

INTERNATIONAL OLIVE GROWING

Worldwide Analysis and Summary



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Edition

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International Olive Growing. Historical dissemination, strategic analysis and descriptive vision.

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“Knowledge, experience, creativity and effort indisputably contribute to making the right decisions”

THE AUTHORS

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First of all, I would like to thank the Organization of the United Nations for Food and Agriculture (FAO) for providing such precise information on each of the countries; the International Olive Oil Council (IOC) for its willingness to collaborate and provide data; Caja Rural de Jaén and Diputación Provincial de Jaén for the support given to the project from its inception when it was only an embryonic idea or objective; to all research centers, universities, associations, producers, plantation companies, garden centers, ministries of agriculture, and, in general, organizations, companies and public and private institutions scattered throughout the planet that have collaborated with us in this manual, that you are seen as an obligatory and indisputable source of reference for reading and consulting.

We would also like to thank all the people who have contributed from their country to enrich the culture of the sector and this manual by providing data, providing information and doing other actions that have contributed to complement and complete the initial data, which is the result of various informative visits and trips, which have certainly made this summary.

Everything positive and enriching extracted from this work is attributed to the institutions, organizations, companies and people mentioned above;

Any possible error, inaccuracy or ambiguity contained in the channels that you are about to consult or read, are the full responsibility of us, the authors.

To conclude, we would like to give thanks to our families for all the time, attention or company that, due to our work, we have not been able give.

We appreciatively and gratefully conclude this part for the interest aroused by the content of this work for all readers, most of them professionals who live and work by this philosophy of life, which is international olive growing.

THE AUTHORS

Spring 2018

JUAN  I L A R
CONSULTORES ESTRATÉGICOS

Prefaces

It is an honor for me, as Executive Director of the International Olive Oil Council (IOC - the only intergovernmental organism entirely dedicated to the olive sector) to be the author of the prologue of this magnificent descriptive study.

The previous edition of this inventory of world olive farming is not missing in the offices of the Executive Secretariat of the IOC and we are glad that, in this case, the authors, the consultant and professor, doctor in Economics Juan Vilar and the professor doctor in Biology and Geneticist Jorge Pereira, provide us with this update, which is based on the figures and official data of the organization's global balance, including information regarding the olive oil processing sector and the processing of table olives.

We have 58 olive oil producing countries in the world and 179 nations where this liquid gold of unparalleled quality is consumed. There is a formidable expansion of international production and trade, a source of pride for our organization, which currently includes 94% of the producing countries and 73% of the consuming countries.

This practical manual, which now is even easier to consult through synoptic infographs that provide updated and very interesting data for the general sector information about the country, location of the crop, area, varieties, production, consumption and trade, explanatory tables and illustrative photographs, offers a real-time image of the development of this millenary crop of Mediterranean origin that is the pillar of our culture and our food.

I am sure that this new edition will become a great tool for all those who work in the olive oil world and will be a reference for all those who have an interest in this sector. I give my congratulations to the authors for their initiative and for their professionalism.

ABDELLATIF GHEDIRA

Executive Director of the International Olive Oil Council



In any project that analyzes the past, present and future of the world olive oil sector, the province of Jaén must have a relevant presence. This is what occurs in the book that has been conceived by Juan Vilar and Uruguayan professor Jorge Pereira, and that with more than 300 collaborators from all over the world, they have created a publication that is a small encyclopedia of international olive growing.

It is probably just about the most ambitious work that has ever been undertaken to give an image on the planetary level of what this crop represents, traditionally rooted around the Mediterranean Sea, but which in the last decades has spread throughout the world like an oil stain, slowly but surely. Included are the 58 countries where this tree is planted, and 179 of which consume these precious products: olive oil and table olives, which are increasingly demanded by consumers for the unquestionable benefits of their intake to human health and their fantastic qualities when it comes to cooking or spicing up any dish.

This book, therefore, is an unbeatable X-ray of a sector that in recent years has evolved spectacularly, although it does not prevent it from also covering its history, which goes back almost to the origin of agriculture. Both this trip to the origin and development of the olive tree, as well as the strategic analysis of the present day in which olive farming exists, are elements that complement the great value of this work, which is none other than the detailed infographic analysis of the situation of olive growing in each country where this tree has a presence.

In this sense, it is logical that both the province of Jaén, and Andalusia, the territories where truly great prominence is given to olive growing, have an

important weight and dedicated space in an infographic section that includes no less than 66 files from 58 countries, the 5 continents, and one of the whole world.

I think there are plenty of reasons that justify the need for a publication of this caliber and we have not hesitated to support it from the Jaén Provincial Government, being the main olive-growing territory of the world. This book is more than necessary and undoubtedly shows us the perfection, the importance and the extremely relevant place that the olive tree occupies in the world in the XXI century.

FRANCISCO REYES MARTÍNEZ

President of Diputación Provincial de Jaén



For Caja Rural of Jaén, an entity that is greatly involved and committed to the province of Jaén, and therefore to what olive growing means, not only for this environment, but also for the broadest scope, the global one, it is all a honor to have been part of this, from its beginnings, since it was a simple embryonic project, of this meticulous and complete inventory and diagnosis of unprecedented international olive growing.

In the same way, it has been a source of great pride and satisfaction to have done this with sister institutions such as the Provincial Council of Jaén, and friendly organizations, and with similar objectives in this area, such as the case of the International Olive Oil Council (IOC), or the Organization of the United Nations for Food and Agriculture, (FAO).

Currently, olive growing is present in 58 countries of the 5 continents, while its products are consumed, olive oils, as well as table olives, in 179. Such is the dynamism of international olive growing as a sector of activity, which generates business volumes, as you will have the opportunity to appreciate in the manual that you have in your hands, up to 14 billion euros, generating employment of more than 35 million people, which is 1.2 percent of the global active population.

It was necessary to make a diagnosis such as the one presented today with great detail and magnitude, it was a premise, because every year, during the last 12, more than 160 thousand hectares of olive groves have been planted on the planet with a high level of competitiveness, but, furthermore, information is the basis of proper management and decision making in a sector like the one we are talking about.

Another one of the fundamental aspects was to start the analysis from Jaén, the place where we reside and the leading geographical area in terms of the greatest magnitude that makes up international olive growing. We wanted to follow that synergy, country by country, and continent by continent until we arrived to a complete conclusion of the international sector, which is a source of passion for people who, in one way or another, are linked to Jaén.

To conclude, I would like to give my sincere congratulations to the people who have participated in the execution of this project, who are distributed throughout the five continents, as well as to the authors, who have made an ambitious and difficult project in its execution, an essential tool for consultation and reference in the field of global olive growing without precedents.

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History of the origin and evolution of the cultivated olive tree

1. Millenary and recent history of olive cultivation

Olive trees have been cultivated throughout the Mediterranean basin since 6,500 BC and have had an enormous impact on the economy, history, culture, and environment of the area. The ancient Greeks and Romans considered olive oil as a sacred substance, as it was used in food, medicine, soap, fuel for lamps and raw material for perfumes. There are a large amount of archaeological remains that show evidence of the cultivation, extraction, trade and consumption of oil of olive in the prominent civilizations throughout the Mediterranean region.

The first evidence of olive cultivation occurs in Crete during the Neolithic period, based on findings of olive seeds in numerous sites associated with this period (6-3 thousand years BC). They were also cultivated in Egypt (2400 BC) using a very advanced method. In Palestine, olive growing took place long before the time of Jesus (4 thousand years BC), which is logical considering the the Mount of Olives was mentioned in the Bible. In Greece and in North Africa, there are records of olive growing of more than 7 thousand years on the coasts that surround the Mediterranean Sea, where it was introduced by the Phoenicians. Thanks to Phoenician and Greek navigation routes, olive trees reached the coasts of Sicily and Spain, where they spread widely in the 5th century BC. Between the 6th and 4th century BC, its cultivation was established in many regions of Italy and Spain by the Romans. In the first century AD, olive trees were a commercial crop for the Romans, who imported oil from the most remote colonies of the empire, mainly from Spain and North Africa. The crop's production decreased during the Middle Ages but increased again after the fifteenth century, to its current cultivated area that covers almost the entire Mediterranean coast. (Figure 1)



Figure 1. Routes of olive tree dispersion outside the Mediterranean

After several attempts to introduce the crop in Central and North America, in the sixteenth century, the production of olives managed to stabilize itself in the seventeenth century in countries such as Peru, Chile, Argentina, Uruguay, Mexico, and the United States, in the eighteenth century. Most recently, it has spread to new areas such as South Africa and Oceania (early nineteenth century) and the Far East (China, Japan) at the end of the 19th century (Figure 2).



Figure 2. Mediterranean route of olive tree dispersion.

2. Origin of the cultivated olive tree

The domestication of plants and animals has been an essential step in the emergence of human cultures. Domestication events generally began several millennia ago, and were superimposed on human-mediated dispersions over long distances and recurrent crossings between cultivars and wild forms. Among the old crops of the Mediterranean basin, the olive tree (*Olea europaea* ssp *Europaea* L) is the most emblematic species for its ecological, economic and cultural importance, and is considered one of the best biological indicators of climate and has accompanied the emergence of the first civilizations. The importance of olive cultivation in the life of these civilizations turned this species into a symbol of ancient sacred literature. Although the farm lands and early use of wild olive trees (oleasters) is documented since the Neolithic period (6,000 BC) between the Near East and Spain, it is accepted that their domestication, characterized by the vegetative propagation of the best cultivated genotypes, may have preceded the establishment of plantations - which began in the Near East approximately 6000 years ago; however, other genetic studies have supported multiple origins of the crop in the area, although it is not definitive if these findings reflect other events of secondary diversification or multiple independent primary events. In addition, until recently, the existence of a single center of domestication for the olive tree in the Near East was questioned because the eastern Mediterranean populations have genetic traits that also allow them to be proposed as centers of domestication. These data are complemented with palaeoclimatic, fossil and subfossil records that have allowed us to make models of suitable habitats under current and past temperature conditions that have helped in the interpretation of genetic patterns and contributed new knowledge on the persistence of olive trees in space and time during the Late Quaternary (ten thousand years ago) and on the origins of early domesticated forms (Figure 3).



Figure 3. Location of the Levante región in the Aegean Sea.

2.1. Olive tree diversification.

Dating based on highly precise genetic information, allows us to propose the diversification of “oleasters” (wild olive trees) in post-pre-glacial times (2.6 million years). The estimation of the divergence time between three Mediterranean lineages (1.66-6.17 MA) allowed us to detect its most recent ancestor on the border between the Miocene and Pliocene period (5.6 MA) and the Middle Pliocene (3-3.3 MA, known also as optimal climate), and could coincide with the establishment of the Mediterranean climate rhythm. Later, it was demonstrated that the most recent common ancestor of each Mediterranean lineage goes back to the Middle or higher Pleistocene (780 MA). These analyzes, dated from genetic data, climatic evidence and fossil remains, indicate that populations of “oleasters” diversified long before the last great glaciation (110 thousand years). These analyzes also indicate that the “oleasters” of the central area of the Mediterranean may have arisen after the post-colonization of the last great glaciation.

2.2. Distribution of “oleasters” during the late Cuaternary (126 thousand years).

With genetic data combined with fossils / subfossils, the current distribution was relatively well predicted by the elaborated model, except in some areas where populations of “oleasters” have never been observed, such as Galicia / País Vasco (Spain) and Vendée (France). These divergences may be due to human impact and interspecific competition. The distribution models adjusted to the current climate conditions were projected into the past. These analyzes indicate that adequate habitats persisted for a long period of time, and particularly during the peak of the last glaciation (20 thousand years) and the last interglacial period (10 thousand years). The available macrofossils conform to the predictions of the last great glaciation, due to the persistence of “oleasters” in southern Europe and the Near East. The alleged “oleaster” refuges have been located in southern Europe (particularly in southern Iberia), as well as on a coastal strip in the north of the Maghreb, Cyrenaica (Libya) and Levante (Israel, Syria, Turkey).

2.3. Distribution of wild olive trees before domestication.

From the model based on genetic data, fossils and sub / fossils, a great genetic differentiation has been detected in the western and eastern Mediterranean basin, indicating that wild olives were isolated in two distant areas, and this pattern is consistent with that of many other Mediterranean tree and shrub species. The greater diversity of lineage in the eastern Mediterranean basin suggests that it originated in this area.

The patterns of Quaternary diversification (2 MA) of each “oleaster” lineage could be explained by the succession of glaciations (1.1 million years-85 thousand years) and interglacial periods (10 thousand and 750 thousand years). The marine isotope stage 6 (130-186 thousand years) was a long glacial period in which the populations of “oleasters” probably persisted in the southern refuges. This was followed by a long interglacial period that is considered particularly favorable for the establishment of Mediterranean ecosystems. The diversification of the current Eastern and Western wild olive lineages could have started during the interglacial Eemian (130 thousand years ago), while the diversification within the Central Mediterranean lineage could have started before the interglacial period.

The supposed Quaternary refuges (2 million years) correspond to a large part of the south-western Mediterranean basin (south of Iberia and Morocco) and the coastal areas from the central basin to the Levant. Numerous sets of “oleasters” show unique genetic information and are found on both sides of the Strait of Gibraltar, a region considered an important refuge for the Mediterranean flora (including the olive tree) and fauna during the last ice age. On the other hand, in the Eastern Mediterranean, a greater number of genetic variants were found, but with a restricted distribution. Two genetically differentiated areas can be identified: the Aegean region and the Levant (including Cyprus). The flow of genetic information mediated by natural seed between these areas seems to have been particularly limited. In fact, a barrier to the migration of plants between these two phytogeographic regions seems to have occurred in southern Turkey since the late Miocene (7,300 years).

Strikingly, the phylogeographic structure in populations of the olive fly (*Bactrocera oleae*), is considered to be the main plague of the cultivated olive tree that also shows three Mediterranean lineages with a specific distribution in the Levant (including Cyprus), the Aegean area with mainland Italy and

the western Mediterranean basin (from southern Italy to Morocco and the Iberian Peninsula.) In this case, a diversification was also observed prior to the glacial periods of its three lineages. The geographical subdivisions in the olive fly can thus reflect three main refuges during Quaternary glaciations that are putatively shared with their host.

2.4. Conclusions.

The western Mediterranean was not a primary center of domestication of the olive tree. The primary cradle of domestication is found in the northeast, in the Levant, (Figure 3) where the populations currently contain a great genetic diversity, although not the highest in the Mediterranean basin (which is located in the Strait of Gibraltar). This paradox can be explained by the fact that advanced civilizations arose in the north of the Levant, such as the Pre-Ceramic Neolithic B (between 8300 BC and 7000/6800 BC, depending on the region); and had enough genetic resources to succeed in the domestication of a tree that was self-incompatible.

The domestication of the olive tree seems to have been a long and continuous process that involved numerous genetic exchanges between the cultivated trees and the reserves of wild genes. The first group of domesticated olive genes is more likely to have spread by agriculture, primarily in the Levant and Cyprus before being progressively disseminated to the western Mediterranean. The genetic evidence for the multilocal origins of cultivars has been previously proposed by several authors and can be explained by secondary domestication events involving crosses between newly introduced cultivars and local “oleasters” throughout the Mediterranean.

3. Origin of the Cultivated Olive Tree

3.1. Studies carried out in the Israeli Levant.

The domestication of cultivated species began roughly 10-13 thousand years ago, through the gradual selection of desirable traits and adaptations to agricultural environments. Such artificial selection of individual plants with remarkable characteristics, for example, high yield, large fruits, obtaining seeds that do not break, had an artificial selection effect that gave rise to genetic differences between crops and their wild ancestors in different parts

of their genetic information. However, the long coexistence of crops with their wild relatives provided opportunities for hybridization, which led to gene flow between divergent (wild and domesticated) gene groups. This process has been demonstrated in woody species such as almonds, grapes and apples, which are cultivated for their edible fruits. In addition to gene flow, dispersal of the seeds of trees grown in a natural environment can result in wild populations of natural appearance, as seen in several plants introduced in Australia, including *Olea europaea*. Both processes can generate substantial difficulties when trying to identify wild or cultivated populations.

The cultivated olive *Olea europaea* subsp. *europaea* var. *europaea* L. was originated from *Olea europaea* subsp. *europaea* var. *sylvestris* (Mill) Lehr by artificial selection of wild populations. This is based on wild samples and cultivars from the area, coming from the north of the Israeli Levant (area near the Syrian / Turkish border), the proposed place as the main center of domestication of olive trees, dating wild specimens to 6,500 years BC.

These studies were a test to verify or contradict previous studies that revealed the presence of genetically distinct populations in Italy and Spain, which were interpreted as evidence of the previous existence of isolated populations of *Olea europaea* subsp. *europaea* var. *sylvestris* in the western and central Mediterranean area.

In Israel, populations of naturally growing olive trees can be found in the Mediterranean maquis (fields covered with weeds) and garrigue (ecosystems resulting from the overgrazing by man) of the Carmel Mountain Range and western Galilea (Figure 4). Due to the high probability that olive trees have been continuously cultivated in that area for at least 6,000 years, and those olive trees occupy a large part of the rural landscape there, the continued existence of the *Olea europaea* subsp. *europaea* var. *sylvestris* further proves this to be an undisputed fact.

Several studies included samples of naturally grown olive trees in the southeastern Mediterranean to infer the distribution and genetic diversity among the population of 'oleasters' surrounding the sea, since until now more genetic diversity had been found in the populations of grown olive trees in the western zone than in the eastern Mediterranean, which suggests that the presence of *Olea europaea* subsp. *europaea* var. *sylvestris* in the western Mediterranean is thought of as being the oldest supposed naturally grown olive tree in the southeastern Mediterranean. The genetic variation of the

populations of *Olea europaea* subsp. *europaea* var. *sylvestris* is of potential importance for breeding programs that point to the introduction of wild genetic information that confer valuable traits that were lost during the domestication process as has already been demonstrated in fruit trees.



Figura 4. Location of two wild populations of Galilee and Carmel olive trees.

The information that naturally grown olive populations in Israel like *Olea europaea* subsp. *europaea* var. *sylvestris*, and abandoned feral forms, resulting from the hybridization between wild and cultivated forms, is based on highly precise genetic techniques.

3.2. Most Modern Hypothesis of the cultivated olive tree

The results of the genetic study of 38 trees sampled outside of the cultivated trees in Israel indicate a presumably wild origin. The genetic comparison between 288 old grafted olive trees and 281 cultivated olive trees from different populations showed that they were wild, cultivated or

genuinely wild and this allowed them to identify that the possible source of rootstocks in the old cultivated olive trees were wild olives. Taking into account the prevalence of wild-type genetic information in the supposedly cultivated trees and the similarity with the patterns used for grafting, the existence of an abandoned forest bordering Lebanon / Syria / Turkey was confirmed at that site.

Two of the sites could be considered wild (Figure 4, IDM and NOR), confirming previous information that indicated that the supposed wild populations of Carmel and Galilee resemble the Acebuche populations of Turkey and Syria genetically. Also, more evidence has emerged that most of the old olive trees in the south-east of the Mediterranean were maintained by means of grafts (> 80%), the genetic similarity of the two wild populations and the shoots of old cultivated olive trees would imply that domesticated olive trees were grafted on wild patterns.

Similar studies between cultivated olive trees and patterns of old olive trees in the Iberian Peninsula indicate that the old olive trees were grafted onto trees of wild growth. Based on the similarity between the grafted trees and their spatial disposition within the groves, the authors suggest that the natural forests were transformed into olive plantations through grafting.

From the genetic comparison of wild olive populations with vines and shoots of old olive trees grown in Israel, it was possible to evaluate the state of plantations that grew naturally as abandoned groves of *Olea europaea* subsp. *europaea*, var. *sylvestris*. It is interpreted that some of the plantations analyzed as *Olea europaea* subsp. *europaea* var. *sylvestris* indicate that wild plants were used as rootstocks in the past. In an area where olive cultivation has a history of several thousand years, it is surprising to identify wild-growing olive populations that are partially well differentiated from the cultivated plants.

4. America

The olive tree was one of the first crops introduced by the Spaniards in America (Figure 5). In the Archive of the Indies of Seville, there is abundant information in reference to the olive trees that taken on the expeditions. “In 1520, from Seville, two hundred and fifty olive tree stalks were pulled out and one thousand and two hundred thin stalks were sent to the Island of Hispaniola (now the Dominican Republic), bought from Mr. Juan de Baena, from Aljarafe.”

In 1531, another shipment was made to the North of America, already fulfilling the Royal Certificate of August of that year that protected the shipment and ordered “that from now on, to all of the masters who go to our Indies, take with each of you plants and grape vines and olive trees of the amount that you see fit in your ships, so that no one leaves without carrying some quantity .”

To the south of the American continent, olive trees arrived in 1560 when “Don Antonio de Ribera, the Attorney General of Peru, who was returning to the city of the Kings (Lima-Peru), took olive plants from those of Seville. Though he put in much care and diligence in taking care of the olive plants in the two large pots (there were more than one hundred) he brought, no more than three plants survived, which he put in a beautiful enclosed estate, where he planted the trees ... (Garcilaso de the Vega, the Inca - Royal Comments, 1609).”

From this introductory event, the dispersion of the crop passed through the rest of sub tropical South America, where the climatic conditions for its development existed. However, there is clear evidence that the Portuguese also intervened in the introduction of the crop, first in Uruguay, in an enclave they made at the end of the 17th century (Colonia del Sacramento) and in southern Brazil around the year 1800.

The development over time of the activity had a similar evolution in the sub-continent, in accordance with the historical events that occurred in it and the progress of agricultural activities in each of the countries and the policies applied, which in general were alike.

This resulted in the first period that took place from the introduction until the mid-twentieth century, where activity levels were kept low and where it was only produced for consumption by the Europeans who inhabited the continent and their descendants.

In the mid-twentieth century, after the Second World War, import substitution policies, which wine and oils were included in, began to be implemented in several South American countries. This is why development at the national level of these activities was put into practice, and olive growing was not the exception, having a significant increase in its influence in agriculture.

At the end of the 20th century, when the healthy qualities of olive oil began to become known, though they had been published in the 50s and

60s (studies on “Epidemiology of the seven countries”, 1954 and “The Fat of de Land “, 1963 by Ancel Benjamin Keys), the concepts of healthy diet and fundamentally the” Mediterranean diet “ spread to the south of the continent. Due to to an opportunity to develop the activity by economic and fiscal incentives, there was a significant increase in olive growing and oil consumption. At the beginning of the 21st century, the planted surface area did not exceed 80 thousand hectares, of which more than 90% were found in Argentina, and there are currently more than 270,000 hectares, with more than 35,000,000 olive trees.



Figura 5. Chronology and geographical details of the introduction of olive growing in South America.

4.1. Peru

In this country the first olive trees of the continent were planted by Antonio de Ribera in 1560, in Lima, capital of the country currently. Brought from Spain, following the recommendations of the Royal Cedula of 1531, he planted three trees, out of a total of 100 that came from the coasts of Seville, on a farm owned by him.

These olive trees are the origin of a 400-year-old forest in Lima known as “El Olivar”, in the San Isidro district of Lima. Here we find the emblem of Latin American olive growing, the olive tree of “San Martín de Porres”, recently dated to 1637, considered the only survivor of the original set.

From these olive trees, the crop was spread to other more suitable regions to the south of Lima in the valleys of Yauca, Chaparra and Illo. There is evidence that these trees were the ones that produced the olives with which the first olive oil was obtained outside of Spain at the beginning of the 18th century

4.2. Chile

It has a long tradition of olive cultivation. The first records of olive growing activity in the country date back to 1560 when trees from Lima, Peru, were planted in the Azapá valley (currently the Arica region). In this area of the North of the territory, bordering on Peru, they found the climatic conditions to grow rapidly, and to expand throughout the rest of the territory mainly in the “Central Valley”, where the majority of agricultural activities are concentrated, and the “Limarí Valley” “In the north and” Rio Biobio “to the south. All these regions are characterized by areas that have good or excellent conditions, for the development of a modern olive grove, and can adapt to new technologies, according to their agro-climatic characteristics.

4.3. Argentina

Olive growing has a long tradition in this country. Historical evidence shows that the first plants from Spain arrived around 1540 after passing through Peru and Chile, crossing the Andes Mountains at one or more places.

This bordering region with Chile, which includes the provinces of Catamarca, La Rioja, San Juan and in the central zone of Córdoba and Buenos Aires, has the climatic and edaphic conditions that have made it possible for the crop to develop.

Some authors indicate that in this country, olive cultivation began around the 16th century, when the first farm lands were started by the Spanish colonizers, who brought olives to make preserves. During this time, Don Francisco Aguirre, around the year 1562, introduced the first plants

from Peru to the Province of La Rioja. By successive selections, crosses and multiplications, the crop was extended to other provinces such as Cordoba, Mendoza and San Juan, thus giving rise to “Arauco,” a totally Argentinian variety or ecotype.

The Argentine government began promoting olive cultivation officially in 1932 with the enactment of Law No. 11,643 of plantation development, and Law No. 1,946, 12,916. The National Olive Growing Conference, held in 1954, gave new impetus to the olive tree, with the planting of olive trees in areas considered marginal, where good results were obtained. The result of this was that in Argentina by 1965, there were already 5,000,000 olive trees of different varieties occupying a surface area of almost 50,000 ha.

4.4. Uruguay

As one more link of dispersion throughout the continent, the first olive trees were introduced here at the end of the 18th century and the beginning of the 19th century (1810), from Buenos Aires (Argentina) and planted in the outskirts of the city of Montevideo. Pérez Castellano, in his “Observations on Agriculture”, described agricultural activities outside the stronghold (Montevideo) and reported that on the shores of Arroyo Miguelete there were trees with a 5-7 meter crown, which meant that they were 20 to 25 years old so he assumed that they had been introduced around 1780.

Another possible introduction event, although there is no information about it, may have occurred previously in the South West of the territory, in the Portuguese enclave of Colonia del Sacramento, between 1680 and 1760. The remains of these olive trees can currently be found in the city and its surroundings, which, due to the size of their crown and trunk diameter, strengthen the hypothesis.

4.5. Brazil

Olive growing was introduced in Brazil by the Portuguese, who around the year 1800 planted olive trees in several regions in the south and south east of the country, in the states of San Pablo, Parana, Santa Catarina, Rio Grande do Sul, Minas Gerais, Espiritu Santo and Rio de Janeiro. Most of the plantations were established in the vicinity of churches, probably for religious ceremonies, mostly in “Holy Week” and in particular on “Palm Sunday”. The

use of olive oil as fuel for the lighting of old lighting fixtures was another purpose for which olive trees were planted.

Subsequently, by royal decree of Portugal, cultivation was prohibited, and olive trees were cut down to eliminate possible competition with the Portuguese crown. In this way, the farmers lost the habit of cultivation and engaged in other activities, and the importers of olive oil, many of them Portuguese, convinced the Brazilians that the success of olive growing was not possible due to the edaphic and climatic characteristics of the country.

4.6. Colombia

With events linked to the colonial process that at certain times fostered cultivation, and the situation of the Catholic missions, which in the case of the Jesuits being expelled from the country, olive growing had moments of expansion and decline in the second half of the eighteenth century. In 1531, Spaniards and lay Spaniards planted olive trees in the Villa de Leyva, Boyacá department, in the old Mission of Santo Ecce Homo; it is also known that in 1875 the Spaniard José María Gutiérrez planted five thousand olive trees in this region.

A century later, olive trees were again planted in the country in the same places where they were during the colonial period, in Sáchica, near the initial site, by Spaniards who settled and planted 32 hectares in 1875. Disagreements with the authorities of the country prevented the establishment of a center for the development of agriculture in the old convent.

Only in the middle of the 20th century, between 1953 and 1965, the government promoted the development of olive growing with the implementation of a plan of olive tree studies and experimentation and the introduction of several cultivars from the Mediterranean basin.

The development of the crop in this distinctly tropical area is due to the existence of a favorable micro climate in a geographical area delimited by Villa de Leyva and the cities of Sáchica and Sutarmachán. In this territory located in the tropical region, there are average temperatures (maximum 26°C) and rainfall close to 1000mm per year, due to the height above sea level (2200 meters).

5. North America

5.1. *Mexico*

After 1492, Spanish settlers introduced new plants and animal species brought from Spain, which continued for decades. Cultivated fruit trees such as peaches, figs and olives entered Mexico through the seaport in the current state of Veracruz, which provided access to the interior of the country.

The first olive plants introduced in America for observation and cultivation were brought from Seville by Franciscans and Jesuit priests in the sixteenth century. First they arrived in the Antilles Islands and then they were transported to Mexico and Peru. In Mexico, they were introduced by Fray Martín de Valencia, planting the first olive grove in America in 1531, in Tulyehualco, and in Lake Xochimilco. Vasco de Quiroga established a garden of 51 trees in the old convent of Tzintzuntzan, Michoacán, in 1531 or 1534, according to different sources. Shipments of olives from Spain had to continue for many years because on August 31, 1531 a Royal Decree (Royal Decree) established that: “ that from now on, to all of the masters who go to our Indies, take with each of you plants and grape vines and olive trees of the amount that you see fit in your ships, so that no one leaves without carrying some quantity”.

The climatic conditions in the area near Lake Xochimilco were so favorable for the growth of the olive tree that they produced very high yields. Therefore, a strip of land with olive groves over 12 km in length was planted along the lake. Currently, there are still two large areas where those historic olive trees can be found. One of them is located to the east and is called “Olivar de Santa María” and the other to the west is called “Olivar de las Ánimas,” both are located now in the area of the Autonomous Metropolitan University, on the Xochimilco Campus (UAM). Later, being a source of planting material, this strip and other similar orchards gave rise to more olive plantations in Texcoco and Chalco, as well as in America, Jalisco, Baja California and Michoacán.

At the end of the seventeenth century, olive cultivation expanded again, mainly due to the efforts made by the missionary Francisco Eusebio Kino, who established the first plantation in about 110 missions. However, the expansions of olive growing and production became so important that they were seen as a competition for the Spanish crown.

This fact was the reason why Carlos III signed a Royal Decree dated January 17, 1774, which prohibited the planting of more grapes and olives in Mexico. In 1777, he issued a new mandate ordering the destruction of all the olive trees planted in Mexico. Although the main objective of these decrees was the facilitating trade between Spain and its colonies, they became famous for the strict prohibition they imposed.

Fortunately, some olive trees from the 16th and 17th centuries survived the massive destruction, but this incident caused a deceleration in the development of the harvest until the 1950s when olive cultivation was promoted in Mexico as a state project. In addition, the Comisión Nacional del Olivo (National Olive Tree Commission) was created, which was in charge of introducing vegetative material from Spain to establish itself in several Mexican states.

5.2. United States of America

In the early 1700s, the Jesuits established missions in Mexico and in Baja California. Franciscan fathers who traveled from northern Mexico founded their first mission in 1769 in San Diego de Alcalá, (California). The olive trees were among the few fruits planted that grew in that first mission. This cultivar “Mission” predominated in the first plantations of San Diego and probably originated from the vegetative propagation of the best trees of the original variety coming from the seeds of the plants themselves. Between 1850 and 1900, many cultivars from Mediterranean countries were introduced in California, among which Manzanilla, Barouni Ascolana, and Sevillana stood out, together with Misión, which had been developed in the territory itself, in order to improve olive oil production (Connell, 1994).

The cultivated olive tree, *Olea europaea* L., which does not originate from this continent, arrived in this territory, in the region of California, as another introductory stage which firstly began in 1520 in the Caribbean Antilles. Olive trees came from Spain then passed through Mexico. The trees did not thrive in the tropical climate, but the Franciscan friar Father Martin de Valencia went to what is now Mexico City with twelve other friars. They established a religious house and in 1531, they planted an olive grove with new olive cuttings from Spain that had survived. The wife of the ambassador of Spain in Mexico in the mid-1840s, Mrs. Frances Calderón de la Barca, commented on the beauty of the orchard in the light of the moon 300 years later.

In 1769, Don José de Gálvez sent an expedition of Spanish soldiers and missionaries from Baja California in Mexico to Alta California. The explorers arrived in San Diego and the Spanish Franciscan friar Fray Junípero Serra founded a mission there. During the next 50 years, the Franciscans built 22 more missions and always planted olive trees and vineyards for religious purposes.

The first documented information on olive trees grown locally in California was from 1803. The director of the Franciscan missions, Father Fermín Francisco La Suen, gave the order to use olive oil from their own trees for baptism in the mission of San Diego for the first time. This brief history gives the most important reason for the friars to plant olive trees: a liturgical purpose. They also needed olive oil for cooking, lighting, soap and in cloth covers to process the wool of their sheep.

The first commercial olive oil factory most likely was established in Ventura County, in the “Camulos” Ranch, in 1870. Unable to compete with Europe’s low-priced oil, the California industry turned its attention to the production of table olives around 1900 and dominated the olive tree scene for more than three quarters of a century. The history of the olive grove in the United States is integrated into the history of California. Apart from a very small area of Arizona and Texas, the entire olive industry is concentrated in that state, mainly for climatic purposes.

6. South Africa

6.1. *South Africa*

On July 18, 1661, Jan van Riebeeck (1619-1677), the founder of South Africa, gave testimony of the first two olive trees growing on a farm called Boschheuvel in the Western Cape, near Cape Town. It would take approximately 232 years before there was local interest in this crop. A visit to olive orchards in California prompted a Wellington (Western Cape) pioneer, Piet Cillie, to publish in the *Agricultural Journal* of 1893 that he believed that vast areas of land in South Africa would be well suited for olive cultivation. He started planting some trees in Wellington, and was followed by Jan Minnaar who did so in Paarl. In 1907, an olive oil was produced that was rated as the best olive oil in the British Empire.

The man historically recognized as “The father of the olive industry in South Africa” is Ferdinando Costa, solely responsible for recognizing the vast potential and, more specifically, for consolidating the olive culture in a country where the olive tree was little known. Starting from his arrival in South Africa in 1903, he aspired to be able to grow the first South African olive tree. He was a highly qualified farmer, having completed his studies at the College of Agriculture of St Illario in Genoa, Italy. The similarity in climatic conditions between Italy and South Africa, together with the fact that wild trees flourished in all the western foothills of Cappe, gave more assurance to their idea. After the import of cultivars from Italy, they began to expand through grafting, staking and cutting.

The first olive oil mill of reasonable size was inaugurated 60 kilometers from Cape Town in 1935, which led to a growth in the crop since that time and grew the business. During the 70s, there was a fall in the use of olives for oil extraction, which generated a growth in the use of fruit for table olives, due to the price effect.

6.2. Angola

It is a country that has an olive development plan whose starting point is the 500 hectares of olive trees that were planted in the 60s, as well as from other small previous experiences isolated in the province of Moçâmedes, where climatic conditions similar to that of the Mediterranean region exist on a coastal strip of 150 kilometers in the province of Namibe (former Moçâmedes) aided by a cold current of Bengal, which helps to counteract the effects of the desert climate of the area. At night, the cold sea breeze blows for the necessary amount of hours which allows the growth of flowers and fruits after the dormancy of buds. Inclusively, water is available in the area at just over ten meters deep, and the levels of rainfall are very high, which have been made use of through the existence of existing irrigation channels since colonial times.

7. Oceania

7.1 Australia

Olive trees, which are not native to this continent, have been cultivated since European colonization. The first documented introduction occurred on

December 28, 1800 when London gardener George Suttor arrived in Sydney with plants, including an olive tree, sent by Sir Joseph Banks. In 1805, another tree was also planted by John Macarthur at his “Elizabeth Farm” in Parramatta near Sydney. The Sydney Botanical Gardens became an important distribution center for olive cuttings from the 1820s onwards, before commercial nurseries. European emigrants found large areas of land at a good price and with a perfect climate for cultivation that allowed plantations to be installed in all states except Tasmania since the beginning of the 19th century.

From 1830 to 1850, trees arrived from France, Rio de Janeiro and Sicily, including five cultivars from Marseille. Those trees continued to produce an olive oil that gained honorable mention at the London Exposition of 1851. In 1873, there was a plantation of about 10,000 trees in the foothills of Mount Lofty and Michael Burr, in his book “Australian Olives”, details how in 1875 there were more than 3,000 trees in the parks around Adelaide. Olive trees continued to be planted around Adelaide in South Australia (SA) until, in the 1920s, the development of housing in the suburban area displaced the olive trees. In 1911, the Stonyfell Olive Oil Company won Gold Medals for its olive oil export to Italy. After the Second World War, immigrants from Southern Europe also developed plantations in the northern suburbs and the Riveland area.

The olive trees extended from South Australia (SA) across the border to Victoria with plantations in Dookie, Sunbury, Wangaratee and Longerenong Agricultural Collage near Horshan. In 1943, Jacob Friedman started the large plantation that is still preserved in the north at the foot of the Grampian Mountains, near Horsham.

Since the 1860s, olive trees have been cultivated mainly to obtain oil in Western Australia (New Norcia monastery won a silver medal at the Franco-British Exposition of 1908). Cultivation has been considered as a commercial industry at various times in the history of Australia. In 1883, a document from “Cultural Industries for Queensland” detailed the development of the crop in this region, mainly around Brisbane. In 1891, the Department of Agriculture of New South Wales began the establishment of four experimental farms and agricultural schools, one of them in Wagga Wagga, called Murrumbidgee experimental farm. The land chosen for the farm was not the best so it served to demonstrate that the crop could develop under adverse conditions. It began in April 1893 with 16 hectares cleared of bushes and forests. Two

years later, government statistics refer to another 3.2 hectares planted and in 1897, an article on “Wagga Experimental Farm” mentions the preparation of a 4-hectare orchards of olive trees.

Interest in olive growing continued in the early 1900s. However, in the following decades, there was a decrease in expectations, mainly in the south, and in the east where the plantations were displaced by urban expansion or by decreases during the First World War and the period of depression. The main problem was the relatively high cost of harvesting in Australia compared to the Mediterranean countries.

Some remains of plantations continued to exist, and were expanded by some European settlers of the second wave after the Second World War. Planting began to increase again after 1946, especially in southern Australia and Victoria, and continued until 1958-1959 when more than 3,000 hectares of olive groves were cultivated. In 1956, there were 38,000 trees in Horsham and as many in Mount Zero, Edenhope and Dimboola. Most were rainfed plantations, but a company in Ribinvale planted 280 hectares of irrigated trees and installed on-site processing equipment. Most of these trees were removed in the 1970s, when European-produced oil was imported at better prices.

7.2. New Zealand

The first records indicate that olive trees existed in New Zealand before 1835, as they were documented by Charles Darwin, when he visited the northernmost region of the country; they grew successfully in the Auckland region; in fact, a guide of the first settlers of that period indicates the presence of varieties suitable for the New Zealand climate conditions: Cailletier, Blanquette and Picholine among others.

Between 1860 and 1880, two of the first settlers, Logan Campbell and Sir George Gray, independently tried to establish an olive industry. Campbell imported 5000 seedlings from South Australia obtained from existing plants in the city of Auckland. This company did not prosper because of performance problems and the taste of the oil did not match the Italian oils to which Campbell was familiar. Gray's efforts to produce oil also failed, but there are no records that indicate why exactly they were unsuccessful.

In 1877, in the “Report on olive cultivation” he emphasized the potential of olive cultivation if the recommendations on soil type and climate were

respected. This document was a detailed report of the Tuscan industry. It was ignored, possibly due to the experiences of Gray and Campbell.

To find new advances in the cultivation of this country, it is necessary to stop in the year 1960 when Ascolana, Manzanilla, Mision and Verdale trees were imported, and cuttings from old and well-established trees were also extracted. These cultivars were planted as a test at sites that were considered adequate. The evaluation of this work indicated that olive trees should not be grown for oil production, but rather being utilized as fruit. It was noted that “before any serious attempt to establish commercial olive trees, it would be necessary to determine the demand, bearing in mind that olive products can be easily and cheaply imported”. Although this report was ignored, many of the trees planted by this initiative still survive and one in particular was given the name J5 after it was taken over by nurserymen. This type of olive tree is currently in northern regions. Another cultivar propagated at that time from a tree found on the west coast of the North Island was called “El Greco”. However, instead of being part of the olive industry, it ended up being used in landscaping and protection belts in rural properties.

In 1971, eight olive trees were donated by the Cretan people in memory of the soldiers from New Zealand who fought in Crete during the Second World War. These trees were distributed throughout the country and the olive trees propagated from one of these specimens in particular was given the name of “Kala” and produced very suitable fruits for table olives. In the late 1980s, Gideon Blumenfeld, an FAO staff member, requested plant material from the Germoplasma de Olivo World Bank of Córdoba-Spain, for experimental purposes. He planted “A10” as a test of cultivation in Nelson, in the north of the South Island.

In the mid-1990s, there was an incipient take-off of the industry, particularly in Marlborough, in the region north of the South Island, with the Olive New Zealand (ONZ) and Oliveti forming two associations to carry out research and provide job opportunities. The more than 200 Oliveti producers in the Northland region estimated that they had the possibility of planting up to 200,000 trees in that area.

8. East Asia

8.1. *Japan*

The first references of olive trees in the country date back to the 16th century when olive trees began to arrive from Europe in different ways. A Portuguese priest was the first to bring olive oil to the country, giving it the name of “Horuto-no-abura”, which means olive oil from Portugal. The first Japanese person known to taste the olives was Toyotomi Hideyoshi, who unified the country at the end of the 16th century. He received a barrel of salted olives from the Spanish king, Felipe II in 1594.

Between 1861 and 1863, shogun doctor Hayashi Doukai, who studied Dutch medicine in Nagasaki, tried to grow olives from France to produce medicinal oil and planted them in Yokosuka south of Tokyo. In 1875, Tsunetami Sano, founder of the Japanese branch of the Red Cross, introduced trees from Italy and planted them in Tokyo and Wakayama in the west of the territory, where they produced fruit. The first large-scale planting took place in 1880, starting with 2000 trees from France that were planted in government stations in Tokyo and Kobe and bore fruit, thus obtaining the first national olive oils and table olives. None of these efforts led to commercial plantations.

In the twentieth century, the crop was driven by the government to reduce dependence on expensive oil produced in Europe. In 1905, after Japan's victory in the Russo-Japanese War through which Japan gained new territories in the Sea of Okhotsk, a radical cultural change took place. With the objective of obtaining oil in the country destined mainly to marinate sardines and tuna caught in the new fishing zones, the government carried out the installation of 1.2 hectares in three locations in central, western and southern Japan on an experimental basis. One of the locations selected was Shodoshima Island in the west, where 519 trees were planted. In 1911, 507 of those trees still survived and had produced a total of 74 kg of fruit, an average of 145 kg / year / tree. The experiment was successful in this site, but failed in the other two places, due to damage caused by typhoons and native pests.

The success in Shidoshima is attributed to the Mediterranean climate of the island, and the great attention and care that local farmers gave to the trees, which monitored their conditions, and observed them daily, solving the problems as soon as they arose. The commercial production of olives

gradually spread within the island and beyond to the neighboring regions within the Sea of Seto.

8.2. *China*

In the book entitled “You Zai zu” by Yin Chengwu, a certain kind of foreign tree is mentioned in the ninth century, “Qi Dun”, translation of the Arabic word Zaitun meaning olive. It is said that during the first half of the 20th century, Western missionaries and Chinese students returning from the producing countries, bought small quantities of olive stalks, which are conserved in Mengzi, Yunnan Province and Chongqing City.

In the early 1960s, the government became involved in crop promotion after the Second World War on the recommendation of agronomist Zou Bingwen. At the visit of Prime Minister Mehmet Shehu of Albania, he gave China about 10,000 olive trees. In 1964, Prime Minister Zhou Enlai received Albanian experts and in their presence he participated in the olive plantation in Kunming, Yunnan Province. During the period from 1978 to 1987, FAO played an important role in sponsoring an olive development project in China with cultivars initially donated in Spain, France and Italy.

The Chinese Forest Administration manages planning and research of crop development. The Chinese Academy of Forestry, together with local research organizations, is responsible for the transfer and implementation of technologies, while the companies and the farmers decide on their own production plans for themselves.

The principal investigator of the Chinese Academy of Forestry, Xu Weiying, is recognized for her outstanding contribution to the development of olive growing in China. During the period when olive reading materials were not available in Chinese, she compiled and edited books, along with dissertations and reports, which became mandatory readings for those involved in this new emerging activity.

9. Conclusions

As a culmination to this chapter, here are the final conclusions and reflections that have been made:

1. Olive trees have been cultivated throughout the Mediterranean basin since 6,500 BC and have had an enormous impact on the economy, history, culture, and environment of the area. Among the oldest crops of the Mediterranean basin, the olive tree is the most emblematic species because of its ecological, economic and cultural importance, and is considered one of the best biological indicators of climate and has accompanied the emergence of the first civilizations.

2. The olive tree was one of the first crops introduced by Spaniards in America. This fact is well documented in the Archive of the Indies of Seville, in a reference to the olive trees that were carried in the expeditions.

3. In South Africa, the first reasonably sized olive oil mill was opened 60 kilometers from Cape Town in 1935, which encouraged crop growth since then and boosted the business. During the 70s, there was a decline in the use of olives for oil extraction, which generated a growth in the use of the fruit for table olives, due to the price effect.

4. Starting from the year 1800, Oceania came into olive tree cultivation with European colonization. However, until the beginning of the 20th century, it did not take on importance in Australia and New Zealand. It had its greatest expansion from World War II and on, while again being undertaken by European settlers.

5. Cultivation in Asia, mainly in China, like in Oceania, has been increasing since the Second World War, due to growing interest in this healthy product.

International Olive Growing. Description, challenges and strategies

1. Introduction

Olive growing is present in 58 countries distributed throughout the 5 continents. However, its consumption extends to a total of 179 countries. This shows us an international context of the olive sector with an extremely localized production and a globally dispersed demand. As a result of this situation, 162,000 hectares of olive groves are planted every year to satisfy these incipient needs of the market. The vast majority of these new plantations are superintensive in nature, while the intensive and traditional ones are pushed to the background.

Olive growing is an economic activity that presents a relatively stable demand that is subject to noncontinuous offers. This means that olive groves with a lower degree of intensification are more affected by this relationship between supply and demand. Therefore, the profitability of the producers will depend on the capacity of mechanical adaptation of their plantations. The low margins of profitability generated by the sector require the elaboration and application of strategies in the different stages of the value chain. These measures may be aimed at improving prices, reducing costs or combining the two. These actions must allow the profitability of less competitive olive groves to increase, as well as the activities related to the transformation and commercialization processes of their products.

The goal of this chapter is to make a description of international olive growing. For this to happen, the challenges of the sector will be examined. Based on this analysis, a series of strategies will be established in order to achieve a competitive improvement of the market. In this sense, the analysis

of the value chains will be carried out following the two types of activities that make up olive growing: table olives and the production of olive oils. To do this, a cross section will be made from the origin of the different processes to the distribution of the products obtained. Finally, a series of conclusions will be made based on the analyzes carried out in the previous sections.

2. International olive growing. Description.

2.1. Cultivated area

At the global level, a total of 11,512,015 hectares dedicated to the plantation and cultivation of the olive grove are currently registered. Of its olive production, 13.39 percent is dedicated to table olives, while 86.61 percent is dedicated to the production of olive oil. Starting from Table 1, it can be seen that Europe is the world's largest olive producer, followed by Africa and Asia by a great length. This classification can also be applied when we break down the two large productions derived from olive farm lands.

Table 1: World surface distribution by continents and destination in 2018

Continent	Olive surface					
	Olive production		Table olives		Oil press	
	Hectares	Proportion (%)	Hectares	Proportion (%)	Hectares	Proportion (%)
Africa	3.514.800	30,53%	457.035	29,64%	3.057.765	30,67%
America	298.150	2,59%	120.607	7,82%	177.543	1,78%
Asia	1.394.219	12,11%	262.666	17,04%	1.131.553	11,35%
Europe	6.265.896	54,43%	700.284	45,42%	5.565.612	55,82%
Oceania	38.950	0,34%	1.267	0,08%	37.683	0,38%
Total	11.512.015	100%	1.541.859	100%	9.970.156	100%

Source: Self made, 2018.

2.2. Plot distribution

The global olive production is distributed in 3.5 million orchards that register an average of 3.2 hectares. Following Table 2, it can be seen that the continents with the lowest production present more extensive orchards. In this sense, the plotting in Oceania and America presents an average size that is much larger than the world average. On the other hand, it can be

observed that the main world producers present values that are very close to the average, with the exception of Asia.

Table 2: Rural estate distribution by continent and size for 2018.

Continent	Orchards	Average Size (ha)
Africa	1.003.352	3,50
America	12.429	23,99
Asia	650.521	2,14
Europe	1.910.944	3,28
Oceania	297	131,17
Total	3.577.543	3,22

Source: Self made, 2018.

2.3. Types of farm lands

International olive production can be classified into three types: traditional, intensive and superintensive. The global distribution of each type can be registered according to the parameters established in Table 3. The traditional method is the most widely used on a global level, distributed mainly in a rainfed water method. However, within this typology, when the slope is lightened or moderate, irrigation begins to acquire more importance. On the other hand, intense and superintensive plantations are much smaller than traditional ones, since they only represent around 26% of the world's surface. In these types of farm lands, it is observed that one of its main characteristics is that they are produced with an irrigation system.

With these surfaces, average annual productions of olives are generated, reaching between 17 and 22 million tons.

Table 3: Surface distribution of olive groves by category, method of cultivation and inclination for the year 2018

Category	Inclination	Water regime	Percentage	Surface	Percentage	Surface
Traditional	High slope	Rainfed	31,73%	3.652.494,73	73,88%	8.504.858,05
		Irrigated	0,41%	47.220,88		
	Moderate Slope	Rainfed	35,01%	4.030.339,01		
		Irrigated	8,73%	1.005.280,03		
Intensive		Rainfed	3,94%	453.413,14	21,28%	2.450.259,13
		Irrigated	16,32%	1.878.341,61		
Superintensive		Irrigated	3,86%	444.925,61	4,84%	556.897,83
Total			100%	11.512.015,00	100%	11.512.015,00

Source: Self made, based on data from the International Olive Council, 2018.

2.4. Business volume

This activity generates an estimated economic volume that can be seen summarized in Table 4. These data will vary according to the campaign, its productions and unit values per product. In such a way, it is estimated that the annual turnover would be between € 9,500M and € 13,500M, which would generate a level of employment above 35 million people. This figure represents about 1.2% of the world's active population. Europe remains the leader in the global distribution of the economic impact of the olive sector. In this way, it contributes almost 71% of the global business volume of the sector and contributes more than 41% of employment.

Table 4: Business volume, employment and active population by continent media campaigns 2013/2017.

Continent	Business volume (Thousands of euros)	Employment (number of people)	Active population (Percentage, %)
Africa	2.147.466,53 €	4.526.248	1,84
America	470.239,22 €	7.053.588	1,32
Asia	1.049.581,21 €	7.926.098	0,44
Europe	9.004.411,43 €	14.610.552	8,01
Oceania	68.728,83 €	1.030.933	5,34
Total	12.740.427,22 €	35.147.419	1,18

Source: Self made, 2018.

3. International olive growing. Production

3.1. *Productive activities of the olive sector*

As we have seen previously, within international olive growing there are two clearly differentiated vertical activities: table olive production and olive oil production. This implies that the destination of the production will depend on the variety of olives harvested. In the case that the olive only has one possible destination, the market then fixes its price. On the contrary, if the olive can be destined to both activities, this implies that the final destination will depend on market prices and the specific situation of each one of the subsectors. The varieties of olives called Picual, Arbequina and Arbosana are used only for the production of oil while Chamomile and Hoji-blanca are used for the two subsectors. This last varietal has acquired an additional importance due to its capacity for mechanized collection; therefore, it adapts better to market demands and presents a higher profitability.

The productive process of both activities is clearly different. For table olives, the value chain is shorter than for the production of olive oil. In such a way that for the production of the conserved olive there is only one processing industry, with different product categories, of course. Because of this, this industry is dedicated to processing the oil from the harvest and to transform it for its food use. The factories in charge of this activity are called ‘entamadoras’ or processing companies.

The chain is somewhat more complex in the field of olive oil processing. This circumstance can be seen in Figure 1, which shows several productive stages to develop olive oil and make it available to markets. The process of transformation of the olive is carried out mainly in the mills. This space is where the different categories of virgin olive oil (extra, normal or lampante), as well as some by-products such as alpechin or pomace, are extracted directly. This last by-product is treated in the mill to obtain crude pomace oil. After that and previously, it is processed in the chemical extractors, where the highest content of processed pomace oil is extracted. This liquid is sent to chemical refineries to be transformed into edible oil. This stage is also applied in lampante olive oils.

GRAPH 1: Stages in the field of the preparation of olive oils and table olives.



Source: Self made, 2018.

3.2. Olive distribution

Table 5 shows the global distribution of the different productive phases of the olive sector. In this classification it is again denoted that Europe dominates the productive process of both subsectors. This situation becomes dominant in the case of refineries, since in this continent almost all the factories are registered. In addition, as will be detailed in Chapter 3, most of them are located in the Iberian Peninsula.

Table 5: Number of oil mills, olive pomade mills, oil refineries and table olive mills.

	Oil Olive						Table Olives	
Continent	Oil mills		Olive Pomade mills		Olive oil refinery		Table olive mills	
	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Africa	5.011	30,07	41	16,21	12	14,63	408	15,26
America	312	1,87	10	3,95	0	0,00	151	5,65
Asia	2.223	13,34	52	20,55	5	6,10	456	17,06
Europe	9.087	54,52	150	59,29	65	79,27	1.654	61,84
Oceania	34	0,20	0	0,00	0	0,00	5	0,19
Total	16.667	100	253	100	82	100	2.674	100

Source: Self made, 2018.

To supply both subsectors, between 17 and 22 million tons of olives are generated annually. Following Table 6, it can be noted that world production is not homogeneous. In this sense, Europe is the main producer by far over

the other continents. This figure is consistent with the global distribution of the different productive stages of table olives and olive oil.

Table 6: World Olive Production
(average of the campaigns 13/14 a 15/16)

Continent	Crop Production (Thousands of tons)
Africa	2.953,84
America	667,61
Asia	1.569,88
Europe	12.516,64
Oceania	128,37
Total	17.836,33

Source: Self made, 2018.

Olive plantations have an average productivity per hectare depending on the sub-sector to which they are destined. Thus, if it is destined for table olives, it will have an average productivity of 1.69 tons per hectare, whereas if it is destined for olive oil, this value is 0.3. Geographically, these data show higher productivity in Oceania for both subsectors. This continent is followed by America, for table olive productivity, and by Europe, for olive oil.

Table 7: Average productivity of olive oil and table olives per hectare
(average of the campaigns 13/14 to 15/16)

Continent	Table Olive Productivity (by hectare)	Olive Oil Productivity (t by hectare)
Africa	1,66	0,13
America	2,31	0,35
Asia	1,03	0,20
Europa	1,84	0,40
Oceania	3,29	0,49
World Average	1,69	0,30

Source: Self made, 2018.

3.3. Olive destination: Olive oil

87% of the world olive production is used for the production of olive oil. However, the amount of oil obtained will depend on the yield of the olive. In other words, the annual production will be related to the industrial percentage of oil that the olive has. Following Table 8, we see that the average yield for the last years was 19.60%. Geographically, the highest data were recorded in Europe and Asia, respectively.

**Table 8. Average yields per continent average magnitude
(campaigns 13/14, 14/15, 15/16)**

Continent	Africa	America	Asia	Europe	Oceania	Total
Average yield	18,83%	16,16%	18,01%	20,05%	14,95%	19,60%

Source: Self made, 2018.

From these estimated percentages of yield, it is possible to distinguish between the production of two oils: virgin and lampante. Thus, taking the above data and the depletions, you can obtain the average quantities of oil obtained per continent that are reflected in Table 9. In it we can highlight the specialization of Oceania in the production of virgin oils, while Asia presents an equidistributed production between both types of oils.

**Table 9: Average virgin oil and lampante yields
for the 13/14, 14/15 and 15/16 campaigns**

Continent	Virgen Oil	Lampante
Africa	57,51%	42,49%
America	66,50%	33,50%
Asia	51,44%	48,56%
Europe	67,53%	32,47%
Oceania	92,50%	7,50%
Total	67,09%	32,91%

Source: Self made, 2018.

The following table shows the average figures for the productions, consumption, exports and imports of olive oil for the 58 producing countries, unified by continent. In this way, the consumption data are not complete and

the consumption of 121 more countries is needed. However, the demand from these countries is 332 tonnes, which means that 11.45% of world consumption is not recorded in the following table. This data indicates that the main core of demand is once again situated around the producing countries. Therefore, like table olives, olive oil is a product of local consumption.

Table 10. Average production, consumption, imports and exports of olive oil in regards to the campaigns of 13/14, 14/15, 15/16.

	Production		Consumption		Exports		Imports	
Continent	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)
Africa	411,73	13,89	254,56	9,91	175,03	21,28	11,67	1,86
America	62,62	2,11	400,96	15,61	39,67	4,82	383,83	61,34
Asia	230,24	7,77	288,66	11,24	21,50	2,61	68,97	11,02
Europe	2.241,92	75,61	1.585,40	61,71	582,13	70,76	135,93	21,72
Oceania	18,57	0,63	39,57	1,54	4,33	0,53	25,33	4,05
Total	2.965,07	100	2.569,14	100	822,67	100	625,73	100

Source: Self made, based on data from the International Olive Council, 2018

The data in Table 11 detail the magnitudes related to the sub-sector of olive oil for the ten main producers. In this case, Spain is again the leader of the sector, followed very far by Italy, Greece and Tunisia. Even so, these four countries represent more than 79% of the production of the ten most important countries worldwide. As for consumption, Italy is the big consumer, but followed closely by Spain. Regarding the concentration of consumption, it is observed that the five main consumers imply 75% of the demand of the most important producing countries. If we now take global demand into account, Italy represents just over 22% of world production, while the five main producing countries account for just over 60%. The global data presented in Table 11 show 92% of total production and 72% of world consumption. On the other hand, if only the consumption of the producing countries is taken into account, this accounts for more than 89% of global consumption.

Table 11. Average production, consumption, imports and exports of olive oil regarding the campaigns of 13/14, 14/15, 15/16, of major producing countries.

Producing Country	Production		Consumption		Exports		Imports	
	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)
Spain	1.342,33	49,12	503,83	24,12	274,77	35,99	55,47	12,99
Italy	386,77	14,15	603,63	28,90	213,67	27,99	54,47	12,76
Greece	250,67	9,17	136,67	6,54	17,27	2,26	0,00	0,00
Tunisia	183,33	6,71	34,00	1,63	154,83	20,28	0,00	0,00
Turkey	148,33	5,43	115,33	5,52	26,67	3,49	0,00	0,00
Morocco	126,67	4,64	120,00	5,74	17,17	2,25	8,83	2,07
Syria	131,67	4,82	133,50	6,39	5,30	0,69	0,00	0,00
Portugal	87,23	3,19	71,67	3,43	47,30	6,20	4,13	0,97
Algeria	65,17	2,38	64,50	3,09	0,00	0,00	0,33	0,08
USA	10,33	0,38	305,83	14,64	6,50	0,85	303,67	71,13
Total	2.732,50	100	2.088,97	100	763,47	100	426,90	100

Source: Self made, based, on data from the International Olive Council, 2018.

3.4. Olive destination: table olives

Focusing on the production of table olives, it is observed that 13% of the world olive production goes to this sub-sector. Its main magnitudes related to production, consumption, export and import are shown in Table 12, unified by continents. In the data, the derivative of the producing countries is registered exclusively. These regions represent 84% of total consumption, representing a total of 2.6 million tons. This shows that consumers are located mainly in producing countries. This fact leads us to believe that the consumption of table olives is conceived as a product of closeness and familiarity.

On the basis of the latest data, it is observed that olive producers concentrate almost all of the demand. This leads us to believe that the main producers are also the main consumers. This takes us to the consideration of the production and consumption of each of the countries for the two subsectors of olive growing. In this sense, Table 13 includes the distribution of the main producing and consuming countries of table olives. Therefore, it is observed that the main producing countries present a higher level of exports than of imports.

This fact is not verified for the United States of America, Algeria and Iran. Furthermore, in the case of the US, it basically monopolizes the imports of

this product, while in the rest of the countries a there is slight negative balance that exists.

Table 12. Production, consumption, exports and imports of table olives by continent (thousands of t), average of the campaigns 13/14, 14/15 and 15/16.

Continent	Production		Consumption		Exports		Imports	
	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)
Africa	758,02	29,17	631,02	29,07	142,00	23,45	19,08	4,49
America	278,95	10,74	436,53	20,11	95,17	15,71	268,50	63,18
Asia	270,82	10,42	321,52	14,81	12,17	2,01	59,90	14,10
Europe	1.286,34	49,51	760,97	35,05	356,33	58,83	60,63	14,27
Oceania	4,16	0,16	21,00	0,97	0,00	0,00	16,83	3,96
Total	2.598,30	100	2.171,04	100	605,67	100	424,95	100

Source: Self made, based on data from the International Olive Council, 2018.

Table 13. Production, consumption, imports and exports of table olives according to the most important countries for their production, average of campaigns 13/14, 14/15 and 15/16.

Producing Country	Production		Consumption		Exports		Imports	
	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)	Thousands of tons	Proportion (%)
Spain	576,27	28,86	182,47	11,73	196,97	43,24	8,97	5,20
Italy	405,67	20,32	334,50	21,50	68,67	15,07	0,00	0,00
Greece	395,33	19,80	335,67	21,58	56,00	12,29	0,25	0,14
Tunisia	220,83	11,06	226,33	14,55	0,00	0,00	7,90	4,58
Turkey	113,33	5,68	31,33	2,01	84,33	18,51	0,10	0,06
Morocco	68,83	3,45	37,33	2,40	29,33	6,44	0,10	0,06
Syria	65,33	3,27	63,00	4,05	0,00	0,00	0,40	0,23
Portugal	62,17	3,11	203,50	13,08	6,50	1,43	146,10	84,72
Algeria	59,10	2,96	115,67	7,43	8,40	1,84	7,63	4,43
USA	29,83	1,49	26,00	1,67	5,33	1,17	1,00	0,58
Total	1.996,70	100	1.555,80	100	455,53	100	172,45	100

Source: Self made, based on data from the International Olive Council, 2018.

The production of Spain accounts for about 29% of the production of table olives taking into account the main producing territories. This places it as a leader in this sector and it is followed by countries such as Turkey, Egypt, Algeria and Morocco. The sum of all these countries accounts for 85% of total production and 71% of consumption. All these data are among the main producers, if it is extended to the global consumer countries, then these territories represent 44% of consumption.

Therefore, there is concentration in the magnitudes related to the subsector of table olives. It is worth noting the evolution that Egypt is undergoing, which has become one of the main references of production and competitiveness in the field of table olive production.

3.5. Global index of olive oil and table olive consumption

To finish this section, Table 14 analyzes the per capita consumption of table olives and olive oil worldwide. This table includes both producing and non-producing countries. Thus, it is observed that per capita consumption in producing countries is higher than in non-producing countries for both sub-sectors. In this sense, the average consumption of olive oil in producing countries is 4.35 times higher than the average consumption of non-producing countries and 1.56 times compared to the world average. On the other hand, for table olives this value is 2.56 times higher than the consumption recorded in non-producing countries and 1.26 times the global average. All the data presented in this section will be covered in more detail in Chapter 3.

Table 14. Average table olive and olive oil consumption per capita for the seasons 13/14, 14/15 and 15/16.

Consumption	Olive Oil (gramos)	Table Olives (gramos)
World Total	Table Olives	340
Producing Countries	610	430
Non-Producing Countries	140	170

Source: Self made, based on data from the International Olive Council, 2018.

Following the data provided in this section, it can be observed that the demand for olive oil and table olives is strongly related to the countries that

produce them. This shows that the consumption of these products is due to the closeness and familiarity that these markets have within them. If they are compared with data prior to this study, then there is also an increase in the world production of products derived from the olive sector. This increase is also reflected in world consumption, which is beneficial in the short term for the sector. However, it must be pointed out that new farms are based on more competitive farming and processing systems. This means that in the medium and long term there is a need to promote the design, development and implementation of innovative strategies that improve the competitiveness of the most traditional olive groves and industries. This is because they will have to adapt their profitability to that obtained in the most intensive processes. Otherwise, it will not be efficient to maintain its production and the supply provided by the traditional system will be resented.

In the following section, some of the challenges facing the sector will be analyzed. To do this, both the production of table olives and the production of olive oil will be taken into account. Thus, their respective value chains will be analyzed to know the challenges they face.

4. International olive growing challenge

The surface of olive groves has increased by approximately 1.7 million hectares during the last 12 years. To relativize the importance of this growth, it should be noted that this extension coincides with the olive grove coverage of the second country with the largest area dedicated to this plantation. Thus, the use of the olive groves increased as much as the entire extension dedicated to this crop in Tunisia. In the last campaign (2016/2017), more than 162,000 hectares of olive groves were planted in the world. The cultivation method, which was of the Arbutina, Arbosana, Koroneiki, Oleana and Sikitita varieties, was mainly superintensive. Also, in that campaign, 100,000 hectares were transformed from traditional or intensive cultivation to the superintensive category.

This process of productive increase and changes in the types of farms shows that the sector is going to suffer an increase in international competitiveness. This is due to the increasing intensification that is being applied to olive plantations, which means higher production with lower processing costs. This

increase in production margins is due to the mechanization and scale effect that superintensive methods produce on crop profitability.

4.1. Production, processing and distribution chain.

Faced with this situation, the production of olive oil and table olives is affected by the world's production level. This circumstance is accentuated by the temporal inconsistency that production presents when it is not constant. Therefore, the stages of the production process will be affected by the importance of olive production. This figure contrasts with the stability of the demand for these products, although it can be affected by sustained price tensions. This could mean a change in the consumption trend of both products.

Figure 2. Stages in the field of the olive oil production process.



Source: Self made, based on data from the International Olive Council, 2018.

The different activities that make up the value chain of the olive oil production process can be seen in Figure 2. The production process begins in the olive groves. It is in this phase where the different cultivation modes coexist: traditional, intensive or super-intensive. Depending on each type, the level of competitiveness per producer will be different. That is, the greater the degree of intensification of the farm land, the greater the margin for altering prices and the greater the capacity to adapt to the market.

So the first step is to collect the olives to later transfer them to the olive oil processing centers or oil mills. This industry can be structured in cooperative societies or industrial properties. From this point, two types of olive oil are extracted: extra virgin and virgin. Both products are suitable for consumption; therefore, they can be packaged directly for distribution and commercialization. This packaging can be made in the mill itself, although sometimes this duty is taken on by secondary cooperatives, by other entities of

concentration of supply or by companies that are dedicated to the packaging of oil. The latter acquire the product directly in the oil mills for later packaging. After this point in the value chain, it is distributed and commercialized.

There is great concentration throughout the process previously mentioned. In this sense, the phases are concentrated as the olive oil progresses in the production line. Thus, the process begins with more than 3.5 million orchards that supply olives to the more than 16,600 oil mills distributed throughout the world. The majority of the final product of this phase is destined to some 70 packers, which represent 90% of the market. Finally, with the packaged product, some 15 companies are dedicated to its distribution.

4.2. Value chain of extra virgin and virgin olive oil

Table 15 shows the data related to costs and revenues derived from the production of olive oil. It shows the evolution of the cost in each of the productive stages depending on the type of farm land that is used. As can be seen, the net profitability margins will depend on the type of farm land that is used. This implies that the global net income varies between € 1.06 / kg and € 2.16 / kg for virgin olive oil. These amounts are those that will be distributed among all the operators in the value chain. Therefore, operating with a production from a traditional olive grove will imply a lower income distribution among the agents of the different stages than if another type of farm land is used.

Table 15: Distribution of prices, costs and net income for the process of manufacturing virgin oils at 2018 prices (€ / kg).

			Cultivation Type		
			Superintensive	Intensive	Traditional
PRODUCTION COSTS	Olive Growing	Min	0,8	1,2	1,9
		Max	1,3	1,5	2,4
		Average (1)	1,05	1,35	2,15
	Olive Mill	Min	0,06		
		Max	0,1		
		Average (2)	0,08		
	Packaging	Min	0,2		
		Max	0,8		
		Average (3)	0,5		
	Distribution	Min	0,005		
		Max	0,4		
		Average (4)	0,2025		
	TOTAL (5)	(1+2+3+4)	1,8325	2,1325	2,9325
REVENUE	Price	Min	3,5		
		Max	4,5		
			4		
GLOBAL NET INCOME		(6-5)	2,1675	1,8675	1,0675

Source: Self made, 2018.

There is an alternation in the distribution mode of the previous net income, in such a way that when there is a high supply, revenue falls mainly in the packaging section. On the other hand, if the supply is lower than the demand, then it concentrates on the activities of origin. These supply / demand cycles can last between 3 and 5 years. If this period lengthens, then the financial difficulties experienced by the links in the productive chain that are affected will be greater.

4.3. Value chain of lampante and pomace oil

The lampante virgin olive oil follows a completely different process from the mill. In such a way that in the packaging stage it requires a prior refining

so that this type of oil is suitable for food consumption. Table 16 shows the main figures that describe the costs and revenues derived from the production of virgin olive oil. It should be noted that most of the obtainment of this type of oil comes from the traditional olive grove. As mentioned previously, this type of plantation is less competitive than those that show greater productive intensification. Regarding the price, the average amount presents a lower price than the other types of oils. Taking all of the above into account, it can be seen that the cumulative net income of the value chain is substantially lower for lampante olive oil compared to the other oils marketed.

Table 16: Distribution of prices, costs and net income per stage of the refined oil production process for the traditional olive grove (Euros / kg)

PRODUCTION COSTS													REVENUE			NET GLOBE INCOME (6-5)
Olive Growing			Olive mills			Refining / Packaging			Distribution			TOTAL (5) (1+2+3+4)	Price			
Min	Max	Average (1)	Min	Max	Average (2)	Min	Max	Average (3)	Min	Max	Average (4)		Min	Max	Average (6)	
(1)	2,40	2,15	0,06	0,10	0,08	0,25	0,80	0,52	0,01	0,40	0,2	2,95	3,50	4,50	3,85	0,90

Fuente: Elaboración propia, 2018.

For this type of olive oil, the pattern registered by the other oil productions is also fulfilled in such a way, that the yield is greater for the activities in origin when the demand is greater than the supply. While, on the other hand, the packaging process is more yielding when the demand is lower than the supply. The economic situation of each of the links in the chain will depend on the duration of the cycle or the mismatch between supply and demand.

The olive oil production sector is characterized by productive instability.

This is due to the fact that it is a crop that is sensitive to the climatological, orographic and soil values present in the farming land. The *vecería* (the phenomenon of having a big harvest one year and the next year a very small one) of the crop must be added to this, which causes its productive capacity to not always be the same. What this means is that this activity pays for each of the activities in the value chain in a heterogeneous way. In addition, the composition and distribution of offers is an important factor to explain the price trend. This is because those commercial exchanges that occur between oil producing countries influence the distribution of income. In line with this,

the world productive distribution also has an impact. With this, depending on the quantity and location of the product, the cost structures are altered.

As for pomace oil, it is obtained through the treatment of solid by-products from the olive oil production process. In this case, the behavior of costs and revenues is the same as the one explained in the previous paragraphs, although with lower contributions. The following parameters also follow the implications of supply / demand variations.

4.4. *Table olive cost*

Graph 3. Production stages, processing and distribution of table olives



Source: Self made, 2018.

Following Graph 3 we can observe the different phases of the value chain in the processing of table olives. Firstly, the olives are first purchased from the producers and later transferred to the processor and packer. Once these processes are finished, the product reaches its commercial distribution. The two most common processes of preparation of preserved olives for this sector are: Sevillian and Californian. Between them, they account for more than 96% of the total of Spanish exports. Table 17 shows the distribution of costs and income of the production of table olives. In this, the different links of its value chain are considered.

The data are consistent with the main varieties used in the production of preserved olives: Hojiblanca, Chamomile, Gordal and Carrasqueña. In addition, the type of farming, intensive and traditional, and the water, irrigated and dry land regime were taken into account.

Table 17. Distribution of prices, costs and net income per stage of the table olive production process (€ / kg).

			Cultivation Method			
			Intensive ¹		Traditional ²	
			<i>Irrigated</i>	<i>Rainfed</i>	<i>Irrigated</i>	<i>Rainfed</i>
PRODUCTION COSTS	Olive Growing	Min	0,57	0,58	0,72	0,75
		Max	0,6	0,65	0,76	0,85
		Average (1)	0,59	0,62	0,74	0,8
	Prodessing / Packaging	Min	0,22			
		Max	0,30			
		Average (2)	0,26			
	Distribution	Min	0,18			
		Max	0,28			
		Average (3)	0,23			
	TOTAL (4)	(1+2+3)	1,08	1,11	1,23	1,29
REVENUE	Price	Min	1,80			
		Max	2,20			
		Media (4)	2,00			
GLOBAL NET INCOME		(5-4)	0,93	0,90	0,77	0,71
¹ Production of more than 200 olive trees.						
² Production of less than 200 olive trees.						

Source: Self made, 2018.

For the table olive sector, it can be seen that global net income increases as olive cultivation intensifies. Within water regimes, it can be determined that yields are higher as irrigation is implemented. Regarding the distribution of costs, it is observed that the main differences are found between the types of crop that the olive precedes. On the other hand, the costs of processing and distribution are similar. However, the distribution of income will also depend on supply and demand. For this product, the situation is quite similar to one registered by olive oil. Thus, in periods of excess supply, the highest yields will move towards the final stages of the value chain. While, in the face of excess demand, the situation will be reversed and the first productive phases

will present better yields. The net income will also depend on international relations between production and consumption. In this sense, the economic performance will be conditioned by the distribution of the production of olives, as well as the international import / export relations of olives and table olives.

Having seen everything thus far, we can see that the production of olive oil and table olives face situations of stable demand and not constant supply. This affects the distribution of net income among the agents that make up the value chain of each of the products. Thus, the need to implement strategies aimed at improving this situation and achieving a more stable distribution of net income is highlighted. In addition, to achieve a better adaptability to the markets, strategies must also be established that increase the net income of traditional productions. In this way, the market would be more robust and adaptable to their needs.

In the following section, a series of improvement strategies will be addressed for the competitive situation of the olive sector. To this end, all of the foregoing sections will be taken into account and measures will be presented that cover both the organizational scope and the macroeconomic environment of olive growing.

5. Different strategies for bettering competition in the economic field of international olive growing.

In the field of international olive growing, two groups of competitive improvement strategies ought to be defined. First, you can identify those measures that come from an organizational or business initiative. The other group includes those that come from higher institutions that serve as a frame of reference for the perfect performance of the first group. Then we will focus on this second group to study the promotion and development of consumption of the products from olive farms.

The supply of the sector follows a pattern of sustained growth. This is due to the constant planting of new farms and the implementation of processes with a greater productive intensity. This last circumstance occurs both in existing and new olive groves. Despite this situation, the outcome is unstable due to the characteristics of olive growing, because it is a production that varies strongly between campaigns and that is sensitive to the environmental,

orographic or geographical characteristics of the growing area. This contrasts with the stability that the demand presents. Therefore, faced with a strong excess supply, it would cause a sharp fall in prices that could make much of the olive surface no longer competitive. In this sense, traditional farms would be the most affected given that they are those with the lowest profit margin to withstand this drop in economic yields. In this sense, they will have fewer margins to adapt to the new market situation of those countries that present a lower productive intensification in the farming lands of their olive trees. Therefore, in the future, emerging countries that can act on costs would have the opportunity to capture more of the market than regions that do not have this capacity.

The promotion of olive oil and table olives should be one of the basic pillars to achieve differentiation in international markets. In this sense, multiple awareness campaigns have been carried out to promote the benefits that both products have for our health. The use of these types of tools is important to achieve greater depth within the market to displace other types of substitute products. However, these promotional campaigns must be supported by research or work that reflects the benefits that are being disseminated. Likewise, they must have constant communicative innovation to have the ability to promote the products in the appropriate channel. Also, institutions like the International Olive Council, Ministries of Agriculture, associations, interprofessionals or organizations linked or related to the olive sector must continue to contribute to this process, as they have been doing so far.

The expansion of the crop is an opportunity to promote the consumption of olive production. This is due to the fact that more than 84% of table olives are consumed in the producing countries themselves (a figure that rises to 88% for olive oil). This highlights the need to promote globally coordinated promotions in large producers. This is the case of Spain, Italy, Greece, Tunisia or Jordan, which are regions in which internal demand is occurring. Reversing this situation involves strategically addressing these internal markets. This is simple as they are products that are consumed by closeness or familiarity. Then acting on the demand for these products in these countries requires less effort, reduced risk, has positive immediate effects and also reduces competition among large producers. Secondly, strategies to increase demand in small and medium producers would be addressed, leaving non-consumer countries last.

This classification of priorities is made by emphasizing the need to optimize the resources used in the enhancement of consumption.

Another of the fundamental factors of improvement in this area is the necessary enhancement of professional improvement of the sector. This measure is necessary for a further and unavoidable competitive optimization of the most disadvantaged activities within the production process. By means of this measure, a greater capacity of resistance of the productive process can be obtained to the effects that the variation of supply implies in the economic profitability.

In view of the strategies linked to the organizational or business scope, a distinction should be made between those applied to the process of making olive oil and those used for the processing of table olives. Focusing on the first of them, olive cultivation will have different levels of agricultural activity depending on the variety planted. An example of this is if the Hojiblanca variety is planted, since it has a double productive capacity and allows full mechanization in the collection for table olives. Then, the profitability of future campaigns will depend on the decisions the producer makes about the variety planted.

For superintensive and intensive olive trees, the objective pursued is the specialization based on efficiency and effectiveness in obtaining the harvest. This specialization is decisive for the achievement of adequate revenues that make the olive sector attractive. This result is obtained through economies of scale and proper crop management. On the contrary, traditional olives have the lowest levels of competitiveness. Then, the enhancement of net income can be carried out through two opposing strategies. That is, the increase in economic performance must be attacked by reducing costs and increasing prices on the other hand. By affecting these two variables, a greater differential is achieved that could solve the low yields shown at present. Finally, the achievement of this objective would cause traditional farms to acquire a greater economic incentive and not be transformed into intensive or superintensive farms, or get productively abandoned.

As far as reducing costs, there are strategies such as crop intensification, transformation, shared cultivation, assisted farm lands, cooperation, vertical integration, collaboration or radical disinvestment. This last concept consists of discarding the uncompetitive plots and attaching them to the patrimony of the owners of the environment in order to make their farm lands more

effective through a scale effect. While to increase the price, it is fundamental to implement a process of differentiation. This can be done through the development of an innovation protocol to increase the distinctive capabilities of the product.

For example, the product can be used in the manufacturing of diabetic oil or for pregnant women, among other things. However, this differentiation can also be achieved through the design of new production processes such as obtaining olive oil from biodynamic, bioregenerative agriculture, organic farming or differentiated farms for historical reasons. To finally achieve the goal, commercial categorization should be applied. Or likewise; the differentiated product must be positioned at a higher price level than the other oils of similar category. However, these strategies are not effective for large productive volumes, nor infallible for especially struggling olive groves.

It should be clarified that differentiation strategies require a high degree of professionalization, training and experience. The application of these measures implies advanced technical knowledge to identify the needs or preferences of consumers and link them to the qualities of the products. Thus, implementation is difficult and its effects are not obtained in the short term, but are achieved in a medium or long term.

Drastic decisions must be made in cases where the economic and productive situation of the olive grove is very serious. So there are two alternatives: integrate or divest. The first is to transfer the productive management to large cooperative or collaborative groups so that it can carry out the full and integrated execution of the farming process. The second one was previously covered, and consists in abandoning production and integrating farm lands with other neighboring ones in order to increase profitability.

It should be noted at this point that the economic farming of the olive tree is completely different from that of oil production. Therefore, both activities must be planned, developed, and executed in a completely independent manner. This will avoid problems that economically affect both farm lands.

As for oil mills, they can be distinguished by their distinct natures. In the first place, there are those in which the fruit comes from their own rural estates, which would be a case of vertical integration. Second, there are the oil mills that grind the olives from their community members or cooperative members. Third, there are those that carry out the process as a mere provision of services, for which it is their main activity and charge directly for it. Within

this last group, it is worth highlighting that there are several specialties. One of them are those oil mills that are responsible for producing oils extracted from early crop harvests. These factories complement the strategy of singularization or differentiation for the traditional olive groves in a habitual way.

Oil mills can take a series of strategies to achieve greater economic profitability. The problem is that the present options go against each other. The first consists of a greater productive specialization. This measure is appropriate exclusively in places where there are few mills and / or the volumes are not particularly high. The competitive advantage of this strategy lies in the greater value of the pricing. The second is to optimize the costs involved in the execution of the process, extracting the greatest quantity and quality of oil. This is achieved through vertical integration towards the origin or destination, the scale effect and the establishment of framework agreements for long-term provision, among other measures. This tool is valid for both cooperative and industrial mills. Finally, it can be observed that in both cases a high degree of specialization of the human capital of the mills is required.

During the last few years, new business opportunities have arisen for oil mills. This has contributed to greater economic diversification of both cooperative and mercantile societies. Examples of this expansion are the rise of oleotourism or oleoformation, as well as the extraction of early harvest oils. These activities must be thought of as complementary elements to the main activity. Therefore, the strategy and its application must be perfectly defined from the start. There can be several objectives that can be followed by the rise of these secondary activities: to reinforce or improve the equity value of fixed assets, to enhance already existing products by improving the sale value of these and to be an economic alternative in case the principal activity presents low competitiveness.

Cost leadership is the basic objective for the ore industry, refineries and chemical extractors. This goal is achieved through the attainment of the volume or scale effect, the optimization of the supply processes, an adequate location and full vertical integration. With this last case it is possible to neutralize the income variations caused by the instability of the harvests.

As for the packaging machines, two types of factories could be distinguished that would present different strategic needs. On the one hand, there would be those that arise from the concentration of oil mills. These can come from the cooperative sphere or as a result of processes of concentration

of supply, which could be homogeneous or heterogeneous in terms of legal morphology. While, on the other hand, there would be those who are purely packers. Among these there are several types, some whose initial objective shows a certain degree of transformation, such as oil refining, or its own production of a small quantity, or packaging exclusively.

With respect to the three categories just mentioned before, these arise from the cooperation between olive farmers. This implies that they have a constant supply of olives that guarantees certain levels of production to supply the markets. This guarantee causes them to lose a significant level of income when the market presents an excess of supply given that they have difficulties to access the large distribution markets. To minimize this impact, second-tier cooperatives can carry out two types of strategies. The first is to implement a process of vertical integration in which they include the final stages of the value chain within their activities, which would lead to taking positions within the large distributors. This can be done through long-term collaboration agreements with the distributors or, even, using integration processes with small distributors to reach an affordable size among them all. In this way, they would be able to mitigate the fall in prices they experience at the outset in those times when excess supply is registered. The effect would be achieved by ensuring that a higher level of production will be placed on the market. The second measure would be to perform a horizontal integration. This would consist of grouping with complementary production groups. Thus, through fusion or stable collaboration agreements, the packaging companies would be integrated with groups or companies that have a reciprocal complementarity in the elaboration of the product, for example, preserves, salads, processed foods containing oil, etc.

On the contrary, those who are solely packers have the opposite weakness. The fundamental problem they face is when the supply is low. Given this situation, it is very difficult for them to acquire a product and it causes a competitive loss for them that leads to negative economic results. A strategy to solve this situation would be to carry out an integration process towards the origin of the value chain. This could be done through the acquisition of farms, oil mills, long-term agreements with olive growers and / or mills, among others. Another measure is the diversification of the product portfolio through the packaging of other fats. This would cause them to be more competitive to be able to adapt better to the needs of the market. Sometimes

full integration is also necessary in the same way as explained in the previous one for the mills.

In summary, efficient olive grove production is attained through a greater intensification of the activity or the incremental differentiation, especially for the most struggling groves. To improve efficiency in the value chain, vertical integration must be encouraged to mitigate the economic implications of supply / demand variations in such a way that the variation of the net income distribution can be stabilized by means of a vertical integration towards its destination, towards its origin and even both. In the latter case, it can be complemented with horizontal groupings that turn out to be much more efficient in the case of complementary products. However, it is still equally important to take diversification measures into substantive products, especially for those who are purely packers.

If we stick to the field of table olives, the chain is much shorter, and has fewer links. Starting from the beginning of the value chain, plantations should have a high degree of intensification. These farms should have harvested varieties of dual aptitude and with a high tolerance to mechanization, as is the case of the Hojiblanca variety. Faced with this ideal situation, the fruit could be used for the production of olive oil or table olives. In this way, the producer could allocate their harvest to one market or another depending on the prices. With this, there would be those who would gain a greater degree of adaptability to market needs and could maintain a higher level of guaranteed profitability. In addition, given the intensification, the producer would raise its competitiveness when his production costs are reduced.

This causes it to increase its margins and have a greater proportion of the global net income. In the case of the olive groves that suffer most, innovation could also be used as a differentiating element. A clear example of this is the invention of the pitted olive. This product began its industrial processing by Cándido Miró in 1926 and provoked a revolution in the market. This innovation implied a greater degree of competitiveness of table olives within the national and international market.

Generally, olive growers are integrated into processing cooperatives. The fundamental objective of this measure is to process the fruit and make it available to packers. The latter receive the seasoned and processed product, or seasoned and classified product, to be packaged and distributed to the markets. Within these cooperatives, there are also cases in which they directly

pack the product and then put it in the disposal of the distributors. The last alternative is for the producers to deliver the harvested olives directly to the packers / packaging companies and for them to do the rest of the production process.

For the processing cooperatives, times of high supply result in a clear moment of competitive weakness. This is because the price level falls and the net income suffers a high deterioration. To avoid this circumstance, measures must be taken to increase their efficiency and competitiveness. These strategies are in the same sense like those aimed at the production of oil, that is, adjusting costs through durable agreements or vertical integration to ensure price stability. Another alternative is to carry out a diversification process in which the option of using olives for oil production or canned processing is maintained.

Packers in this case have similar weaknesses as the olive oil processing segment. Thus, in times of high levels of supply, they obtain the product easily and cheaply, while the opposite happens when the supply drops. In these cases, full vertical integration is necessary, from origin to destination, or the establishment of solid and long-lasting agreements for collaboration both at source and in distribution.

6. Conclusions

As a culmination to this chapter, a series of conclusions, or final reflections, are offered:

1. At present, olive growing extends through 11.5 million hectares of olive trees, 58 countries of the 5 continents, the products derived from this activity, olive oil and table olives, are already consumed in 179 countries.
2. World olive growing employs more than 35 million people, which represents about 1.20% of the world's active population, and a business volume that sometimes reaches 14 billion euros.
3. The products coming from olive growing are products denominated in consumption by proximity or familiarity. This means that 88% of olive oils and 84% of table olives are consumed in the producing countries, respectively. This situation and its growth present an enticing business opportunity, especially in the short term.

4. In the field of olive growing, both the table olive and the olive oil sector coexist. Likewise, within them there are also different economic activities with different natures. Therefore, various management modes are presented, which have different strategic needs to adapt to the market.
5. The design of policies, strategies or lines of action within international olive growing require market agents to have a perfect knowledge of both the global environment and the specific context in which the particular activity is carried out.

General Description of International Olive Growing

1. Infographics

In order to unify this summary of information in a single manual and in graphic form, several years of work and the commitment of more than 400 people scattered over the five continents have been necessary, in addition to the participation of public entities, such as the Organization of the United Nations for Agriculture and Food (FAO), the International Olive Council (IOC), and private organizations dedicated to the olive sector of the different nationalities involved.

This third chapter includes the 5 continents and the 58 countries that produce olive oil and table olives in the world, through synoptic infographs that provide up-to-date information on the combination of official and complete data with those from the foresight work of the country, a large team made up of the people, institutions and organizations mentioned. This general information is about the country, location of the crop, area, varieties, production, consumption and trade.

In addition, three additional infographics are provided: one dedicated to the world, which includes the global data of the sector; another dedicated to Andalusia, since it is the region with the largest area and production dedicated to this sector; and, finally, an infographic of the province of Jaén, which is a worldwide reference.

This chapter begins with two infographics as a legend, where each of the symbols used and the meaning of the magnitudes that make up the synoptic infographs of the manual are explained.

After the aforementioned legend, we continue with the graph of the world and continue with the continents and their corresponding producing countries, under a criterion of inverse order to the surface dedicated to this crop. It ends, therefore, with the infographic dedicated to Spain, Andalusia and, in closing this manual, Jaén.



World

11.512.015 ha

17.836.330 t



86,6%



13,4%



73,9%



21,3%



4,8%

- Arbequina
- Arbosana
- Koroneiki
- Picual
- Frantoio
- Leccino
- Hojiblanca
- Verdial
- Kalamata
- Picholine
- Alentajana
- Nabal Baladi
- ...

PRODUCTION

× 1000 t

EXPORTS

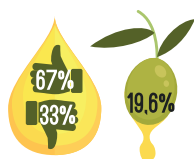
× 1000 t

IMPORTS

× 1000 t

COMSUMPTION

× 1000 t



2.965,07

2.598,30

822,77

605,77

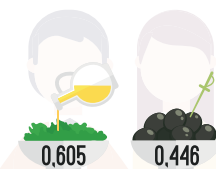


678,89

435,82

2.626,95

2.186,98



3.577.543 ORCHARDS

3,22 ha AVERAGE SIZE



16.667

253

82

2.674

0,297 1,685 t/ha

12.740,42 1.059.471 241.559.363

IRRIGATION 29%

71% RAINFED

"In addition to the 58 countries referenced in this work, producers as of the date of publication, there is also the possibility of growing fruitful olive trees in other countries, which will surely expand the present study." Such locations are: in the United Kingdom, where 5 hectares have been planted, Canada, where there is a farm of 3 ha producing table olives, Nepal, where there have been several fruitful studies on this crop, and other locations that, thanks to the adaptation ability of the olive tree and the importance it has for the regional economy, we will know in the future.

We must see all of this as a great opportunity that is far from being an inconvenience, inasmuch as the consumption of olive oil and table olives depends closeness or familiarity, by which the lack of supply of these new emerging markets must be fulfilled by producing countries.



New Zealand



2.200 ha

6.920 t

#44

#33

#33



92,8%



7,2%



0%



100%



0%

Picual
Hojiblanca
Manzanilla
Barnea
Frantoio
Koroneiki

PRODUCTION

× 1000 t

0,90

0,50

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,00

0,00

COMSUMPTION

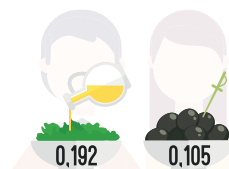
× 1000 t

0,90

0,50



14%



0,192

0,105

244 ORCHARDS

9,00 ha AVERAGE SIZE



15



0

0

1

0,441 3,147 t/ha

3,59

257

58.588

IRRIGATION 40%

60% RAINFED

Among the industrial producing countries of olive oil in the world, it is the furthest from the Mediterranean basin.

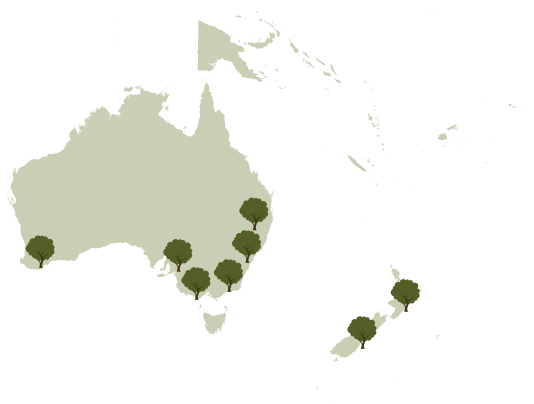
From north to south, the different olive farms are distributed through the two main islands, which means that, due to their orographic and geographic characteristics, they are often directly on the edge of the sea, which gives them a particularly striking typology and unique characteristics.



Oceania

38.950 ha

128,370 t



96,7%



3,3%

- Hardy's mammoth
- Fs17
- Dai21
- Azapa
- Picual
- Hojiblanca
- Manzanilla
- Barnea
- Frantoio
- Koroneiki



0%



38,7%



61,3%

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



18,57

4,16

4,33

0,00

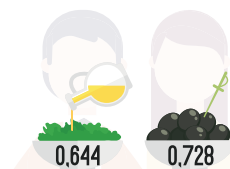


25,33

16,83

39,57

21,00



297 ORCHARDS

131,17 ha AVERAGE SIZE



34

0

0

5

0,493 3,285 t/ha

68,72

3.080

702.256

IRRIGATION 87%

13% RAINFED

The oceanic continent occupies the last place in continents producing olive oil. This is because the growth of this crop has been relatively recent in both Australia and New Zealand.

Oceania is the only continent where all its countries (New Zealand and Australia) are producers and consumers of olive oil, and together with America, make up a group of continents whose production is less than consumption, hence this is the commercial objective of most of the large olive oil producing countries.



Australia

36.750 ha

121.440 t

#25

#15

#24



97%



3%



0%



35%



65%

Hardy's
mammoth
Fs17
Dai21
Azapa

PRODUCTION

× 1000 t

17,67

3,67

EXPORTS

× 1000 t

4,33

0,00

IMPORTS

× 1000 t

25,33

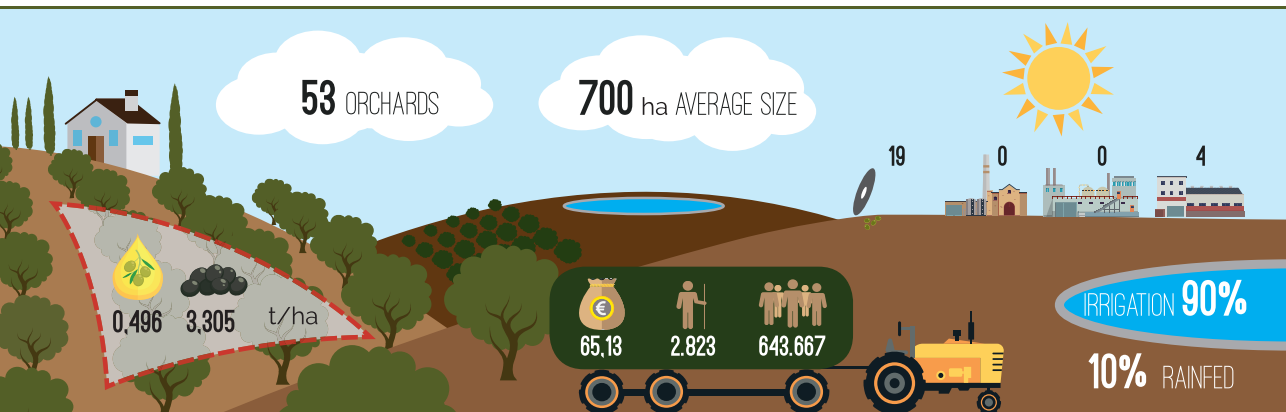
16,83

CONSUMPTION

× 1000 t

38,67

20,50



The external dependence that exists to satisfy the internal market served to stimulate the creation and development of new olive groves in both countries Oceania.

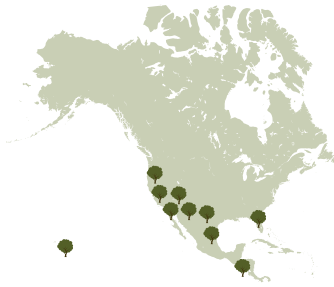
The existence of companies whose global production accounts for more than 50% of the total, is generating surplus oils that can not compete with oils from Europe because of European subsidies, which means that, together with other countries such as the United States, they develop strategies whose purpose is to modify the organoleptic and chemical parameters that determine the categories of oils at the international level.



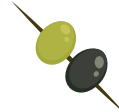
America

298.150 ha

667.610 t



59,6%



40,4%



26,5%



27,8%

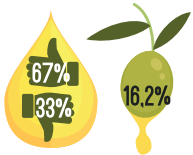


45,7%

- Arbequina
- Azapá
- Criolla
- Coratina
- Barouni
- Manzanilla
- Ascolana
- Mision
- Arauco
- Picus

PRODUCTION

× 1000 t



62,62

278,95

EXPORTS

× 1000 t

39,67

95,17

IMPORTS

× 1000 t



383,83

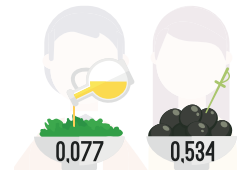
268,50

CONSUMPTION

× 1000 t

400,96

436,53



12.429 ORCHARDS

23,99 ha AVERAGE SIZE



312

10

0

151

0,353
2,313 t/ha

470,23

34.521

7.870.867

IRRIGATION 47%

53% RAINFED

The American continent is a producer of second-tier olive oil, although it has the highest growth expectations globally. It is the fourth continent both for planted area and for worldwide production.

The consumption of olive oil in America has been in constant growth during the last decade.



Paraguay

300 ha

680 t

#54

#48

#48



91,9%



8,1%



68,4%



21%



10,6%

Picual
Arbequina

PRODUCTION

× 1000 t

0,10

0,06

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,00

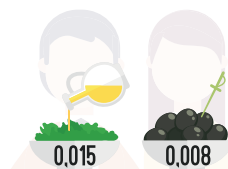
0,00

CONSUMPTION

× 1000 t

0,10

0,06



25 ORCHARDS

12,00 ha AVERAGE SIZE



1

0

0

1

0,363 2,267 t/ha

0,399

43

9.802

IRRIGATION 0%

100% RAINFED

Traditionally, the best-selling olive oils were Premium, as a result of the high purchasing power of consumers and the demand for high-end products. This has been changed by the current economic factors that have resulted in the consumption of cheaper olive oils, which have gained market share.

A very important part of its economy, and the great transformer of the Paraguayan landscape and culture, is their cattle livestock production, being the largest meat exporter in the region only behind Brazil. The cultivation of soybeans is also very important in this country.



Colombia

450 ha

720 t

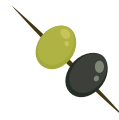
#51

#46

#46



92,4%



7,6%



100%



0%



0%

Manzanilla
Ascolana
Barouni
Sevillana

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,10

0,00



0,00

0,10

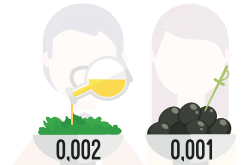
0,06

0,00



0,00

0,06



26 ORCHARDS

17,00 ha AVERAGE SIZE



6

0

0

1

0,241 1,604 t/ha

0,399

79

18.085

IRRIGATION 0%

100% RAINFED

The start of the crop is located in the department of Boyacá in the tropical zone (5 ° south latitude) and is 2,200 meters high, which guarantees a level of annual rainfall of 1,000 millimeters and a maximum temperature of 26 celsius degrees.

Associated with Catholic missionaries, the first olive trees were planted in 1608, and with intermittences of their activity cited in 1701 and 1875. Also, the activity continued between 1953 and 1965 with support from the government.



Brazil

2.400 ha

4.760 t

#43

#35

#35



91,9%



8,1%



10%



75%



15%

Koroneiki
Arbequina
Arbosana
Frantoio
Picual
Coratina

PRODUCTION

× 1000 t

0,70

0,39

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

63,00

107,00

COMSUMPTION

× 1000 t

63,00

106,33



53 ORCHADS

45,00 ha AVERAGE SIZE



20

0

0

3

0,317 1,983 t/ha

2,79

329

74.999

IRRIGATION 0%

100% RAINFED

It is the main importer in South America, its main suppliers of table olives are Argentina (54%), Egypt (27%), Peru (10%). Regarding oil, 88% comes from Portugal, Spain, Italy and Greece; and 12% comes from Argentina and Chile.

It has two of the most famous rivers in the world: The Amazon, the largest river in the world both in extension (6937.08 km) and in terms of water volume (12.5 billion liters per minute) and the Iguazu, which is the source of Iguazu Falls.



El Salvador



4.000 ha

580 t

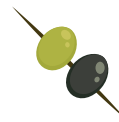
#39

#50

#50



91,5%



8,5%



88,4%



11%



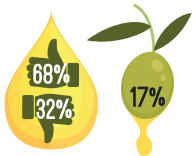
0,6%



Arbequina
Arbosana
Koroneiki

PRODUCTION

× 1000 t



0,09

0,05

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

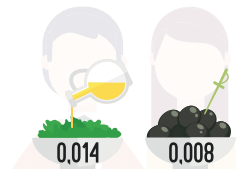


0,00

0,00

CONSUMPTION

× 1000 t



0,09

0,05

71 ORCHARDS

56,00 ha AVERAGE SIZE



6

0

0

1

0,025 0,145 t/ha

0,359

353

80,494

IRRIGATION 2%

98% RAINFED

This country began to produce oil in 1960, having multiplied its volume exponentially and the largest expansion, industrialization, and intensification of the sector occurred from the year 1990.

The cultivation of olive trees is produced in a not particularly industrial way, and usually they are found on small farm lands. Also, they are mixed with other types of woody plants in scattered orchards.



Uruguay

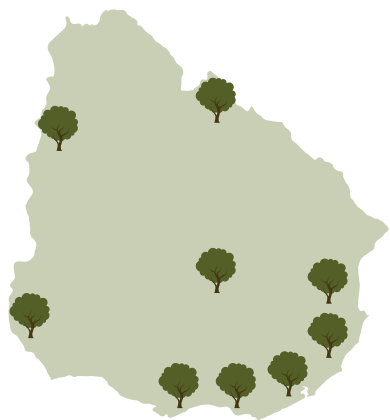
10.000 ha

3.610 t

#32

#38

#38



92,4%



7,6%



10%



90%



0%

Arbequina
Frantoio
Leccino
Coratina
Picual
Manzanilla
Ascolana

PRODUCTION

× 1000 t

0,50

0,28

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

1,00

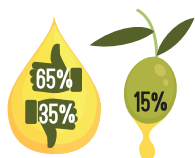
3,00

CONSUMPTION

× 1000 t

1,50

3,00



0,436



0,871

83 ORCHARDS

120,00 ha AVERAGE SIZE



30

0

0

1

0,054 0,361 t/ha

1,99

928

211.516

IRRIGATION 5%

95% RAINFED

Currently there are more than 30 brands of olive oil produced in Uruguay. Uruguayan oils have great quality, which have received numerous awards and distinctions at international level. Thanks to this, the country has positioned itself among the ten best producing countries of extra virgin olive oil in the world.

The olive sector in Uruguay emerged commercially more than 70 years ago. In its beginnings, small local undertakings were dedicated to produce oil, but more recently production has gained considerable momentum after 2002.

Mexico

20.000 ha

30.190 t

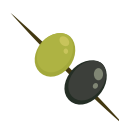
#30

#28

#19



46%



54%



68,4%



21%



10,6%

Ascolana
Arbequina
Sevillana
Picus

PRODUCTION

× 1000 t

2,50

16,30

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

15,50

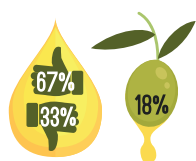
0,00

CONSUMPTION

× 1000 t

14,70

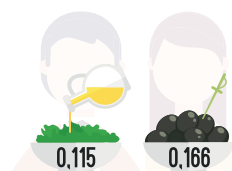
21,20



67%

33%

18%



0,115

0,166

222 ORCHARDS

90,00 ha AVERAGE SIZE



15

0

0

13

0,272 1,509 t/ha

23,42

2.535

577.980

IRRIGATION 40%

60% RAINFED

In this country, where the first olive trees of the continent grew, the crop has not prospered for various reasons. However, there is a series of projects to implement new olive groves in the desert areas in order to integrate the olive grove with greater guarantees through the use of modern irrigation and cultivation techniques. The production is dedicated to oil and table olives.

Mexico is one of the 12 megadiverse countries in the world. With around 200,000 different plant species, Mexico is home to 10 to 12 percent of the world's biodiversity.

Peru

31.000 ha

92.400 t

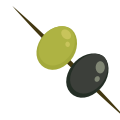
#26

#26

#9



25,5%



74,5%



68,4%



21%



10,6%

Criolla
 Manzanilla
 Gordal
 Kalamata
 Picual
 Arbequina

PRODUCTION

EXPORTS

IMPORTS

CONSUMPTION

x 1000 t

x 1000 t

x 1000 t

x 1000 t

3,30

0,00

0,00

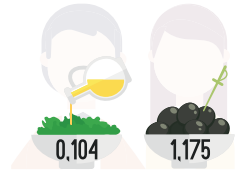
3,30

68,83

29,33

0,10

37,33



388 ORCHARDS

80,00 ha AVERAGE SIZE



IRRIGATION 10%

90% RAINFED

0,417 2,981 t/ha

73,50

4.823

1.099.663

Production is concentrated in the south of the country, mostly in the regions of Tacna and Arequipa, and also to a lesser extent in Ica, Lima, La Libertad and Moquegua.

In Peru, the oldest olive trees planted in South America still exist (S XVI). Some of them are maintained in an artisanal way by descendants of native inhabitants, producing centenary olive oils of excellent quality, and most of the table olives derive from those old olive trees that were multiplied and today dedicate their name to the so called "Criolla" variety.



Chile

43.000 ha

119.830 t

#23

#18

#16



83,5%



16,5%



10%



21%



69%

Azapá
Coratina
Frantoio
Leccino
Arbequina
Arbosana

PRODUCTION

× 1000 t

EXPORTS

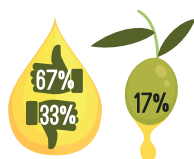
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



17,00

19,83

11,67

1,17

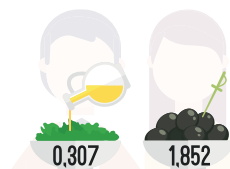


0,67

12,30

5,50

33,17



9.149 ORCHARDS

4,70 ha AVERAGE SIZE



50

10

0

15

0,474 2,787 t/ha

77,35

4.205

958.747

IRRIGATION 90%

10% RAINFED

There is evidence of olive groves since the arrival of the Spanish in the year 1560. In recent years, the growth of the planted area has been substantial, thanks to the exceptional agroclimatic conditions of the producing areas of the country. Having the appropriate technologies currently in place, the olive oil is of exceptional quality.

Chile is located along a highly seismic zone due to the subduction of the Nazca and Antarctic plates in the South American plate. It is considered the second most seismically active country in the world, after Japan.



United States of America



60.000 ha

128.830 t

#19

#20

#11



51,8%



48,2%



1,7%



12,5%



85,8%

Mission
Arberquina
Arbolsana
Koroneiki

PRODUCTION

× 1000 t

10,33

62,17

EXPORTS

× 1000 t

6,50

6,50

IMPORTS

× 1000 t

303,67

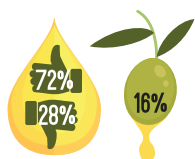
146,10

COMSUMPTION

× 1000 t

305,83

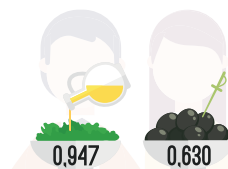
203,50



72%
28%



16%



0,947

0,630

1.277 ORCHARDS

47,00 ha AVERAGE SIZE



70

0

0

46

0,333 2,147 t/ha

92,11

7.557

1.723.030

IRRIGATION 30%

70% RAINFED

It is the market that demands the greatest amount of oil and olives in the world. Its main sellers are Spain, Italy, Tunisia, Turkey and Argentina. Its production tends to be fully technified and is located in the Western part of the country.

Year after year, American consumers have become aware of the importance of knowing and choosing healthier foods that contribute to a life with less diseases and longer life expectancy.



Argentina

127.000 ha

286.000 t

#13

#10

#8



61,2%



38,8%



26,2%



35%



38,8%

Arauco
Manzanilla
Arbequina
Frantoio
Leccino
Cornicabra

PRODUCTION

× 1000 t

28,00

111,00

EXPORTS

× 1000 t

21,50

58,17

IMPORTS

× 1000 t

0,00

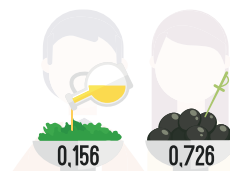
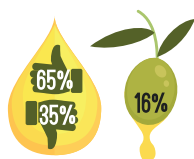
0,00

CONSUMPTION

× 1000 t

6,83

31,83



1.134 ORCHARDS

112,00 ha AVERAGE SIZE



105

0

0

20

0,360 2,252 t/ha

197,90

13.669

3.116.552

IRRIGATION 56%

44% RAINFED

It is one of the main producing countries of South America. It represents 1% of the world production.

The harvest season starts around the month of January in the province of Cordoba and lasts until the middle of May, beginning with the canning varieties or table olives and continuing with the olive oil varieties in the oil fields.



Asia

1.394.219 ha 1.569.880 t



81,2%



18,8%



69,7%



23,8%



6,5%

- Arjosi
- Barmagui
- Básica
- Dikkam
- Kasb
- Souri
- Nabal Baladi
- Mehravia
- Muhasan
- Mastoidis

PRODUCTION

× 1000 t

230,24

270,82

EXPORTS

× 1000 t

21,50

12,17

IMPORTS

× 1000 t

124,47

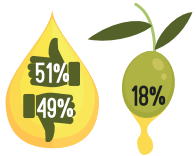
64,07

COMSUMPTION

× 1000 t

334,13

325,67



650.521 ORCHARDS

2,14 ha AVERAGE SIZE



2.223

52

5

456

0,203 1,031 t/ha

1.049,58 137.618 31.376.933

IRRIGATION 28%

72% RAINFED

The Asian continent is the third largest producer of olive oil in the world, although it has very high growth expectations.

Asian culture is very old, and therefore they follow customs that are strange, but that make total sense for the population. They are traditions that have been maintained for thousands of years, which hardly resemble the Western lifestyle.



Uzbekistan



210 ha

390 t

#56

#55

#55



91,5%



8,5%



68,4%



21%



10,6%

Souri
Nabal Baladi

PRODUCTION

× 1000 t

0,06

0,03

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,00

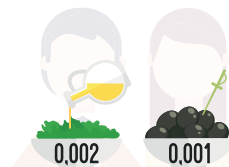
0,00

CONSUMPTION

× 1000 t

0,06

0,03



210 ORCHARDS

1,00 ha AVERAGE SIZE

0,312 1,838 t/ha

0,239

61

13,947

IRRIGATION 40%

60% RAINFED

The culture of the olive tree goes back to ancestral times, in fact this country is found in several olive tree routes from Europe to Asia that are seen as a symbol of the expansion of the Mediterranean culture.

Within the various climates that occur in the country, one of them is Mediterranean, which is especially suitable for cultivation.

Armenia

450 ha

650 t

#50

#49

#49



92,4%



7,6%



68,4%



21%



10,6%

Uslu
Gemlik
Sorani
Picual
Sevillano
Raco
Agostino
Delemsen

PRODUCTION

EXPORTS

IMPORTS

CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t

0,09

0,00

0,00

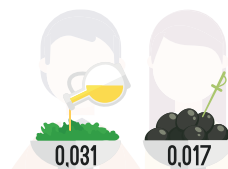
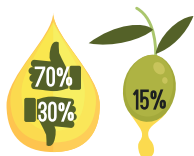
0,09

0,05

0,00

0,00

0,05



113 ORCHARDS

4,00 ha AVERAGE SIZE



IRRIGATION 40%

60% RAINFED

0,217 1,443 t/ha

0,359

54

12.385

There are scientific reasons to think that more than 6000 years ago, the Armenians transmitted olive cultivation to Palestinian civilizations, and from there, it gradually spread to the Phoenicians to other civilizations. However, this is one of the various hypotheses that exist about the evolution of this crop.

The mountain of Ararat, which can be seen from many places in Armenia because of its enormous size, is considered a sacred mountain. It is said that Noah's Ark was placed that it was on Mount Arara after the universal flood.



Japan

500 ha

160 t

#49

#58

#58



91,4%



8,6%



10%



85%



5%

Mission
Manzanillo
Lucca
Nevadillo
Arbequina
Frantoio

PRODUCTION

× 1000 t

EXPORTS

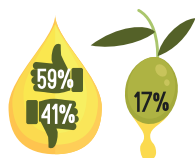
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,03

0,00



55,50

55,50

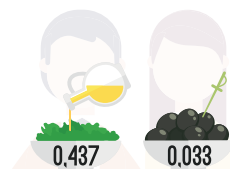
0,01

0,00



4,17

4,17



217 ORCHARDS

2,30 ha AVERAGE SIZE



30

0

0

1

0,055 0,322 t/ha

0,099

204

46.399

IRRIGATION 0%

100% RAINFED

It is one of the most demanding markets for imports, since the concept of a healthy diet is well established and the qualities of olive oil attract the attention of Japanese consumers.

The mountainous islands of the archipelago form an arch from the east coast of Asia. The national territory includes the small Bonin or Ogasawara islands including Iwo Jima island approximately 1100 kilometers from the main islands. The peculiarity of Japan being an archipelago means that in no area of Japan are you more than 150 kilometers from the sea.

Kuwait

630 ha

1.530 t

#47

#43

#43



91%



9%

Sourani



0%



100%



0%

PRODUCTION

EXPORTS

IMPORTS

CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t

0,25

0,00

0,00

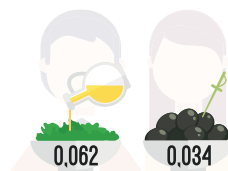
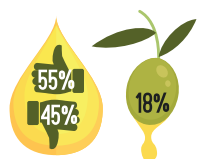
0,25

0,14

0,00

0,00

0,14



53 ORCHARDS

12,00 ha AVERAGE SIZE



6

0

0

1

0,436 2,423 t/ha

0,998

94

21.374

IRRIGATION 100%

0% RAINFED

There is a growing demand, given the high purchasing power of its population, which is satisfied with imports, mainly from the region. The HORECA KUWAIT fair, with the participation of companies from the food supply sector to hotels and restaurants, is held on an annual basis.

The Kuwaiti consumer has increasingly sophisticated tastes and has a predilection for shopping in large shopping centers that offer a wide range of international brands and consumer goods.



Georgia

2.500 ha

6.120 t

#42

#32

#32



91,9%



8,1%



0%



60%



40%

Arbequina
Picual
Hojiblanca
Barnea

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,90

0,00



0,00

0,90

0,50

0,00



0,00

0,50



0,242



0,133

800 ORCHARDS

3,13 ha AVERAGE SIZE



3

0

0

1

0,392 2,448 t/ha

3,59

222

50.526

IRRIGATION 0%

100% RAINFED

In the past, it was a country that had climatological aptitude for the cultivation of olive groves, even if it was only done in a traditional and sporadic way. At the hands of various Israeli companies attracted by the price of land, their plantation system has been modernized.

Agriculture is at the forefront of the local economy of Georgia, a typically agricultural country with a long wine tradition. The agrarian reform was well directed by the government, which contributed to a certain degree of stability in the field.



Iraq

6.000 ha

14.330 t

#36

#31

#22



44,2%



55,8%



68,4%



21%



10,6%

Arjosi
Barmagui
Básica
Dikkam
Kasb

PRODUCTION

× 1000 t

0,95

EXPORTS

× 1000 t

0,00

IMPORTS

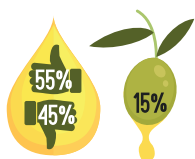
× 1000 t

3,00

CONSUMPTION

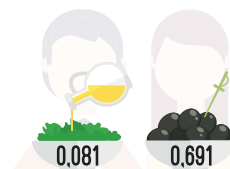
× 1000 t

3,00



17,10

25,70



400 ORCHARDS

15,00 ha AVERAGE SIZE



39

0

0

6



t/ha

10.52

972

221.524

IRRIGATION 40%

60% RAINFED

The agricultural reconstruction of Iraq has the Program (ARDI), developed by the Ministry of Agriculture to enhance, improve, optimize and develop cultivation in eight provinces. With this program it is expected to produce 750 thousand tons of olives, and 150,000 tons of olive oil.

Iraq is a desert country for the most part, although it also hosts, to a lesser extent, other biomes in different parts of the country like Mediterranean forests, temperate hardwood forests and grasslands in the steppe of the Near East and flooded meadow.

Yemen

8.000 ha

580 t

#34

#51

#51



91,5%



8,5%



0%



100%



0%

Kodaire
 Rosaiee
 Kaisee
 Nabali
 Picholine
 Manzanilla

PRODUCTION

× 1000 t

EXPORTS

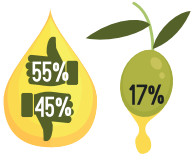
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,09

0,00



0,00

0,09

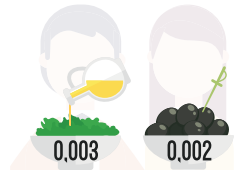
0,05

0,00



0,00

0,05



320 ORCHARDS

25,00 ha AVERAGE SIZE



8

0

0

1

0,012 0,072 t/ha

0,359



671



153.008

IRRIGATION 40%

60% RAINFED

The Ministry of Agriculture began to expand olive cultivation from the late 1970s to the early 1980s, through the Department of Horticulture in the Ministry of Agriculture and Irrigation, the reason for this expansive strategy lies in the scarce needs of the crop. The climate is Mediterranean, similar to that which occurs in countries such as Spain, Morocco or Italy.

Yemen is one of the oldest centers of civilization in the Middle East. Its land, relatively fertile in some valleys, and its humid climate allowed the development of a stable population. Its inhabitants, who were nomads, were dedicated to herding and raising birds throughout the ancient era.



India

20.000 ha

4.270 t

#29

#36

#36



91%



9%



0%



100%



0%

Arbequina

PRODUCTION

EXPORTS

IMPORTS

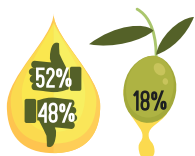
CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t



0,70

0,00



0,00

0,70

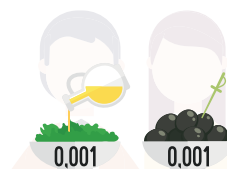
0,39

0,00



0,00

0,39



0,001

0,001

222 ORCHARDS

90,00 ha AVERAGE SIZE



9

0

0

1



0,038

0214

t/ha

2,79

1.608

366.514

IRRIGATION 100%

0% RAINFED

India ranks fourth in vegetable oil consumption in the world and is a major importer of fats and oils, around 5.4 million tons, accounting for a third of global imports.

In 1990 the Indian market adopted olive oil as food due to its healthy properties and began to experience a slow growth process. With its entry into the grocery sector, and thanks to the latest promotion campaigns, it is expected that the market share can grow up to 66% during the next year. In a country with the population of India, this translates into innumerable business opportunities.



Saudi Arabia



20.879 ha

22.150 t

#28

#27

#23



79,7%



20,3%



0%



28,7%



71,3%

Picual
Manzanilla
Coratina
Arbequina
Cobranzosa
Koroneiki

PRODUCTION

× 1000 t

EXPORTS

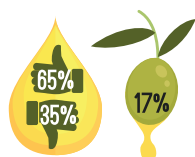
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



3,00

0,00



21,30

24,00

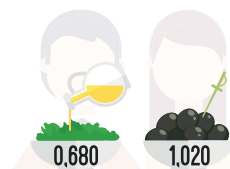
4,50

0,00



32,80

36,00



61 ORCHARDS

345'00 ha AVERAGE SIZE



26

0

0

3

0,180 1,061 t/ha

14,55

1.984

452.249

IRRIGATION 100%

0% RAINFED

There are no major producers of olive oil in Saudi Arabia. However, it has been growing a lot due to the high internal demand and the growth that the olive oil sector is experiencing in the country.

Because it is the largest oil exporter in the world, the largest producer of the OPEC countries and the leader of this organization, the Saudi economy brings about 45% of its nominal GDP in this field, which makes it the nineteenth world economic power.



Israel



45.000 ha

105.680 t

#22

#17

#20



85,5%



14,5%



68,4%



21%



10,6%

Kadesh
Uovo de
piccione
Muhasan

PRODUCTION

× 1000 t

17,17

15,33

EXPORTS

× 1000 t

0,20

0,00

IMPORTS

× 1000 t

3,00

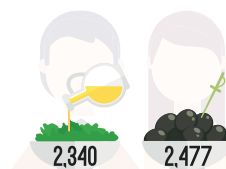
5,60

CONSUMPTION

× 1000 t

20,00

21,17



9.000 ORCHARDS

5,00 ha AVERAGE SIZE



130

1

0

12

0,446 2,349 t/ha

73,88

4.524

1.031.525

IRRIGATION 30%

70% RAINFED

In the ancient Semitic languages it was called the ulu olive tree. From there, the Cretan Elaiwa, the Greek Elaia, and the Latin Oleum were derived. Also, olive oil was given a very similar name for various reasons as its current one. In ancient Hebrew, it was called zait.

A custom of the kingdom of Israel, was to receive olives trees as gifts or to put a tax on them, which contributed to Israel's growth through all the territories that were serfs or had commercial relations with Israel.



Lebanon



57.000 ha

129.540 t

#21

#13

#18



86,5%



13,5%



85%



15%



0%

Barnea
Kadesh
Muhasan
Nabali

PRODUCTION

× 1000 t

EXPORTS

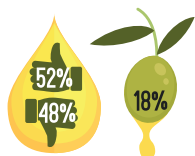
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



20,17

17,50

7,67

2,00

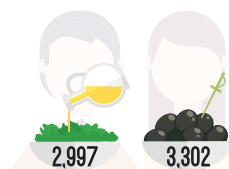


4,17

3,00

18,00

19,83



200.000 ORCHARDS

0,29 ha AVERAGE SIZE



400

0

0

13

0,409 2,273 t/ha

86,33

6.808

1.552.334

IRRIGATION 0%

100% RAINFED

Most of the old olive production areas in Lebanon have some old trees; particularly in the northern village of Bshaale; some of which could be among the oldest olive trees in the world, dating back at least 1500-2700 years and that are still growing and producing.

Olive oil is one of the hallmarks of traditional Lebanese cuisine, one of the most famous in the world, and is present in most of its dishes.

Pakistan

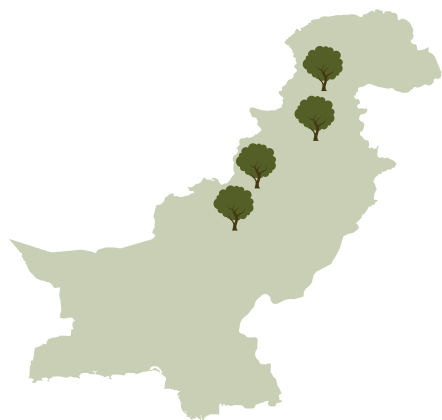
70.000 ha

9.160 t

#18

#29

#29



Zaity
Dan
Doebly
Khodeiri
Koudeiry

PRODUCTION

EXPORTS

IMPORTS

CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t



1,50

0,00



0,00

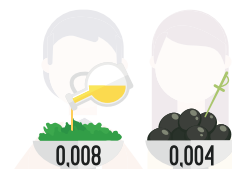
1,50

0,83

0,00

0,00

0,83



70.000 ORCHARDS

1,00 ha AVERAGE SIZE



250

0

0

1



0,024 0,131 t/ha

5,99

6.681

1.523.338

IRRIGATION 5%

95% RAINFED

The Government has initiated the Olive Valley Project, whose objective is the development of an olive-growing region and the promotion of national production of olive oil, through the planting of more than 2,000,000 olive trees.

To the north and west of the country there is a mountainous region where the second highest summit in the world is located, K2 (Mount Godwin-Austen), which is 8,611 meters tall.



Afghanistan



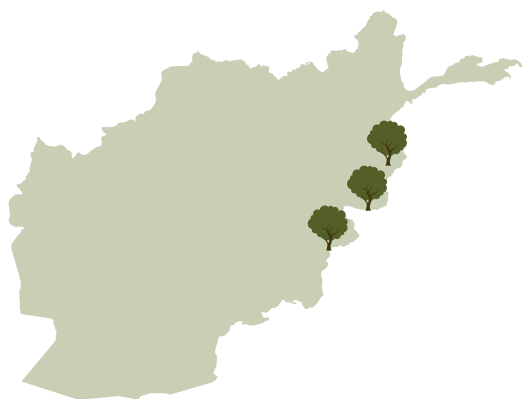
90.000 ha

8.660 t

#16

#30

#31



92,4%



7,6%



20%



78%



2%

Coratina
Frantoio
Grappolo
Leccio
Maurino
Messinese

PRODUCTION

EXPORTS

IMPORTS

CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t



1,20

0,00



0,00

1,20

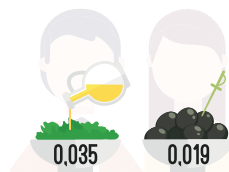
0,66

0,00



0,00

0,66



3.913 ORCHARDS

23,00 ha AVERAGE SIZE



28

0

0

1

0,014 0,096 t/ha

4,79

7,019

1.600.403

IRRIGATION 82%

18% RAINFED

Olive oil is one of the most important sectors in its agriculture, however, its production has been decimated due to political confrontations, riots and wars.

Polo, one of the most expensive and exclusive sports, has its origins in Afghanistan, one of the poorest and most underdeveloped countries in the world.

Palestine

90.000 ha

92.600 t

#17

#12

#21



87,2%



12,8%



90%



10%



0%

Souri
Nabal Baladi
K18
Mejora de Nabal
Manzanilla

PRODUCTION

× 1000 t

21,00

11,83

EXPORTS

× 1000 t

5,00

0,83

IMPORTS

× 1000 t

0,00

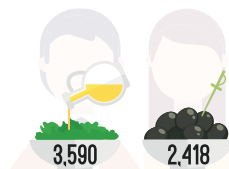
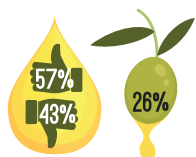
0,00

CONSUMPTION

× 1000 t

16,33

11,00



90.000 ORCHARDS

1,00 ha AVERAGE SIZE



278

11

0

90



t/ha

84,15

10.139

2.311.770

IRRIGATION 5%

95% RAINFED

Olive cultivation took place in this territory long before Jesus, considering the Mount of Olives was mentioned in the Bible.

Olive trees have been one of the first crops in Palestine since antiquity, with super-strong evidence of them being there for 4,000 years, and they have always played a crucial role in the cultural, social and economic characteristics of the country.



China

96.000 ha

23.730 t

#15

#24

#27



94,2%



5,8%



68,4%



21%



10,6%

Koroneiki
Daphonella
Arbequina
Picual
Leccino
Coratina

PRODUCTION

× 1000 t

3,80

1,38

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

32,33

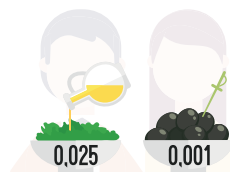
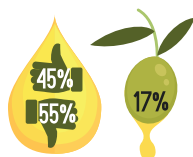
0,00

CONSUMPTION

× 1000 t

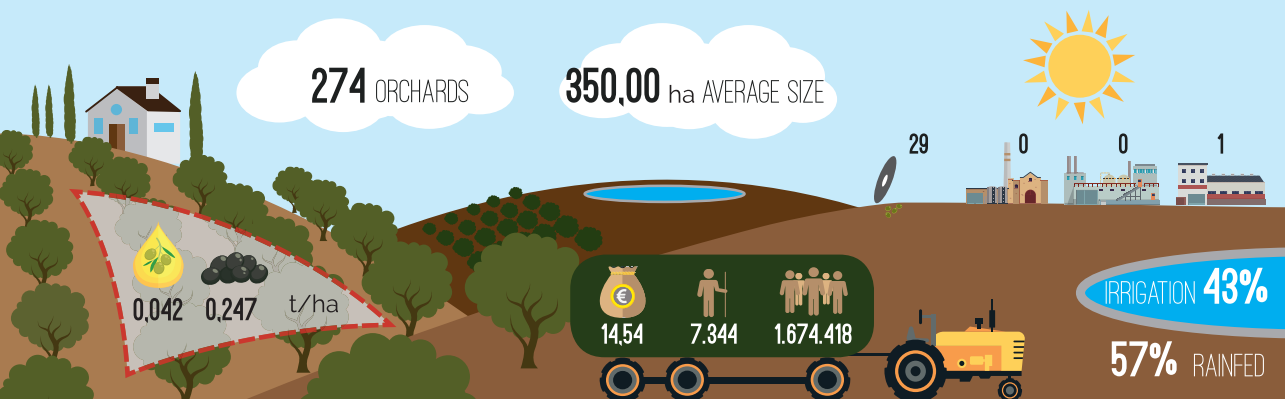
34,83

1,38



274 ORCHARDS

350,00 ha AVERAGE SIZE



There is a government development plan from 2013-2033 with the objective of planting 1,000 hectares per year.

The growth forecasts for the next decade also remain insufficient to cover the consumption of this country that has adopted olive oil as an important part of their diet.



Jordan

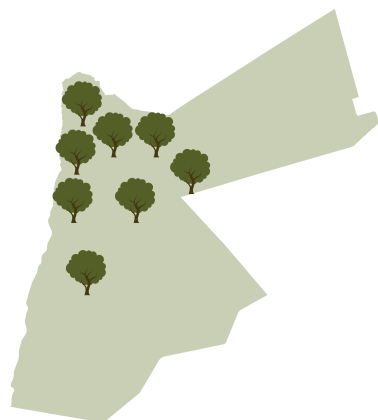
140.000 ha

170.030 t

#11

#11

#13



82,4%



17,6%



64,3%



25%



10,7%

Barnea
Kadesh
Manzanilla
Mehravia

PRODUCTION

× 1000 t

23,83

29,83

EXPORTS

× 1000 t

3,33

5,33

IMPORTS

× 1000 t

0,00

1,00

CONSUMPTION

× 1000 t

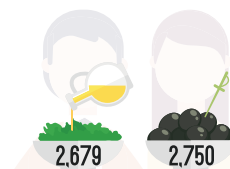
25,33

26,00



50%

17%



2,679

2,750

46.667 ORCHARDS

3,00 ha AVERAGE SIZE



110

0

0

4

0,206 1,214 t/ha

110,26

12.395

2.826.172

IRRIGATION 19%

81% RAINFED

It is one of the territories considered as a center of dispersion of the harvested olive for other areas of the western Mediterranean, being close to the site where this practice is considered to have begun.

The Phoenician navigators, and the successive Roman and Turkish conquests took part of the customs of this kingdom, among which was olive growing.



Iran



160.000 ha

97.560 t

#10

#22

#10



33%



67%



51,9%



33,1%



15%

Jelin
Bashica
Ajrosi
Dikkam

PRODUCTION

× 1000 t

4,83

65,33

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

5,17

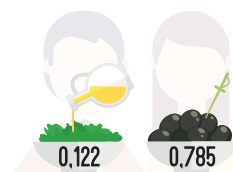
0,40

CONSUMPTION

× 1000 t

9,83

63,00



10.667 ORCHARDS

15,00 ha AVERAGE SIZE



74

0

0

200

0,091 0,610 t/ha

75.71

23.143

5.276.663

IRRIGATION 91%

9% RAINFED

In Persepolis, the center of the Persian culture there are ancient monuments (500 years BC) such as a statue of olive flower, as well as an olive branch. In the Sasanian era, taxes (224-650AC) were applied to the olive trees of the territory of the empire.

There is a poem in Shahname (900 BC), which said that in those years when there was no good olive production, the kings exempted the people from paying taxes.



Syria

590.000 ha

889.510 t

#7

#6

#6



87,1%



12,9%



83,1%



13,5%



3,4%

Zaity
Dan
Doebly
Khodeiri
Koudeiry
Kaissy

PRODUCTION

× 1000 t

131,67

115,00

EXPORTS

× 1000 t

5,30

4,00

IMPORTS

× 1000 t

0,00

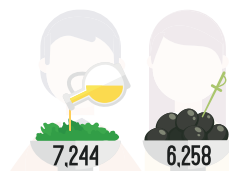
0,00

COMSUMPTION

× 1000 t

133,50

115,33



218.519 ORCHARDS

2,70 ha AVERAGE SIZE



800

40

5

120

0,256 1,508 t/ha

564.33

53.971

12.305.296

IRRIGATION 5%

95% RAINFED

The olive groves generally distributed in the area are shown on the map: Aleppo, Idlib, Lattakia, and Tartous, although there are also olive groves in areas such as Dará As-Souweyda and Al-Qouneytira.



Africa

3.514.800 ha 2.953.840 t



87%



13%



82,8%



13%



4,2%

- Moroccan
- picholine
- Haouzia
- Meslala
- Menara
- Arbosana
- Arbequina
- Koroneiki
- Woira
- Mission
- Kalamata

PRODUCTION

× 1000 t

411,73

758,02

EXPORTS

× 1000 t

175,03

142,00

IMPORTS

× 1000 t

11,67

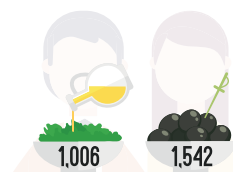
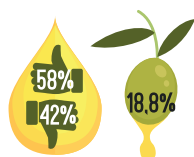
19,08

CONSUMPTION

× 1000 t

254,56

631,02



1.003.352 ORCHARDS

3,50 ha AVERAGE SIZE



5.011

41

12

408

0,135 1,659 t/ha

2.147,46

315.127

71.849.048

IRRIGATION 31%

69% RAINFED

The African continent is a producer of first class olive oil. It is the second producer in the world, and is also the second continent in olive grove surface area.

Africa is considered the cradle of humanity and successive species of hominids and anthropoids that gave rise to human beings come from there. The theory explains that Homo sapiens originated there about 190,000 years ago.



Ethiopia

300 ha

610 t

#53

#52

#52



92,4%



7,6%



68,4%



21%



10,6%

African or
Woirá

PRODUCTION

× 1000 t

0,09

0,05

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,00

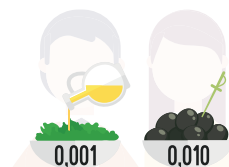
0,00

CONSUMPTION

× 1000 t

0,09

0,05



75 ORCHARDS

4,00 ha AVERAGE SIZE



10

0

0

1

0,307 2,045 t/ha

0,339

88

20.037

IRRIGATION 11%

89% RAINFED

Olive oil is produced in Ethiopia in the provinces of Tigray, Afar and Amhara, all of them in the north of the country.

In this country we find a specific variety: The African olive (*Olea European* subspecies *African*) or *Woirá* in Amharic. This is a wild variety that can be found in the dry forests of eastern and southern Africa (similar to the *Acebuche*).



Namibia

400 ha

580 t

#52

#47

#47



90,5%



9,5%



68,4%



21%



10,6%



Frantoio
Mission

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,10

0,00



0,00

0,10

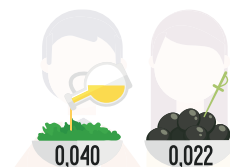
0,06

0,00



0,00

0,06



33 ORCHARDS

12,12 ha AVERAGE SIZE



6

0

0

1

0,276 1,453 t/ha

0,399

76

17.350

IRRIGATION 40%

60% RAINFED

One of the countries that has been integrated in the middle of the 20th century to the cultivation of olive trees, specifically in the regions of Otjozondjupa and Erongo.

In the Naukluft National Park Zebra Mountains, a mountainous area along with the Namib desert, we can find the famous wild olive trees, within the route called "The Olive Trail".



Mozambique



600 ha

150 t

#48

#57

#57



91%



9%



15%



21%



64%

Arbosana
Arbequina
Koroneiki
Picual
Picholina
marroquí
Haouzia

PRODUCTION

× 1000 t

0,03

0,01

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,00

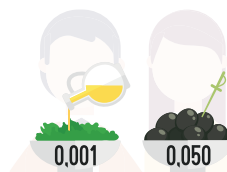
0,00

CONSUMPTION

× 1000 t

0,03

0,01



200 ORCHARDS

3,00 ha AVERAGE SIZE



6

0

0

1

0,046 0,254 t/ha

0,099

91

20.845

IRRIGATION 64%

36% RAINFED

The fundamental provinces for cultivation, due to their orographic, geographic and climatic characteristics are Gaza, Inhambane and Maputo. Olive trees arrived in Mozambique via South Africa in the 19th century.

The current territory of Mozambique has been populated for many thousands of years as it is considered the place where the origin of modern humans could have started.

Botswana

3.000 ha

1.330 t

#41

#42

#42



89,6%



10,4%



0%



100%



0%

Abelout
Sigoise
Picholine
Adceradj

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,25

0,00



0,00

0,25

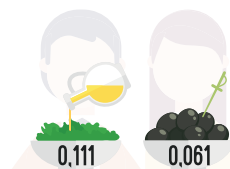
0,14

0,00



0,00

0,14



600 ORCHARDS

5,00 ha AVERAGE SIZE



30

0

0

1

0,093 0,443 t/ha

0,998

400

91,279

IRRIGATION 0%

100% RAINFED

It is one of the countries where the cultivation of olive trees is especially recent. Olive groves arrived in Botswana in the 1990s, thanks to a special plan carried out by the government and particularly by the Ministry of Agriculture.

The United Nations development agency (UNDP) describes Botswana as "one of the true successes of Africa's economic and human development."

Angola

7.000 ha

1.440 t

#35

#44

#44



92,4%



7,6%



68,4%



21%



10,6%

Arbequina
Arbosana
Koroneiki
Mission
Kalamata
Coratina

PRODUCTION

× 1000 t

0,20

0,11

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,00

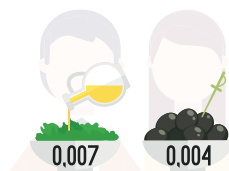
0,00

CONSUMPTION

× 1000 t

0,20

0,11



2.333 ORCHARDS

3,00 ha AVERAGE SIZE



30

0

0

1

0,031 0,206 t/ha

25,00

699

159.347

IRRIGATION 40%

60% RAINFED

The zones or areas destined to olive cultivation are located practically throughout the entire south zone of the country: Moxico, Kuando, Kubango, Huambo, Huila, Bié and Namibe. It is one of the countries where the cultivation of olive trees is especially recent.

The olive oil sector plays a relatively important role in the social and economic life of the country. It actively contributes to the maintenance of the rural population and is especially important for the economic sustainability of marginal agricultural areas.

South Africa

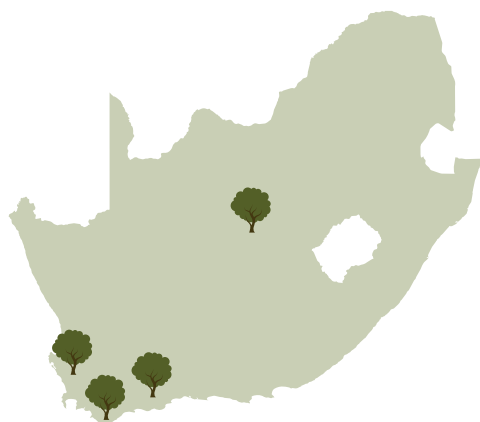
9.000 ha

4.780 t

#33

#34

#34



89,7%



10,3%



68,4%



21%



10,6%

Mission
Kalamata
Manzanilla
Frantoio

PRODUCTION

× 1000 t

EXPORTS

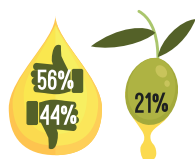
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,90

0,00

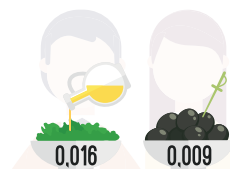


0,00

0,00

0,90

0,50



529 ORCHARDS

17,00 ha AVERAGE SIZE



70

0

0

1

0,112 0,531 t/ha

3,59

1.071

244.197

IRRIGATION 89%

11% RAINFED

Its boom in olive growing has made it the African country with the highest growth rate at rates close to 20% per year, doubling the number and area planted so far in the 21st century.

It has a high level of oil production and organizes a prestigious contest of countries of the Southern Hemisphere.



Libya

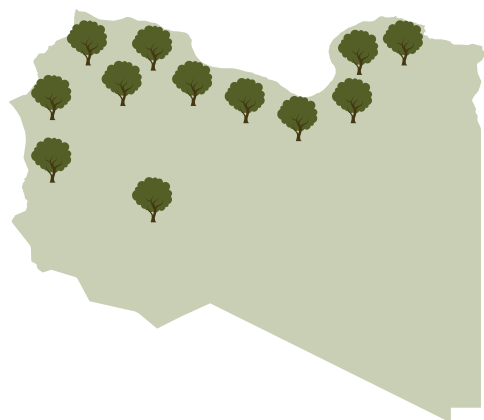
125.000 ha

88.830 t

#14

#16

#25



96,6%



3,4%



68,4%



21%



10,6%

Abelout
Adceradj
Chemlal
de Kabilie
Frantoio
Moraiolo
Picholine

PRODUCTION

× 1000 t

17,17

3,00

EXPORTS

× 1000 t

0,70

0,00

IMPORTS

× 1000 t

0,00

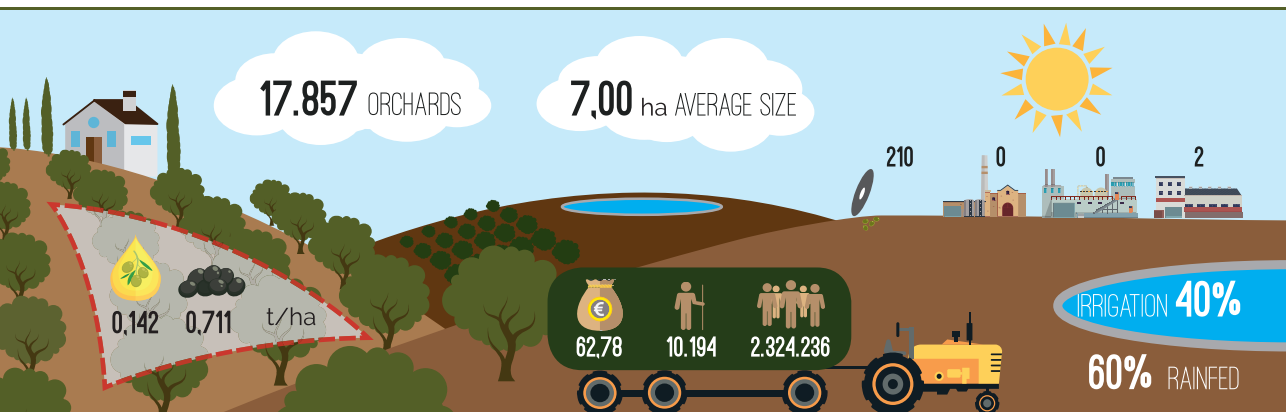
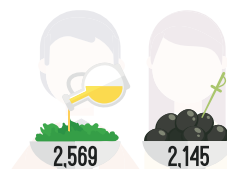
10,83

CONSUMPTION

× 1000 t

16,17

13,50



The country is characterized by its vast expanses of Saharan desert that cover the entire country with the exception of a narrow coastal strip, where the main population centers of the country, such as Tripoli and Benghazi, are located. In this region, this desert takes the name of Libyan desert.

Libya is a country with a great olive tradition, since the beginning of the Christian era. 17% of the population is engaged in agriculture.

Egypt

139.000 ha

522.710 t

#12

#14

#3



24,4%



75,6%



68,4%



21%



10,6%

Maraky
Melouky
Picual
Manzanilla
Kalamata
Kroatina

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



17,83

395,33

2,33

56,00



2,50

0,25

18,33

335,67



3.475 ORCHARDS

40,00 ha AVERAGE SIZE



45

0

0

110

0,526 3,761 t/ha

418,21

20.013

4.562.892

IRRIGATION 40%

60% RAINFED

This crop has generally developed with a certain intensity in the coastal region of the northwest of the country, especially between Alexandria and Sollum, and the Sinai Peninsula.

At the moment, the area dedicated to the cultivation of olive trees is in expansion with high interest for the production of table olives, where it finds itself in first place for world producers of table olives.



Algeria

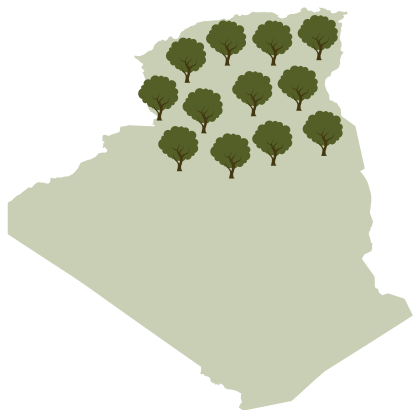
390.000 ha

563.820 t

#8

#9

#4



60,8%



39,2%



75%



19%



6%

Chemical
Abelout
Faneya
Limli

PRODUCTION

× 1000 t

65,17

220,83

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,33

7,90

CONSUMPTION

× 1000 t

64,50

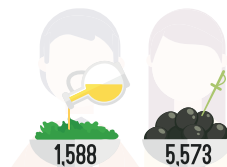
226,33



40%

60%

19%



1.588

5.573

121.875 ORCHARDS

3,20 ha AVERAGE SIZE



1.704

15

1

110

0,275 1,446 t/ha

426,83

49.963

11.391.631

IRRIGATION 18%

82% RAINFED

The cultivation of olive trees in Algeria is centered in mountainous areas of Kabylia and Aures, located in the central and northern part of the country, where 86% of the total is produced. More than 43% of the olive trees are over 50 years old.

Currently, the olive represents the most important arboreal crop, with 38.7% of the surface dedicated to this type of agriculture.



Morocco



1.015.000 ha

780.000 t

#5

#7

#7



85,5%



14,5%



75%



20%



5%

Moroccan
picholine
Haouzia
Meslala
Menara

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



126,67

113,33

17,17

84,33

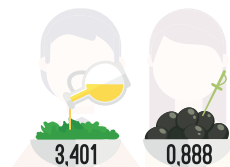


8,83

0,10

120,00

31,33



3,401

0,888

376.111 ORCHARDS

2,70 ha AVERAGE SIZE



1.200

5

5

60

0,146 0,768 t/ha

545,33

90.095

20.541.712

IRRIGATION 83%

17% RAINFED

The olive grove sector is in full growth. In this country it has an important socioeconomic role, being an active factor in order to avoid rural depopulation. Olive groves represents more than 8% of the cultivated area of the country.

The Moroccan production of olive oil varies widely from one year to the next, with the general trend going upwards.



Tunisia

1.825.000 ha

989.580 t

#2

#4

#15



97,6%



2,4%



91,2%



6,5%



2,3%

Chemlali
Chétoui
Oestali
Chemchali

PRODUCTION

× 1000 t

183,33

24,67

EXPORTS

× 1000 t

154,83

1,67

IMPORTS

× 1000 t

0,00

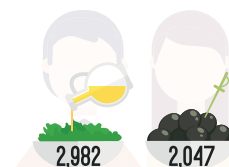
0,00

CONSUMPTION

× 1000 t

34,00

23,33



480.263 ORCHARDS

3,80 ha AVERAGE SIZE



1.700

21

6

120



663,86

142.437

32.475.522

IRRIGATION 3%

97% RAINFED

It is the first producer outside the European Union and fourth worldwide. It is currently in a period of technification and improvement of product quality.

By incorporating new agricultural techniques and sophisticated irrigation systems, this country is hoping to manage to double its production very soon.



Europe

6.265.896 ha

12.516.640 t



88,8%



11,2%



72,5%



24,9%



2,6%

- Arberquina
- Picual
- Hojiblanca
- Koroneiki
- Arbosana
- Alentajana
- Frantoio
- Verdial
- Picudo
- Carbonella

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



2.241,92

582,23



133,59

1.587,73

1.286,34

356,43



67,33

772,76



6,930



2,389

1.910.944 ORCHARDS

3,28 ha AVERAGE SIZE



9.087

150

65

1.654

0,403 1,837 t/ha

9.004,41 569.124 129.760.259

IRRIGATION 28%

72% RAINFED

The European continent is the undisputed leader in all aspects having to do with olive cultivation and the products derived from it, both olive oil and table olives. It has the largest surface area of this crop and has many possibilities for future growth. Also, in the present, it is the continent that reports better productivity figures since its climate is in the Mediterranean area, which is very favorable for its development.

The borders of Europe and its population are subject to controversy, since the term continent can refer to a cultural and political good or to physiographic distinctions. Europe, in particular Ancient Greece, is the cradle of Western culture.

Switzerland



150 ha

390 t

#58

#54

#54



91,5%



8,5%



100%



0%



0%

Arbequina
Picual
Hojiblanca
Barnea

PRODUCTION

EXPORTS

IMPORTS

CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t

0,06

0,00

14,00

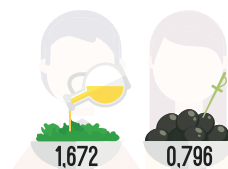
14,00

0,03

0,00

6,50

6,67



1.672

0.796

98 ORCHARDS

1,53 ha AVERAGE SIZE



2

0

0

1

0,437 2,573 t/ha

0,239

37

8.334

IRRIGATION 0%

100% RAINFED

A test of the tradition of this country in the consumption of olive oil is the carrying out of the "International Olive Oil Award" since 2001. Carried out by a group of tasters of the Food and Beverage Institute (ILGI) of the University of Sciences Applied Zurich (ZHAW), they evaluate extra virgin oils submitted to a contest held within the framework of the Gourmesse Zurich fair.

Switzerland can be divided into three basic topographic areas: the Swiss Alps in the south, the Swiss plateau in the center, and the Jura mountains in the north.

Malta

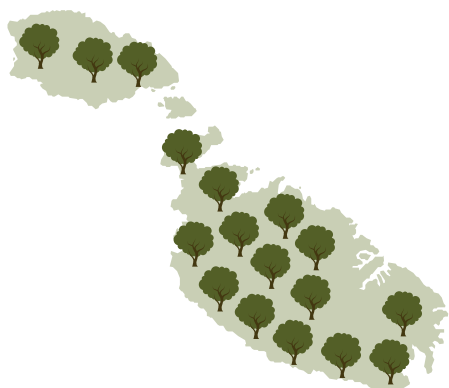
190 ha

290 t

#57

#53

#53



88,8%



11,2%



80%



20%



0%

Adcolana
Tenera
Bella di
spagne
Picholine
Carolea

PRODUCTION

EXPORTS

IMPORTS

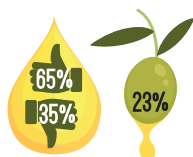
CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t



0,06

0,00



1,04

1,10

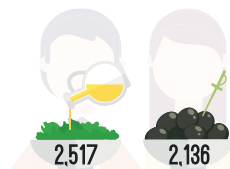
0,03

0,00



0,00

0,93



810 ORCHARDS

0,23 ha AVERAGE SIZE



11

0

0

1

0,356 1,547 t/ha

0,239

85

19.389

IRRIGATION 20%

80% RAINFED

In 2002, the Government of Malta prepared a ten-year future development plan to improve the quality of olive oils. In addition, there are subsidies for those companies that align with the program.

This country, which only produces 20% of the food it consumes, has a limited supply of fresh water and does not have its own energy sources. The economy depends on foreign trade, manufacturing and to a large extent on tourism.



Macedonia



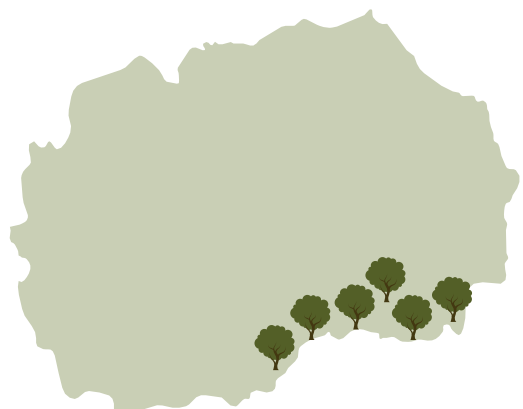
250 ha

320 t

#55

#56

#56



90,5%



9,5%



100%



0%



0%

Halkidiki
Galano
Metagitsi
Agioritiki
Galatista

PRODUCTION

x 1000 t

0,06

0,03

EXPORTS

x 1000 t

0,00

0,00

IMPORTS

x 1000 t

0,00

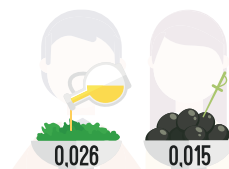
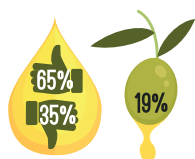
0,00

CONSUMPTION

x 1000 t

0,06

0,03



23 ORCHARDS

11,00 ha AVERAGE SIZE



5

0

0

1



0,219

59

13.551

IRRIGATION 0%

100% RAINFED

The crop dates back to the 90s of the last century, the initiative was privately done through the olive oil processing company called KM, although it had the special support of the Faculty of Agriculture of Skopje and the University of Thessaloniki (Greece).

At present, it has been proposed to expand the crop through plans supervised by the aforementioned universities to double the current growing area. The activities of improvement and expansion of the crop include the development of an autochthonous variety that is more resistant to the cold that has received the name of "Marsela".



Bulgaria

1.000 ha

1.110 t

#46

#45

#45



90,1%



9,9%



90%



10%



0%

Arroniz
Castellana
Cornicabra
Eleagnus

PRODUCTION

× 1000 t

EXPORTS

× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,20

0,10



2,33

2,53

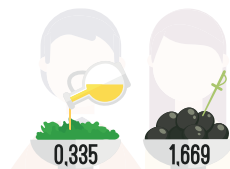
0,11

0,10



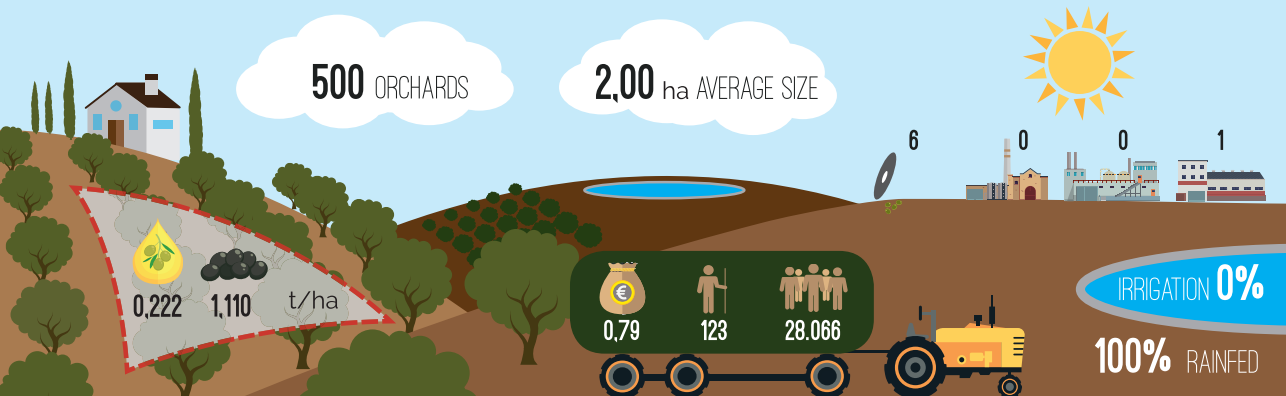
6,70

11,90



500 ORCHARDS

2,00 ha AVERAGE SIZE



Due to the prevailing climatic characteristics, it is not a country with a history of olive plantations. If favorable climatic conditions had existed for the cultivation, the Thracians, former inhabitants of the Bulgarian lands, probably would have developed the crop, bequeathing their art to successive generations up to the present.

In contrast to the industrial sector, agriculture in Bulgaria has been marked by a decline since the beginning of the 21st century.



Slovenia



2.100 ha

2.520 t

#45

#40

#40



90,5%



9,5%



90%



10%



0%

Aloreña
Arberquina
Picual
Verdial
Picuo

PRODUCTION

EXPORTS

IMPORTS

CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t

0,43

0,03



0,00

2,10

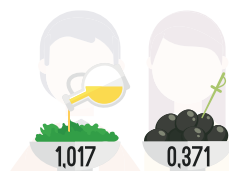
0,24

0,00



0,00

0,77



1.017

0.371

2.995 ORCHARDS

0,71 ha AVERAGE SIZE



10

0

0

1



0,228 1.200 t/ha

1,73

228

52.040

IRRIGATION 4%

96% RAINFED

The area for olive tree cultivation is limited to a narrow zone with a sub-Mediterranean climate located mainly in the area of Istria, Slovenia and Primorje

In an archaeological excavation of Koper, it was found that the waste from the process was used not only as a fuel, but also as material for the fortification of the city's docks.



Bosnia and Herzegovina



4.000 ha

2.750 t

#40

#39

#39



91%



9%



100%



0%



0%



Beleka
Zutica
Istrica
Bélica
Obliga

PRODUCTION

× 1000 t

EXPORTS

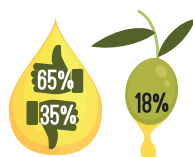
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,45

0,00



0,00

0,45

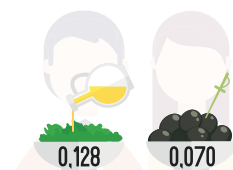
0,25

0,00



0,00

0,25



4.444 ORCHARDS

0,90 ha AVERAGE SIZE



12

0

0

1

0,124 0,687 t/ha

1,79

385

87.667

IRRIGATION 0%

100% RAINFED

The olive grove in this region goes back to ancestral times favored by the existence of a Mediterranean climate in some of its geographical areas

The country is mostly mountainous, traversed by the Dinaric Alps. Sectors from the northeast intersect with the Pannonian plain, while in the south it borders the Adriatic Sea.



Azerbaijan

4.000 ha

1.930 t

#38

#41

#41



91,5%



8,5%



90%



10%



0%

Coratina
Frantoio
Grappolo
Leccino
Bosana

PRODUCTION

× 1000 t

0,30

0,17

EXPORTS

× 1000 t

0,00

0,00

IMPORTS

× 1000 t

0,00

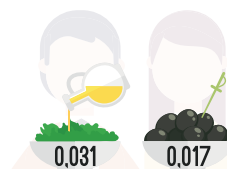
0,00

CONSUMPTION

× 1000 t

0,30

0,17



400 ORCHARDS

10,00 ha AVERAGE SIZE



4

0

0

1



1,19

343

78.214

IRRIGATION 0%

100% RAINFED

Paleontological studies have shown the presence of olive trees in Azerbaijan seven centuries before Christ.

Azerbaijan has the largest agricultural area in the region, since 54.9% of its territory is occupied by farming land.



Montenegro



4.500 ha

3.220 t

#37

#37

#37



91,5%



8,5%



90%



10%



0%

Beleka
Belika
Lastovka
Zutika
Buga

PRODUCTION

× 1000 t

EXPORTS

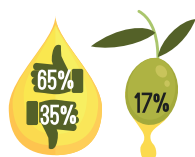
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



0,50

0,00



0,00

0,50

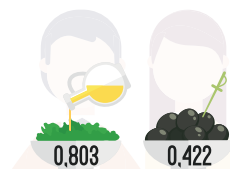
0,28

0,00



0,00

0,28



1.700 ORCHARDS

2,65 ha AVERAGE SIZE



12

0

0

1

0,122 0,715 t/ha

1,99

422

96.113

IRRIGATION 0%

100% RAINFED

The olive area represents only 0.1% of the total cultivated area of the country. Despite the small size of the sector, the soil and climatic conditions of the coast of Montenegro strongly favor this crop. In this regard, the national authorities have promoted the planting of olive groves since 1994, as part of an agricultural development program.

Montenegro is one of the poorest countries on the continent with a very low GDP per capita, but in recent years there have been significant improvements. Imports, meanwhile, quadruple the value of exports and come mainly from Greece, Italy, Germany and Bosnia-Herzegovina.



Cyprus

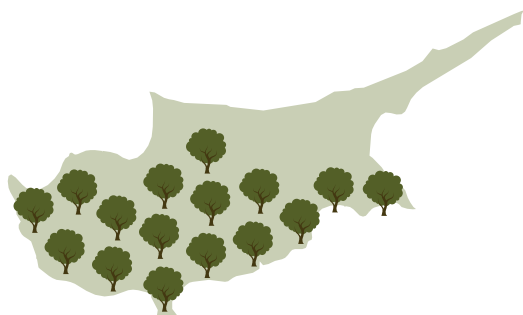
14.600 ha

30.870 t

#31

#21

#26



90,9%



9,1%



90%



10%



0%

Mastoides
Cucco
Kalamata
Ladoelia
Manzanilla
Picual

PRODUCTION

× 1000 t

5,33

EXPORTS

× 1000 t

0,10

IMPORTS

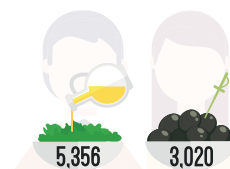
× 1000 t

0,00

CONSUMPTION

× 1000 t

6,27



2.718 ORCHARDS

5,37 ha AVERAGE SIZE



60

0

0

6



0,402 2,114 t/ha

21,18

1.520

346.653

IRRIGATION 10%

90% RAINFED

It is located in the wide region of the Eastern Mediterranean, which is proposed as the origin of the olive tree, so its cultivation here goes back thousands of years

The word "Olive" appears in several places on the island (more than 500 times), which indicates its importance in the life of the Cypriot people.



Croatia

25.000 ha

20.320 t

#27

#25

#30



Beleka
Zutica
Istrica
Bélica
Obliga

PRODUCTION

× 1000 t

3,73

0,67

EXPORTS

× 1000 t

0,13

0,17

IMPORTS

× 1000 t

0,00

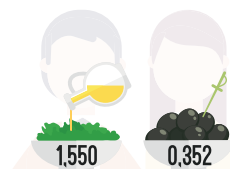
0,00

CONSUMPTION

× 1000 t

6,47

1,47



32.922 ORCHARDS

0,76 ha AVERAGE SIZE



112

0

0

12

0,154 0,813 t/ha

13,66

2.560

583.740

IRRIGATION 0%

100% RAINFED

The development of olive growing is based on the temperate climate of this territory and the soils, which mainly consist of clay and limestone.

As in the rest of the Mediterranean, the olive tree has been present for more than two thousand years.



Albania



41.000 ha

86.760 t

#24

#19

#14



65,2%



34,8%



80%



20%



0%

Kalinjot
Kokermad
Berati (Gordal)
Mixan

PRODUCTION

EXPORTS

IMPORTS

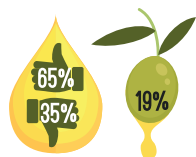
CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t



10,50

0,00



1,33

11,83

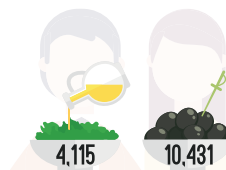
29,50

3,00



3,30

30,00



118.000 ORCHARDS

0,35 ha AVERAGE SIZE



75

0

0

22

0,393 2,067 t/ha

63,30

4.717

1.075.411

IRRIGATION 0%

100% RAINFED

The current olive growing is the result of the work of the famous Illyrians (ancestors of the Albanians living in the Adriatic and the Ionian, at the same time as the Romans), who produced an oil of excellent quality known to Roman experts as Oleum Liburnicum

Albania is a European country with 3 million inhabitants. With its capital in Tirana, it is a nation of the Balkans that has a surface area of about 28,000 square kilometers.

France

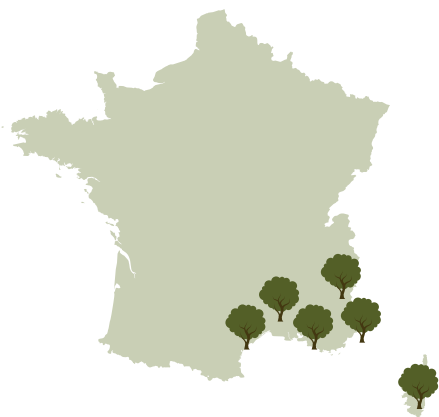
60.000 ha

24.430 t

#20

#23

#28



95,5%



4,5%



68,4%



21%



10,6%

Araban
Argetal
Bancal
Boutillan
Cailletier

PRODUCTION

EXPORTS

IMPORTS

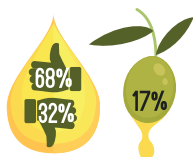
CONSUMPTION

× 1000 t

× 1000 t

× 1000 t

× 1000 t



3,97

2,20



7,57

110,00

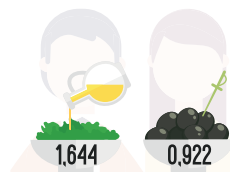
1,10

1,63



29,70

61,67



26.265 ORCHARDS

2,28 ha AVERAGE SIZE



202

0

0

26

0,069 0,407 t/ha



14.87



5.827



1.328.559

IRRIGATION 0%

100% RAINFED

This country is the smallest producer of olive oil in the Mediterranean. The southern Mediterranean area was where the wild olive tree was present and evolved before the Neolithic period.

It is a world agricultural production leader and is the sixth largest. It is also the second largest exporter, after the United States. However, the fate of 70% of its exports are other members of the European Union and many poor African countries (including their former colonies) that face a serious shortage of food.



Portugal



352.000 ha

503.200 t

#9

#8

#17



96,3%



3,7%



42,8%



41,4%



15,8%

Alentajana
Arberquina
Cobrancosa
Arbosana
Galega
Koroneiki

PRODUCTION

× 1000 t

87,23

EXPORTS

× 1000 t

47,30

IMPORTS

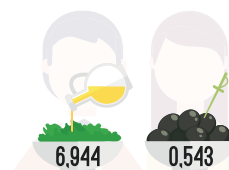
× 1000 t

4,13

COMSUMPTION

× 1000 t

71,67



5.867 ORCHARDS

60,00 ha AVERAGE SIZE



495

17

12

8

0,257
1,430
t/ha

322,02

28.774

6.560.440

IRRIGATION 70%

30% RAINFED

The olive tree has been rooted in Portugal since the Bronze Age and has had an important role in agriculture and Portuguese cultural tradition. The suitability of the soil and the climatic conditions for this crop have made it that the use of olive oil is an ancestral part of culture and Portuguese cooking habits.

Because of its orography, size of farms, hydrographic capacity, etc., Portugal is possibly the best place on the planet for olive cultivation and subsequent milling of the fruit.



Turkey

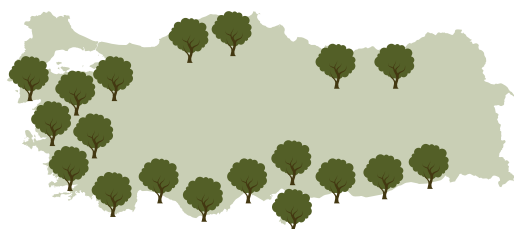
776.000 ha

1.147.330 t

#6

#5

#2



64,6%



35,4%



66,9%



31,4%



1,7%

Cakir
Cilli
Edremit
Memecik
Celebi
Domat

PRODUCTION

× 1000 t

148,33

405,67

EXPORTS

× 1000 t

26,67

68,67

IMPORTS

× 1000 t

0,00

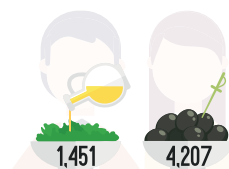
0,00

CONSUMPTION

× 1000 t

115,33

334,50



221.714 ORCHARDS

3,50 ha AVERAGE SIZE



1.187

14

15

823

0,296 1,479 t/ha

884,26

95,059

21.673.403

IRRIGATION 30%

70% RAINFED

The research, development (R & D) and education component of the olive and olive sector is part of a wider research and education system in the food and agriculture sector in Turkey. It consists of three main components: public R & D agencies; faculties of agricultural sciences and university research centers; and the private sector and non-governmental organizations (NGOs).

The varied landscapes of Turkey are the product of complex earth movements that have shaped the region for thousands of years and are still manifested in frequent earthquakes and occasional volcanic eruptions.

Greece

1.125.000 ha

1.510.030 t

#4

#3

#5



87,3%



12,7%



80%



19,5%



0,5%

Agouomana-
colia
Corfolia
Koroneiki
Mastoidis
Andramitini
Konservolia

PRODUCTION

× 1000 t

250,67

191,00

EXPORTS

× 1000 t

17,27

64,87

IMPORTS

× 1000 t

0,00

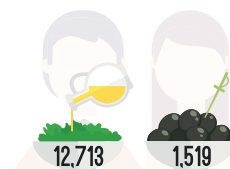
4,43

CONSUMPTION

× 1000 t

136,67

16,33



511.364 ORCHARDS

2,20 ha AVERAGE SIZE



574

27

7

176



IRRIGATION 16%

84% RAINFED

Most of the production is found in its archipelago of islands, and because of its cultural traditions, it is the largest oil consumer in the world with consumption amounting to 18kg / person, when the world average is just over 4 kg / person. person (2015)

As a result of their access to the European Community, a large part of their agricultural infrastructure was upgraded to increase their production.

Italy

1.230.000 ha 2.207.800 t #3 #2 #12



97,3%



2,7%



80%



19%



1%

Carbonella
Coratina
Frantoio
Grappolo
Leccino
Bosana

PRODUCTION

× 1000 t

386,77

59,10

EXPORTS

× 1000 t

213,67

8,40

IMPORTS

× 1000 t

54,47

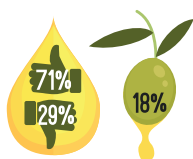
7,63

CONSUMPTION

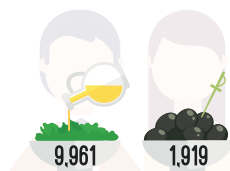
× 1000 t

603,63

115,67



18%



410.000 ORCHARDS

3,00 ha AVERAGE SIZE



4.500

22

5

160

0,323 1,795 t/ha

1.406,87 114.614 26.132.007

IRRIGATION 19%

81% RAINFED

Italy has been the focus in the last two years of the bacterium 'Xylella fastidiosa' that completely destroys olive trees, and this epidemic has affected almost all of the Apulia region where it olive trees cover almost 150 thousand hectares.

Agricultural activities have experienced a considerable setback, both in terms of occupations of the active population and in their share of GDP.



Spain

2.623.156 ha

6.968.330 t

#1

#1

#1



91,7%



8,3%



71,2%



26,3%



2,5%

- Picual
- Picudo
- Empeltre
- Hojiblanca
- Cornicabra
- Lechin de Granada
- Lechin de Sevilla
- Manzanilla Sevillana
- Manzanilla Cacereña
- Verdial de Badajoz
- Arbequina

PRODUCTION

× 1000 t

1342,33

576,27

EXPORTS

× 1000 t

274,77

196,97

IMPORTS

× 1000 t

55,47

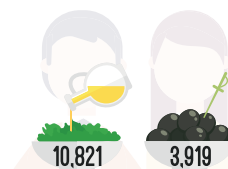
8,97

CONSUMPTION

× 1000 t

503,83

182,47



570.251 ORCHARDS

4,60 ha AVERAGE SIZE



1.816

70

26

411



0,558 2,656 t/ha

5.216,80

218.110

49.729.006

IRRIGATION 32%

68% RAINFED

There is a widely accepted thesis that considers that the olive tree was introduced by the Phoenicians at the end of the second millennium before Christ. However, it was during the romanization, from the late third century BC when the olive tree culture was developed and extended more widely due to the importance in the trade of Hispanic olive oil between the colonies and Rome, especially in the Betic region.

Spain is the world's leading power in the olive oil and table olive sector. The efforts made in recent years by the sector (olive, oil mills, State and other public and private institutions) have made Spain not only produce the largest quantity of oil, but produce the very highest quality oil that exists in the market.



Andalusia

1.580.802 ha 4.723.060 t #2 #1 #1



91%



9%

- Picual
- Hojiblanca
- Manzanilla
- Picudo
- Nevadillo
- Arbequina
- Sevillana
- Gordal
- Aloreña



75,6%



21,5%



2,9%

PRODUCTION

× 1000 t

EXPORTS

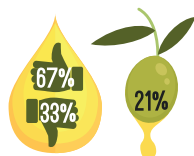
× 1000 t

IMPORTS

× 1000 t

CONSUMPTION

× 1000 t



884,95

427,20

812,95

410,75

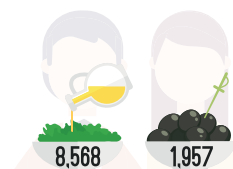


0,00

0,00

72,00

16,44



439.112 ORCHARDS

3,60 ha AVERAGE SIZE



844

44

26

214

0,615 2,988 t/ha

3.481,79 130.842 29.831.984

IRRIGATION 32%

68% RAINFED

The olive grove is the most representative and symbolic agrosystem of Andalusia. The importance of its cultivation has been driven by anthropic intervention, which has found its maximum expression in its conformation as an ordered forest and in its excellent adaptation to very diverse locations.

Comparing Andalusia with the other producing countries worldwide (removing Spain, whose production is added to the rest of the country), it occupies the first place in olive oil and table olive production, and the second place in surface area dedicated to this cultivation.



Jaen



577.745 ha

1.650.560 t

#7

#2

#31



99,97%



0,03%



81%



18,5%



0,5%

Picual
Hojiblanca
Manzanilla
Arbequina
Verdial
Royal
Carrasqueño
Marteño

PRODUCTION

× 1000 t

360,00

0,55

EXPORTS

× 1000 t

352,00

0,00

IMPORTS

× 1000 t

0,00

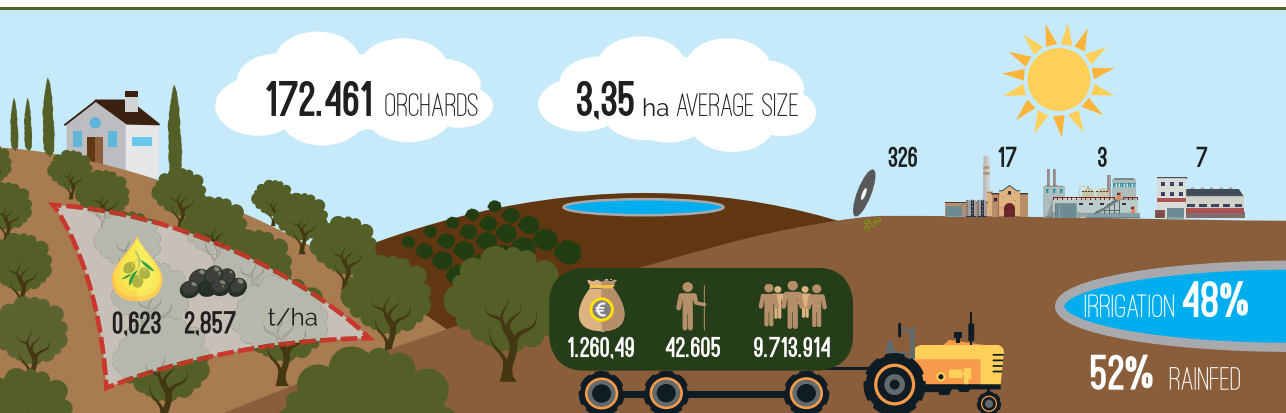
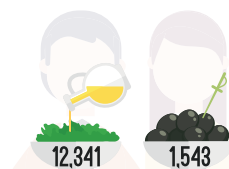
0,45

CONSUMPTION

× 1000 t

8,00

1,00



In Jaen, the largest man-made forest in the world can be found. This forest, which is next to Sierra de Cazorla National Park, Segura and Las Villas (one of the largest in Europe), unite the province of Jaen and make it one of the largest sources of fresh air that exists in Spain.

The province of Jaen itself holds the second place in world olive oil production (equating it to a producing state without including Spain, to which it contributes its production).

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Mapas vectoriales y clipart de freevectormaps.com y Freepik

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For those of us who carry out our professional activities that are linked to a certain extent to international olive growing, there are various needs for obtaining knowledge that must be experienced prior to making important decisions.

On the one hand, it must be known in the broadest context, both geographically and in order of magnitude, and with the greatest possible concreteness, the business or professional environment in which our activity is carried out. This is what is referred to as macro context.

Subsequently, our objective is to deepen the area closest to the organization, institution or company in which we operate, which is called a micro environment. Once both the micro context and environment are reached, at least we will have the adequate resources to be able to make appropriate decisions, reducing the risk of error in a significant way.

The manual that you have in your hands meets both circumstances. On the one hand, it shows how the wild olive, which was domesticated and transformed into the modern olive tree, has been arriving from one country and going to another due to human influence. Then, it makes a strategic analysis of the different economic activities within the sector, both in the area of table olives, and olive oil. Furthermore, it concludes with 66 infographies where the profile of olive growing is defined, for each of the producing countries, continents and Andalusia and Jaén.

Without risking being pretentious, the book published today is undoubtedly the manual that has the most complete international information on olive growing. In addition to being a necessary tool in the hands of all those who perform our work in one way or another in the sector, this is a fundamental reference for consultation for dissemination and research.

I am grateful and enormously appreciative to the hundreds of people distributed throughout the five continents who have participated in this creation and to the authors who together with me have made an idea a reality with their great effort, perseverance and hard work. Also, of course, I would like to give thanks to the Caja Rural de Jaén and the Jaén Provincial Government, for having given us the chance to make history by concluding the largest inventory of international olive growing. Finally, I give thanks to the International Olive Oil Council, which is the supranational institution with the greatest representation in the field of olive growing on the planet, for sponsoring the book with the fulfillment of the prologue, together with the two institutions mentioned above.

I hope you enjoy reading and consulting this book in the same way that we did in creating it.

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2007/2017

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