knowledge has had a dominant role in the productivist model, with tacit knowledge being left to the side [41]. Traditional knowledge and complex thinking are recovered and valued in the post-productivist model, and more so in the non-productivist model [48].

The predominance of the objectifiable perspective of knowledge over a subjectivating or practical perspective is likewise criticised [49,50]. The former implies an instrumental approach to knowledge, given its consideration as an objective entity that can be acquired, stored and codified. This allows a clear distinction to be made between explicit and implicit aspects, and between scientific-technical knowledge and heritage knowledge. The latter emphasises that knowledge is a social construct based on experience and practice. There is no clear division between the implicit and the explicit, but rather a continuum between the two. All knowledge is tacit, at least in part, and not all knowledge can be made explicit [51]. It is not an objective entity, distinct from its subject and unaffected by human action, but rather a socially and culturally constructed human practice achieved through participation and "learning by doing".

Various authors [52] have analysed the links between scientific-technical knowledge and tacit knowledge from a complex, relational and integral perspective. They point out that the competitive advantage of the knowledge society is largely based on the conversion of tacit knowledge into coded knowledge. In the specific analysis of food quality, the theory of conventions considers that the quality model applied depends on the knowledge mobilised, as well as on the context in which negotiations, conflicts and alliances between actors take place [53,54]. Champredonde and Muchnik [26] also suggest the need to go beyond the separation between these two ways of thinking in order to analyse the manner in which both approaches are linked in practice. They consider that objectifiable variables are conditioned by their social representation because certain scientific, physical and chemical food parameters are considered quality attributes, depending on the prevailing social interpretations in a given social context. Similarly, subjective variables are subjected to objectifiable processes.

The connections between knowledge and sustainability have been analysed from different perspectives. The studies on the cultural dimension of sustainability stress the need to protect the diversity of local values, knowledge and practices to balance the processes of cultural homogenisation. From this perspective of sustainability, increased resilience and adaptative capacity of territories should be based on the integration of both types of knowledge, the promotion of local reflexive capacity and the control of its own knowledge processes, as well as on the design of endogenous development strategies [55,56].

Studies on agricultural resilience and sustainability highlight the ability of traditional knowledge to construct a more efficient and resilient ecosystem-based management. This ability is based on the holistic and dynamic nature of such knowledge, and its medium- to long-term objectives [41,57]. Guerrero Lara et al. [48] describe the manner in which the application of tacit knowledge has enabled biological and cultural diversity to be maintained and social inclusion promoted, through changes in values and institutions and the dissemination of knowledge.

There is an increasing body of research that points out the need to combine these two types of knowledge in order to develop sustainable agrosystems [12,24,41,48]. Within this process of generation of knowledge, the creation of multi-stakeholder learning networks [58] is particularly relevant, as this allows the active participation of multiple actors and favours trans-disciplinary knowledge production and the diversification of knowledge sources. Moreover, they are evidence of active social processes based on the singularities of the territory. These learning networks are open, dynamic and participatory spaces which allow decisions to be taken based on the context and on sustainable agri-food practices [59]. Interaction between diverse actors promotes the generation of shared meanings and practices, supports a sense of community and boosts the adoption of collective decisions, all of which strengthen territorial resilience [60].

In the case of olive oil, different studies [5,61] show the relevance of combining scientific-technical and practical knowledge in organic olive grove systems and the importance of learning networks to resolve any conflicts arising between organic and conventional producers. Some authors [33,36] further expound on the theory of conventions and network analysis to highlight the importance of the transfer of innovation and knowledge in local oil systems opting for quality production.

3. Materials and Methods

3.1. Research Context

The results presented in this paper are a part of a larger piece of research on olive oil, carried out in four territories in Spain with olive oil PDO status. Three of them are located in the Autonomous Community of Andalusia (PDO Estepa, PDO Priego de Córdoba and PDO Montoro-Adamuz) and one in Catalonia (PDO les Garrigues). All four areas were chosen because they are part of olive oil-producing systems with a long history of quality production, and especially due to the different routes taken for their respective production models (Figure 1).

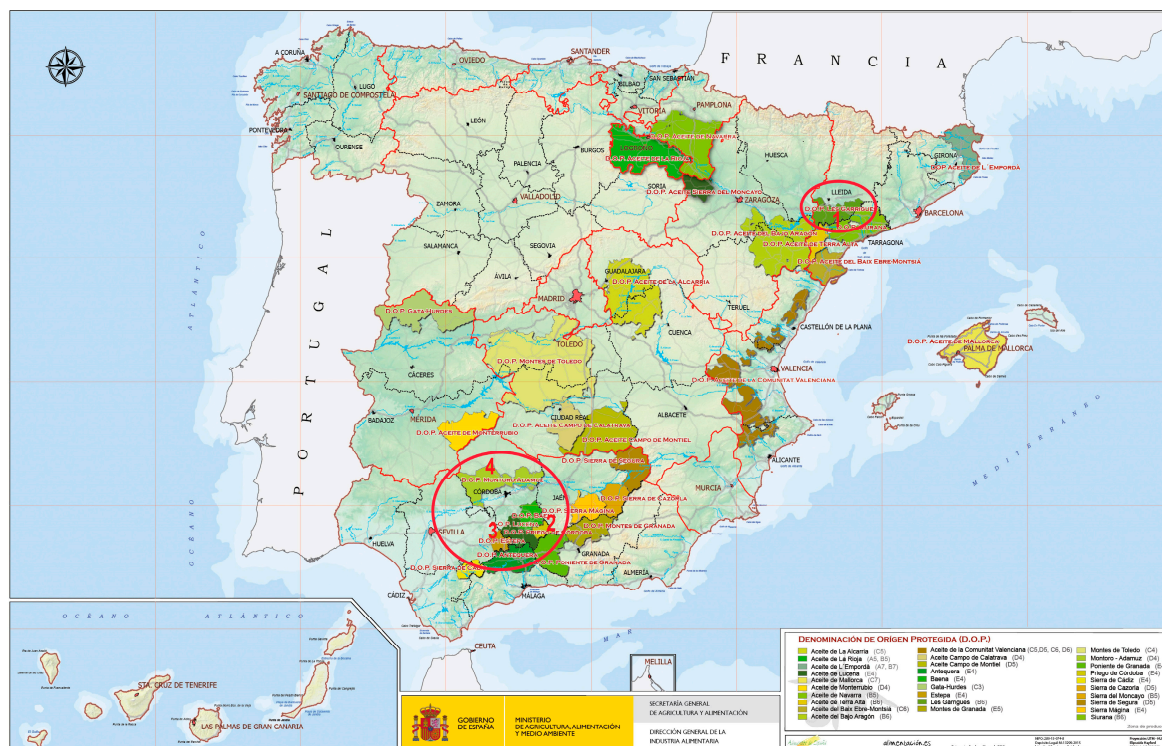


Figure 1. Map of Spain's protected designation of origin (PDO) olive oil areas. Number 1: PDO Les Garrigues; Number 2: PDO Priego de Córdoba; Number 3: PDO Estepa and Puento Genil; Number 4: PDO Montoro-Adamuz. Source: MAPA [62].

For this article, we have chosen the territories of PDO Estepa and PDO les Garrigues, as both represent opposite poles, and therefore provide greater analytical interest. The territory of PDO Estepa represents integration of the objectifiable quality model, while PDO Les Garrigues has taken on the values of the subjectivating model.

3.2. Research Process

The study applies a qualitative methodology based on intensive fieldwork carried out over 12 months in 2015–16 and 4 months in 2018. The techniques used have been participative observation and semi-structured interviews with key actors within the territories. From a total of 228 interviews carried out for the study, the information used in this article has been taken from the 148 interviews carried out in Les Garrigues and Estepa (Table 1): olive growers (39 interviews), technical staff from institutions and companies (54 interviews), company managers and directors (both private companies and cooperatives) (36 interviews) and institutional representatives (19 interviews).

Table 1. Number of interviews with different key actors of each territory.

Olive Oil PDO Territories	Olive Growers	Institutional and Company Technical Staff	Company Managers and Directors	Institutional Representatives	Total
Estepa	35	40	12	11	98
Les Garrigues	4	14	24 *	8	50
Subtotal	39	54	36	19	148
Priego de Córdoba	13	22	14	5	54
Montoro-Adamuz	7	8	7	4	26
Total of the research	55	70	33	20	228

* Half of these actors are also farmers.

The interviews were structured around three blocks of questions. The first asked the various actors within the territory to define the range of factors that, in their opinion, determine the quality of olive oil. The second block focused on the key milestone achievements defining the territorial process used for quality transformation. The third block researched the factors and actors hindering or favouring the process.

4. Results

4.1. Towards a Standardised Quality Model: The PDO Estepa Territory

The territory making up the PDO Estepa is an example of the strategies of areas opting for the objectifiable quality model. This territory is among the world's leading producers of Extra Virgin Olive Oil. The project is led by the territory's production sector, supported by a scientific and institutional setup [33].

The area is located in the middle of Andalusia, in the province of Seville. It is characterised by extensive plains and gently undulating landscapes dominated by the monocultivation of olive trees. The climate is typically temperate Mediterranean, with irregular rainfall throughout the year, falling to a marked minimum in summer and peaking in autumn and winter. Up until the 1980s, olive growing in the territory was dominated by traditional rain-fed cultivation, combined with other crops. The olive oil was sold mainly in bulk to refining industries. When Spain entered the EU, the objectives of the territorial strategy were changed in order to ensure that all the oil produced within the territory met all the necessary standards required for attaining the highest quality ranking: EVOO.

A significant milestone in the process was the creation, in 1987, of the second grade Oleoestepa Cooperative. Cooperatives in the area opted to pool their financial resources to create a joint structure

for the packaging, sale, promotion and marketing of high-quality olive oil. They soon realised that creating infrastructures and building networks would not be enough to achieve this objective: they also needed to bring scientific-technical knowledge to the territory. Their strategy was not limited to training and professionalising producers and manufacturers but was also geared to generating their own knowledge around quality. In 1994, just 4 years after EU regulation on the characteristics of olive oil came into force, Oleoestepa had already set up a laboratory for carrying out physical and chemical analyses and a tasting panel for testing organoleptic qualities. Both were funded by EU programmes for improving the quality of olive oil production. PDO status for Estepa and Puente Genil olive oil was approved in 2005, under a project implemented by Oleoestepa to validate the quality strategy carried out.

“Classifying the oil is essential. Knowing what we sell. Most cooperatives in Spain don’t know what type of oil they are selling. The mill master thinks it’s great. There is a middleman who takes a bottle home, analyses it somewhere, takes the oil, and that’s it. There is no control, no tests carried out. In the case of Oleoestepa, we classify our oil. We define it, we analyse everything, 30 million kilograms of EVOO are analysed and classified. It is tested for impurities to ensure it is safe for consumers, although this would probably not be necessary. But 80% of the oil sold in Spain is not analysed” (Institutional representative, PDO Estepa)

Oleoestepa is the institution controlling the classification of the oil, with responsibility for setting prices, both internally for cooperatives and externally for distributors and the market. The fact that the actors who set up Oleoestepa were from the area enabled them to mobilise internal local networks and reach territorial consensus. But they have also been able to set up links with external institutions (beyond the province, on a regional, national and European level). The creation of these learning networks has not only enabled the combination of tacit and coded knowledge but has also allowed local actors to become part of the scientific, regulatory and institutional network promoting the objectifiable model of olive oil quality in Spain. They have established, for example, close links with the CSIC, the agricultural extension services, agricultural trade unions and some laboratories.

4.1.1. Constructing Knowledge around the Product

Olive oil is the only product for which the quality is determined by the presence of certain sensory attributes established in a binding European regulation. Organoleptic tests are carried out under controlled conditions by a group of selected and trained tasters, who carry out a descriptive and quantitative analysis in accordance with previously determined sensory techniques [63]. Results from individual responses are statistically processed to objectify results. The IOC prepares official tasting documents, with precise vocabulary to be used, techniques to be followed and the facilities required. The Global Quality Index establishes a formula containing the most commonly used parameters for oil. The sensory characteristics of the product are objectified and coded using numbers that correspond to the intensity of positive and negative attributes (see Table 2).

Table 2. Physicochemical and sensorial parameters defining different standards of quality of olive oil. Source: Esencia de olivo [64].

Type of Analysis	Parameters	Extra Virgin Olive Oil (EVOO),	Virgin Olive Oil	Olive Oil
Physicochemical Analysis	Free acidity	≤0.8	≤2	≤1
	Peroxides	≤20	≤20	≤15
	Absorbance K270	≤0.22	≤0.25	≤0.90
	Absorbance K232	≤2.50	≥2.60	Not defined
Sensorial Analysis	Median of defect	=0	>0 y ≤ 3.5	Not defined
	Median for fruity	>0	> 0	Not defined
	Punctuation panel test	≥6.5	≥5.5	Not defined

In Estepa, this process of objectifiable quality has taken on specific characteristics. Firstly, Oleoestepa is the institution that controls the production, reproduction and dissemination of scientific-technical knowledge, as well as providing the spaces in which such processes take place and the guidelines to follow. The Tasting Panel represents expert knowledge in the territory, turning it into the new local authority around which all new power relations are formed and local identification processes are redesigned.

“Having a Tasting Panel . . . means that you know how to classify, and so at different events we have the Tasting Panel Head. The boss, who’s been there many years. And she’s the one who says . . . who decides . . . all about quality”. (Olive producer, PDO Estepa)

In addition, Oleoestepa has set up a specially weighted Global Quality Index to give greater importance to the organoleptic variable, with products characterised by an organoleptic value of 7, which is above the 6.5 required for EVOO. This institution produced its own corporate quality manual specifying the necessary changes for all cooperatives, irrespective of the intrinsic characteristics of their respective products, to enable them to improve their ranking for quality production. This means that cooperatives are paid a different price, depending on the quality of their respective oils.

The application of this objectifiable model has therefore produced sectoral, vertical and private governance structured around the production, reproduction and dissemination of such knowledge from Oleoestepa to the cooperatives. Through its quality policy, Oleoestepa controls the sources of knowledge and determines who makes up the learning networks. However, the dissemination of knowledge is not one-way traffic. Professionalisation of the sector is encouraged (for mill masters, cooperative managers, technical staff and farmers) through training provided by the technical staff of the tasting panel. Oleoestepa’s policy is built on the knowledge generated by the cooperatives and shared with the rest of the members. Each oil mill master plays a key role in this process, as the person responsible for controlling the condition of the olives, the time elapsing between picking and pressing, the cleanliness of the facilities, the temperature at which kneading takes place, and the separation of the different oils according to informal tasting. These learning networks comprise a diversity of actors to disseminate scientific-technical knowledge and, to a lesser extent, tacit knowledge. However, they are sectoral and corporate in nature, given that all members are part of the olive grove and oil sectors (with no other actors from the territory). The sustainability of this model depends on some networks that are structured and protocolised by the hegemonic institution in the territory, namely Oleoestepa.

4.1.2. The “Culture of Olive Oil” at Estepa: Tradition for Innovation

This territory has an agreed and undisputed concept of quality that links rhetoric on health and nutritional quality with the ability to modernise production with increased use of technology. EVOO is described as a natural fruit juice produced exclusively by mechanical means, which in contrast to other edible oils and fats, loses none of its quality attributes by being subjected to an industrial refining process. It conserves all of its contents in terms of vitamins, essential fatty acids and other antioxidants, which help keep numerous illnesses at bay.

The discourse around the “culture of olive oil” in Estepa highlights the significant shift towards scientific-technical quality values and practices over the last 20 years. The widespread feeling is that a totally new product is being produced and consumed. The quality of the oil does not depend on the intrinsic characteristics of the product (such as olive variety) or the agricultural specificities of the territory (climate, soil, etc.) that define the specific organoleptic profile of each oil. What characterises this objectifiable quality is the presence of certain standardised elements that can be achieved through changes in the production processes: improvement in the delivery of the olives, decrease in olive storage times (to prevent *atrojamiento* or fermentation), washing, continuous centrifugation systems, storage of oil in stainless steel vats, etc. [30,31].

The past and tradition have an ambivalent role in this discourse [65]. On the one hand, there is a feeling that local organisational tradition is the basis for the success of the quality project. On the other

hand, tradition is valued negatively, as it represents a past when things were done “in the wrong way” and when a “culture of olive oil” was lacking. Traditional knowledge has lost its legitimacy because it has become an obstacle to appreciate the tastes and flavours of the highest scientific-technical quality oil and to change the self-consumption patterns.

“The oil consumed today has never ever been consumed before ... It was madness back then ... the first of the olives to enter the oil mill fell into a deep hole ... and were the last to leave. The oil produced was fermented, of really poor quality, and that's what was always consumed. Today's olives are pressed within a space of two months. My father used to go to the cooperative with a metal container to get oil. The oil oxidised, the container was never closed ... it was a complete disaster”. (Olive producer, PDO Estepa)

The terminology used by the technical staff in the area perfectly illustrates the process of territorial transformation that has been undertaken in order to adopt this new “culture of olive oil”: “educate”, “teach” “convince”, “train”, “absorb”, “learn”, “trust”, “assimilate”, “transmit”, “raise awareness”, “infer”, “transform”, “change”, “conversion”, “mentality”, and “ideology”.

“What I always say ... when consumers, visitors, come here, is that they are looking for romanticism. The romantic myth of how it comes out of the ground, is made with stone ... all the better if it comes on a donkey ... isn't that a pretty picture? We look back on my old cooperative ... my village ... the oil we used to have ... But it is all a myth, there is nothing worse than the oil we used to have”. (Technical staff at the cooperative, PDO Estepa)

Implementing a “culture of olive oil” has implied a tension and dialogue between tradition, as represented by the cooperatives, and the values of modernity and entrepreneurial culture, as represented by Oleoestepa. Innovations that have caused particular conflict include the introduction of sensory analysis, the internal payment system for quality, the marketing under a single brand, and the giving up of autonomy in favour of the Second Grade Cooperative. Over the years, this “culture of olive oil” has become the main element around which the collective project of quality has been constructed. The adoption of this discourse by local actors explains their willingness to introduce innovations, as well as the trust that farmers have in the Oleoestepa project. The “culture of olive oil” has become a key factor in the identity of the local population and in the generation of territorial cohesion [60].

4.1.3. Scientific-Technical Knowledge as an Element of Territorial Resistance

The opinions of local actors regarding quality also revolve around resistance. Reference is made to the difficulty of introducing a quality product in a market characterised by significant variations in price and speculative behaviour, and in a context in which the consumer cannot distinguish between the different commercial categories. But this resistance is also exerted against the lobby constituted by large-scale oil industry, which propose to do away with sensory analysis as a means of classifying olive oil, on the grounds that expert tasting is subjective and insufficient. They argue that sensory analysis is not reliable because analyses carried out on the same oil sample by different official panels can result in very different classifications. This places them in a situation of “legal uncertainty” in the event of public inspections [28,66].

The PDO sector, backed by hegemonic olive oil research centres, defends the scientific nature of the sensory method [29,67]. They claim that such actions are an attempt to discredit the reputation of sensory analysis in order to hide dishonest practices uncovered in recent years (sale of inferior quality olive oil under the EVOO label) and to create confusion and mistrust among consumers in relation to the different olive oil qualities. In Estepa, the rhetoric of resistance highlights the need to train consumers in “olive oil culture”. Scientific-technical knowledge relating to olive oil, and the objectivity of the sensory method, are disseminated through public tasting sessions in which experts

help consumers learn about the differences between Olive Oil, Virgin Olive Oil and Extra Virgin Olive Oil.

However, there seems to be no reference in this discourse of resistance to the sustainability of the agrosystem from an environmental or cultural perspective. The socio-economic dimension (increased production and employment opportunities) centres the debate around the future of cultivation in the area. And this, despite the fact that the decision to apply this quality model has resulted in the devaluation of traditional knowledge and practices and the introduction of changes that have modified the landscape in the area and decreased resilience: the proliferation of the monoculture of olive groves, loss of biodiversity, introduction of intensive and super-intensive olive growing, or technification of the production and collection processes. This is due, to a large extent, to the fact that the sustainability of production is considered to be guaranteed by the conversion of all olive groves in the territory to integrated production and the emerging trend towards organic production [4,68].

4.2. Towards a Heritage Quality Model: The PDO Les Garrigues Territory

The PDO Garrigues territory is an example of the areas opting for the “subjectivist” quality model and traditional knowledge. Here, value is assigned to the diversity of production practices and traditional know-how. This territory is located in the south of Catalonia, in the province of Lérida, where steep slopes dominate the landscape and small traditional rain-fed olive groves coexist with almond groves. Flatter areas have a monoculture of irrigated olive groves and new fruit tree plantations. There is a continental Mediterranean climate, with frosts and droughts, which are a challenge for agricultural production [69].

The territory is currently suffering numerous structural problems (mainly depopulation and masculinisation), although there is an ongoing process of a shift to irrigation. These two issues are generating huge debate about the territorial development model to be followed: an industrial model (change to an intensive and super-intensive landscape for olive growing), led by a PDO that encompasses most of the cooperative sector, or a model that assigns value to the territory and the heritage, and that strives to link the production sector to oleotourism. The latter is led by an array of local institutions, cultural associations, local heritage groups, the tourism sector and a number of oil mills and small private companies (hereinafter the tertiary sector). There is an ongoing debate on the quality model to be implemented in the territory and the social and environmental impact of the various olive oil production methods: irrigated and/or rain-fed agriculture; traditional, intensive or super-intensive production; homogenisation or diversification of the landscape; a single product or a diversity of organoleptic types and signature brands; traditional and/or scientific-technical knowledge; olive oil sector and/or tertiary sector.

We can distinguish three stages in the configuration of this “disputed” heritage quality model:

- The first stage extends from the creation of the PDO Garrigues in 1975 to the 1990s. In the 1970s, this rural area was experiencing a severe crisis, having been left on the side lines of the productivism embarked upon by neighbouring areas with the construction of irrigation channels, and also largely excluded from participation in the alternatives offered by the tertiary sector. This PDO, the oldest in Spain, was created before the country became a member of the EU, in an international context in which such territorial quality certifications had not yet been regulated, and far removed from the main centres where oil was produced commercially. The PDO was created through the initiative of some cooperatives, which formed part of the second grade provincial UTECO cooperative from the Franco era. The objective was to sell the bulk oil to Italy, while also promoting the singularities of the territory and its main olive variety: the *arbequina*. Though the initiative was initially intended to promote a differential quality olive oil, the prevailing strategies were based on productivist thinking in relation to the territory, without any emphasis on technical, productive or organisational innovation [69,70]. Thus, the quality project, in contrast to many other PDO areas, was carried out independently of this.

- The second stage covers the period from the mid-1990s to 2000, with the emergence of associations that aimed to fight back against the disadvantages faced by the territory when compared to neighbouring areas. The promotion of oil and oleotourism were seen as a way to stimulate growth within the territory and strengthen internal cohesion. Cultural institutions such as *L'Ateneu Garriguenc* (the Garriguenc Institute) and the *Centre d'Estudis de les Garrigues* (Les Garrigues Study Centre) were pivotal in the production of knowledge around the intrinsic values of the territory. Although the process was led by civil society, local authorities (Borges Blanques Town Council) and territorial authorities (Provincial Council) also joined the initiative, promoting oil routes and events to raise the profile of the region's olive oil-producing heritage.

"I stayed with the Ateneu basically as a way to fight for the territory, for a motorway, windfarms ... and this led to oleotourism as a positive advantage, to promote the area rather than going against something ... this is the antidote against any attack and, in the end, this little group we created ... this narrative has permeated the institutional and sectoral roles in the form of private mills". (Technical partner, PDO Garrigues territory)

- In a third stage, which started around 2000, scientific-technical knowledge was introduced into heritagisation processes in order to promote the value of the territory and the availability of organised oleotourism. A number of private mills and small brands producing high-quality olive oil in terms of scientific-technical characteristics appeared within the territory, as well as catering and tourist accommodation initiatives committed to a heritage quality project outside the PDO framework. The Association for the Promotion of Tourism becomes a prominent actor in the process, comprised by private actors linked to oleotourism and local and regional institutional actors.

4.2.1. Constructing Knowledge around the Territory

In Garrigues, the knowledge shifts from the product to the territory. Knowledge relating to the different aspects of olive oil became increasingly important. From the start, the construction of quality was based on the characteristics of the territory and the variety traditionally produced (*arbequina*). Over time, tacit dimensions of knowledge have acquired greater prominence [69]. Specificities of the various organoleptic profiles produced by each of the cooperatives and private brands are highlighted, based on the trees and farms from which they originate. The recent granting of United Nations Educational, Scientific and Cultural Organization (UNESCO) cultural heritage status to the art of dry-stone walling (known as *espones* in Catalan) is a recognition of skilled construction techniques and those who have such skills. Vernacular knowledge, as well as ethnological and industrial heritage involved in production processes are also valued. Importance is given to the culinary and hedonistic dimension of oil, partly due to its potential for attracting tourism, but also due to social and environmentally sustainable practices.

There are two types of people in charge of preserving such knowledge. Firstly, locals who have built up informal knowledge of oil and the territory, but who have also compiled information from oral traditions and historical local production: chroniclers, collectors and historians, members of tourism, cultural organisations, etc. And secondly, new local experts who implement and disseminate scientific-technical knowledge relating to the territorial values of oil production through institutions, but also through oleotourism and culinary tourism: chefs and tasters, technical staff from private consulting companies and specialists working in areas related to heritage, development, tourism, culture, etc.

A territorial, horizontal and public–private governance model has been developed in this territory. No single entity coordinates or centralises the process of quality construction and dissemination. But it is the tertiary sector, rather than the traditional productive sector, that now speaks for the territory. This sector has built up a local narrative around the revaluation and heritagisation of olive oil through sharing and learning processes among the various social actors and cooperation between public

and private institutions. A network of activities that promote the dissemination of heritage quality knowledge includes training courses to professionalise oleotourism, roundtables, debate forums and organised visits for tourists and local population.

In this case, resilience revolves on the territory and is based around production, reproduction and diffusion of multi-sectoral and multi-actor knowledge through informal learning networks characterised by organisation innovation, diverse spaces for sharing, and the pooling of resources to meet specific needs within the learning process. It also implies various kinds of knowledge that meet, negotiate and institutionalise new meanings and practices about olive oil and about the future of the territory.

4.2.2. The “Culture of Olive Oil” in Garrigues: A Cross-Cutting Heritage

The prevailing discourse on the “culture of olive oil” gravitates around the value of its territorial specificities and the sensitive, emotional and sensory dimension linked to such characteristics. The rhetoric of heritage, rather than scientific-technical issues, is what dominates the debate. However, it is an open rather than closed category where multiple elements converge.

“The culture of olive oil is cross-cutting, and heritage plays an important part, including its landscape-related, social, historical and contemporary dimensions . . . It is, at the same time, dynamic and open, and we are exploring all the possibilities it provides through artistic and culinary actions . . . we are exploring this heritage from an open and cross-cutting perspective . . . cultivation perhaps implies only production, but there is a lot more, everything that surrounds it, such as the stories in the museum, which are not reflected anywhere . . . this remains open, we are constantly creating . . .”

(Museum technical staff, PDO Garrigues territory)

The tertiary sector refers to the challenges faced when disseminating the “culture of olive oil”, as they feel that they are swimming against the tide in their own territory. “Raise awareness”, “disseminate”, “train”, “show”, “teach”, “educate” are the words that define the challenges involved in the shift towards a heritage take on the territory. And this is due to the fact that the definition of the “culture of olive oil” has become an area of confrontation between the tertiary sector and traditional olive oil sector (the cooperatives), as the former is driving this change of identity, and a vision of the territory that is no longer built around its productive value, but rather its heritage value. As an innovator within les Garrigues explains, it is very difficult to drive this change when farmers “see only oil and no landscape”. As for the farmers, they are wary of oleotourism and insist on the fact they are agricultural workers, or peasants (*pagesos* in Catalan) and not gardeners in a theme park. They point out that there is already a flow of visitors coming to the territory to buy oil, and that it is on this basis that tourism should be promoted, rather than from a landscape or heritage approach.

*“Lots gets written on heritage conservation for people who live from other things . . . but you should realise that here we have families needing to live, to earn a living . . . you can’t just expect them to work as they used to work fifty years ago. We wouldn’t be competitive . . . it’s hard as it is to be competitive, imagine if they had to work where everything was dry stone walls (*espones*). They want to turn this into an Indian reserve (. . .)”*. (Olive grower, PDO Garrigues territory)

4.2.3. Traditional Knowledge as an Element of Territorial Resistance

Further strengthening of the heritage quality model is seen as the most effective resistance strategy to reverse social and economic stagnation and territorial depopulation and masculinisation. The ability to construct its own territorial narrative and design an endogenous development model around the “culture of olive oil” is the basis for bringing the territory together around the new quality project. There is therefore a need to agree a common knowledge and discourse around shared heritage values, and to reach agreements on disputed issues relating to heritage quality.

“Obviously, if locals don’t do it, others will come to do it; if we don’t protect our heritage, outsiders will; if we don’t restructure our agriculture, other companies will come and do it; if we don’t map our landscape, others will. If we don’t work for renewable energy, they will come and do it for us. Either we do it ourselves, or others will do it. Our self-esteem relies on believing in what we have”.
(Cultural Officer, PDO Garrigues)

In this regard, it is essential that the construction of an oleotourism alternative is linked to territorial knowledge of the production processes. Evidence of this is that both the “Cultural Centre for Catalonian Oil”, which is located in the region, and the “Tasting Club” sponsored by this organisation, are seen as the successful outcome of the work done to claim this local knowledge: a process started 20 years previously. Currently, both of these institutions, together with the “Catalan Museum of Oil”, are symbols of the dissemination of the “culture of olive oil”.

Beyond raising consumer awareness of the scientific-technical characteristics of the product, the aim is to highlight the uniqueness of the territory. Visitors are therefore offered culinary tasting sessions, which just like wine tasting, include a hedonistic element in the form of oil tasting and the translation of technical terms into a language the consumer will easily understand. A selection of different quality oils is tasted in combination with a variety of food in order to fully appreciate the different tastes and textures. This provides an opportunity to learn about the unique social and environmental characteristics of the origin of the olive oil.

“People aren’t interested in scientific-technical details, they get bored and disconnect. [This is] a different type of knowledge, more hedonistic, a sensory game and a chance to learn about the experiences behind oil production”. (Tourism manager, PDO Garrigues)

Dissemination of the “culture of olive oil” is seen as a tool for territorial empowerment and the promotion of self-esteem, in order to reverse the feeling of inferiority in a productivist logic that is not competitive. Taking into account how difficult it is to compete in terms of quantity and the standardised quality model, this is considered the best alternative for a rural area that does not conform to the model of hegemonic tourism.

5. Discussion

In this article, we have analysed the decisive role of knowledge in the construction of sustainable quality models in olive oil-producing territories.

The collected data has allowed us to confirm that the two food quality models identified by Champredonde and Muchnik [26] coexist in the field of olive oil production: the objectifiable and the subjective. In line with hegemonic discourses on the quality of olive oil, in Estepa, there is a consensual and uncontested conceptualisation of quality that centres on the definition of the scientific-technical attributes of oil and the capacity for modernisation and technical innovation in production processes. The strategy for constructing the quality of olive oil is associated with industrial and productivist thinking. This quality is not based on the territory’s social and environmental values. Instead, quality is linked to processes of delocalisation and standardisation of production. Cooperative industrial organisation is the key factor that enables the introduction of scientific-technical logic, and the construction of a sectoral socio-technical network of knowledge dissemination [66]. The renewal of plantations is promoted in order to adjust to this codified quality, to the detriment of traditional olive groves, with an accompanying reduction of planting frameworks and increased irrigation. Homogenisation of the landscape, technification and intensification of olive production are the logical result of the application of an objectifiable quality model and the search for a high-quality olive oil based on scientific-technical standards.

In Garrigues, we find a disputed notion of quality. The process of constructing the quality of olive oil is linked to processes of reflection on the development model that the territory should follow. The central element of the debate revolves around the questioning of the sustainability of the

productivist model and the need (or lack of it) to seek alternatives for quality production outside this model. This negotiation process involves conflict between productivist views, represented by the traditional cooperative sector, and post-productivist and non-productivist views, represented by the tertiary sector. Socio-technical networks of innovators, supported by a socio-institutional framework, have introduced a heritage logic prioritising the territorial qualities of the olive oil, based on traditional and tacit knowledge. It is the tertiary sector that is controlling the communication and dissemination of the quality of oil. These initiatives have introduced scientific-technical knowledge for the production of high-quality extra virgin olive oil, but they have decided to give priority to the heritage quality model, becoming the social authority that decides on the future of the territory.

This research analyses the crucial role of knowledge-based experiences (formal and/or informal), and of multi-actor active learning networks in the consolidation of diverse quality models and in the promotion of socio-cultural sustainability of the territory. The Estepa model can be broadly characterised as objectifiable, and the Garrigues model as subjective. But given that they were chosen as representatives of opposite ends of the spectrum, the way in which each of them has been configured has been determined by the characteristics of the territory, by learning and adaptation processes, and by the local appropriation of knowledge in line with points made by Champredonde and Muchnik [26] and McIver et al. [52]. In terms of cultural sustainability, it is important for each territory to produce, reproduce and disseminate its own knowledge, whether it be traditional or scientific-technical knowledge, or a combination of the two [12,24,40].

In Estepa, scientific-technical knowledge is the fundamental basis of new collective representations, and experts (tasters and technicians) have become the new social authority. However, we need to take into account that the cooperative that has driven this process, Oleoestepa, is strongly territorialised, and set out from the beginning to design this strategy as a project inspired by and working for the territory. Paradigmatically, it has been the traditional productive sector that has led the process of “going out and finding” the scientific-technical knowledge and “bringing it” to the territory. However, this knowledge has had to be adapted in order to be accepted and incorporated by the cooperatives and producers. This process has created a bottom-up dynamic in which cooperatives have transferred their practical knowledge to the community as a whole. A co-construction process of common knowledge that has allowed the rules to be adapted to the productive particularities and organisational characteristics of each cooperative [58]. In other words, while experts are important, the dissemination of this knowledge has required the creation and implementation of a sectoral socio-technical network in which cooperatives play a fundamental role.

In Garrigues, the role of the traditional productive sector in the creation of the quality model is secondary, as it is based on heritage logic and a territorial and inter-sectoral organisational culture. Tacit knowledge prevailed in the first phases, as priority was given to the vernacular knowledge of local agents, especially older members of the community. As the oleotourism project was institutionalised, the heritage quality model has been legitimised through experts in the various heritage fields, which has led to the standardisation of tacit knowledge and its combination with scientific-technical knowledge [41,48]. Emphasis on heritagisation processes requires the identification, systematisation and selection of the cultural and natural values that characterise the specific food product [39]. Special priority has been given to the process of training and professionalising the local oleotourism sector. Experts (historians and biologists, among others) have been recruited to develop scientific studies that enable the categorisation of the region’s olive oil production, while also acting as expert “endorsement” to legitimise the definition of the selected heritage. It should be noted that the progressive incorporation of scientific-technical endorsements to legitimise heritage quality leads to a ranking that favours new institutionalised and structured initiatives and market-based oleotourism [16]. In the background remain those initiatives that stem informally from a desire to transmit memories and tradition relating to olive oil (bibliographical productions, ethnographic collections, oral memory collections, etc.) [35].

This article highlights how the models developed in each territory are based on specific representations of quality. The discourse around the “culture of olive oil” has been institutionalised in

both cases and has become a factor for territorial cohesion and a marketing tool to promote diverging visions of territorial sustainability [32].

In Estepa, the “culture of olive oil” is associated with a closed and objectifiable category linked to scientific-technical knowledge, the ability to innovate beyond the barriers imposed by tradition, and the various commercial categories of olive oil. “Culture” is established as the central pillar of a hegemonic discursive framework, aimed at establishing a standardised quality model. This creates a polarisation between those who possess and those who do not possess “olive oil culture”, socially legitimising the former and delegitimising the latter.

In Garrigues, the “culture of olive oil” is associated with an open category linked to a subjective quality, based on the heritage values of the territory. The discourse of “olive oil culture” is established as a marketing tool to promote social change that incorporates heritage quality as an alternative to development. Culture is introduced into the discourse to encourage the creation of a structured and market-based oleotourism, committed to the creation of innovative products and services, and based on vernacular knowledge and ancestral practices [70].

In the two cases studied, the knowledge and learning processes have boosted the creation of a specific “culture of quality”. This has enabled the generation of territorial cohesion and involvement dynamics around the quality model adopted. And, in line with guidelines on cultural sustainability [55,60], this has favoured the construction of a sense of belonging to the territory, which is an essential factor in the development of sustainable strategies for territorial continuity with which the population can identify.

This research also highlights how quality constitutes a tool to create socio-economic alternatives for the territories. It represents an opportunity to restore territorial dignity, through the reformulation of identity and territorial repositioning in relation to global power relationships [23]. Learning and knowledge processes are a tool for change that enables channelling of feelings of collective responsibility and territorial resistance. The reflexive and practical dimension of such processes generates new links and a relationship of trust between actors and sectors in a way that consolidates the creation of strong networks which in turn increase the adaptative capacity of territories. Furthermore, these processes strengthen relationships and links within the local population, encouraging material and symbolic appropriation. The territory becomes a key actor developing its own tools for change, thus providing basic personal, collective and territorial autonomy for constructing sustainable quality models.

Estepa has opted for a coded quality model as part of a strategy of sectoral resistance to the globalisation processes of the agrifood chain and pressure from the olive oil industry. The territory uses expertisation and technological innovation to disseminate a discourse based around the exceptionality of its oil in the ranking of commercial categories. PDO certification, specific branding, expert tasters and trained farmers are all testament to its commitment to communicating an expertise linked to the scientific-technical dimension of “olive oil culture”. In this case, a strategy of corporate resilience is created in response to the changes and the subordinate position of the sector within the globalised agrifood system. It is a corporate institution promoting a strategy of territorial adaptability built around the high quality scientific-technical standards of its olive oil.

In Garrigues, the heritage quality model represents a strategy of territorial resilience in which various actors and sectors construct a strategy of adaptability based on endogenous resources, in contrast to the dominant urban, technical and industrial logic. The territory uses heritage rhetoric to produce and disseminate a discourse based on the uniqueness of its values and its capacity to mobilise a significant section of the territory’s actors and sectors in defence of a sustainable project for the region.

In both cases, the market is more than a mere place of economic transaction. It becomes a centre for cultural exchange and communication with consumers, and offers an opportunity for the territory to manage the way in which it presents and defines itself, and how it provides information to the consumer/visitor, thus transcending the role of passive receiver to which it has traditionally been relegated and positioned. On the contrary, the territory becomes the creator and transmitter of its

own knowledge, whether explicit and/or implicit, with value apportioned to the specific aspects of its olive oil.

6. Conclusions

This article shows the importance of the territorialisation of processes of production, reproduction and dissemination of knowledge in the configuration of sustainable food quality models. The key issue, in terms of sustainability, is not the choice of one model or the other, but the territory's capacity for reflection and analysis, its ability to generate learning networks and territorial cohesion and to promote endogenous adaptive dynamics.

The data provided in this article is the first step towards a broader reflection—and future research—on food quality, knowledge processes and the sustainability of food production and consumption systems. The commitment to standardised quality leads us to call into question the hegemonic scientific-technical ranking when other criteria for sustainable olive oil production are not taken into account. The super-intensive production of new olive monocultures, managed by agro-industries outside the territory, can produce top quality EVOO but is disconnected from socio-environmental specificities. The commitment to heritage quality also opens up a debate about the risks associated with the appropriation of heritage values by tourist industries outside the territory, and the need for serious reflection on the emergence of power networks based around “quality” and/or intra-territorial conflicts and inequalities in the struggle to impose a hegemonic rhetoric.

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References

1. Vilar Hernández, J.; Velasco Gámez, M.M.; Puentes Poyatos, R.; Martínez Rodríguez, A.M. El olivar tradicional: Alternativas estratégicas de competitividad. *Grasas Aceites* **2011**, *62*, 221–229. [[CrossRef](#)]
2. Sánchez, J.D.; Garrido, A.; Paniza, A. Mountain olive groves in the province of Jaén (Spain): Territorial challenges. *Ager Revista Estudios Sobres Despoblación Desarrollo Rural* **2018**, *24*, 155–190. [[CrossRef](#)]
3. Sanz-Cañada, J.; Macías Vázquez, A. Quality certification, institutions and innovation in local agro-food systems: Protected designations of origin of olive oil in Spain. *J. Rural Stud.* **2005**, *21*, 475–486. [[CrossRef](#)]
4. Egea, P.; Pérez Pérez, L. Sustainability and multifunctionality of protected designations of origin of olive oil in Spain. *Land Use Policy* **2016**, *58*, 264–275. [[CrossRef](#)]
5. Lozano, C.; Aguilar, E. Territorialising organic production. Collective actions and public policies in Andalusia. *Svilupp. Locale* **2012**, *37*, 45–66.
6. Belletti, G.; Marescotti, A.; Sanz-Cañada, J.; Vakoufaris, H. Linking protection of geographical indications to the environment: Evidence from the European Union olive-oil sector. *Land Use Policy* **2015**, *48*, 94–106. [[CrossRef](#)]
7. López-Pintor, A.; Sanz-Cañada, J.; Rescia, A.J. Assessment of Agri-Environmental Externalities in Spanish Socio-Ecological Landscapes of Olive Groves. *Sustainability* **2018**, *10*, 2640. [[CrossRef](#)]
8. Russo, C.; Cappelletti, G.M.; Nicoletti, G.M.; Di Noia, A.E.; Michalopoulos, G. Comparison of European Olive Production Systems. *Sustainability* **2016**, *8*, 825. [[CrossRef](#)]
9. Parra-López, C.; Calatrava-Requena, J.; Haro-Giménez, T. A multi-criteria evaluation of the environmental performances of conventional, organic and integrated olive-growing systems in the south of Spain based on experts' knowledge. *Renew. Agric Food Syst.* **2007**, *22*, 189–203. [[CrossRef](#)]
10. Hervieu, B. *Les Champs de Futur*, 1st ed.; François Bourin: Paris, France, 1993.
11. Van der Ploeg, J.D. The Food Crisis, Industrialized Farming and the Imperial Regime. *J. Agrar. Chang.* **2010**, *10*, 98–106. [[CrossRef](#)]

12. Fonte, M. Food relocalisation and Knowledge dynamics for sustainability in rural áreas. In *Naming Food After Places: Food Relocalisation and Knowledge Dynamics in Rural Development*, 1st ed.; Fonte, M., Papadopoulos, A.G., Eds.; Burlington: Farnham, Surrey, UK, 2010; pp. 1–35.
13. Schermer, M. From “Food from Nowhere” to “Food from Here:” changing producer–consumer relations in Austria. *Agric. Hum. Values* **2015**, *332*, 121–132. [[CrossRef](#)]
14. Cloke, P.J.; Goodwin, M. Conceptualising Countryside Change: From Post-Fordism to Rural Structured Coherence. *Trans. Inst. Br. Geogr.* **1992**, *17*, 321–336. [[CrossRef](#)]
15. Ilbery, B.; Bowler, I. From agricultural productivism to post-productivism. In *The Geography of Rural Change*, 1st ed.; Ilbery, B., Ed.; Longman: Harlow, UK, 1998; pp. 57–84.
16. Millán, M.G.; Pablo-Romero, M.D.P.; Sánchez-Rivas, J. Oleotourism as a Sustainable Product: An Analysis of Its Demand in the South of Spain (Andalusia). *Sustainability* **2018**, *10*, 101. [[CrossRef](#)]
17. Palazzo, A.L.; Aristone, O. Peri-Urban Matters. Changing Olive Growing Patterns in Central Italy. *Sustainability* **2017**, *9*, 638. [[CrossRef](#)]
18. Wilson, G.A. From ‘weak’ to ‘strong’ multifunctionality: Conceptualising farm-level multifunctional transitional pathways. *J. Rural Stud.* **2008**, *24*, 367–383. [[CrossRef](#)]
19. Almstedt, Å.; Brouder, P.; Karlsson, S.; Lundmark, L. Beyond post-productivism: From rural policy discourse to rural diversity. *Eur. Countrys.* **2014**, *6*, 297–306. [[CrossRef](#)]
20. Wilson, G.A.; Burton, R.J. ‘Neo-productivist’ agriculture: Spatio-temporal versus structuralist perspectives. *J. Rural Stud.* **2015**, *38*, 52–64. [[CrossRef](#)]
21. Willett, W.; Rockström, J.; Loken, B.; Springmann, M.; Lang, T.; Vermeulen, S.; Garnett, T.; Tilman, D.; DeClerck, F.; Wood, A.; et al. Food in the Anthropocene: The EAT–Lancet Commission on healthy diets from sustainable food systems. *Lancet* **2019**, *393*, 447–492. [[CrossRef](#)]
22. Vermeulen, S.; Campbell, B.; Ingram, J. Climate Change and Food Systems. *Annu. Rev. Environ. Resour.* **2012**, *37*, 195–222. [[CrossRef](#)]
23. Marsden, T. From post-productionism to reflexive governance: Contested transitions in securing more sustainable food futures. *J. Rural Stud.* **2013**, *29*, 123–134. [[CrossRef](#)]
24. Šūmane, S.; Kunda, I.; Knickel, K.; Strauss, A.; Tisenkopfs, T.; De Ios Rios, I.; Rivera, M.; Chebach, T.; Ashkenazy, A. Local and farmers’ knowledge matters! How integrating informal and formal knowledge enhances sustainable and resilient agriculture. *J. Rural Stud.* **2018**, *59*, 232–241. [[CrossRef](#)]
25. Sastre, B.; Barbero-Sierra, C.; Bienes, R.; Marques, M.J. Soil loss in an olive grove in Central Spain under cover crops and tillage treatments, and farmer perceptions. *J. Soil Sediments* **2017**, *17*, 873–888. [[CrossRef](#)]
26. Champredonde, M.; Muchnik, J. A constructivist view on the quality of food: Argentinean experiences. In *Local Agri-Food Systems in a Global WorldMarket, Social and Environmental Challenges*, 1st ed.; Arfini, F., Mancini, M.C., Donati, M., Eds.; Cambridge Scholars Publishing: Newcastle Upon Tyne, UK, 2012; pp. 215–243.
27. Champredonde, M. Tipicidad territorial: Elemento fundacional de la construcción de una denominación de origen. *Desenvolvimiento Reg. Em Debate* **2016**, *6*, 22–40. [[CrossRef](#)]
28. Circi, S.; Capitani, D.; Randazzo, A.; Ingallina, C.; Mannina, L.; Sobolev, A.P. Panel test and chemical analyses of commercial olive oils: A comparative study. *Chem. Biol. Technol. Agric* **2017**, *4*, 18. [[CrossRef](#)]
29. Cabrera Martínez, E.; Arriaza, M.; Rodríguez Entrena, M. Is the extra virgin olive oil market facing a process of differentiation? A hedonic approach to disentangle the effect of quality attributes. *Grasas Aceites* **2015**, *55*, e105. [[CrossRef](#)]
30. Marbán Flores, R. *Calidad y Estrategias de Competencia Vertical en el Sector del Aceite de Oliva y su Influencia Sobre la Comercialización en los Mercados Internacionales*, 1st ed.; Universidad Complutense: Madrid, Spain, 2006.
31. Jiménez-Herrera, B. *Evolución del Perfil Sensorial de Aceite de Oliva Virgen en la Maduración y su Influencia en el Diseño de la Almazara*, 1st ed.; Universidad de Granada: Granada, Spain, 2011.
32. Farré Ribes, M.; Lozano-Cabedo, C.; Aguilar Criado, E. La nueva cultura del aceite como eje de transformación en los territorios olivareros andaluces. *AIBR-Rev. Antropol. Iberoam* **2020**. accepted.
33. Cendón, M.L.; Sáenz-Cañada, J.; Lucena-Piquero, D. Differential quality and technical/managerial advice relationships in Andalusia (Spain) olive oil protected designations of origin. *Span. J. Agric. Res.* **2014**, *12*, 869–888. [[CrossRef](#)]
34. Virtanen, I. Epistemological problems concerning explication of tacit knowledge. *J. Knowl. Manag. Pract.* **2010**, *11*, 1–14.

35. Quiñones-Ruiz, X.F.; Penker, M.; Belletti, G.; Marescotti, A.; Scaramuzzi, S.; Barzini, E.; Pircher, M.; Leitgeb, F.; Samper-Gartner, L.F. Insights into the black box of collective efforts for the registration of Geographical Indications. *Land Use Policy* **2016**, *57*, 103–116. [[CrossRef](#)]
36. Coq-Huelva, D.; Sanz-Cañada, J.; Sánchez-Escobar, F. Conventions, commodity chains and local food systems: Olive oil production in “Sierra De Segura” (Spain). *Geoforum* **2014**, *56*, 6–16. [[CrossRef](#)]
37. Fernández-Zarza, M.; Amaya Corchuelo, S.; Aguilar Criado, E. Institutional density and public policies in two cases of geographical indications from Mexico and Spain. *J. Agrar. Chang.* **2018**, *19*, 361–379. [[CrossRef](#)]
38. López-Moreno, I.; Aguilar-Criado, E.; Lozano-Cabedo, C.; Pérez-Chueca, A. Quality labels and institutional density in the agro-food sector: The case of Andalusia (Spain). *Span. J. Rural Dev.* **2015**, *4*, 9–20. [[CrossRef](#)]
39. Amaya Corchuelo, S.; Aguilar Criado, E. Patrimonializando saberes locales, resignificando tradición e innovación. El caso del jamon ibérico. *Etnicex Rev. Estud. Etnográficos* **2012**, *4*, 63–75.
40. Virtanen, I. In Search for a Theoretically Firmer Epistemological Foundation for the Relationship Between Tacit and Explicit Knowledge. *Electron. J. Knowl. Manag.* **2013**, *11*, 118–126.
41. Lehébel-Péron, A.; Sidawy, P.; Dounias, E.; Schatz, B. Attuning local and scientific knowledge in the context of global change: The case of heather honey production in southern France. *J. Rural Stud.* **2016**, *44*, 132–142. [[CrossRef](#)]
42. Giddens, A. *Consecuencias de la Modernidad*, 1st ed.; Alianza Editorial: Madrid, Spain, 1999.
43. Knorr Cetina, K. Sociality with Objects: Social Relations in Postsocial Knowledge Societies. *Theory Cult. Soc.* **1997**, *14*, 1–30. [[CrossRef](#)]
44. Muriel, D. Handling reality: Three paths to understanding the knowledge society. *Athenea Digit. Rev. Pensam. Investig. Soc.* **2009**, *16*, 77–93. [[CrossRef](#)]
45. Gatti, G.; Martínez de Albeniz, I. Banalización de la identidad, cultura experta y sociedad del conocimiento. El estudio de la identidad colectiva en el País Vasco hoy. *Azkoaga. Cuad. Cienc. Soc. Económicas* **2006**, *13*, 5–22.
46. Muriel, D. Expert Mediation in the Construction of Cultural Heritage as a Contemporary production of “What is ours”. *AIBR-Rev. Antropol. Iberoam.* **2015**, *10*, 259–288. [[CrossRef](#)]
47. De Sousa Santos, B. *Crítica de la Razón Indolente. Contra el Desperdicio de la Experiencia. Para un Nuevo Sentido Común: La Ciencia, el Derecho y la Política en la Transición Paradigmática*, 1st ed.; Descleé de Brouwer: Bilbao, Spain, 2000.
48. Guerrero Lara, L.; Pereira, L.M.; Ravera, F.; Jiménez-Aceituno, A. Flipping the *Tortilla*: Social-Ecological Innovations and Traditional Ecological Knowledge for More Sustainable Agri-Food Systems in Spain. *Sustainability* **2019**, *11*, 1222. [[CrossRef](#)]
49. Cook, S.D.N.; Brown, J.S. Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing. *Organ. Sci.* **1999**, *10*, 381–400. [[CrossRef](#)]
50. Hislop, D.; Bosua, R.; Helms, R. *Knowledge Management in Organizations. A Critical Introduction*, 1st ed.; Oxford University Press Inc.: New York, NY, USA, 2005.
51. Polanyi, M. *The Tacit Dimension*, 1st ed.; Anchor Books edition: New York, NY, USA, 1966.
52. McIver, D.; Lengnick-Hall, C.A.; Lengnick-Hall, M.L.; Ramachandran, I. Understanding Work and Knowledge Management from a Knowledge-in-Practice Perspective. *Acad. Manag. Rev.* **2013**, *38*, 597–620. [[CrossRef](#)]
53. Boltanski, L.; Thevenot, L. *De la Justification-Les Economie de la Grandeur*, 1st ed.; Gallimar: Paris, France, 1991.
54. Gómez, P.-Y. *Qualité et Théorie des Conventions*, 1st ed.; Economica, D.L.: Paris, France, 1994.
55. Axelsson, R.; Angelstam, P.; Degerman, E.; Teitelbaum, S.; Andersson, K.; Elbakidze, M.; Drotz, M.K. Social and cultural sustainability: Criteria, indicators, verifier variables for measurement and maps for visualization to support planning. *Ambio* **2013**, *42*, 215–228. [[CrossRef](#)] [[PubMed](#)]
56. Soini, K.; Birkeland, I. Exploring the scientific discourse on cultural sustainability. *Geoforum* **2014**, *51*, 213–223. [[CrossRef](#)]
57. Biro, E.; Babai, D.; Bodis, J.; Molnar, Z. Lack of knowledge or loss of knowledge? Traditional ecological knowledge of population dynamics of threatened plant species in East-Central Europe. *J. Nat. Conserv.* **2014**, *22*, 318–325. [[CrossRef](#)]
58. Moschitz, H.; Roep, D.; Brunori, G.; Tisenkopfs, T. Learning and innovation networks for sustainable agriculture: Processes of co-evolution, joint reflection and facilitation. *J. Agric. Educ. Ext.* **2015**, *21*, 1–11. [[CrossRef](#)]

59. Tisenkopfs, T.; Kunda, I.; Šūmane, S.; Brunori, G.; Klerkx, L.; Moschitz, H. Learning and innovation in agriculture and rural development: The use of the concepts of boundary work and boundary objects. *J. Agric. Educ. Ext.* **2015**, *21*, 13–33. [CrossRef]
60. Escalera Reyes, J. «Amor a la tierra». Identidades colectivas y resiliencia de los socioecosistemas. In *Complejidad y Ciencias Sociales*, 1st ed.; Ruiz Ballesteros, E., Solana Ruiz, J.L., Eds.; Universidad Internacional de Andalucía: Sevilla, Spain, 2013; pp. 333–376.
61. Coq-Huelva, D.; Sanz-Cañada, J.; Sánchez-Escobar, F. Values, conventions, innovation and sociopolitical struggles in a local food system: Conflict between organic and conventional farmers in Sierra de Segura. *J. Rural Stud.* **2017**, *55*, 112–121. [CrossRef]
62. MAPA. Mapa de los Aceites con Denominación de Origen Protegida. Available online: https://www.mapa.gob.es/es/cartografia-y-sig/publicaciones/alimentacion/mapa_dop_aceites.aspx (accessed on 24 June 2019).
63. Jiménez-Herrera, B.; Carpio Dueñas, A. *La Cata de Aceites: Aceite de Oliva Virgen. Características Organolépticas y Análisis Sensorial*, 1st ed.; Consejería de Agricultura y Pesca, Junta de Andalucía: Sevilla, Spain, 2008.
64. Esencia de Olivo. Calidades del Aceite de Oliva. Available online: <http://www.esenciadeolivo.es/aceite-de-oliva/tipos-de-aceite-de-oliva/calidad-del-aceite-de-oliva/> (accessed on 24 July 2019).
65. Anta Félez, J.L.; Palacios Ramírez, J. *La Cultura del Aceite. La Tradición Frente a la Modernidad*, 1st ed.; Fundación Machado: Sevilla, Spain, 2002.
66. Olimerca. Aceite de oliva envasado: Ser o no ser virgen extra. La encrucijada del Panel Test, sí pero con condiciones. *Olimerca. Inf. Mercados Para Sect. Aceite Oliva Otros Aceites Veg.* **2016**, *19*, 12–20.
67. Romero, I.; García-González, D.L.; Aparicio-Ruiz, R.; Morales, M.T. Validation of SPME-GCMS method for the analysis of virgin olive oil volatiles responsible for sensory defects. *Talanta* **2015**, *134*, 394–401. [CrossRef]
68. Sánchez-Escobar, F.; Coq-Huelva, D.; Sanz-Cañada, J. Measurement of sustainable intensification by the integrated analysis of energy and economic flows: Case study of the olive-oil agricultural system of Estepa, Spain. *J. Clean. Prod.* **2018**, *201*, 463–470. [CrossRef]
69. Romero, M.P.; Tovar, M.J.; Ramo, T.; Motilva, M.J. Effect of crop season on the composition of virgin oil with protected designation of origin “Les Garrigues”. *J. Am. Oil Chem. Soc.* **2003**, *80*, 423–430. [CrossRef]
70. Motilva, M.J.; Jaria, I.; Bellart, I.; Romero, M.P. Quality of virgin olive oil from territorial quality label “Les Garrigues” DO (Lleida. Spain) along the 1995/96 harvest. *Grasas Aceites* **1998**, *49*, 425–433. [CrossRef]



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