

The Tunisian Experience in Olive Production and Marketing and How to Benefit From it in the Egyptian Case

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ABSTRACT

Olive and olive oil production, which is widespread throughout the Mediterranean region, plays an important social, economic and environmental role in producing countries. Although Egypt has a comparative advantage in the production olive crop, which generates a distinct economic return, whether marketed locally or exported, Egypt occupies the 10th place in the global ranking of the countries producing less than 1% of Global production of olive oil.

In order to achieve a qualitative leap in the production and marketing of olives, it is necessary to identify the leading countries in this field and study their experience in order to benefit from them; Tunisia is one of the leading countries in the field of olive production and marketing therefore its experience should be studied carefully.

The results showed that the most important reasons for Tunisia's superiority over Egypt in the production and marketing of the olive crop were the superiority of the Republic of Tunisia over Egypt in the olive area, increased rainfall in Tunisia, Provide support structures such as the encouragement funds it has established for the exporters of olive oil, increasing storage capacity, The existence of a advanced quality control system. Opening new markets. The results also showed that there are many determinants face Olive production in Egypt that can be classified into environmental, technical and human determinants, economic and legislative determinants.

Keywords: Farmers, marketing, North Sinai, Olive Problems, production

Introduction

Olive (*Olea Europaea* L.) is one of the most widely grown tree-crop species in the Mediterranean basin, being well adapted to its mild climate. At present more than 11 million hectares of olives are grown in the world, spread across the five continents in 47 countries where olive oil is currently produced. There are approximately 12 000 olive oil mills in the world, and now olive oil is consumed in over 160 countries. (IOC, 2015) Figure 1 shows the global production of olive oil, where it is clear that the Mediterranean region is the most productive area.

World olive oil production (2016/2017) is assessed at 2.713.500 t, down by 14% compared with the previous crop year (- 446.000 t). Spain came in first place with 1.311.000 t, followed by Italy with 243.000 t, Greece with 260.000 t, followed by Tunisia with 100.000 t. (-29%); While Egypt came in tenth place Egypt with 27.000 t as shown in table No 1.

Although Egypt has a comparative advantage in the production olive crop, which generates a distinct economic return, whether marketed locally or exported, Egypt occupies the 10th place in the global ranking of the countries producing less than 1% of Global production of olive oil.

The cultivated olive area in Egypt increased from 2023 ha at the end of the 1970s to more than 40 468 ha in the late 1990s due to the growth of the olive tree in the new reclamation areas, especially under conditions of drought, salinity and soil variability. Due to the existence of new farming areas suitable only for the cultivation of olive trees to withstand thirst, salinity and alkalinity significantly as well as adapting to the nature of the desert environment

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According to the statistics of the Economic Affairs Sector at the Egyptian Ministry of Agriculture, the total area of olive is 82 047 ha (52429 ha outside the valley, 29 618 ha within the valley), the productive area is 55 452 ha, and the average production per ha 10.13 tons, The production reaches About 563070 tons, mostly used as table olives (almost 80% of aggregate olive production) and about 90,000 tons used in the extraction of about 13 thousand tons of oil. (Egyptian Ministry of Agriculture, 2013).

Egypt has been a world leader in growing olives in arid and semi-arid condition in desert land with poor sandy soil and less than 80 mm rain fall/year it was one of the very few countries to use micro irrigation systems at a time when nearly 96% of worlds olive were cultivated under rain fed conditions. (IOC, 2012).

The olives area represents about 4% of total crop area. The olive tree is widespread and grown successfully in the prevailing conditions of the North-west coastal region, Alexandria, North Sinai and the Oases. Rainfall ranges between 100 and 150 mm and is not therefore adequate for olive cultivation. Generally, olive growing development has been concentrated along the Mediterranean coastline of the north-western provinces, especially between Alexandria and Sallum, extending along a band 20–30 km wide. This zone has an arid climate, with mild winters. The average temperature during the coldest months is 7–18 °C and the annual precipitation of 100–150 mm is spread over 3–4 weeks in the autumn and winter months. (IOC, 2012).

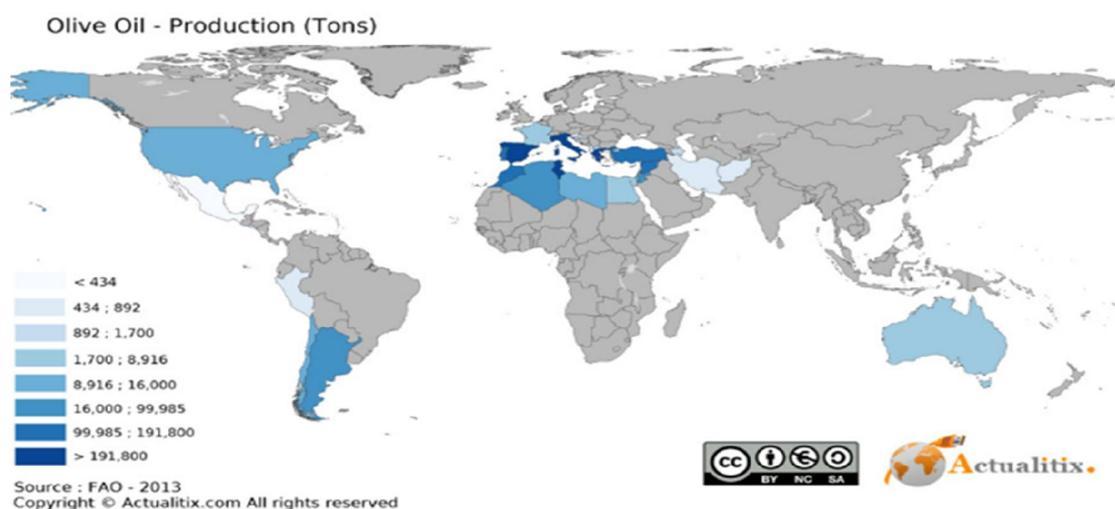


Fig. 1: Global Olive oil production 2013 metric tons

Table 1: World Production last 5 Years. (1,000 tons)

Country	2012-13	2013-14	2014-15	2015-16	2016-17	5-Yaer Average (Mt)	5-Yaer % of world
Spain	618.2	1781.5	8422	14020	13110	1190.9	43%
Italy	415.5	463.7	222	474.6	243	363.7	13%
Greece	357.9	132	300	320	260	273.9	10%
Tunisia	220	70	340	140	100	174	6%
Syria	175	180	105	110	110	136	5%
turkey	195	135	160	143	177	162	6%
Morocco	100	130	120	130	110	118	4%
Portugal	59	91	61	109.1	93.6	82.9	3%
Algeria	66	44	69.5	84	74	67.5	2%
Egypt	16.5	20	17	25	27	21	0.8%
World	2401.5	3252	2458	3159.5	2713.5		

Source: IOC forecast reports November 2016.

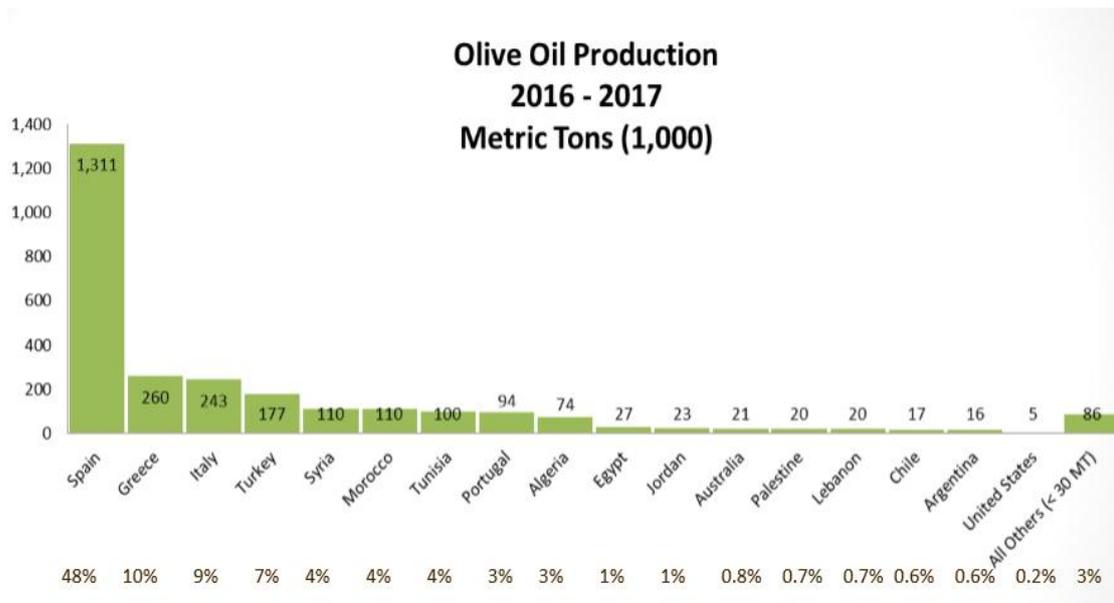


Fig. 2: Olive oil production 2016-2017 metric tons (1,000)

Source: IOC forecast reports November 2016

In recent years, thanks to the efforts of the Egyptian General Desert Development Organization, other areas of agronomic interest for olive growing have been developed, namely the Sinai peninsula and the area between Alexandria and Cairo where new intensive olive orchards have been planted to develop desert land that is not suited to other crops on account of the extreme soil and climatic conditions. (IOC, 2012)

For the time being, Egypt is not very mechanization-oriented because the country is geared more towards the production of table olives for which hand picking adds competitive edge. Furthermore, labor supply is not a problem. Nevertheless, in the last three years there have been some initiatives by growers to use battery operated hand-held vibrating rakes and wrap-around harvesters for the semi-mechanical harvesting of oil varieties. This practice is expected to become predominant within the next five years. (IOC, 2012)

In Egypt olive oil processing capacity exceeds the supply of raw olives. There are no traditional oil mills although there are 25 mills with presses and 48 with continuous-process facilities with an average aggregate production capacity of 1 008 t/eight-hour day, Olive oil production in Egypt is characterized by a high percentage of extra virgin olive oil, often accounting for more than 70% of total oil production. (IOC, 2012).

There has been a qualitative boom in the production or consumption of olives in recent years in the Arab Republic of Egypt Figures 3, 4 illustrate the increase in olive production and consumption, whether table olives or olive oil.

Objectives:

The Objectives of the study is to:

- 1- Identify the characteristics of the olive sector in the Republic of Tunisia.
- 2- Identify the strengths of the Tunisian experience in this field and to benefit from them in the Egyptian case.
- 3- Identify olive production determinants in the Arab Republic of Egypt.

In order to achieve a qualitative leap in the production and marketing of olives, it is necessary to identify the leading countries in this field and study their experience in order to benefit from them; Tunisia is one of the leading countries in the field of olive production and marketing therefore its experience should be studied carefully.

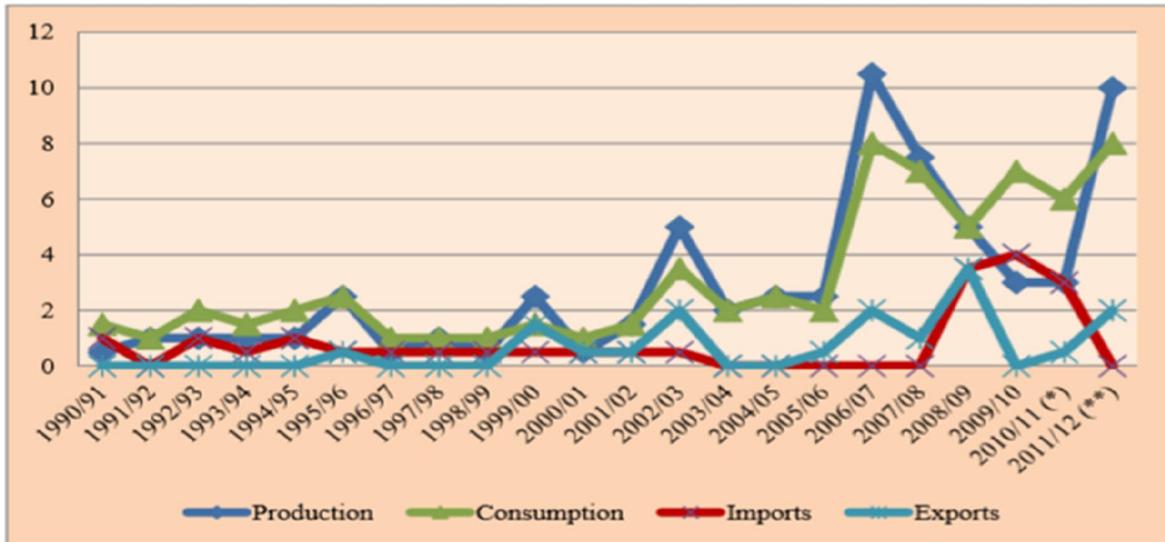


Fig. 3: Egypt Olive oil production, consumption, imports and exports 1990–2012 (1000 tons)
 Source: <http://www.internationaloliveoil.org/estaticos/view/131-worldolive-oil-figures>

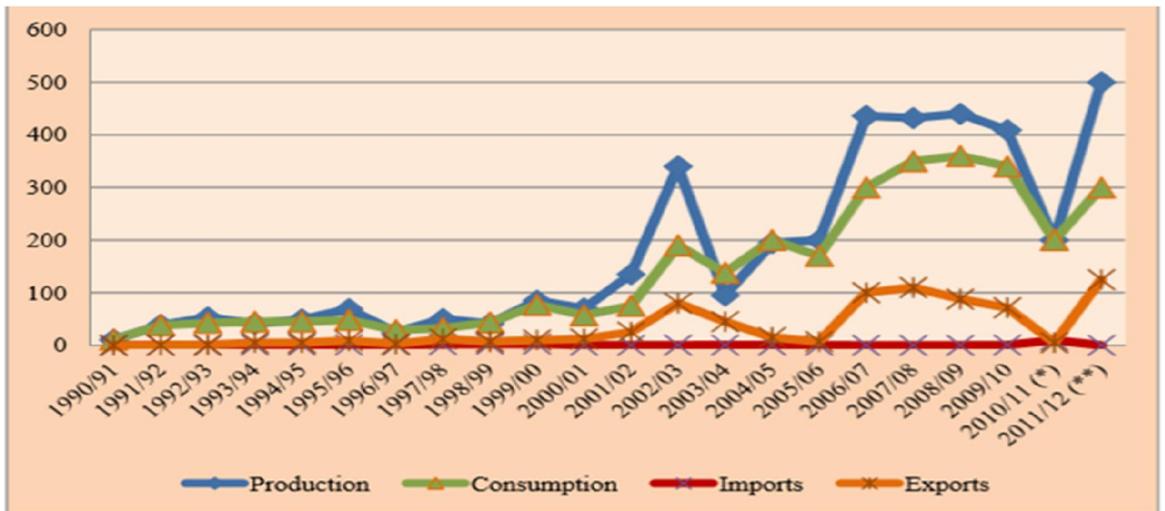


Fig. 4: Egypt Table olive production, consumption, imports and exports 1990–2012 (1000 tons)
 Source: <http://www.internationaloliveoil.org/estaticos/view/132-worldtable-olive-figures>

The question here is why Tunisia specifically?

The Republic of Tunisia is the most famous country in the southern Mediterranean region in the field of olive cultivation, where more than 30% of its agricultural land is devoted to the cultivation of olive trees 1.68 million hectares. Tunisia is the second largest producer of olive oil, with the second largest surface area after the European Union (Jackson *et al.*, 2015).

In addition to being the closest to the Arab Republic of Egypt in geographical and climatic conditions so we will try to identify the most important characteristics the Tunisian olive sector which currently making major efforts to restructure and modernize this sector in order to improve the quality of olive oil and increase the area allocated for planting olive trees. Now we will discuss the current situation of the olive sector in the Republic of Tunisia.

First: Olive sector characteristics in the Republic of Tunisia:

Historical overview:

The Tunisian history of olive oil dates back to the 8th century BC, even before the founding of Carthage. The Romans continued the expansion of olive cultivation especially with the strengthening of irrigation and the development of techniques for extracting olive oil from the fruit.

The social and economic status of olives in Tunisia:

Olive cultivation plays a key role in the social and economic life of Tunisia. Ten percent of Tunisia's population is engaged in olive growing and harvesting. This sector has an important social character, providing more than one million people with direct or indirect livelihood, of which 309,000 are farmers. Or about 60% of the producers in the agricultural sector, in addition to providing 34 million working days per year, equivalent to 20% of the employment in agriculture. Olive represents 15% of the country's agricultural product, while olive oil represents 50% of the agricultural exports and 5.5% of the country's general exports. Which make it ranked fifth on the list of sources of foreign exchange.

The current reality of olives in Tunisia:

Tunisian agriculture sector is a fundamental source of economic growth. Despite the change and diversification observed in the Tunisian economy (industrialization, growth of service sector and expansion of tourism) (Chebbi and Lachall, 2007), Tunisia currently has 88 million olive trees covering 1.811.000 hectares, which represents a third of the nationally available agricultural land (34%). Olive trees are cultivated in widely varied climatic conditions, thus from north to south they are situated as follow: 15 % in the North, 66 % in Central Tunisia and 19 % in the South. Olive trees are mostly planted in monoculture and sometimes in intercalary with other fruit trees. They occupy all too often poor and marginal lands, threatened by erosion and desertification. (Tunisian Ministry of Agriculture, 2017)

The Tunisian olive oil production shows a clear annual fluctuation due to a biological alternation in the production of the olive tree, and also to the changes of weather conditions and the non-availability of weather forecast information to the farmers (Walid and Chymes, 2009).

The following graphs (Fig.5, Fig.6) illustrate the production, consumption and exports of table olives and olive oil in Tunisia from 1990 to 2012.

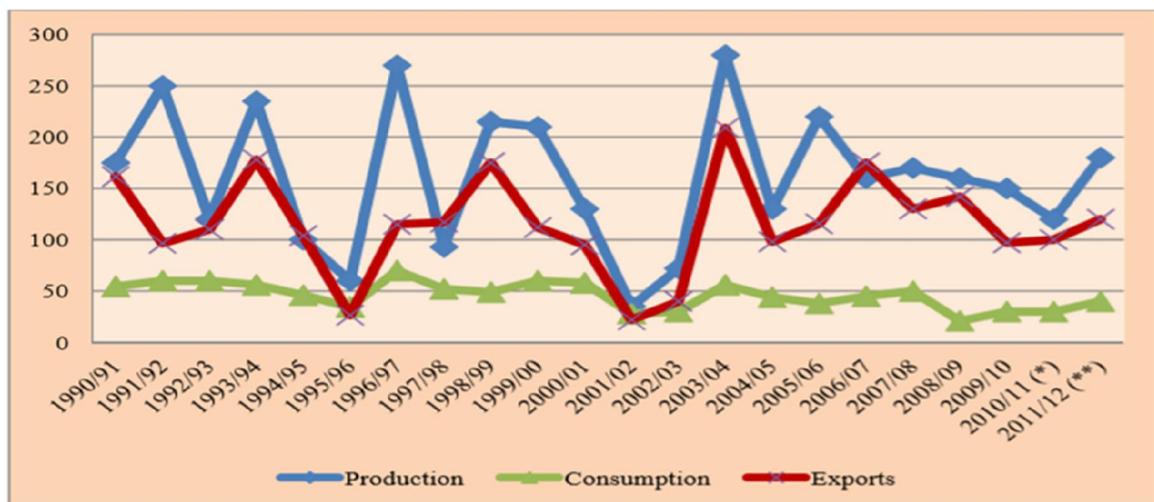


Fig. 5: Tunisian Olive oil production, consumption, and exports 1990–2012 (1000 tons)

Source: <http://www.Internationaloliveoil.org/estaticos/view/132-world-table-olive-figures>

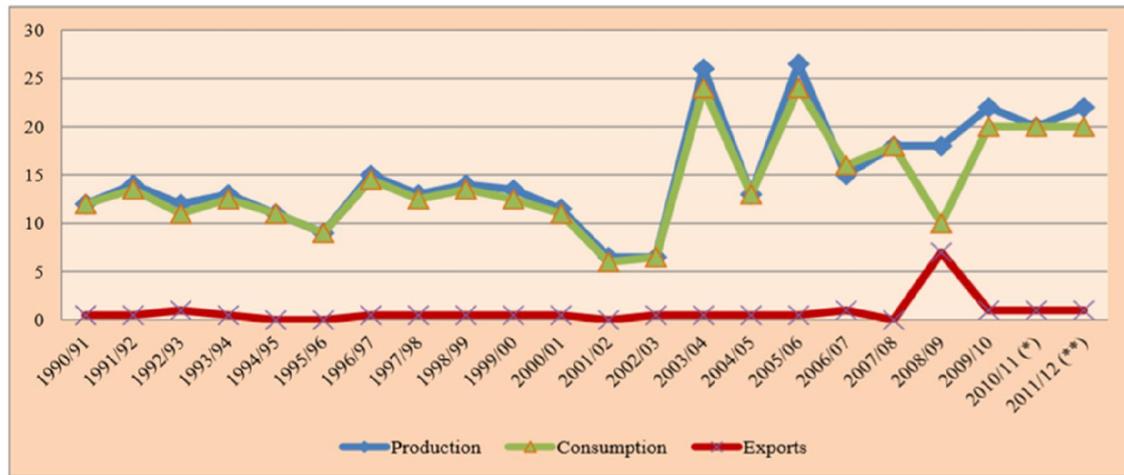


Fig. 6: Tunisian Table Olive production, consumption, and exports 1990–2012 (1000 tons)
 Source: <http://www.internationaloliveoil.org/estaticos/view/132-world-table-olive-figures>

Size of olive farms:

Olive holdings account for almost 57% of all Tunisia’s farms and differ in terms of size, the structure of olive trees cultivation reveals a dominance of the small and medium sized farms. The farms having a size lower than 10 and 5 ha represent respectively 57 % and 35 % of the total number. The latter has a hardening effect on the introduction of cutting-edge technologies and the massive machinery investment. This remarkably leads the sector to further manifest the shortfalls symptoms of a weak production (Tunisian Ministry of Agriculture, 2017).

The age structure of a Tunisian olive farm and its Geographical distribution as follows:-

There are 100 olive trees per hectare in the northern rainy areas, compared to 60 trees per hectare in the moderate medium and 20 trees in the dry south, the age structure of olive orchards in Tunisia (2009) was as follows:

- Young orchards (< 5 years) = 15.5% (272 700 ha)
- Bearing orchards (5–50 years) = 75% (1.312 300 ha)
- Old orchards (> 50 years) = 9.5% (164.000 ha). (Source: IOC, 2012)

Irrigated area:

The area of land used for agricultural purposes is estimated at 10 million hectares in which 5 million hectares represent the arable land. In fact, the area equipped for irrigation covers 420 thousand hectares, which represents 4% and 8% respectively of farmlands and arable land. The production is dependent on climatic conditions; 92% of farmland is under the dry farming system. The water mobilization efficiency has reached 93 %, with Tunisian Ministry of Agriculture, (2017)

Varieties:

Due to its privileged position at the crossroads of several civilizations, and being the necessary corridor between East Africa and Europe and the migration of Andalusians, Tunisia has managed to form an important and varied genetic heritage of olives. As the Tunisian agriculture is very rich in olive cultivars (56 different varieties). However, despite this richness, only two varieties are omnipresent in arable land (land that can be used for growing crops): Chemlali, located chiefly in the south, and Chétoui, which dominates the north .The Chétoui olives result in a sweet, light to medium intensity oil with an outstanding fruit flavour (Tunisian Ministry of Agriculture, 2017)

In Tunisia, olive orchards are dominated by the cultivar population Chemlali Sfax that is planted in the north, the Sahel, the center and the south covering 2/3 of the Tunisian olive grove and contributing to more than 60% of the national production of the olive oil, (Issaoui, *et al.*, 2007) Nevertheless, There are also other so-called secondary varieties specific to smaller regions such as the 'Oueslati', 'Chemchali', 'Zalmati', 'Zarrazi', 'Gerbouli' and 'Sayali' and further varieties grown in more restricted locations.

The distribution of the production of olives is as follows; 15% in the South, 66% in the Central Tunisia and 19 % in the North. Besides, the oil content of olives produced in the South is slightly higher than in the other regions. Thus, the southern part of Tunisia contributes with 55 % to the total national production of olive oil while it is only 27 % for Central Tunisia and 18 % in the North (Annual Report of Tunisian Central Bank, 2007)

Olive Marketing in Tunisia:

Tunisia has been able to occupy a prominent position in the world market by exporting about 75% of its production and serving as the second largest exporter in the world after the European Union with an export rate of 115 thousand tons annually during the past five years. Tunisia was also ranked first in the world in exports of olive oil for 2015 Spain has achieved a record output of 300,000 tons, with revenues of around 2 billion dinars (\$ 1 billion) during the 2014-2015 season, accounting for more than 40% of agricultural export earnings, and about 55% Of the total exports in the Republic.

The globalization of Tunisian olive oil:

As shown in Fig.8 Tunisian olive oil contributes 19% of the world's total olive oil exports over the last five This great position shows that Tunisia ranks first in the world after the European Union.

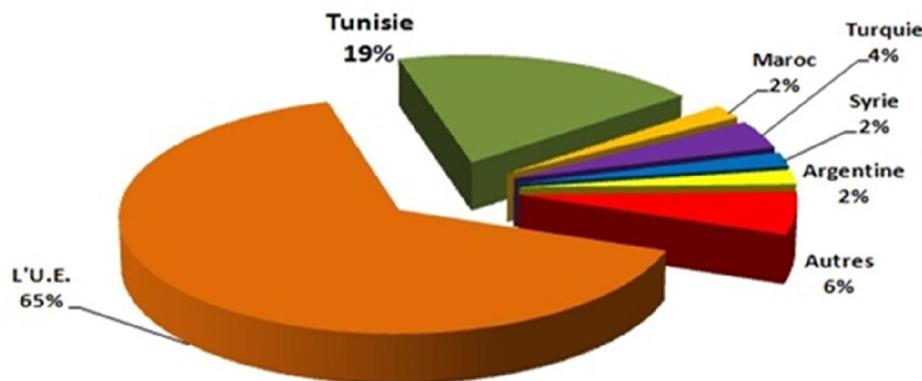


Fig. 8: the distribution of global exports of olive oil during the last five years

Source: Tunisian Ministry of Agriculture, 2017

Tunisia has been able thanks to the quality of its oil Olives sweep more 57 new destinations in the Middle East, Africa, Asia, Australia and South America in the Middle East, Africa, Asia and Australia, in addition to traditional markets such as Europe and North America as the Tunisian olive oil, canned continue to conquer new markets where it is currently sold in more than 45 countries across five continents. (Tunisian Ministry of Agriculture, 2017), fig. 9 showed that Italy, America and Spain are the largest importers of Tunisian olive oil, where 75% of olive oil is exported to these countries.

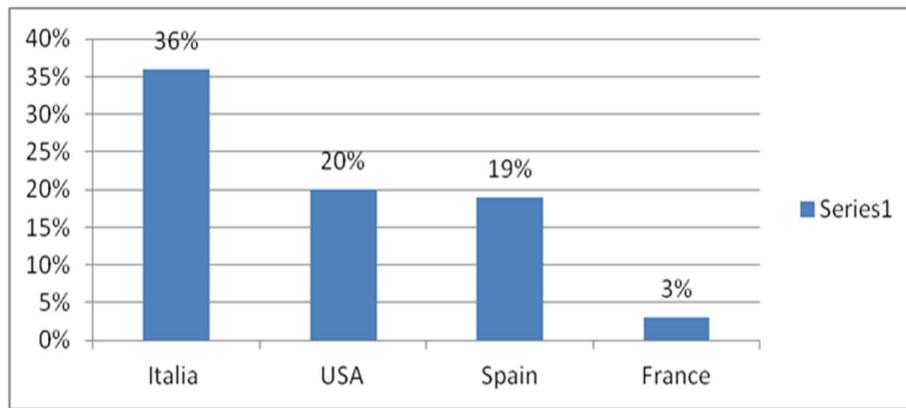


Fig. 9: Distribution of Tunisian olive exports 2015-2016 season
Source: Tunisian Ministry of Agriculture, 2017

Second: The reasons for the Tunisian success in olive production.

1- The superiority of the Republic of Tunisia over Egypt in the olive area:

According to World Bank data, the proportion of arable land to the total land area in Tunisia is 64% while in Egypt it is 3.8%. Tunisia has 10.5 million hectares of agricultural land (about 25 million feddans), of which 1.570.460 ha is olive. The area of agricultural land in Egypt for the year 2015 is about 9.27 million feddans, and the olive area is about 200 thousand feddans (2% of the total area of agricultural area) (The World Bank, 2015).

2- Increased rainfall in Tunisia:

Despite Egypt's superiority in the total water resources of 55.5 billion m³ (Nile water) in addition to rain water (8 billion m³) and the water of the Egyptian stock, the Republic of Tunisia is characterized by high rainfall rate, from 1500 mm to 50 mm in the south, and the annual rainfall rate is 36 billion m³ while the average annual rainfall on the entire Egyptian territory is about 8 billion m³.

Surface and groundwater resources in Tunisia total 4.88 billion m³/year. However, more than 90% of the olive in Tunisia is rain-fed, while olive cultivation in Egypt depends mainly on irrigation.

3- Provide support structures:

In recognition of the importance of encouraging exports of olive oil, Tunisia has chosen a strategy based on promising initiatives and measures, such as the encouragement funds it has established for the exporters of olive oil. The institutions may also contribute to the organization of the investor in the field of olive oil.

The Export Markets Access Fund (FAMEX), a Ministry of Commerce project funded by the World Bank, aims to develop the export of canned olive oil to promising markets. The Export Development Center was assigned to manage this fund.

The Export Promotion Fund (FOPRODEX), a financial support mechanism established by the Tunisian State for exporters to enable them to enter international markets. The Export Development Center was assigned to manage this fund.

Canned Olive Oil Development Fund (FOPROHOC). PACKTEC was assigned to manage this fund.

There are many institutions supporting olive in Tunisia such as: Ministry of Agriculture and Environment, Ministry of Industry and Technology, Ministry of Commerce and Handicrafts, National Oil Bureau, Technical center for biological agriculture, Agency for the Promotion of Agricultural Investments, Export Promotion Center and Technical Center for Packaging. (Tunisian Ministry of Agriculture, 2017).

4- Increasing storage capacity:

Olive oil contributes to the work of the industrial sector through 1750 presses with a production capacity of 34 thousand tons / day. The capacity of oil storage is currently estimated at 350 thousand tons of olive oil, 45% of which is at the disposal of the National Oil Bureau.

5- The existence of an advanced quality control system:

Tunisia is an active member of the International Olive Council and applies all national and international quality standards while ensuring the use of the marks of guarantee, All Tunisian oil exports are subject to automatic analysis to verify their safety and compliance with international standards through a quality-based development system based on:

- Certified laboratories approved by the International Olive Council, equipped with the latest technologies,
- A large group of engineers, skilled technicians and specialists in fat analysis
- A panel of experienced and experienced connoisseurs with the latest sensory assessment techniques of the International Council of Oils

6- Opening new markets and concluding agreements for the export of olives to the countries of the world:

The European Parliament has agreed to expand the umbrella of customs exemptions for imports of olive oil from Tunisia to the European Union by 35 thousand tons per year to reach 92 thousand tons in 2016 and 2017, in order to support the Tunisian economy. Under existing trade agreements with the EU, Tunisia has an exemption allowing it to export 56.7 thousand tons of olive oil to the EU annually without fees. The European Union has imported more than 145,000 tons of Tunisian olive oil in total in 2014-2015 (Egyptian Akhbaralalam Newspaper 2015).

7- Agricultural Extension and Training Agency:

The Agricultural Extension and Training Agency is a governmental institution of an administrative nature affiliated to the Ministry of Agriculture, Water Resources and Fisheries. It works on implementing the programs emanating from the objectives and programs of development, economic and social plans, especially those related to training and extension in agriculture and fishing.

In the field of agricultural extension, the Agency works to support the field extension programs by increasing the knowledge capacities of extension workers and farmers on the production and marketing of olives. It also prepares mass extension programs through various channels of communication, audio-visual and written media.

8- Promotion of distinctive production:

The Ministry of Industry, Energy and Mines announces the work of prizes for the best olive oil. The following is a sample of these competitions:

The Ministry of Industry, Energy and Mines announces the opening of the candidacy for the National Prize for the best olive oil. This award is awarded to Tunisian institutions active in the production or export of canned olive oil, characterized by the production and packaging of the best virgin olive oil during the 2015/2014 season. The selection of the best virgin olive oil along with the respect of the institutions that are nominated for the current work in the olive oil sector will depend on objective characteristics and an assessment of the taste characteristics of the oils on the one hand and a technical and aesthetic evaluation of the packaging on the other(www.industrie.gov.tn, 2017)

Third: Determinants to olive production in the Arab Republic of Egypt:

The Arab Republic of Egypt, especially the Egyptian Sinai Peninsula (3,440,000 olive trees), has vast areas to accommodate more than 30 million olive trees that make it the world's leading producer of olives. However, the Sinai olive is ignored by the officials who did not think about the development of the important wealth, which generates billions for countries such as Spain and Tunisia.

Olive production in Egypt faces many problems and determinants that can be classified into environmental determinants, technical and human determinants, economic determinants and legislative determinants (Arab Organization for Agricultural Development 2003, pp. 95-96)

Environmental determinants:

The most important environmental factors specific to the development of the olive sector in Egypt are the following:

- Irregular rainfall and inadequate tree needs.
- High temperatures during the warm winter seasons and lack of access to the tree of sufficient cold, and this happens in some years.
- High temperature during periods of flowering, which leads to the phenomenon of small fruits free of the fetus, as well as high temperatures during the stages of fruit growth, which affects the size of fruits and their validity for manufacturing.
- High salt levels in some lands.

Technical and human determinants:

- Lack of consumer awareness of the health and nutritional benefits of olive oil.
- High labour prices for various agricultural operations.
- Lack of sufficient know-how for some farmers with the timing of fertilization, irrigation and the necessary quantities.
- Lack of know-how in pruning, collection and lack of technical work in this field.
- Insufficient guidance and training for olive plantation supervisors.

Economic determinants

- Poor funding capacity of olive farmers in desert areas.
- High cost of transport from production areas to distribution areas (marketing).
- High prices of olive oil compared to the prices of other vegetable oils, especially in the presence of a high proportion of low-income.
- Lack of interest in post-harvest treatments and adding a competitive advantage to the Egyptian olive to increase the permeability of foreign markets

Legislative determinants

- The current support for other oils and their disbursement on ration cards at low prices compared to the high price of olive oil leads to people not consuming it.
- The need to establish a fund to balance domestic and international olive prices to encourage producers.
- Issuing legislation to support the olive producers and producers during the first years of agriculture and production to encourage the demand for olive cultivation.

Conclusion

Tunisia has been able to occupy a prominent position in the world market by exporting about 75% of its production and became the second largest exporter in the world after the European Union at an export rate of 115 thousand tons annually during the last five years, at the same time Egypt,

especially the Egyptian Sinai Peninsula (3 440 000 olive trees), has vast areas to accommodate more than 30 million olive trees that make it the world's leading producer of olives.

Tunisian experience in this area can be learned through Providing support structures such as the encouragement funds it has established for the exporters of olive oil, increasing storage capacity, The existence of a advanced quality control system. Opening new markets, on the other hand trying to minimize the impact of determinants that face Olive production in Egypt

To reach the production and productivity that qualifies Egypt to take an advanced position in the field of olive production and marketing.

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