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# **The Local Agri-Food System of the Date Palm in Tafilalet (Morocco): Towards the Territorialisation and Sustainability**

## **O Sistema Agro-Alimentar Local da Palmeira de Tâmaras em Tafilalet (Marrocos): Para a Territorialização e Sustentabilidade**

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### **Abstract**

Territorial dynamics have been the subject of a growing number of writings since the rediscovery of the territory (Marshall, 1920). These dynamics, which have been analyzed from different angles, refer to the economic level, to the notions of local and territorial development. In this vision, our paper deals with and analyzes the territorial dynamics of an oasis territory (Tafilalet, in southeastern Morocco), historically built by the dynamics of local actors -private and public- operating in the field of date palm. This dynamic has favored the territorialization of a Localized Agri-food System in Tafilalet in the sector of the phoeniculture (LAFS-DPT). In this sense, to analyze the link between the dynamics and territoriality of the LAFS, we adopt a qualitative approach based mainly on the documentary analysis of documents and reports of local actors of this system, supported by dozens of site visits and interviews with different territorial actors of this ecosystem. In terms of results, we first presented the LAFS-DPT, addressing its territorialization levers (physical, cognitive, historical and interpersonal, and institutional), as well as the four-figure territorial dynamics created by its local actors since 2008. Second, we discussed the sustainable orientation of LAFS-DPT, showing how it is transforming over time towards the model of a territorialized food system (TFS).

*Keywords:* Local agri-food system (LAFS), Territorialized food system (TFS), territorialization, territorial dynamics, sustainable development, actor dynamics.

*JEL Codes:* O13; R11; Q01

### **Resumo**

As dinâmicas territoriais têm sido objecto de um número crescente de escritos desde a redescoberta do território (Marshall, 1920). Estas dinâmicas, que foram analisadas de diferentes ângulos, referem-se ao nível económico, às noções de desenvolvimento local e territorial. Nesta visão, o nosso artigo aborda e analisa a dinâmica territorial de um território oásis (Tafilalet, no sudeste de

Marrocos), historicamente construída pela dinâmica dos actores locais - privados e públicos - que operam no campo da palma da data. Esta dinâmica favoreceu a territorialização de um sistema agro-alimentar localizado em Tafilalet no sector da fenoicultura (SIAL -PDT). Neste sentido, para analisar a ligação entre a dinâmica e a territorialidade do SIAL, adoptamos uma abordagem qualitativa baseada principalmente na análise documental de documentos e relatórios dos actores locais deste sistema, apoiada por dezenas de visitas ao local e entrevistas com diferentes actores territoriais deste ecossistema. Em termos de resultados, começámos por apresentar o SIAL -PDT, abordando as suas alavancas de territorialização (físicas, cognitivas, históricas e interpessoais, e institucionais), bem como as dinâmicas territoriais de quatro dígitos criadas pelos seus actores locais desde 2008. Em segundo lugar, discutimos a orientação sustentável do SIAL -PDT, mostrando como este se está a transformar ao longo do tempo no modelo de um sistema alimentar territorializado (SAT).

*Palavras-chave:* Sistema agro-alimentar local (SIAL), sistema alimentar territorializado (SAT), territorialização, dinâmica territorial, desenvolvimento sustentável, dinâmica de actores.

*Códigos JEL:* O13; R11; Q01

## 1. INTRODUCTION

The rediscovery and enrichment of Alfred Marshal's work (1920) on districts and industrial dynamics by the Italians (in particular Becattini between 1960 and 1970, Becattini, 1989) and by other authors such as Porter, 1990; Pecqueur, 2001; Courlet, 2002, has favored the rediscovery of the notion of "territory" in an economic perspective. The definition of this notion, unstable to this day, is widely debated in the scientific community, given that it is based on the conjunction of the geographical proximity of actors and the organized proximity that unites them. However, the territory should not be perceived as a closed system because it interacts with external economic, political and personal factors that affect its dynamics (Bel, 2009). This work on agglomeration and proximity (in the broad sense) has led to the analysis of several types of territorial configurations, such as localized productive systems (LPS), clusters, innovative environments, etc., in the industrial sector as well as in localized agri-food systems (LAS), the subject of our research.

It is recognized that territories are not static entities, they experience changes in their demographic and socio-economic characteristics (Bel, 2009) related to production, coordination, distribution, consumption systems and socio-cultural determinants, etc. These evolutions entitled "territorial dynamics" can be positive (economic growth, employment, etc.) as well as negative (decline, unemployment, etc.); they aim at analyzing the changes by emphasizing the evolution of the relations between the different local actors (private and public or community) with the taking into account of the modes of coordinations built by the interactions of the actors (Bel Maiten, 2009)

In this sense, our study is interested in the analysis of territorial dynamics - as an articulation of individual and collective actions, microsocial phenomena and national frameworks, institutions and networks - observed in three regions of Morocco, namely: Draâ-Tafilalet, Oriental and Souss-Massa. We will focus on the first of these regions, whose national date palm production reaches 85%.

Thus, based on an institutionalist approach that considers the territory as a specific form of economic dynamics based on interactions and collective memory, and as a proportion of space where a set of actors interact to build a development project (Colletis-Wahl et al. 2008), we conduct an analysis of the dynamics of the local agri-food system of Tafilalet (LAFS- DPT), which is based on a characteristic of the territorialized food system (TFS) in a sustainable development perspective.

Indeed, the objective of our paper is to explain and analyze the four levers of territorialization of the LAFS- DPT, while showing that this territoriality through the functional, institutional, cognitive, historical and interpersonal pillars has favored the development of this LAFS on the quantitative level, as well as the qualitative. And we will finish with an approximation between the LAFS and the Localized Food System (TFS), explaining that both systems share a set of characteristics, which makes the transformation of the LAFS- DPT in TFS possible.

For this, we will show, in a first axis, the approaches of the LAFS and their territorial anchorage. Then, we will study the evolution of the phoeniculture sector and the constitution of the levers of the territoriality of the LAFS- DPT in a second axis. Finally, in a third axis, we will show the territorial dynamics of the region that results from it, thus allowing the transformation of LAFS into a TSS promoting the sustainable development of the Draâ-Tafilalet region in Morocco.

## 2. LITERATURE REVIEW: FROM LAFS TO TFS, A DIVERSITY OF APPROACHES AND A TERRITORIAL ANCHORING

In a context marked by the crisis of rural societies, the aggravation of societal and environmental problems and new food and sanitary challenges facing the countries of the world, the notion of LAFS emerged 23 years ago thanks to the Centre for International Cooperation in Agricultural Research for Development (CICARD)<sup>1</sup>, which defined LAFSs as: "*production and service organizations (agricultural production units, agri-food, commercial and service enterprises, restaurants) associated by their characteristics and their functioning with a specific territory. The environment, the products, the people, their institutions, their know-how, their food behaviors, and their networks of relationships combine in a territory to produce a form of agri-food organization at a given spatial scale*" (CIRAD-SAR, 1996).

Several approaches underlie the LAFS, one of the major characteristics of which is its attachment to the territory. In turn, TFS as a new model is considered to be a LAFS in an advanced state.

### 2.1. LAFS: a diversity of approaches

The emergence of the notion of LAFS is the result of the confrontation between three research streams. The first was concerned with the role of small enterprises in the evolution of agriculture and agri-food chains in developing countries, essentially in sub-Saharan Africa and Latin America. The second stream analyzed the rise of the territory as a productive organization following the debates on industrial districts (ID) and LPSs<sup>2</sup>. And the third stream of research was affirmed with the debates on quality and signs of agri-food products. (J. Muchnik et al., 2007, Requier-Desjardins, 2010).

Since its appearance, it should be noted that the notion of LAFS has experienced a remarkable diffusion in scientific circles. It has become an object of research and an approach in a plurality of social and biotechnical disciplines (Muchnik et al 2007). However, this notion is considered - by a number of authors such as J-M Touzard, D. Sautier, J. Muchnik, D. Requier-Desjardins (2007), and so on - as not stabilized, for this reason several authors have already made a distinction between the two. - For this reason, several works have tried to analyze the notion of LAFS according to the LPS approach, the territory approach and the food fact approach.

For the first type of work, he tried to analyze the links between the LAFS and the LPS as: "a set characterized by the proximity of productive units in the broad sense of the term (industrial companies, services, research and training centers, interfaces...) which maintain between them relations of more or less strong intensity... The relationships between the units are diverse and take different forms: formal, informal, material, market and non-market. These relationships may concern material, service, labor, technology or knowledge flows. (Courlet 2002).

Similarly, this concept is assimilated to the notion of cluster considered as: "*a geographic concentration of interconnected firms, specialized suppliers, service providers, firms in related industries and associated institutions (universities, standards agencies and institutions) in particular fields that compete but cooperate*" (Porter, 1998). *This work focuses on the relationships between these different concepts, their points of similarity and difference, trying to answer the question "is LAFS simply an extension of the notion of LPS in the agricultural or agribusiness domain?"* (Requier-Desjardins, 2010).

This explains the analysis of the agri-food sector according to the cluster approach in Anglo-Saxon works: wine cluster in California (Porter, 1998) and agri-food LPS in comparative multi-

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<sup>1</sup> Centre for International Cooperation in Agricultural Research for Development.

<sup>2</sup> Localized production systems.

sector research (DATAR<sup>3</sup> 2001; Courlet 2002). Similarly, Sabel (2002) has supported the idea that the agri-food sector can be organized in the form of clusters. Hence, the LAFS model has points in common with other types of territorial configurations such as: the differentiation of actors and the complexification of functions, notably through the production of a certain number of territorialized public goods (Requier-Desjardins, 2010); the highlighting of economic foundations combining Marshallian externalities and agglomeration economy, with the construction of specific assets; and, the reference of the different models to innovation and the territorialization of know-how (Muchnik et al. 2007)

## 2.2 LAFS: a strong reference to the territory compared to LPSs and clusters

The comparison between LAFS and the other models (LPS and cluster) has brought out a certain specificity: first, the geographical concentration, because in LPS, the spaces are restricted whereas for LAFS, the activities can cover non-continuous spaces, which reinforces the role of the territorial delimitation of activities (Muchnik et al 2007). Secondly, the environmental orientation or the consideration of sustainable development objectives by the LAFS model and finally, the strong territorial qualification of agri-food products (Requier-Desjardins, 2010).

However, the specificity that interests us here is the strong reference of the LAFS to the notion of territory compared to other models, notwithstanding the fact that the debate on the economy of proximity, which has in a way absorbed the problematic of the LPS, has led to an increasingly assertive prudence with regard to the reference to territory (Requier-Desjardins, 2010).

Indeed, the analysis of the territoriality of LAFSs reflects the study of the different processes and links of this model with the territory. The notion of territory, despite its complexity and multi-disciplinarity, can be considered as "a socially constructed, culturally marked and institutionally regulated space" (Lopez and Muchnik, 1997). Thus, the territory is not only a modality of contextualization of territorial configurations and activities, but it is part of LAFS.

In this way, the links of the LAFS with the territory, which concretize the territorialization of this model, can be of a physical and functional nature, strengthened when agriculture and agri-food processing are coupled locally and lead to products with specific characteristics. They can also be of a strong cognitive nature linked to the body of knowledge shared and distributed locally between the different actors, and to the skills of a local workforce. In the same way, these links can be in the form of localized interpersonal and historical networks on which agri-food practices are embedded and whose structures and mechanisms of socialization and control contribute to strengthening the links to the territory. These links are also materialized by a set of formal institutions (economic or political, etc.) that establish, stabilize and guarantee interdependent relationships between LAFS actors. Such an institutional sphere is therefore an essential dimension for identifying a LAFS (Muchnik et al 2007).

The ensemble of these physical, cognitive, historical, interpersonal and institutional links constitutes the "territorial anchoring" of the LAFS. However, the degree of this anchoring remains directly conditioned by the level of local coordination between these activities (Muchnik et al 2007).

Another important dimension that reflects the territoriality of the LAFSs is the economic and symbolic coupling of agri-food products and local services according to the basket of goods model of Mollard (2001) or the development of agritourism projects according to Touzard and Vandecandelaere (2005) & (Muchnik et al 2007).

With the amplification of social and environmental problems, the LAFS model, given its specificities and its autonomy, appears to be the most appropriate model to respond to the global challenges of sustainable development and food security, since it favors the maintenance of biodiversity through the protection and patrimonialization of living species and natural resources, as well as through the search for quality in agri-food products. This strengthens the territorial qualification of products, the geographical index and the territorial identity.

In this context, the debates on LAFS have led to the emergence of the concept of territorialized food system (TFS) as a model that fully responds to the concept of sustainability of production methods (Thouzard and Fournier, 2014) and involves both consumers and all other actors in the food chain (Rastoin, 2014).

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<sup>3</sup> Delegation for Regional Planning and Action (DRPA).

This is the case of the date palm sector in Tafilalet, which is increasingly moving towards the integration of the principles of sustainable development in the perspective of guaranteeing the availability and quality of the products of the territory in a sustainable way with the help of many national, regional and international programs (such as that of the OTP: Oasis Tafilalet Project) . Such a system seems to correspond to the strong characteristic mentioned above, that of its attachment to the territory. Its evolution has made it possible to identify a set of levers for its territorialization.

### 2.3 The TFS: towards a maturity of the LAFS

Insofar as the LAFS represents a set of production and/or service entities operating in the agri-food field, attached to a specific territory through their specificities and work processes, allowing for the appearance of a territorial productive configuration in which the various local actors (public, private, community, and associative), their know-how, their relational systems, their agri-food products, etc., combine in a specific territory, the model of the territorialized food system (TFS) presents great similarities with the LAFS.

The TFS is first defined by Malassis as a "*way in which people organize themselves in space and time to obtain and consume their food*" (Malassis, 1994), then, it is defined as a "coherent set of agri-food chains localized in a geographical space of regional dimension" (Rastoin, 2015), or as a "*set of agri-food chains meeting the criteria of sustainable development, located in a geographical space of regional dimension and coordinated by territorial governance*" (Rastoin, 2016). According to these definitions, we can see that the TFS with respect to the LAFS presents a territorialized productive organization (whether at the local, regional, or national level) around a set of homogeneous agri-food chains, encompassing different actors (farmers; agri-food producers and artisans; packaging, equipment, and recycling industrialists; traders; transporters; catering, financing, and communication entities; training, innovation, and governance arrangements; consumers, etc.).

In fact, the TFS, like the LAFS, encompasses a set of territorial actors associated with the food or agri-food sector, all along the agri-food chain, that is, from the plant or animal seed to the finished products and to the outputs of waste processing units (Rastoin & Ghersi, 2010). This territorial productive organization, anchored territorially in a specific territory, combines local actors, their relational networks, their know-how, their products and services, consumers, etc., while integrating the objectives of societal responsibility of producers and consumers, and the objectives of sustainable development in agrifood chains (Rastoin, 2016). This new configuration or model mutualizes the local resources of actors in a nearby consumption territory, according to a sustainable development perspective.

In this sense, Rastoin explains that the TFS emphasizes a triple proximity: a proximity in the ecosphere, that is, by diversifying agricultural producers, linking plant, animal and forestry chains; the proximity of agriculture and food industry, that is, between the agricultural raw materials of the territory and the processing units; and the proximity between the food demand and a varied and good quality local offer (Rastoin, 2016). From there, the TFS as a territorial configuration based on positive externalities (territorial and natural resources, agri-food industry, historical, cultural and territorial anchorage, etc.) is an element of differentiation of territories, thus, it is an element of resilience in the face of relocation problems.

Indeed, in terms of comparison between the two configurations, we note that LAFS and TFS share several characteristics and specificities, we are talking here about the diversity and plurality of local actors, the territorial anchoring of actors, the field of activity that is attached to the food and/or agri-food chain, the mutualization of local resources between actors, the scope that can be the local, regional, or national level, agri-food production, and the consumption of the large part of the food supply at the local level, etc.

However, there are differences between the two models, in other words we can say that the TFS differs from the LAFS by the fact that the first interweaves several agri-food chains, integrates the principles of sustainable development, the societal responsibility of actors (producers and consumers), and territorial governance. Thus, the TFS is based on the one hand on the diversification of agricultural production, and on the other hand on the industrialization of the farm, as well as on local consumption.

### 3 MATERIAL AND METHODOLOGY

With the objective of analyzing and dissecting the local socio-economic dynamics in an oasis territory in southeastern Morocco, called Tafilalet (exactly the province of Errachidia) and known historically by the agriculture of the date palm, we adopt a qualitative approach based primarily on a field survey of the various local actors of this agricultural production system through semi-directive interviews.

This identified productive system takes the form of a localized agri-food system (LAFS), for which we have given it the title of LAFS of date palm in Tafilalet. In fact, our objective in this article is to analyze this LAFS-DPT, while analyzing on the one hand its territoriality, or its four levers of territorialization (physical, cognitive, historical and interpersonal, and institutional), and on the other hand, its sustainable dimension and its environmental positioning. Therefore, in terms of discussion, we present the orientation of LAFS-DPT towards the model of a territorialized food system (TFS).

Indeed, our approach to exploring the field and collecting data is based on two components; the first consists of a documentary study of the various documents produced by the local actors of the LAFS-DPT, the second consists of semi-structured interviews with 64 actors of the LAFS-DPT of different natures (cooperatives, economic interest groups EIGs, private companies in the sector, public institutions, associations, consumers, etc.) The duration of the semi-structured interviews varied between 40 and 90 minutes, and they focused on two of batches of questions.

- The first batch: contains questions related to the levers of territorialization of the system, which are notably physical, cognitive, interpersonal, and institutional. Also, on the achievements or performances of the LAFS-DPT with regard to the production, valorization of the date resource, quality and marketing.

- The second batch: contains questions related to the environmental or sustainable concerns of the LAFS-DPT, and its continuous transfer to the model of a territorialized food system (TFS).

The second part consists of the classification and processing of the data collected on the basis of the documentary study and from the actors, to analyze firstly the levers of territorialization of the LAFS-DPT, or how this system is rooted and embedded locally at the level of the territory of Tafilalet, and via what means (physical, cognitive, historical and institutional). Secondly, we present the tangible aspects of this territoriality of the LAFS-DPT, through the performances achieved by the system in terms of production, valorization of the territorial resources on which the LAFS-DPT is based, quality and certification of the LAFS products, and commercialization of the LAFS-DPT production.

Thirdly, we present how the LAFS-DPT integrates environmental and sustainability issues into its strategy, and how it directly participates in the establishment of a responsible territorial development, preserving territorial resources of the agricultural sector and promoting socio-economic activities at the level of Tafilalet, via a sustainable and green local dynamic. Thus, we present the orientation of this LAFS-DPT towards the model of a territorialized food system (TFS), while concluding with perspectives for the improvement of the level of valorization of resources within the LAFS-DPT.

### 4 RESULTS AND DISCUSSION: THE LAFS OF THE DATE PALM IN TAFILALET, A NEW DYNAMIC FOR SUSTAINABLE DEVELOPMENT

Through all the indicators mentioned above, we note a strong socio-economic dynamic of the LAFS of the date palm of Tafilalet in the region of Draâ-Tafilalet. This dynamic can be exposed based on four dimensions or major levers which are: the production of dates, their valuation, their quality and their marketing.

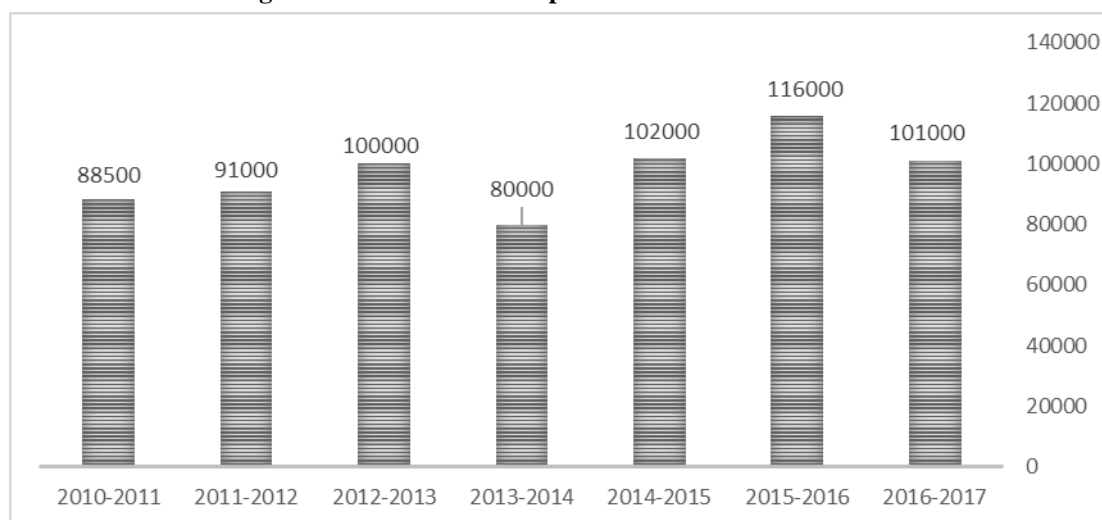
#### 4.1 The evolution of the production of dates and vitro-plants

In terms of production there are two components, the production of dates and the production of vitro-plants. Regarding the first component, we note a remarkable progress compared to the years 2002-2008 when the total production of dates in Morocco was between 25000 and 60000 tons,

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against 101000 tons in 2016/2017 at the level of the region of Draâ-Tafilalet. Figure 1 shows the important evolution in terms of production of dates in the region over the past years:

**Figure 1: Evolution of date production in the DTR in tons**

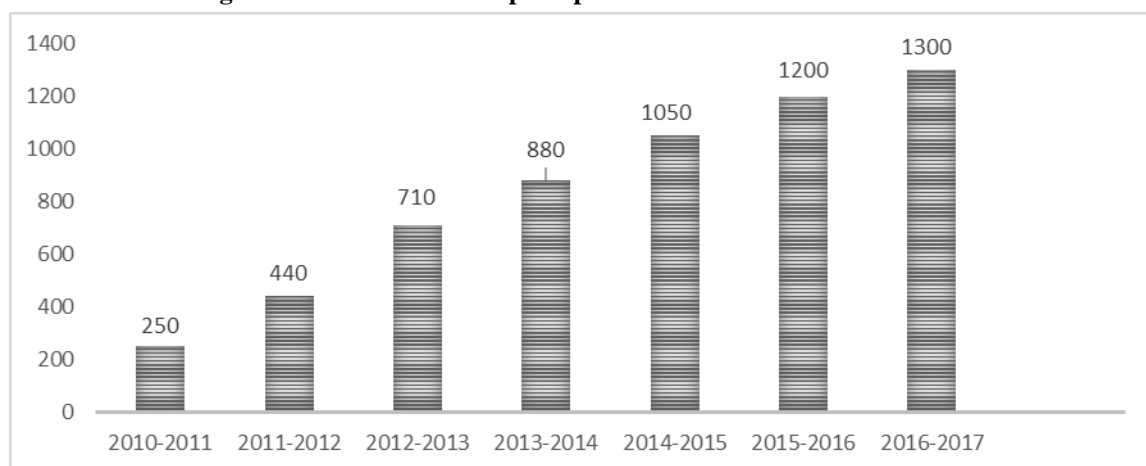


Source: RCDT<sup>4</sup>-2018, Terroir products report

Despite the decline noted in 2013-2014, date production has grown almost continuously between 2010 and 2017. This is an indicator of a new dynamic created in the region.

Regarding the second component of production of vitro-plants, it has also experienced a significant increase in recent years through the efforts of various institutions, namely: the RCAR-E<sup>5</sup>, NOFS-E<sup>6</sup>, ANDZOA<sup>7</sup>, ROAD-TF<sup>8</sup>, ACop<sup>9</sup> and Research Laboratories. This development has been materialized by the availability of 450000 vitro-plants to investors over the period of 2010-2017 according to the Moroccan ministry of agriculture data in 2018. The development of the production of vitro-plants positively impacted the planting of palm trees in the region of Draâ-Tafilalet (RDT), going from 250000 feet of date palm planted in 2010/2011 to 1300000 feet in 2016/2017. This result is due, it seems, the national plan for the development of date palm which aims to expand the palm grove from 48000 ha in 2010 to 65000 ha by 2020, with the planting of 3 million seedlings, by restoring and densifying the existing palm grove and creating 17000 ha of new modern plantations. The following figure shows the evolution of palm planting in the RDT.

**Figure 2: Evolution of date palm plantation in the RDT in thousands**



Source: RCDT-2018 terroir products report

<sup>4</sup> Conseil Régional de la région de Draâ-Tafilalet. 2018. Rapport des activités productives de la région de Draâ-Tafilalet. Errachidia: CRDT, 31 p, N° de rapport : N° 126/18.

<sup>5</sup> The regional center for agricultural research of Errachidia

<sup>6</sup> National Office for Food Safety

<sup>7</sup> Agence Nationale pour le Développement des Zones Oasiènes et de l'Arganier. 2019. Rapport d'activité annuel. Errachidia: ONZOA, 75 p, N° de rapport : N° 033/19.

<sup>8</sup> Regional Office for Agricultural Development of Draâ-Tafilalet

<sup>9</sup> Agricultural cooperatives.

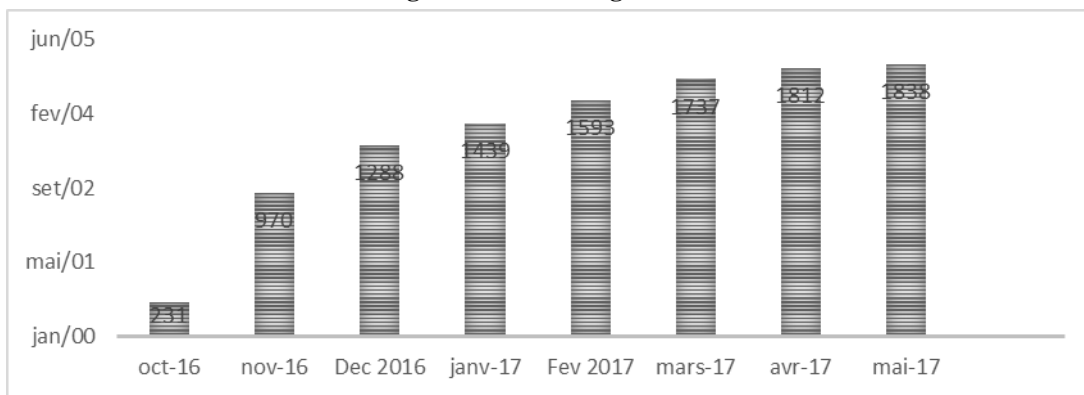
We can clearly see the more than fivefold increase in date palm planting from 250 thousand palms in 2010 to 1 million 300 thousand in 2017.

#### 4.2 The development of a process of valorization of dates and its derivatives

After the establishment of the pillars of the LAFS-DPT including cooperatives and processing MSEs, we see the transition from an era of marketing in raw to another valuation of dates. Thus, through the MSEs and agricultural cooperatives, the processes of recovery of dates are developed and became more innovative, including the processes of processing dates into by-products such as paste, syrup, jam, toast, etc., and with the introduction and use of dates and their waste in the production of several innovative food products, aesthetic and decorative.

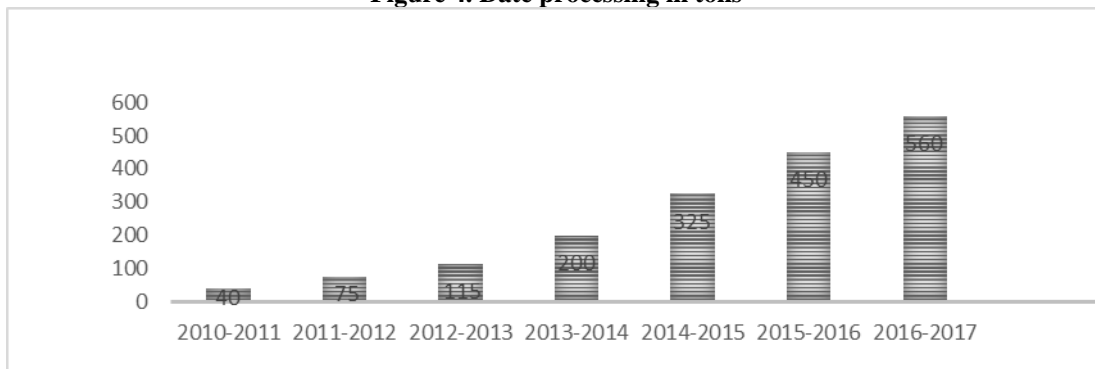
This recovery is reassured by 24 units of which 18 are economic interest groups (EIG)<sup>10</sup>, with a storage capacity of 3920 tons (amount stored until May 2017: 1838 tons). Thus, the 67 date processing units were able to process 560 tons of dates in 2016/2017. Figures 4 and 5 show the evolution of these units in terms of storage and processing of dates in recent years.

Figure 3. Date storage in tons



Source: RCDT Terroir Products Report, 2018.

Figure 4. Date processing in tons



Source: RCDT Terroir Products Report, 2018.

Such developments noted through the two figures 6 and 7 clearly show the dynamics of the sector through the process of valorization of dates.

#### 4.3 Improving the quality of LAFS- DPT products and their certification

In terms of quality, before 2010 no variety of dates, at the level of the region, was known by its quality and its specificities at national or international level. But since the year 2010, there has been a significant improvement in the quality of dates and its derivatives at the level of the

<sup>10</sup> Economic interest groups.

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territory. This is mainly due to research and standardization bodies (NOFS-E<sup>11</sup>, RCAR-E, and research laboratories), and all local actors of LAFS- DPT.

This remarkable development of the quality of products of the LAFS-DPT is reflected at the local, national and international levels by the instruments of certification and geographical indication of several varieties of dates in the region. In what follows, we present first, the two varieties of dates labeled PGI by the organization NORMACERT, at the level of the territory of Tafilalet (Majhoul in 2010, and Boufeggous in 2012), while presenting the characteristics, specificities and geographical delimitation of these two varieties (Table 1). Secondly, we present the two labeled varieties by images (Table 2) to expose the form and quality of the certified varieties. Third, we present some other varieties of dates labeled in the Draa-Tafilalet region (outside Tafilalet, but neighboring territories of our case study), presenting their nomination, geographical delimitation and production level (Table 3).

**Table 1. Certified varieties of dates**

Products Labelled	DSOQ <sup>12</sup>	Year of recognition of the DSOQ	Applicant group	Geographical delimitation	Main characteristics of the product	Certification and control organization
Majhoul dates from Tafilalet	P G I <sup>13</sup>	2010	Association Oasis Tafilalet for the Valorization of the products of Terroir and the promotion of the organic agriculture	The geographical area includes: •27 communes spread over 4 circles in the province of Errachidia •3 communes under the circle of Alnif and the province of Tinghir.	<ul style="list-style-type: none"> <li>•Variety: Majhoul</li> <li>•Brown color, lighter in the upper part.</li> <li>•Shape: elongated for mature dates, tapered in the upper third with lateral protrusions.</li> <li>•Dimensions: <ul style="list-style-type: none"> <li>✓ Length: 2.5 - 6.5 cm.</li> <li>✓ Width: 1.5 - 4 cm.</li> <li>✓ Weight: 15 - 30 g.</li> <li>- Total sugar content: 75.80 g/100g dry matter.</li> <li>- Water content: 20 - 30%.</li> </ul> </li> </ul>	NORMACERT
Boufeggous dates	P G I	2012	National Federation of Associations of Producers of dates.	The geographical area covered by the geographical indication "Boufeggous dates" includes 86 Communes at the level of different Moroccan oases. It is divided into four main areas: Ouarzazate (43%), Tafilalet (37%), Tata (16%) and Figuig (4%).	<ul style="list-style-type: none"> <li>-Variety: Boufeggous.</li> <li>-Shape: Oval.</li> <li>-Color: yellow at the stage Blah and dark brown at the stage wall.</li> <li>-Consistency: soft.</li> <li>-Little fibrous, thick and slightly caramelized.</li> <li>-Weight of 100 dates: 1.200 g to 2.000 g.</li> <li>-Sugar content: 65 to 75 grams/100g of dry matter.</li> </ul>	NORMACERT



Source: Our elaboration following data from Harrak H. and Boujnah M. (2012).

<sup>11</sup> Presentation of the National Office for Food Safety. <http://www.onssa.gov.ma>. Accessed on 15/09/2021.

<sup>12</sup> Distinctive signs of origin and quality (DSOQ).

<sup>13</sup> Protected geographical indication (PGI).

**Table 2: Photos of certified dates**

Variety	Photo
Majhoul dates from Tafilalet	
Boufeggous dates	

Source: Website of NOFS, 2020

Table 2 shows the certification in 2010 and 2012 of two varieties of dates in the study area (Majhoul and Boufeggous). This certification is a logical continuation of the efforts invested by the various actors in the system, including research and innovation actors. Thus, several competitions are made at the national level between producers of dates and their derivatives to develop the quality of products of the system, as those made annually at the level of the international exhibition of dates in Erfoud.

Similarly, five varieties of dates have a geographical indication, namely: Majhoul, Boufeggous, Jihl, Outqdim and Nejda. We specify in the following figures, the specifics of this process of certification and recognition of dates Tafilalet. Having today a good international quality, they contribute to the identification and territorial qualification of this oasis area of Morocco.

**Table 3. Geographical indication of some varieties of dates in the DTR and their production**

Geographical indication	« Tmar Majhoul Tafilalet »	« Tmar Boufeggous »	« ELJIHL »	« Outqdim »	« TmarNejda »
Area	Tafilalet	All oases of Morocco	Draâ	Toudgha	Draâ
Production of the region /t	8000	18000	17500	70	1200

Source : RCDT Terroir Products Report, 2020

Admittedly, the quantities produced of dates with geographical indication do not meet internal and external needs, but this productivity has increased significantly in recent years, making forecasts optimistic for the future.

#### **4.4 The progression of local and national consumption despite the complexity of the marketing circuit**

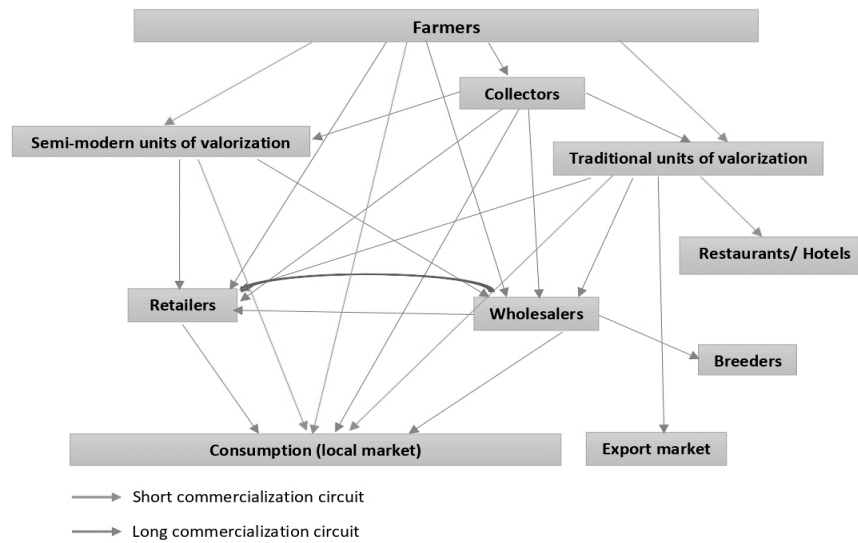
The main outlet of the production of dates in Morocco is the very dynamic local and national consumption that has almost progressed in recent years to reach the level of 15 kg / year for the inhabitants of the production area and 3.27 kg / year for the rest of the national space. These figures show that the commercialization is done mainly at the national level and more particularly at the level of the territories of production. This is due to the insufficient local production which does not cover the increasing demand (close to 180.000 tons/year). It is therefore imports that allow to complete the local supply (close to 40000 tons), while Morocco's exports of dates did not exceed the level of 37669 tons in 2017 (MAMFRDWF<sup>14</sup>, Report on strategic guidelines for the phoeniculture sector, 2017).

This finding has allowed the development of modern distribution channels and the birth of a market of local urban consumers for signaled and terroir products, while this market is complex and displays differences in prices and margins, depending on a set of factors particularly the type of varieties and quality of dates or their derivatives. It is the dates of high and medium market

<sup>14</sup> Le ministère de l'agriculture, de la pêche maritime, du développement rural, des eaux et forêts. 2017. Rapport sur les orientations stratégiques de la filière phoenicole. Rabat: MAPMDREF.

value that are easily marketed. Figure 8 shows the complexity of marketing channels for this luxury fruit.

**Figure 5. The complexity of marketing channels for dates**



Source: Belgian Development Cooperation Report, 2012<sup>15</sup>

According to the Belgian Development Cooperation report, we can note that:

- Two dominant marketing circuits coexist, namely short circuits and long circuits. The long circuit is characterized by several intermediaries, each taking a significant margin on the product. However, the direct sale to the consumer, whether at the local or
- However, direct sales to the consumer, whether at the local level or during the organization of fairs and exhibitions, is the circuit preferred by traders, but the quantities involved are small.
- The collectors / wholesalers are the main buyer of dates produced in the oasis area. On the contrary, the units of valorization are practically absent at this stage of the marketing circuit. The sale to medium and large surfaces is almost nonexistent.

All these circuits, despite their complexity, shows the strong dynamics of the LAFS of the date palm in Tafilalet and shows how the local consumer market is developing more and more to attract more actors related to the date palm sector. This is another lever that shows the territoriality of this LAFS.

#### **4.5 The LAFS- DPT: Towards a TFS promoting the sustainable development of the Draâ-Tafilalet region in Morocco**

Morocco, and during the last decade, has embarked on a journey of revitalization and restructuring of its agricultural activity in a three-dimensional perspective: economic, social and environmental through a set of instruments and measures such as the Green Morocco Plan (GMP)<sup>16</sup>. The oases, as an important part of the natural wealth and agricultural fabric of Morocco (with an area of 77000 km<sup>2</sup>, mostly in the region of Draâ-Tafilalet which houses the largest oasis in the world) to be put in the introduction, receive special attention by all economic, political, and societal actors.

So the LAFS of the date palm in Tafilalet is a complex system encompassing a variety of territorial actors (public, private and civil society), operating in the agri-food sector and offering various products (traditional and innovative) of good quality and a strong territorial qualification to a solid demand and locally attached by long but essentially short distribution channels. Thus, it is a system anchored territorially through its economic, political, research and environmental actors, as

<sup>15</sup> L'Agence Belge de Développement. 2012. International cooperation. Corporate publications. Rapport annuel. Belgium: ENABEL, 73 p, rapport N° 1/2012.

<sup>16</sup> Green Morocco Plan.

well as through the historical, cultural and personal relationships between its actors. Hence, we can consider LAFS- DPT as a TFS under construction.

The analysis of the dynamics of the LAFS- DPT has shown the existence of two phases: a first dynamic before 2008 characterized by weakness, a traditional agricultural exploitation, the absence

of coordination between the actors and even the scarcity of actors especially of an economic nature. And a phase of structuring and territorialization after 2008, which knows a growing territorial anchoring, the development of the number of actors and their diversity, the development of the processes of valorization, qualification and innovation, etc. that led to the realization of an important economic dynamics at the level of the region of Draâ-Tafilalet, without neglecting the social effects of this dynamic.

Indeed, we can see that the LAFS- DPT is moving more and more towards the TFS model if we take into consideration the specificities of TFS: the interweaving of several agri-food chains, the integration of the principles of sustainable development, social responsibility, and territorial governance, the diversification of agricultural production, the industrialization of the farm, and the importance of local consumption.

On the one hand, the local merger of many food chains which is a specificity of TFS is already existing at the level of LAFS- DPT. The latter encompasses and intertwines locally several agri-food chains: the production of dates, the processing of dates to derivatives, crafts, services (cleaning of clumps), catering, etc. Thus, for the specificity of the industrialization of the farm, the LAFS- DPT has been marked by a movement of industrialization lately, this is reflected in the large number of cooperatives and processing units located in the region of Draa-Tafilalet and operating in the field of processing dates into new and innovative products (more than 67 units, Table 1). This agricultural industrialization of raw materials and wastes has enabled LAFS- DPT to strongly diversify production into food products, cosmetics, handicrafts, etc. As a logical consequence, the diversification of LAFS- DPT 's products favored a growing local demand.

On the other hand, the activity of the LAFS is based on oasis areas, and given that they participate in the protection of the environment through practices and knowledge of farmers who are part of a logic of adaptive management on the long term, making the most of the scarcity. These farmers' practices are designed to manage climate risk and resource scarcity in the most disadvantaged areas (Michon et al., 2017).

Similarly, these oasis areas of Tafilalet (accredited by UNESCO in November 2000) are faced with the impacts of climate change and declining water resources and soil degradation, the actors of LAFS- DPT in order to ensure a "sustainable food" in a sustainable development perspective, intervenes through various programs and initiatives, such as the initiative for the "Adaptation of African Agriculture" (AAA), the "Blue Belt", and recently the initiative "OASIS SUSTAINABLE" carried by Morocco for the COP22 in Marrakech. These measures aim at:

- The recognition of the problems related to climate change in the preservation of oases;
- The preservation of oases;
- The development of these oasis areas according to a model of resilience to climate change;
- The implementation of partnership programs with international institutions such as the Biosphere Reserve of the Oases of Southern Morocco with the MAB under UNESCO or the Ingenious System of World Agricultural Heritage (ISWAH) with the FAO;
- The development of actions carried out by civil society organizations in the different spaces of the country's oasis areas in partnership with public institutions (NADOAZ, NIHD<sup>17</sup>, ministerial departments, etc.), regional and international organizations, or within the framework of their own programs.

In other words, the LAFS- DPT integrates the principles of sustainable development, societal responsibility (of producers and consumers) even in an informal way, and territorial governance via the governance and coordination bodies and institutions (the institutional levers already mentioned). Thus, the LAFS- DPT constitutes an ideal form for building a TFS that articulates a strong economic dynamic with an environmental and societal orientation.

Thus, the LAFS- DPT (as a future TFS) constitutes, according to Rastoin's vision, an emerging alternative form to the dominant agro-industrial model based on local networks of agricultural,

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<sup>17</sup> National Initiative for Human Development.

agri-food and service enterprises pooling local resources, inspired by a set of objectives: valorization of local resources, reduction of negative externalities and valorization of positive social, environmental and economic impacts. Thus, the environmental dimension and the stakes of sustainable development are more approved within the framework of the LAFS- DPT.

## 5 CONCLUSION

As a conclusion to this article, which deals with the problem of territoriality and sustainability of a localized agri-food system in the territory of Tafilalet in southeastern Morocco (LAFS-DPT), we have presented in the first part a rich review of literature presenting, on the one hand, the different approaches of LAFS as a territorial development model in the agricultural field, especially. On the other hand, we have explained the strong territorial embedding or attachment of the LAFS compared to other LSPs, given the specificity of the LAFS, the different approaches of LAFS as a model of territorial development in the agricultural field especially, on the other hand, we explained the strong territorial embedding or attachment of LAFS compared to other LSPs, given the natural specificities and agricultural resources on which it is based. Thus, we presented the TFS approach, which constitutes an advanced model of the LAFS, and we considered the TFA as a maturity phase of the LAFS. On the other hand, we presented the LAFS-DPT, while exposing its structure and its different actors reflecting the links built between this territorial configuration and the territory of Tafilalet, throughout the history of this territory.

In terms of results, we were able to identify first, through a qualitative methodology and a constructivist paradigm, the different levers of territorialization of the LAFS-DPT. These are four in number (physical, cognitive, interpersonal or historical, and institutional) and express the strong embedding of the LAFS date palm in the territory of Tafilalet for decades, but especially since the year 2008, which saw the launch of the new agricultural strategy at the time "Green Morocco Plan".

Secondly, we have exposed the four tangible facets of this territorialization of the LAFS, which express the achievements of the LAFS-DPT by the different actors, in terms of production of dates and vitro-plants, quality and certification of the products of the system, valorization of the production, and commercialization of this production at the local and territorial level. These achievements clearly express the strong local socio-economic dynamics created since 2008, at the level of the territory of Tafilalet (Province of Errachidia) after the restructuring of LAFS-DPT.

Finally, we have shown how LAFS-DPT keeps a central place to the issues of protection and conservation of local resources, environmental protection, and promotion of a responsible and green ecosystem. So, we shed light on the sustainable orientation of LAFS-DPT, and to what extent it participates in the protection and promotion of local resources in Tafilalet, in a perspective of sustainability and responsible investment. Thus, we can say that this model (LAFS-DPT) is at the level of transforming itself into a Territorialized Food System (TFS), satisfying the food needs in dates of local, national and international customers.

However, despite the territorialization of the LAFS-DPT and its achievement of important economic, social and environmental performance, there are still shortcomings in the coordination of actors, especially institutional, given their variety and interference of their areas of intervention, in the awareness of farmers to organize themselves in formal structures (cooperatives), to benefit from the services of EIGs and to improve the quality and yield of products, etc., and at the level of land and the method of exploitation of land ... etc.

In this sense, we ask questions that seem relevant to us, and that can be the object of future research in this field, concerning essentially the mechanisms of coordination or governance within the LAFS-DPT, the contributions and limits of the policy of aggregation of the actors of the system or how to ensure the involvement of all the different actors in the LAFS, and concerning the land issues of the LAFS-DPT as well. Thus, a specific public policy is needed to accelerate the implementation of a TFS that effectively meets the requirements of sustainable territorial development.

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