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The Adriatic olive-grove (AOGRPSL) 245

OLIVE IN ECONOMY, AESTHETICS AND PROFESSIONAL EDUCATION

October 2014

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Approved in the Departament of Economocs and Rural Development Policies

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Foreword

The Agricultural University of Tirana is an important academic and scientific center which contributes to the solution of important socio-economic problems in the Albanian society. The Agricultural University of Tirana in collaboration with national and international academic and scientific institutions has realized numerous studies, one of the studies performed is “The role of olive oil in the Albanian alimentary consumption model”. The study is focused on consumption preferences to have a standartized olive oil as much as on the promotion and enhancement of typical variety of olives. The object of the study is a contemporary discussion which affects the interests of a wide range of the general public.

Currently there is a wide range of high quality imported olive oil varieties with a consolidated reputation in the market. Which raises the question of the strugle of the Albanian product image in national and international markets despite the well known good quality. The Agricultural university of Tirana has continuosly encouraged and supported its academic and scientific researchers to deliver studies that not only will provide an improved quality of the olive oil but also find the causes of the actual condition of the olive cultivation.

The favourable nature with its mediteranian climate is optimal for the cultivation and growth of thoudand years old local varieties, varieties which have been wonderfully adapted in centuries from our predecessors. We are responsible not only for the promotion and valorization of the varieties of the product in national and international markets but also for the improvement of life conditions of the rural communities of our nation.

The standartization of olive oil and the promotion of the awareness of the Albanian consumer towards quality olive oil will contribute to the increase in consumption of oil and health improvement of the Albanian consumers. This will be the driver towards a mediterrenian diet. In addition the promotion of nutrition plans will help in the depiction of life quality and life expectancy indicators in the Albanian population, aswell as in lowering the incidence of cardiovascular and cancerogean pathologies.

Finally hoping that this study will not be the last but will be followed by many others. I think that the issued recommendations should be taken into consideration and further analysed by representatives of the Ministry of Agriculture and the Rural Development & Water Administration, as well as representatives from the Ministry of Health, as health concerns us all and all of us should take care of it.

Stady of "Olive and its products in Albanian history and art" is a step forward in acquiring and sharing of knowledge on the influence of olive in art and history. The methodology followed is to first collect data and facts, starting from its origin, distribution, its diversity and adaptation of this tree in the Albanian territory from ancient times to today; its allocation and productivity, in different regions of the country and how after it left a strong trail of its symbol in religion, myths and culture tradition, folklore and entertainment

The olive symbol has accompanied the history of forts, touristic cities or significant landscapes over the years, this peace symbol seems becoming once again a distinguishing character in the artistic wood works. Therefore, by knowing better this tree we can gain knowledge of unknown data and facts of the Albanian history.

Rector

Prof. Dr. Fatos HARIZAJ

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Abbreviation list

ASOLIVA	Spanish Olive Oil Exporters Association
ASSITOL	Accociazione Italiana Dell' Industria Olearia
COI	Këshilli Ndërkombëtar i Ullirit dhe Vajit të Ullirit
CIISCAM	Centro Interuniversitario Internazionale di Studi sulle Culture Alimentaria Mediterranee
EU	European Union
EURATOM	European Atomic Energy Commission
EVOO	Extra Virgin Olive Oil
FAO	Food and Agriculture Organisation
FAOSTAT	Food and Agriculture Organisation Statistical Databases
GI	Geographical Indications
Ha	Hektare
HDL	High-density lipoprotein
IOOC	International Olive Oil Council
INSTAT	Institute of Statistics
IOC	Inter Oil Corporation
J.C.	Jezu Krishti
KMB	Kokerr Madhi i Beratit

Kcal	Kilocalories
Kj	Kilo joule
LDL	Low-density lipoprotein
MBUMK	Ministria e Bujqesise Ushqimit dhe Mbrojtjes se Konsumatorit
MM	Milimetra
MFACP	Ministry of Food, Agriculture and Consumer
NAOOA	North American Olive Oil Association
NAC	National Average per Capita
PDO	Protected Denomination of Origin
SPSS	Statistics software
TSG	Traditional Specialty Guaranteed
UBT	Ulliri i Bardhe i Tiranes
UNESCO	United Nations Educational, Scientific and Cultural Organization
VOO	Virgin Olive oil

SUMMARY

Stady of "Olive and its products in Albanian history and art" is a step forward in acquiring and sharing of knowledge on the influence of olive in art and history. The methodology followed is to first collect data and facts, starting from its origin, distribution, its diversity and adaptation of this tree in the Albanian territory from ancient times to today; its allocation and productivity, in different regions of the country and how after it left a strong trail of its symbol in religion, myths and culture tradition, folklore and entertainment.

The olive symbol has accompanied the history of forts, touristic cities or significant landscapes over the years, this peace symbol seems becoming once again a distinguishing character in the artistic wood works. Therefore, by knowing better this tree we can gain knowledge of unknown data and facts of the Albanian history.

The fulfilment of nutritional needs requires the production of raw materials of vegetal and animal origins, which constitute the nutrition basis for the population. On the other hand, these agricultural products should be stored, processed, transported and distributed in order to reach and be available at the consumers' level.

From the field to the table, the food products pass through various hands in order to adapt and meet the consumers' needs. One of the main ingredients of our daily diet is olive oil.

Until recently, food consumption has been classified as an integral part of the payable claim, based on abstract theories which focus only with consumer behavior. Therefore studies in this area, both in Albania and throughout the world, have been limited.

Hence, the current study aims to highlight not only the role of olive oil in the Mediterranean diet (from a health and cultural point of view) but also to understand and analyse the preferences of Albanian consumers on consumption, nutritional and curative values.

Country Presentation

Albania is located in the south-western part of the Balkan Peninsula, along the eastern coast of the Adriatic and Ionian Sea between N42 ° 39' and N39 ° 38' latitude and E21 ° 4 'and E19 ° 16' longitude.

It has an area of 28,748 km2. Strategically located in the Mediterranean basin, Albania has the variety of an ecological warm place due to the convergence of Mediterranean and continental climate, isolation and protection from mountainous landscape (average elevation is 704 m hypsometry to great heights up to 2700 m), topographic contrasts and valleys and rivers spend more territories (Kullaj, 2008). The annual average temperature is 6-17 ° C for marine area and from 10.5 to 11 ° C for North-Eastern area of the country. Sunlight lasts from 2100 to 2700 hours per year.

Average annual rainfall is 1,430 mm with its 70% occurring during the autumn-winter season. Vegetation is multi seed, with 35% of the area covered by forests and shrubs.

Agricultural land is 696,000 hectares (approximately 24% of the total), 1,027,000 hectares are forest (36%) and 446,000 hectares are pasture (15%). Land used for agriculture is quite steep, with only 44% having a slope of less than 5%.

Moreover, the average of agricultural land for capita is too small, aproximately 0.2 hectares; the smallest in Europe, although agricultural land has more than doubled from 1950 to 1990 due to drainage of marshland, terracing and cultivation of forest and pasture land, and the creation of new irrigation schemes (Kullaj 2005).

Climatic and soil conditions are favorable for growing various agricultural plants and agriculture is a very important sector of the economy.

The implementation of liberalization and privatization policies by the state, has led to the fast abolition of 550 collective farms and the privatization of 94% of agricultural land by 1994; resulting in 470,000 privately owned farms by 1996 for a total of 560,000 hectares. As a result, agriculture is limited by uniformity, small farms and large segments of fragmented land, with a current average farm size of 1.3 hectares (and even smaller than 0.8 ha in mountainous areas) (Kullaj, 2007). The five million olive trees represent the richest component that the Albanian agriculture has inherited from the communist regime.

Chapter I

The history of olive production in Albania

1.1 - Evolution of the olive tree from antiquity to nowadays

The Olive tree is the most important fruit tree of the Mediterranean which has provided food and high quality oil for ancient civilizations. Olive is the oldest among all the other trees cultivated in the Mediterranean basin. Extensive research shows that the origin the domestication of this tree dates back to 6000 BC.

The place of origin has been the subject of various debates, but the area between the coast of Syria and Israel to the north and west of Iraq is most likely to be the area of its origin.

The origin of the olive had been lost in the mists of time, its story is strictly connected to the culture of the people of the Mediterranean basin, which have determined the development of this tree and formed the ancient Mediterranean civilization. Many theories have given different versions about the origin and spreading of olives.

Its history with the truths and legends has different origins. Known to the Assyrians and Babylonians, to the Egyptians it came as a gift from the goddess Isis. To the Greeks was Minerva who made growing out of the land the first olive plant, to the Jewish Community it was known since the times of Adam. Whatever its origins are, the olive has always symbolized peace, fertility, strength and purity. However, the way the tree and its branches are connected indicates that the tree is as old as mankind.

According to one version, the olive is thought to have originated from Palestine. From there it was transferred to the Mediterranean basin and later in Egypt. In Asia Minor, there are more trees in the wild and spontaneous forms of scrub forest.

Existing data show also that pre-domestication was realized almost simultaneously, in the V Millennium BC, in different areas such as the island of Crete and Southern Spain, where there were observed "layers" of cultivated olives seeds (probably brought by Phoenicians) and oleasters seeds. Initially the use of this plant must have been different from todays, mainly for farming and firewood production and thousands of years were needed to reach the use of oil. Olive oil has been used for nutrition and medicines around 4000 years before Christ. Phoenician traders brought the olive in Greece, Spain and Italy. These three countries spread the olive cultivation throughout the Mediterranean, being nowadays the most advanced countries in the production of olive oil.

Use of the olive fruit was initially very limited because the technology of olive production for consumption was expensive. Use for food occurs later, around the first half of II millennium BC, when it starts spreading in the Mediterranean and West Africa. (Olive Study 2009).

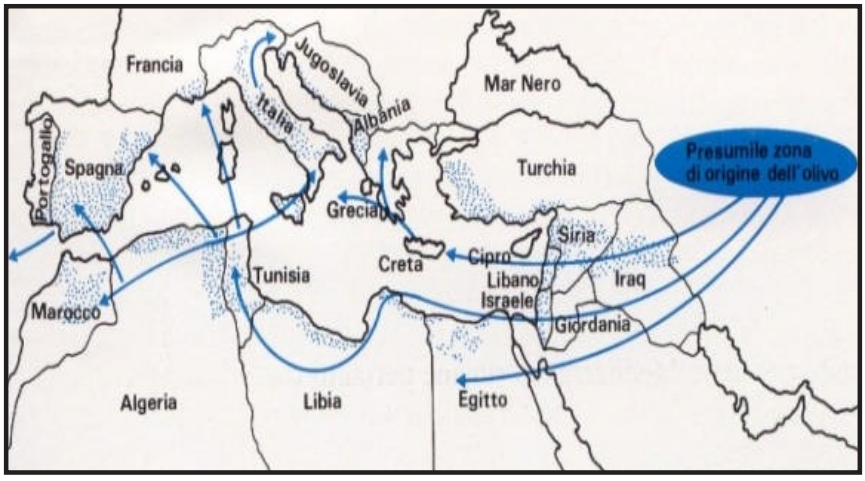
In the VI century BC, olive spread throughout the Mediterranean basin, going so far as Tripoli, Tunisia, Sicily and reaching the central regions of Italy. This tree is thought to be widely known in Italy where it was described three centuries before the fall of Troy, 1,200 years before Christ, (according to Penestrella), who supported the hypothesis that the olive has entered Italy during the reign of Lucio Tarquinio Prisco (from 616 to 578 BC). It arrived allegedly from Tripoli or Tunisia.

Later, the cultivation spread from south to north, from Calabria to Liguria. When the Romans invaded North Africa they realized that grafting of wild olives was widely known there. It was the Romans who spread olive throughout the Mediterranean.

In Marseille, olive appeared 600 years before Christ, at the same time of Corsica and Sardinia. Olive was introduced in Spain during the domination of the Phoenicians (1050 BC). About 100 years before Christ, after the third Roman war, olive plantations occupied considerable areas of the Betica valley up in the center and east of the Iberian Peninsula.

Arabs brought their varieties, especially those of wild olives in southern Spain and spread the culture of cultivation. During the Apollonic civilization, 150-300 BC, trade was present in its ports among French traders whom regularly imported from Apollonia olive oil and wine. Nowadays, olive is found in all countries of the Mediterranean basin. Despite the fact that the markets are dominated by Greek and Italian varieties, recent research has shown that oils from Istria, Dalmatia and Albania are of a particular quality.

Olive cultivation went beyond the Mediterranean basin, after the discovery of America (1492). The first trees to be taken to America were sent from Seville. In 1560, olive was found in Mexico and further in Peru, California, Chile and Argentina, where the first olive tree then inserted, the old olive Araukos, can be still found today. During modern times, olive continued to grow in other Mediterranean countries. Today it is cultivated in South Africa, Australia, Japan and China.



1.2 The history of olive in Albania

The history of olive cultivation in Albania is like an evolution towards a main source of income for rural communities similar to all the countries of the Mediterranean basin.

Olive culture in Albania, as in all other Mediterranean countries, is very ancient. Today there are many studies that prove the antiquity of the origin of the olive in Albania.

Some authors observe that olive has been transferred from Asia Minor along with the displacement of people in Greece and Epirus through Anatolia (De CANDOL, 1883). In this regard, Caruso considers the history of this homogeneous tree as mixed among all Mediterranean countries.

The investigations start from the origin of the name "olive". According to scholars Kafazi and Muço (1984), the name "olive" is derived from the word "Ilirio" which antiquity is supported by many archaeological documents. While under scholars Ismaili and Ruci, the name olive comes from a oleaster, from the oleace family. It exists in two different forms: Wild olive and cultivated olive.

The places of origin of olive in Albania are also ancient centers of civilization (Olive study 2009). In Albania there have been discovered dozens of Neolithic settlements (7000-3000 BC) which prove that these territories have been heavily populated. These settlements were established in fertile lands (Dunavec Maliq), on river terraces and caves. The main activities were agriculture, livestock farming and the production of pottery. It is important to note that some data show that cultivation of plants started for the first time in the Albanian lands in the Balkans, in the region of Epirus, in Cameria, around 6000 years BC. (Fetahu Ervin, 2012)

Furthermore, many archaeological data prove the degree of development of agriculture in the Illyricum, by symbolic figures such as wheat spike, grape, olive branch, etc., which were presented in the coins of the time (olive Study 2009). In archeological findings of the archaic era, centuries VIII - VI BC, some large ceramic pots were found, used for the storage of agricultural products or olive oil (Moikom Zeqo, 2003).

The data on agriculture and livestock for Illyrians in the IVth century are poor. Illyrians are described as masters of olive and grape cultivation, of wine and oil. According to statistics of the Greek state in 1966, in Epirus there were 822 thousand olive trees from a total of 2.141.000, and the amount of oil produced in Greece was 18.477.3 tons, with half of it, 9112. 5 tons of oil, produced in Epirus,. (Ervin Fetahu, 2012).

The olive tree was generous,feeded people in the Illyricum, contributed to their emancipation, saved them from barbarism and promoted culture and civilization. People of Epirus used the crown of leaves and branches from that blessed tree as a symbol of joy and war victory. (Ismaili & Gixhari, 2009).

Contemporaneous authors as Aristotle, Skymni, Arian etc.., merely repeat Hekateun, due to still insufficient knowledge of Illyricum; However, Illyricum was to Greek authors the land of a developed agriculture and livestock farming, the fertile lands of which were used intensively and besides crops (olive growth, gardening and beeskeeping), to grow the best cattle breeds in the rich pastures.

Archaeological studies show that were the Molossoi that spreaded the culture of the olive in Shkodra becouse they did commerce with all Illyrian countries, through the port of Apollonia, Vlora and Durres (Ismaili Gixhari H. & B. 2009). In tomb monuments of the time, there were symbols such as wheat spike, olive branch, grapes, bee, cow, etc.

Furthermore, olive cultivation and use in Albania starts from the antiquity. The archaeological findings show that in the antiquity period VIII - VI century b.c. in Durres, Apollonia, Butrint, Irmajt, Klos, Floq, Amantia, etc. . were found many pithoi (large ceramic containers) that were used for cereals and olive oil.

Many expeditions of the Olive Research Institute of Vlora and of the Genetic Resources Center prove that identical trees are found in the Karaburun peninsula, in Jonufer Shushica, Palase, Dhermi, etc. Ksamili. This is shown also by olives found in the villages of Tirana and Vlora; especially those threes found near ancient settlements are over 1500 years old (Fig 1. 2.). Although the diversity of cultivars according to climate and soil will be treated in the relevant chapter, observations reveal that each area has its own cultivars. Olive plants of almost a thousand years of age that belong to the same particular variety.

In several archaeological excavations, researchers have found fossils of olive tree, container and objects with leaves and fruit, oleasters and seeds painted in fighters shields, clay pots and basoreliefs in Amantia, Bylis, Apollonia, Ardenica etc., which prove the existence of this tree in the last 5-6 thousand years.

It is thought that olive spreaded in the early sixteenth century BC along the Ionian coast, where the culture of cultivation was initially formed and grew, until it became of great importance in the fourth century BC, when Solona adopted several decrees to protect the olive tree.

Olive in Albania is very old, as old as in the other countries of the Mediterranean. This tree is an evidence of culture and antiquity in the west coast of our country.

Skymni (Greek geographer) in the 3rd century BC, describes Epirus and Illyria as a warm and quite prosperous place, full of olive groves and good vineyards.

"Warm and fruitful has been this country, wrote the Greek historian and geographer Strabo in his" Geography "(1 century); it is full of olive trees and vineyards,"follows the author, except for some few provinces where land is quite harsh.

Fig 1.1 Petrelë, White Olive of Tirana

Fig 1.2 Himare, Nisioti

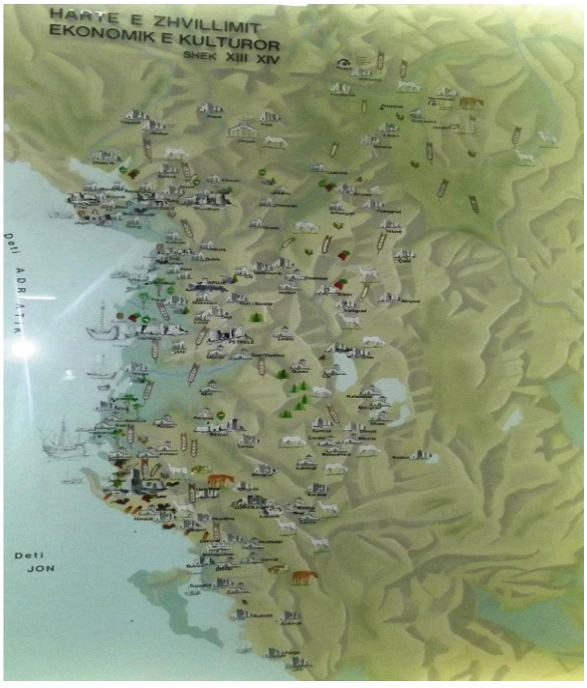
With the fall of the Roman Empire and the subsequent wars, with the growing and continuous military campaigns, Olive was abandoned due to a large-scale destruction of plantations, especially in coastal areas and deep valleys (15-16 centuries). Since then, as an incentive to boost the interest in olive cultivation, Albanian farmers have always had the right to plant olive trees on public lands.

The of olive cultivation in Albania continued to develop during the Byzantine period (the 5th century to 11th AD), especially in hilly and mountainous areas, supported by the excellent road network built by the Romans (Via Egnatia), and the spread of Christianity which promoted the production of olive oil needed for the celebration of the sacred "Santa Cena or Eucaris Mensa" (Sotiri and Çakalli, 2001).

After j.c. there are three recognized stages for the development of olive groove in Albania:

(I) The Venetian influence
(ii) The Skanderbeg Programme
(iii) The socialist system. Up to today there are about 1.7 million years plants of 500-3000 years old.

Historic data show that olive oil was one of the main products traded through the Albanian port of Vlora to Italy since the 5th century.



The map above shows the economic and cultural development in Albania in XIII-XIV century.

Vlora is mentioned in a list of cities with an important port with developed naval structures, which traded olive oil, salt, timber, olives and many fairs took place in its surroundings, as in different European countries. In the same period Himara, Kanina and Dhermiu were known for the production and cultivation of olives. Also cultivation of olives had begun spreading to the north of the country.

A great contribution to the increase of the number of olive plants was given during the ruling period of Skanderbeg, as each newly created family should plant olives as a symbol of peace and prosperity.

Even centuries later, the people of southern Albanian region of Himara exported olive oil in exchange of weapons for the resistance against the Germans during World War II.

Much later, around 1900s, various articles that quote the Olive brand "Vlonjak" can be found, according to which this brand was older than the Italian and French brands, and distinguished for its high productivity, oil and leather impregnation.

Olive groves after the national independence

In the early twentieth century, emerged from a lengthy period under the rule of otman empire, Albania was in a poor socio-economic condition.

The main characteristics were:

- Artisan production dominated everywhere and constituted what can be called domestic industry;
- Road transport and communication were under developed becoming a serious impediment to economic ties and trade;
- Agriculture was characterized by semi-feudal relations causing occasionally famines in many regions of the country.

After the fall of the Ottoman Empire, the rules gave farmers the right to own the trees, but not the land. The Albanian government offered irrilevant incentives to increase olives since independence, in 1912 and afterwards.

Based on government statistics in Albania in 1912 there were 8.1 million olive trees, increasing to 12 million in 2012. More than 10% of Albania's olive trees are estimated as secular (Table 1).

Table 1 Situation of the olive roots in years in Albania

YEAR	No.OLIVE	IN PRODUCTION	PRODUCTION KG/Plant	PRODUCTION 000 Tons
1912 (1)	8100	-	-	-
1929 (1)	5500	-	-	-
1944 (1)	2800	-	-	-
1990 (1)	6000	-	-	-
2000 (2)	4800	3256	11.1	36.2
2005 (2)	4264	3488	8.6	30.2
2009 (2)	5590	4207	11.4	48.0
2010 (2)	6255	4298	16.3	70.0
2011 (2)	7443	4576	14.3	65.4
2012 (1)	1200	5634		

Source:
(1) H. Ismaili, 2013. Germoplazma olive. Catalogue of indigenous varieties of olive.
(2) Annual Stat. MAFCP 2011.

An estimated 27% of olives in Vlora district are of secular age, while in Tirana region the secular olive trees are almost 60% of the total cultivation (Table 1).

The general economic crisis of years 1929 - 1933 had its consequences in Albania. The period 1935 - 1939 marks a stage of revival of the economy. As a result of the policies and support offered by the Albanian governments of that time for both local and foreign investments, much of the economic activity was re-activated. Revival of the industry in the years after the crisis, mainly the mining, agro-processing, construction and processing, electrical, etc.., is shown by the increase of the number of enterprises and industrial companies. In 1944, their number reached 430 from only 244 in 1938 and from only 71 in 1922, while the number of employees rose from 500 in 1922 to 7,435 in 1938.

On the other hand agriculture was still undeveloped despite it employed over 87% of the capable working and despite being the leading sector of the economy which contributed to generate around 92.4% of the national income at the time, despite the fact that only 10.2% of land was regularly cultivated and that the main products were wheat, corn and rye.

The land was cultivated with primitive tools, were the wooden plows prevailed; fertilizers were almost unknown, while almost the whole area had returned to the marshes. The level of productivity and degree of organization and mechanization of agriculture were very low in this period.

Even olive cultivation, since it was part of the agricultural sector, was not at high levels of development. Despite increasing the planted trees in 1939 their number did not grow significantly. As a result the number of trees increased from 1.1 million in 1939 to nearly 1.5 million in 1945. Albania inherited from 1939 around 1,100,000 olive trees.

1.3 Olive Grove in 1945 -1990

Immediately after World War II Albania began building an economic system based on the principles of centralized economy, following the Soviet model of development.

The Albanian communists, who would determine the progress of the country for the following 45 years, as soon as they came to power in November 1944, declared that the primary objective of Albania was transformation from "a semi-feudal agricultural country's (1945)" to a "..agrarian-industrial country (1955)" ..and to reach then the later stage of " industrial-agrarian" country to be consolidated in the 1980-90.

During 1947-90, the implementation of agricultural policies was by models which were completely the opposite to those of the market economy, all land assigned to olive cultivation and arboriculture was a second hand one, mainly on hills. Talented agronomist contributed actively with their scientific knowledge to the creation of major building blocks from Shkodra to Konispol, with hundreds of thousands of olive trees This period is characterized by increasing numbers, but this activity is not associated with the increase of production.

Furthermore, in that period olive trees were divided in two main categories:

- Old Olive groves (or ancient) are composed by olive trees of thousands of years of age with 5 to 10 plants; planting of the later 14th century with plots with 80-100 plants / ha. Old Olive groves are approximately 1 million, based primarily on the rough lands, poor soils and in family gardens. In Vlora, Kruja, Tirana, Lezha etc., there are olive trees from that period that continue to produce still today.
- Olive grove planted in the years 1960-1980, which were the new regions of olive cultivation.

According to statistics, the olive production has fluctuated from 12 thousands of tons per year in the 50s, at 26.7 thousands of tons / year in 1981-1985, while the productivity varied from 7 to 17 kg / plant, reaching the maximum in 1961-1965.

In 1951-1955, the average annual production was 19.1 thousands of tons with an average productivity of 15.2 kg per plant. In 56-60 the production was 12.4 thousands of tons and the productivity was 9.5 kg per plant. In '61-'65 the production was 26 thousands of tons while the productivity was 18.6 kg per plant. In the years 1966-1970 the production was 15.4 of thousands of tons while the productivity was 10.6 per plant. From 1971 to 1975 the production was 20.5 thousands of tons with a productivity of 13.4 kg per plant.

In 1976 -1980 were produced on average 20.1 thousands of tons annually with an average of 13.8 kg per plant. From 1981-1985 were produced of 26.7 thousands of tons annually with 17.8 kg per plant. From '86 - '90 there were produced 24 thousands of tons each year with 9.1 kg per plant.

Table 1.2 Numerical growth and the production in the years 1950-1990

Naming		Year					Increase' 50-'90 Here	Annual Increase %
		1950	1960	1970	1980	1990		
Olive	Sip. 000/ha	11	17	36	43	45	4.1	10.2
	Prod. 000/T *	15.6	16	20.6	22.3	25.8	1.6	4.1

* Average of 10 years

Olive oil production from 1975 to 1990 years ranges from 1,311 tonnes (1979) to a maximum of 5048 tonnes (1983 - year of maximum production). Oil production per capita in the years 1986-90 was 0.82 litres on average, while consumption was lower because a part of the production was exported, although there is no data on this. After 1990 (1992-2008) the average annual production was from 35 to 55,000 tons of olives, about 6000 tonnes of olive oil, around 2 litres / capita. By calculating also the imports, consumption of olive oil is about 3 litres / inhabitant; this amount is lower compared to other countries where olive oil is produced.

Olive oil production from 1975 to 1990 years ranges from 1,311 tonnes (1979) to a maximum of 5048 tonnes (1983 - year of maximum production). Oil production per capita in the years 1986-90 was 0.82 litres on average, while consumption was lower because a part of the production was exported, although there is no data on this.

Furthermore, the cultivation of olives in that period began to be encouraged also through banners and etchings of that time (as the picture below proves). This factor led to the increase of areas planted with olive trees.

Also, under these initiatives more terraces were planted by volunteer work by the youth of that time. This fact is proved also by the following mosaic found in southern Albanian Riviera, dating back 1970, which shows a young girl, new olive plants and the inscription "Protect - Learn - Work".

Before 1990 Olive plants occupied about 6% of arable land. The main characteristic of this period is the very low productivity which was 10-12 quintals / hectare.

There were many factors influencing the performance of arboriculture in over 40 years, among which:

- Lack of an economic approach to the strategy of the sector.
- Extension of olive massive blocks in inappropriate terrain and their creation on only by.
- Low effectiveness of the investments. Multiple replacements and increase of unproductive areas.

With the change of economic system, a part of the olive groves was abandoned because they were not profitable, as a result about 10,000 ha or 22% of the existing olive trees were destroyed or abandoned.

From the 50s to the 90s the cultivated area grew 4.1 times while the production grew 1.6 times. This period was characterized by an extensive development.

Through the implementation of centralized economic planning, working as "volunteers", an army of students, volunteers and farm operators were put under the scientific supervision of the Institute of the Olive Tree of Vlora to increase the number of olive trees. Many olive state farms were established in appropriate regions. Besides the increase of olive trees, management issues associated with old olive groves were also included under the same scheme.

Furthermore, in the mentioned period (around the 70s) the cultivation of the olive tree began being promoted in China, through a bilateral project between China and Albania. Based on this project, 1500 Kaninjot cultivar seedlings were sent to China from the city of Vlora. PhD. Godo Vjero and PhD. Demetrio Muco were the first specialists to begin the creation of the culture and experience of olive cultivation in China.

However, despite the high level of human efforts and funding, the development of the olive sector was slow due to poor organization, difficult terrain, the use of unqualified and unpaid workers and lack of marketing; all leading to low productivity in new olive plantations.

1.4. Olive trees after '90

In the early 1990s, with the advent of the market economy, a good portion of olive plantations were abandoned due to emigration, the population inefficiency and land cleansing to open construction sites. The emigration of youth left the olive plants without care, under the threat of fire and in competition with different herbs and shrubs.

Sadly, 10,000 hectares of olive orchards were abandoned or destroyed, including damage from the construction of hotels and houses in southern Riviera. However, during 1992-2008, a total of 2 million of new trees were planted in small plots on hilly terrain in an attempt to compensate the lower productivity and the irregular position.

Olive production has nearly doubled compared to 2010. The production of olives in recent years has been supported by the subsidies granted by the Ministry of Agriculture through national support schemes. After 2007, there was a significant increase of plantations, stimulated by the national support schemes. Olive cultivation areas have increased by about 60% since 2007.

Also the productivity of olive trees has been significantly growing in the country from 8.7 kg/plant in 1992, to 16.3 kg/plant in 2010. Furthermore, a significant increase in productivity can be noticed from 2010 to 2012, where the average productivity nationwide has increased to 26 kg per plant. The quantity of olive oil produced is intended mainly for domestic consumption.

Nevertheless, the production is still quite fragmented and productivity is still low because farmers do not comply with the proper agronomic services, while apply some inappropriate practices on harvesting of olives and inappropriate conditions of storage of oil.

Currently, the sector needs support to improve the process of harvesting and post-harvesting at the farm level (for both types of olives) regarding the quality and organic production. In addition, support is needed for marketing, packaging, labelling, especially for export because it is still at very low levels (10 tons in 2012).

1.5 The territorial distribution of the olive in Albania.

Albania, lying between the parallel 39 and 42, located in the band and under the influence of the Mediterranean climate which is considered as the most suitable area for olive cultivation (Figure 1.3, Figure 1.4).

Figure 1.3 Areas of Mediterranean olive spread

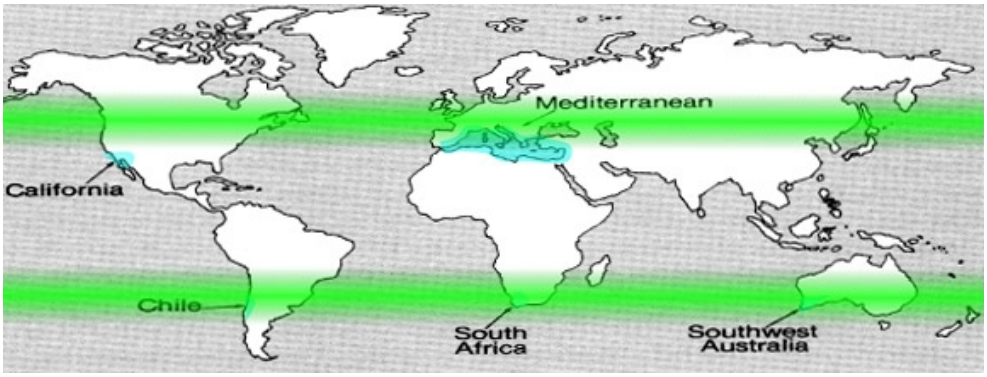


Figure 1.4 Mediterranean climate zones of the world

Olive is concentrated in Western lowlands that include the area of Ionic and the Adriatic coast and it extends to approximately 70 to 80 km inside the country to the mainland through the rivers valleys. The boundaries of olive start in the valley of Drinos,Vjosë, Osumi,Devolli, Shkumbini, Erzeni, Mat and Drin, until where there is Mediterranean climate. The presence of suitable microclimates of the hills and of the foots of the mountains has allowed olive spread to remote areas as Përmet ,Tepelenë,highlands of Elbasan, Kruja, Tirana.

Olives, in our country, are present in the hills and coastal mountains up to 500-600 m above the sea level. In these areas, even today one can found adapted olive trees which have economic, environmental and social value. These olive trees can be used as source to be improved and to be spreaded.

Studies show that the homes of oldest olives have been also the homes of early civilization. Homes of old Olives in Albania are also centres of civilization. Around medieval castles and former millennial civilizations there is a variety of species olives for table use or oil with limited extension and very well adapted to the pedo-climatic conditions. In the centers of early civilization as Petrela, Kanina, Preza there are example of olives of age from 1 500 thousand to 3000 thousand years. Evidence of attempts to expand the areas vertically are the old olive trees in Kruja, Tepelenë, Tirana, Vlora, Berat etc..

1.6 Olive in archaeological records.

Olive culture in Albania is very old, as old as in other Mediterranean countries. Olive in the western part of the country is an evidence of culture and antiquity we inherit from our ancestors.

Albanian archaeology has found that oleasters existed already 12,000 years BC. In our country, the cultivation of the olive Olea europaea sativa L. ssp is known since 5000 years ago in the center and south of the country.

Archaeologists have discovered parts of the olive tree and seeds of oleasters in containers, warrior shields and bas-reliefs. Vases that attest the existence of developed olive production in antiquity were found in Apollonia, Bylis, Kanina, Himara, Orik, Cerje etc. .

The quickest development has taken place since over 500 years before JC. This proved by the presence of waste from oil mills dating 300-350 years before JC. (Amanti, canine, Cerje, Longford) (Figure 1.5, Figure 1.6).

Figure 1.5 III century oil mill BC Bylis, Hekal. (Photo © H. Ismail)

Figure 1.6 Mural Painting, olive trees. (Photo © H. Ismail)

Skymni (Greek geographer) describes, three centuries BC, Epirus and Illyria, as a warm and prosperous, full of olive groves and good vineyards. (1972 N. Cage). In the civilization of Apollonia (150-300 years before JC) the commerce with French merchants was well developed.

When invaded Illyria, Julius Caesar describes the olive groves of Aulona as widespread and important, while Illyrians as masters of cultivation of olives and grapes, of oil and wine. As descrived, in the port of Apollonia there were constant relationships with French traders who imported regularly from locals, olive oil and wine. French describe the Illyrian oil and wine, as very tasty and aromatic. According to the Frenchmen the olive tree was generous, fed people in Illyria, and emancipated them, had saved them from barbarism, had increased their culture and civilization.

The antiquity of olive in Albania is proved also by the existence as of today of many secular olive trees. An olive tree estimated around 3,000 years of age can be found in Petrelë, and also similar olive trees are found in Lanabregas, in Shtish-Tufina, in Preza etc., estimated as 2000 and 3000 years old.

Ancient exemplars were found in Kanina, Trevllazer, Oshtime, Himara, Qeparo, Dhërmi, Gorishovë and Konispol.

Prifti dhe Kafazi, describe the country as old as the other countries of origin ofn this tree. These descriptions are based on archaeological evidence and facts which are highly appreciated and equivalent to analogue Greek, Roman and Arab documents and descriptions.

CHAPTER II

OLIVE IN MYTHOLOGY AND ART

2.1 Mythology and symbolism of the olive

In mythology and symbolism of the Mediterranean, the Olive represents rebirth, light, quiet, victory, wisdom, euphoria. Olive trees are also usually considered as a symbol of peace and because the olive grows to be extremely old and is able to produce fruits constantly, olive also became an ancient symbol of fertility.

"The mystic brightness of its history" Global Gourmet

Greek mythology is particularly rich in references to the honoured olive tree. In fact, many of the gods and goddesses of ancient Greece are believed of having been born under the branches of the olive tree. It seems possible that this is the reason why the olive leaves decorated the garlands given for achievements of soldiers and researchers, olive branches and jars of olive oil are given to victorious athletes, and tombs from antiquity were adorned with artistic crowns from olive leaves. Ancient sailors have honoured the olive tree by posing an olive branch between the hands of the image of their god, they asked for protection from the potential anger of Poseidon, perhaps the most famous and loved tale on the olive tree which explains how Greek myth of olive tree was brought to Greece.

Zeus, ruler of the heavens and the father of gods and mortal heroes, promised to give Attica and its newly built city to the god or goddess who created the most useful invention. The winner would become the protector of the new city and the city will take the winner's name.

The competition was narrowed to two competitors, Poseidon, God of the Sea and Athena, Goddess of Wisdom and Arts. Poseidon struck the rock with his fork and poured water, followed by a lovely powerful horse capable of winning wars. Meanwhile, Athena struck the rock with a spear and created the olive tree, a tree which possessed the power to illuminate the night, cure the wounds and nourish the body. Zeus was delighted of this creation and in this way, Athena was honoured with becoming the protector of Atika and its new city. Athena planted the olive tree in her "rock", a rock guarded by soldiers who were ordered to protect the tree. The "Rock" became known as the "Acropolis". She said that the son of Poseidon tried to uproot the trees, an act which proved to be impossible, because the tree roots were embedded in the rock. In that useless process, he injured himself and moreover, as a result of this act of sacrilege, he was punished to death. Athenes sacred tree was burned by the invading Persians. However, miraculously, the tree reborn itself and its saplings were planted throughout Greece. Olive, therefore, became a symbol of everything that was good and noble in humanity, as a symbol of eternity and perseverance. Besides to Athena, that was the protective godess of Athens, there are other important references to olive tree in mythology. Irene, Greek goddess of Peace, is typically portrayed with horns of plenty in one hand and an olive branch in the other, connecting so the abundance to the peace. In a scary note, Homer describes Odysseus sticking an olive branch in the Cyclop's eye to blind him and thus saved himself from being eaten.

2.2 Definition and meaning of the olive branch as a Christian symbol

Christian symbolism in art provides for a clear graphic illustration which represents the people or items of religious significance.

What is the definition and meaning of Olive Branch? Olive is an evergreen tree cultivated in the Mediterranean region since ancient times until nowadays; has glossy edible fruit. The Olive branch is a Christian symbol representing peace. That's because a pigeon returned to Noah with an olive branch, letting him know that the flood had diminished and that Great Flood of the judgment of God was over. The specific reference to Olive Branch in the Bible is:

"Gen 8:10 He waited seven more days and again sent the dove out from the ark. 11 When the dove returned to him in the evening, in his beak was a freshly picked olive leaf! So, Noah knew that the flood has abated from the earth."

Only in the Bible, there are more than 140 references to olive oil, which supports the notion of olive cultivation was as prolific in the land of Canaan. Perhaps one of the most famous Biblical references, found in the Book of Genesis, refers to what happened in the Garden of Eden where God visited Adam Patriarch and gave him as a gift, an olive tree to be planted in the garden.

Adam was given very precise instructions from God to cultivate and care of it. Through it "oil that will heal human wounds and fighting all diseases" can be produced. Olive oil was seen as a particular gift of God in the garden and Adam was charged with the responsibility to pass this gift to future generations.

Also in the Bible proceed further with the saying: "And God blessed man with wine that causes happiness in the human heart, oil to make his face shine, and bread which strengthens the man's heart. " David, Psalm 93.

What it is generally agreed is that olive oil has been used before, as a lubricator, along the Mediterranean and afterwards it was used as food or fuel. Its use was so important that oiling evolved in a deeply religious rite.

There are countless references to crops oil, the cultivation of olive and use of olive oil in the religious scriptures of Judaism, Christianity, Islam and the sacred texts of ancient Egypt, Greece and Rome. Ancient Greek ceramics describes the rites in which olive wreaths and branches are offered to Greek gods as symbols of blessing and purification.

Catholic symbols or icons, such as the olive branch is an object, character, figure, or colour used to represent abstract ideas or concepts - a picture that represents an idea. A religious icon, such as the olive branch, the symbol of the Christians, is an image or symbolic representation with sacred significance. Meaning, origins and ancient Christian traditions on symbols date back in ancient times, when most of the ordinary people were not able to read or write and printing was unknown.

2.3 Myths and traditions of the Albanians.

All ancient writings tell us that Pelasgians were people full of religious feelings and that all ancient mythology can be attributed to them. This opinion should not be opposed. Myths, traditions, rituals that are associated with the olive, if you study carefully, lead to ancient times. (Irena Gjoni 2011). Consequently, all practices associated with olive cults are connected with pagan practices of the Albanian people during the period of Christianity. All these practices are much more widespread in south Albania (the coastal area) where the concentration of olives has been higher. Irena Gjoni, in her studies, mentions a series of rituals where olives and olive oil were used... "It should be mentioned the use of olive oil in the lamps of churches and monasteries in the area, the use of olive branches on Jan. 6, the Day of Blessed Water and in many other cases in Christian rituals. Also known is putting olive oil and wine on the bodies of dead people ... ". There are also a number of myths associated with the olive tree, in other regions of Albania, which are connected mainly with the religious practices of the Albanian population. In Albania, there were many rites dealing with the cult of fertility connected with plants and were part of celebrations of important agricultural and livestock annual cycles.

Renowned Albanian ethnologist, Mark Tirta, explains that the cult of the olive has been one of the most important manifestations of the cult of sacred trees ever known in Illyrian-Albanian areas.

Also, olive had a wide symbolism in the cultural tradition of Indo-European population.

Olive myths should not be considered separately from those of ancient Greece.

Athena wanted to give her name to the new city established in Attica. Poseidon also wanted the same thing.

The gods' court decided that this honour would be with whom would provide the best gift to the new city. Poseidon hit the ground with his fork and created a water source from the Acropolis. Athena hit the rock with a spear, and an olive tree grew from it. The gods considered Athena's gift more valuable and decided to give the city her name. Simultaneously, according to Greek mythology, Athena is the goddess who taught people to make olive oil.

In mythology the olive tree appears also to goddess Irene. She was the daughter of Zeus and the Temides and she personified the peace. She was a sweet woman who holds the horn of plenty in one hand and an olive branch in the other. Also, Odysseus and Penelope had their bed located in an olive tree. Ethnologist Yvonne De Sike said: "Olive is the tree of peace, fertility, purification, and the reward for victory."

Olive cults and myths are prevalent in all areas where the olive tree exists, and the most prominent are:

Buzmi

Marriage of the olive tree with the fire

Coronation of the bride

Ritual of good luck greeter

Ritual of Summer Day

Ceremony of the olive harvest

The most important area regarding the preservation of traditions and myths in Albania, is the area of the coast (mainly Himara). Generally all the myths and cults refer most to the oral tradition which is transmitted from generation to generation by parents to children.

Buzmi

This is a popular ritual. According prof. Eqrem Çabej the word Buzmi, in the sense of the ritual chump or beyond it, is part of the vocabulary of Albanian natives who inherited from ancient Indo-Europeans, and since there this word has peregrinated to other languages.

In the Buzmi night, the Christmas night, a family member, called the Buzmar, got out in the yard and calls the name of the house owner, saying, " The Buzmi is coming, bringing bread, cheese and every good thing!" Then, the owner of the house says, "Welcome!". Then a piece of wood or chump, "a Buzmi", was brought in the house from the Buzmar, who carry it in his back, and the Buzmi is greeted by the whole family. The Buzmi is treated with great reverence and all call it "the generous Buzmi", as it was a distinguished guest. On this chump "buzmi" a full meal of food and drinks is put as a sign of welcome to the honoured guests and then it is burned as a sign of sacrifice. Once ignited, the burning should last all the night. When it ends, the ashes are distributed in the fields or thrown under fruit trees, in order that in the next year provides a good production. The Christmas custom of Buzmi wasnt held only by Catholic families, but also from Muslim families, which shows without doubt that this a ceremony of pre-Christian origin, associated with the waiting, in winter solstices days, for the spring to return and nature to regenerate. In some parts of Albania, the Buzmi chump is ignited on the Christmas night extinguished, lighted up again on New Year's night and then ignited for the third time on Epiphany's. As a Buzmi (chumo) it is used a chump of vine, of olive tree or of other plants and it represents the demon of respective plant, which is sacrificed, for a strong renewal the following year, to give strength, and productivity to the represented plant (grape, olive, apple, mulberry and so on).

It seems interesting to point out that in most cases the Buzmi consisted of a one or more fruit trees, a fact that speaks out for an ancient traditions of tree fruits and vines, which is confirmed also by various evidence of historical character. It is interesting to note that, although the Buzmi could consist in one, two, three or more branches of fruit trees, in most cases it was accompanied by pieces of oak tree. (Mark Tirta, pg. 287).

In the Coastal area, the Buzmi was made only with olive tree wood because olive was a cult in itself. (Mark Tirta).

In Himara, the "Buzmi" was put on fire the night of New Year. (AE. tribe of Himara, 1933, p.23) and had to burn for three days and three nights on 24, 25 and 26 December. Regarding, this area all the Buzmi tradition was described by Irena Gjoni in her studies on coastal myths. "... If the olive tree did extinguished, it was stoked to continue burning. If it burned prematurely parts of it were extinguished to be re-ignited again. Sparks and ashes of the Buzmi were considered, in popular mentality, as magical. Sparks of Buzmi would bring good luck, marriages and births in the family.

Therefore, it had to remain lighted, otherwise, if extinguished; it was bad luck for the house. It represents demon of the olive plant that should be sacrificed to reborn more productive the following year.

In Dhermi, the Buzmi was stoked with pincers. The more sparks meant more prospering. In Lower Coast, in Piqeras, the Buzmi was stoked by unmarried girls singing a song:

“Cili, cilividhëza,
Dilni moj shkëndijëza,

Bjena fat e mbarësi
Dhe nga një bandill të ri."
And another example
"Mor mashan, mashan i gjat'
nxirri xixat la më la (lart)
Mori xixë xixëza
hidhuni te vatërza."

In Pilur, the Buzmi day of celebration is known as St. Nicholas. On that day at the centre of the village 10-12 men and 10-12 women would dance and each group would sing its songs. In Himara and Pilur the songs were:

"Krisht e Shën Mëri,
Për vit të kemi plot
Buzmi xixa të lëshojë
Të jemi mirë me mot."

Some of Buzmi ashes were collected and spread in the fields, to have more production. Few of it was spread almost to every olive tree, the prosper and sacred tree, the tree of peace and good luck. A part of the ashes was kept in a dry place.

The Christmas "chump" was given a glass of red wine, honey, put into a pot of wheat and a burning candle was put nearby, inserted. During the ceremony men would fire their guns, chop the woods and wish to have a good production and prosperity.

Buzmi was used also as a meaning for the fire bridge. Here is a lamentation of the Coastal area:

"Të qajnë qoshiat e konakut,
e të qajnë Buzmit e zjarrit

e të qan bregu i vatrës
e të qan rrethi i sofrës".

The Buzmi ashes also served to break the evil eye on young children or on young brides. When children "were eaten with eyes" and crying for no reason, the Buzmi ashes were dissolved in a cup of water added little sugar and given to children to drink. They immediately calmed and fall asleep. The same was with the young brides.

In Piqeras of Saranda the Buzmi of Christmas was a big stump of olive tree. (A E. Fire Cult, Piqeras, 1972). (Mark Tirta 285).

Marriage of olive tree with the fire

One of the rituals auspicating good luck was the ritual known as the "olive marriage" or the "marriage of Fire". The scholar Ndoc Papleka, described in detail this ritual, in relation to the two main elements used in it: olive, exactly olive leaf and fire, exactly the heated fireplaces.

The same ritual was studied also by Mark Tirta and Minella Gjoni, who provides more or less similar versions. It is important to point out that this rite relates to the Christian religion and performed only in the families of this religion.

Ndoc Papleka, in his book "cults, rites and magic in the oral tradition," says:

"..The Olive leaf is thrown in the hot fireplace after the embers are taken apart. Leaves were thrown according to this criterion: in the beginning, it was thrown for the owner (male) of the house, then for the lady of the house, for the oldest son, and so on for each family member. The rite action was accompanied with word which pronounced the name of the person to whom the leaf was dedicated, then a request was pronounced, and the answer was expected to be given by the supernatural forces.

The markers of this response were whether the leaf burnt immediately or slowly and from the speed of spinning. These markers would reveal the character of the person concerned, who can be lazy and clumsy or agile and quick. For the unmarried, the markers anticipated when they were getting married, while for the older people their longevity. The answer was positive when the lucky leaf rotated three times ...

Below he brings the opinions of residents of the area:

"... Qiriakulla Qiriaqi:" In the middle of the embers and hot ashes, an olive leaf is thrown for each family member. It distinguishes who is lazy. If it does not burn and spins around, the man is smart, wise, prosperous and lucky in marriage. If it burns, the fate burns too. "

Alexandra Cani: "It is not good when the leaf does not spin, does not make noise."

Foto Brixhili: "We take olive leaves and put at first the owner of the house. We say: "This is the olive leaf for the owner. If the leaf dances around, he is lucky. If the leaf burns, he is worried. Then throw one for the oldest son and so on. "

Andrea Vera: "On New Year we throw the olive leaf. When the leaf jumps, man is fortunate and joyful through the year. Who throws the sheet, says: "I throw this sheet for (i.e.) Milon."

Vergjina Kabuci: "When we throw the leaf we say:" I throw this leaf for Andoni. How long will he live? "

As in other rites, the spoken text can be built in the form of a dialogue.

Jerasimo Gjikondi: "The fire marriage is practiced on every holiday. We say - Who shall we throw - Jeron. If the leaf burns and does not move, he will die."

To avoid negative answers the ritual is repeated until the answer is right.

Petro Aleksi: "Who throws the leaf, says:" This leaf is for my first son, Andon. "Him, who's leaf jumps more in the fire, is the most brave son. If the leaf burns immediately, we repeat the throwing."

Another ritual action with magic character is hiding of the olive branch, from which the leaves would be cut.

Nako Dhimitri: "The leaf is thrown for the father, mother, big brother etc.. Secretly they took olive branches, until the moment that they got married."

A magic and religious connotation has the word "dance" too, which is used to describe the olive leaf movements when it is released in the hot fireplace. I think this metaphor refers to the ritual dances, which were some of the most powerful tools to communicate with gods. Simultaneously, it shows the antiquity of this rite ... ".

According to Mark Tirta, the marriage rite of Olive and fire is realized in this form: "In the evening they took an olive branch with green leaves. They opened a little space in the burning fire and in there, they clean up a spot. They throw an olive leaf, saying: "This leaf is for so and so". If the olive leaf made noise and jumps, the person will have luck, joy and health during all year long. But if the leaf burns without cracking and jumping, the man would have bad luck, sadness and possibly death. In some cases, the rite started from the owner of the house, in other cases started from younger children to adults ".

Minella Gjoni, described the rite of marriage of olive with fire in this form: "... In every house there was a large fire in the fireplace, until the hearth was fully heated.

With fireplace tongs they opened the fire until the tiles can be seen. Then the lady of the house who had cut the olive leaf from an olive branch known only to her, launched olive marriage, or fire marriage. She took a olive leaf and at first she mentioned the name of the householder and than she threw the olive leaf in the hearth.

If the leaf jumped up, it meant that the householder will be lucky and good things were going to happen that year. If the leaf does not jump and burns something bad would happen to the householder. So, the leaf was thrown for each of the family members. Everyone watched their fate carefully. It was good that the leaf, cracked, jumped and not burn. It was said for every person: "I throw this leaf for X" mentioning the person's name. When the ceremony ended, the olive branch with the remaining leafs was hidden and no longer used. Only the lady of the house knew where the hiding place was... "

Coronation of the bride

In all the coastal area but also in the entire South of Albania, a very important ritual is the coronation of the bride. An olive or laurel branch was put usually . Olive Branch was to bring luck to the bride and to the groom because of the cultic universal values of this tree, prosperity and fertility.

According to Irena Gjoni the Coast residents believe that the olive branch is good luck not only on the wedding day, but for the entire life of the couple, for births and raising children as well. Also, it is seen as one of the most important factors of inheritance and continuity of the life of the family. The boy's father sings to the wedding:

“Njëqind ullinj në gropë,

Djali m'i trashëgoftë,

Bëftë djem e i gëzoftë.”

Also olive trees were given as a part of the dowry for girls. The father of the bride sings:

“Vajzë nuse e babajt,

Ullinj do të vë në paj”

At the same time, the rite of coronation of the bride is characteristic for Rradhima area. From the book "The Radhimjote World" we understand that olives occupies and an important place in the coronation of the bride in the area.

On Saturday, at the house of the bride, the wedding reaches its peak. The guests, dressed in their best clothes, come to dinner. Men baked the meats and women prepared the tables. Meanwhile in the men's room and women's room the singing continued in groups. The Saturday passed full of joy and songs at the home of the bride leaving the turn, on Sunday, to the house of the groom and to the ceremonies for the bride's waiting and escorting. Sunday morning, the schedule foresaw the departure from the groom's home to take the bride in a ceremonial manner. The wedding delegation would always go in odd number to get the bride, because they would come back in even number.

Before departing for the groom's house the bride would the “cipulli” (duvaku), which consisted of two sheets of calico or silk; one red and one white. This was sewed in a conical shape, thrown on the head of the bride, covering more than half of her body. On the head, a garland of fold flowers was placed along with a small olive branch. The reason why an olive branch was used was that the groom's family wanted a wise bride, peaceful and productive as the olive ; to fill the house full with children, as the grains of an olive branch ...

The rite of olive branch in Radhime continues and after marriage, because of the tradition that the bride had to return to visit her parents. As rule, the mother in law prepared for her a thin cake to be brought to her parents with a quince and an olive branch placed in between and five small cakes of wheat.

The rite of olive branch in Radhime continues and after marriage, because of the tradition that the bride had to return to visit her parents. As rule, the mother in law prepared for her a thin cake to be brought to her parents with a quince and an olive branch placed in between and five small cakes of wheat.

Furthemore, each new family in the village would plant 6 plants (saplings) of olive (three the men and three the bride), because this way that they would have a house and prosperity.

Therefore, as conclusions we can say that the olive tree is considered as a very important symbolically even in the most beautiful day of the life as it is the wedding, for the multidimensional content of olive worldview in Albanian people's understanding in centuries.

The ceremony of good luck

In almost all of its provinces, Albania has had the custom that in the day of the New Year or in other celebrations related to agriculture or livestock farming to wait at home, for the visit of a person who was considered to be lucky for the family. This person was considered to bring luck and prosperity to the family for the year to come. Usually this was a child, but could also be a grownup. In most cases the person had to be a boy, but a girl could be too. The person should not be orphan, should have a happy family.

In different areas this rite appears in different forms and at different times. Over the years, in many areas, this rite is faded and the tradition has not been the same as in ancient times. However, mainly in rural areas this rite is still present.

Generally when the child came to visit he was treated with the fruits or foods that were previously prepared for this occasion. If in the following year the family would not have prosperity, they will change their person who will "do feet" (bring luck) at home.

This rite has a connection with olive trees and this is very evident in the coast area and across the region of Vlora.

According to Mark Tirta the rite is in this form: "Early in the morning of New Year, a child comes to visit “do feet” and wishes the happy holiday. The child who would come first was agreed in advance. He should have alive the mother and the father, from a family that had always prosper. The child would come with an olive branch and bring a plate with food from his home. The child would give it to the women of the house, and when the visit was over, the women would give him other things to bring home. The branch of olive was then kept in a special place and taken care as a sacred object. It should not be breached because it was a sin that would bring bad consequences. An orange with coins was given to the child. "

In her writings, Irena Gjoni has analysed the rite through an analysis provided by scholar Minella Gjoni. This is how he describes this ritual: "Agreed a day earlier, a child up to 10 years would have to make the first visit of the year.That day the the respective family would give to the child an olive branch with green leaves.

Entering of the house from the child symbolized the opening of the door of a new time. The child would came with a plate with corn and boiled wheat, an orange, 4-5 pancakes, all wrapped in olive branches. The child would give them to the hostess. (Sometimes instead of waiting for a child to visit, they would put in the fireplace in the morning, a lamb, a sheep or a ram). The child, who was proved for to be fortunate, was covered in gifts."

Anton Papleka, describes the rite of “fortunate” person in this way: "On New Year's dinner, we get olive branches with olives and leave them outside the door. At 24 o'clock, the night of December 31, we steal water from any of the village fountains and together with the branches of olive we make the “right foot” at home (enter the house). During the day we already agreed on a child that would come, with a plate of candies and Turkish delights, to the house at daybreak of January 1. We leave the door open. If we have noticed that this child has brought prosperity, we don't change him. The child should be a boy and a lot of gifts are given to him. The plate is switched; what he had brought is taken and then the plate is filled with food that the woman of the house has cooked.

The Ritual of the Summer Day

The Summer Day celebration has been an integral part of our ethnic identity (ref. Prof. Kristo Frasheri). Summer Day, as New Year's is a celebration of all Albanians, regardless of region, idea, belief or religion. Summer Day has historically been associated with the first day of March.

In antiquity, March was the first month of the year; this by the Julian calendar. As is known, in Western Europe, the Julian calendar was implemented until the Gregorian calendar took his place.The year calendar needs to begin with the month of March so that the seventh mouth is September, the eighth October, November the ninth and December the tenth.

Such names have remained the same, from 15 October 1582, time when the Gregorian reform took effect, although they are respectively now the ninth, tenth, eleventh and the twelth month.

But, as the known academician Professor Kristo Frashëri argues, the old Albanian calendar seems to date earlier than the Julian calendar, which was proclaimed by Caius Julius Caesar, in 46 BC. The first day of March marked, as well as today, the start of spring. People are eager to emerge from winter, the snow melts, the nature goes green, the flowers blooms, the lambs play, kids play on the fields and hills, everybody is happy.

At the same time, on the Summer Day has spoken also the known publicist Faik Konica. He said: "Friends, companions of the Albanian Summer League, I send to you memories of friendship, congratulations from the heart, for the Summer Day that is approaching us. We couldn't celebrate this year this beautiful day: but if is not possible to celebrate it physically, we will celebrate it with our hearts. "

Then he continues: "... It is the day on which our forefathers, even before Christianity was born, celebrated it with the Romans and the Ancient Greeks, the gods' of flowers, of willows, of fountains. When the winter is gone, when summer approaches with a smile as thin and tall as a picture of Botticelli, the human heart removes a burden, enjoys serenity and sweet happiness. In this joy, our ancestors felt the duty to worship the gods that brought these kindnesses. And so was born the beautiful celebration called Summer Day ... "

Mark Tirta identifies the role of the olive tree in the Summer Day celebrations: "... In various parts of Albania, in the North and in the South, there is a custom to put on a Summer Day some green sign at home and in the livestock hut, as a sign of prosperity and fertility. In most cases they put cornel branch, because they bloom in winter. In regions that have olives as Berati or in the southern coast, people use olive branches ... "(Mark Tirta).

2.4 Olive in popular culture and art

Olive has its place and importance in popular culture and art. In the popular culture there are many customs connected to with this sacred and generous tree. On the cover-dress for brides is put a garland of olive twigs tied with a blade of grass, symbol of blessing, happiness and prosperity for the new family.

When Brikena, the daughter of the Dardan King (Bardhyli), was married to King Pyrrhus, on her veil there was a crown of olive branches with olive leaves and fruits tied with with grass. This ritual is inherited generation after generation conserving its place and its importance in popular culture and art.

The Epirotans/The Illyrians used in rites the crown of leaves and branches of the blessed tree, as a symbol of joy and war victory. Garlands with Olive branches and leaves were given to those who did outstanding things for the homeland.

To Scanderbeg, olive was a symbol of prosperity and his citizens should plant 10 (other sources say 15 or 20) olive plants in cases of marriage, as a blessing rite. Marin Barleti describes the destruction of Drishti olive groves by Hamza Kastrioti as a sign of defeat.

In the taxes book (archive of Scanderbeg), there is a mention of a rich person named Pavllo Kurtiku, who owned secular olive plants.

2.5 Olive in folklore

Besides the mythology and verbal folklore of Albanian people, Olive has been an integral part and it is mentioned also in the written folklore. The ancient heritage of the olive is present in many Albanian stories, songs, proverbs and sayings, honouring the plant and emphasizing its economic importance.

The olive fruit in itself is a symbol of beauty, in some folk songs, the eye of a beautiful girl is compared to the fruit of the olive tree. The shadow of the olive tree was the place for celebrating, from there a very popular dance song of southern Albania, named "dance under the shadows of olives" (p. Rama, pers. Com.)

Although there is no written evidence but still supported by many scholars, a legend says that in order to remedy to the destruction of olive plantations in the 15th century, Skanderbeg, Albania's national hero who fought against the Ottomans in the 15th century, decreed that each couple had to plant olive trees before marriage.

To many secular olive trees were given symbolic names, as in Piqeras, where you can find the "Olive of Skanderbeg" and "Olive of tears". According to locals, their ancestors planted olives to commemorate the marriage of Skanderbeg, but only one exemplar of them still exist. "Olive's Tears" was a ballad for women who watched their husbands leaving as emigrants and travelling by boat to the first station of their journey, the island of Corfu. In the area of Tirana, olive branches were put on the brides' veils as a symbol of longevity, happiness and harmony for the new families (Osmani, 2002).

According to Albanian tradition, mistreatment of olives is seen as an intuition of future events, especially as a sign of bad times to come. If an olive tree was damaged, while working the land, it was a sign that something bad would happen as war, earthquake, etc. This was one of the reasons why people built strong stone walls to protect olive trees.

At the same time, Olive has conquered its place in the sayings of our people. Our people considered olive as part of their family heritage and expressed this fact also in expressions. Some of the widespread sayings are: "who plants an olive makes a fortune"; "olive is inherited from grandfathers, chestnuts from fathers, only a mulberry can be planted by yourself".

Olive has is mentioned in a number of idioms or proverbs that are still part of the folklore of our people.

"Getting (suffering) the black (fluid) of olive" which means people who are extremely suffering and tormented (vocabulary of today's Albanian language).

"Waving an olive branch" is an ironic term that means a person who tries to show others that is allegtely an ardent defender of peace in order to hide the war-mongering intentions.

"I do not eat that olive" means a person that the others couldn't be lied to, nobody fools him.

"To give more olives than bread" is an expression used when someone does not listen to the advices, , reprimands or remarks.

"The Miser does not give even the black of the olive " - this is a southern Albanian proverb that refers to the stinginess people.

Besides idioms and proverbs the olive is mentioned also the folk verses and songs. Looking carefully one can see that these songs, where olive is mentioned, are mostly of middle and south Albania. In the majority of cases, olive is not the main motive of lyrics, but however the mentioning shows that for the Albanian people has been a very important part of their daily life.

In Tirana area there is a very well known popular song named "At the olive on the hill".

"...Tek ullini ne Kodersen
Prite lalen se po vjen
Te ullini ne Kodersen
Prite lalen se po vjen
Prite lalen se po vjen
Kam nje llaf e do ta them..."

Hence, the olive tree was considered as a place of peace and purity, where young people could express love.

Also there is another song in the south : "When my husband comes home".

"...Kur me vjen burri nga ullinjte, / marr nje shkarpe e i nxjerr syte./ Kur e shoh burrin pa drite, / plot me lote me mbushen syte...".

It is understandable from this song that in the south of Albania, olive cultivation and farming were the main activities of the population in that time. Farmers possessed at least some olive trees that serve as food basis for their families.

Olive is mentioned also in the Cameria songs:

Ne ulliri në sohor,
frin një erë e bin një borë,
shkon një trim vetullahollë,
me martinizën në dorë

Sami Frashëri also, wrote a tale on the importance of the olive tree. The main purpose was to promote the planting of olives as an important property of cultural heritage of the Albanians, but also as an important source of wealth for them.

The tale is called: others have planted, you eat- you plant the others will eat.

2.6 Olive in art

Considering the story of the olive tree, it is difficult to imagine any rival food having the consideration as olives in so many cultures. Since the dawn of civilization, olive has been revered as sacred and immortal, it has provided support and food, it meant peace and prosperity. Poets, artists, historians, physicians, gods, goddesses, priests and prophets have exalted its virtues and its qualities. Olive has its place and importance in popular culture and art. Since the ancient periods Albanians have painted olive branches in their amphoras, because olive has been an indivisible part of the entire cultural heritage. This fact is proved also by the vase below, which is of the Hellenistic period and it's now in the Archaeological Museum in Tirana. It is a red-figured Pelik; on one side presents a woman sitting, and on the other, a man (Eros) walking. He holds a disc in his right hand; parts of the body are decorated with palmettes, olive leaeas and spirals. The mud used is pure clay, colour yellow to beige.

Archeological Museum of Tirana, archaeological object, Pelik, Hellenistic Period.

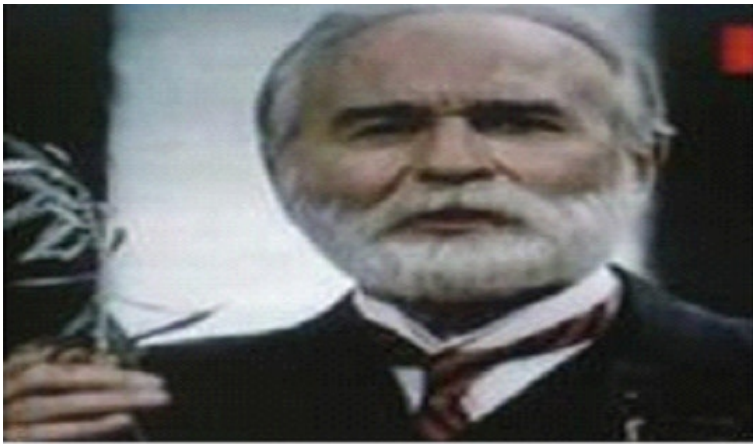
Also, in the National Museum there is a stele of a stonemason of the third century AD. This was found in the area the Cold Water in Vlora.

Source: National Museum in Tirana

At the beginning of the last century, a acrylic painting by John Singer "Albanian olive pickers" was painted. John Singer Sargent (Florence January 12, 1856 to 14 April 1925) was an American artist who has painted more than 900 works in oil. During his travels in the Mediterranean, he had the opportunity to visit many countries. A part of them was the above picture where he painted olive pickers.

Olive is also present in the cinematography during of the years communism.

In the movie The Second November (1982), Ismail Qemali speaks before the delegates holding in his hand an olive branch. Olive was considered a symbol of peace for all Albanians.



Source: Extracted from the movie "The Second November,"

Another element of the Albanian tradition can be found in the movie "The stones of my house." The events take place in the south of Albania during World War II. This shows that the main activity of the population was olive cultivation and olive oil extraction.

Source: Extracted from the movie "The stones of my house."

An olive branch is currently used for coins of 5 Lek, issued on 1995 and 2000

Value: 5 Leke (ALL)
Weight: 3.120 gr
Diameter: 20 mm
Material: Fe Ni6St
Colour: white
Form: flat
Issued: Coins of 1995 on 01.01.1997 and coins of 2000 on 01.01.2001

Front side: Nominal value and an olive branch.
Back side: The
writing "The Republic of Albania", the currency print in 2000, and in the centre the eagle of the flag.
Source: Bank of Albania

CHAPTER III

OLIVE GROVES CONDITION IN THE REGIONS

In agriculture, olive groves occupy about 5.9% of arable land in the country. This indicator is higher in Vlora region with 23.3% and 12.6% in Berat, regions which have the largest cultivated area, followed by the districts of Fier and Tirana. 84.7% of olive groves are concentrated in these four regions there . Regarding the concentration of olive production, the most important regions are Berat with 22.5% of the national production, Fier and Vlora with 19.3%, followed by Tirana and Elbasan with 14.4% and 13.7%.

3.1 Extension of olive groves

In our country, thanks to the suitable ecological conditions, olive is successfully planted and grows in large and massive blocks, of old and young plants, in 17 districts of the plain and hilly terrain of Mediterranean area, areas which are also the most populated. Olive could not spread to in the pre-mountainous and mountainous Mediterranean area and on the top of the hills due to the temperatures which go down below the acceptable limits.

Multiannual observations show in the current area of cultivation, the climate is mild and its components, as the value of temperature, light, height and precipitations, humidity, solar radiation and other factors, are almost at the optimum extent, thus allowing the regular growth and production of olives.

Under these conditions, the olive tree spreads starting from the South coast in Konispol, extends in the eastern foothills of the basin of Vurgu in Saranda district, along the eastern belt of Dropullit field and Lunxheria in the district of Gjirokastra, and follows the microclimate of valley of the river Vjose, climbs up to Berat. It continues to the low hills that limits Përmet with Tepelena and Berat and through the Osumi River valley, ends up in Korce.

In Berati's northern border, lies in the hills of Sulova of Elbasan district and through the Devolli's river valley goes up beyond Gramshi, continues its expansion in the second slope of Elbasan and through the of Shkumbin's river valley passes to Labinot-Fushe up to Xibrakë . Then crosses the field of Zaranika, climbs in Krrabë and on the eastern slopes of Tirana district, crosses the area underneath the Dajti mountain, spreding as far as Kruja. It spreads further on the lower parts of the river Mat, passes the foot hills of the north-eastern district of Lezha, goes further near Zadrima and spreads to the hills of Bardhajve in Shkodra district, crosses Lake Shiroka and spreads to the grand massif of Oblikës climbing to the north of the city of Shkodra as far as Malesia Madhe.

As can be seen, the spreading of olive in these pedoclimatic areas of the country has caused also modification its variety structure, productivity, economic efficiency, etc.,.

Although it spreads in the entire territory of the Mediterranean area plains, hills and foothills, there is some special characteristic, the existence of ancient olive spots in the areas of early civilization. From these areas, involving Shkodra, Lezha, Kruja, Tirana, Elbasan, Berat, Vlore etc.. olive spreads even further in other areas, as a sign of the efforts of the rural population to increase the cultivation, knowing of its relevance to rural families' food and economy.

3.2 Specific data on olive groves of each region

3.2.1 Region of Tirana

The results of expeditions and the data collected by the contact points show that there are exemplars of olive trees of over 2000 years old (isolated trees or in groups from 2 to 10 trees) in 24 villages of the district Tirana, that continue to produce, even today. Such old trees have been found in villages of Brar, Tujan, Linz, Shishtufinë, Lanabregas, Surrel, Great Priske, Petrelë, Vishaj, Preza, Fushe-Preza, Palaq, Gërdec Marqinet, Mucaj, Gërbllesh, Ndroq, Varos, Kërçukje, Golemas, Çikallesh, Pajonë, Ballashej, etc. Mushnikë. (Map in Figure 2.1, Table 2.1).

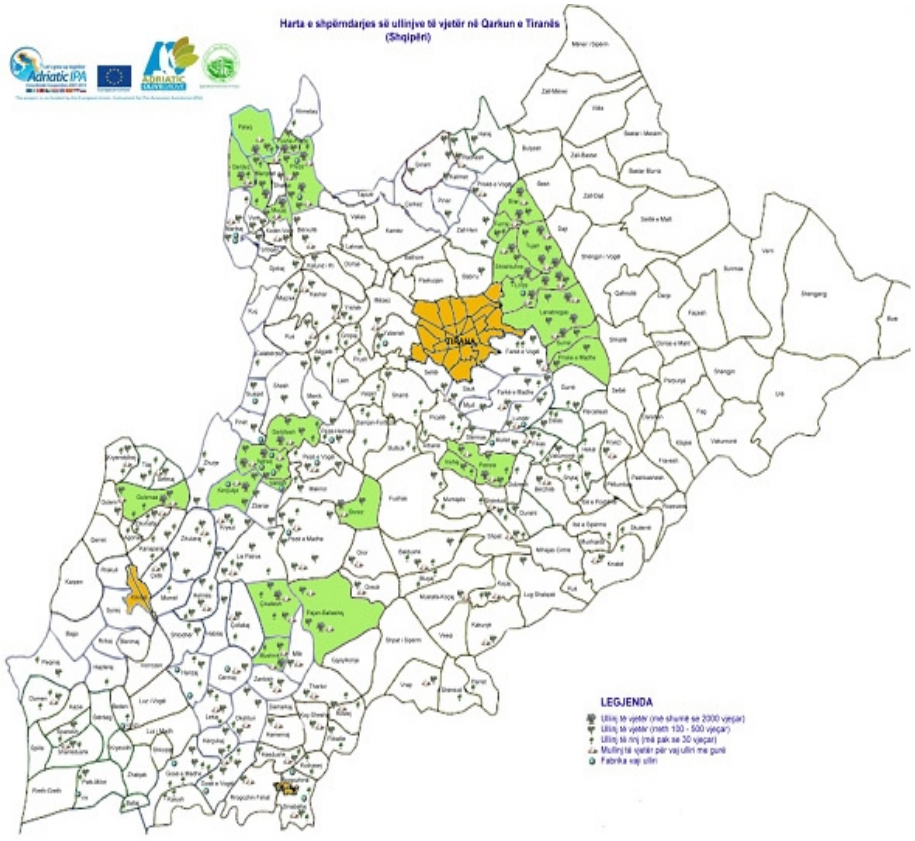


Table 3.1 Data for the olive spread (root) to municipalities, districts and Tirana Region

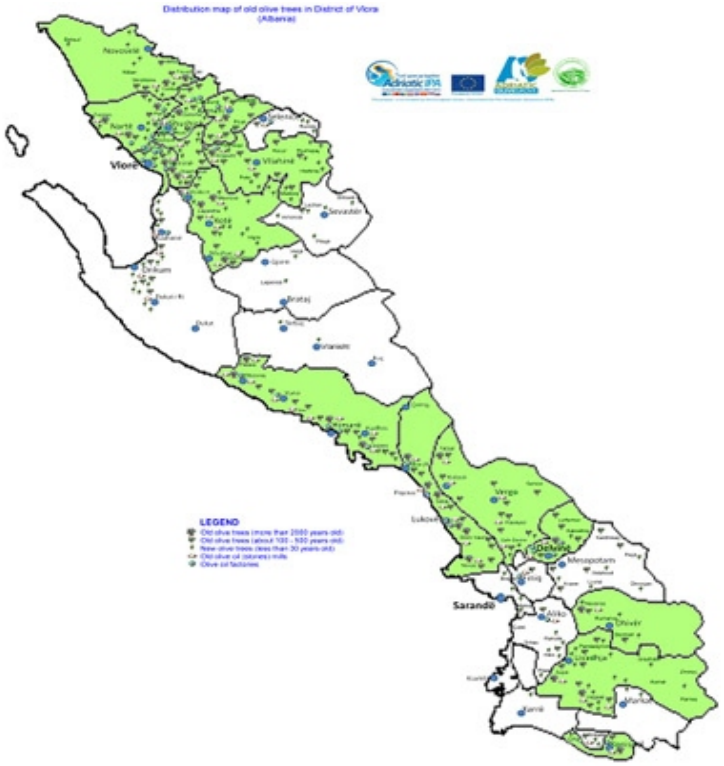
REGIONS	MUNICIPALITY	No. olives trees	MUNICIPALITY	No. olives trees
Tirana Region	Baldushk	43200	Peze	24250
	Berxull	8250	Preze	19400
	Berzhite	16575	Petrele	25520
	Dajt	34820	Farke	49920
	Kamez	900	Vaqarr	14000
	Kashar	9330	Vore	104720
	Ndroq	51500	Z. Herr	56165
	Paskuqan	5110	Krrabe	1280
Kavaja Region	Golem	27940	Kryevidh	37900
	Synej	10125	Gose	39810
	Helmas	62430	Sinaballaj	16070
	Luz i Vogel	6710	Rrogozhine	13500
	Lekaj	17354	Kavaje	580
TOTAL TIRANA DISTRICT				697359

Source: Department of Agriculture, Tirana, 2013.

Note: Due to different sources of information the data do not necessary match exactly.

3.2.2 Region of Vlora

The results for Vlora region show that there are exemplars of olive trees of over 2000 years old (isolated trees or in groups from 2 to 10 trees) in 28 villages. Such aged trees have been found in villages of Cerkovina, Trevëllezër, Oshetime, Panajë, Zvernec, Nartë, Armenian, Kanina, Drashovica, Kropisht, Mavrovo, Lapardha, Igoumenitsa, Dhërmi, Palasë, Himara, Qeparo, Borshi, Tatazat, Piqeras, Sasaj, St. Vasil, Nivicë, Delvin, Navaricë, Sopik, Vagalat, Konispol, etc.. (Map in Figure 2.2).



Olive trees of100 to 500 years old are found in 117 villages in the district of Tirana and in 65 villages of the district of Vlora. The main characteristic of these olives is the highest number of exemplars and a more regular planting compared to those olives of thousands years of age (maps in Figure 2.2 and Table 2.2).

Table 3.2. Data on olives (ha) in communes, districts and Region of Vlora

REGIONS	MUNICIPALITY	Ha	MUNICIPALITY	Ha
VLORA REGION	BRATAJ	50	SEVASTER	783
	HIMARE	1000	SHUSHICE	576
	KOTE	891	VLLAHINE	744
	NOVOSELE	500	VRANISHT	13
	ORIKUM	2821	ARMEN	520
	QENDER	240	VLORË	8800
	SELENICE	662		
SARANDA REGION	DHIVER	73	XARE	57
	KONISPOL	208	ALIKO	169
	LIVADHJA	11	MARKAT	5
	LUKOVE	377	SARANDE	950
	SARANDE	50		
DELVINA REGION	FINIQ	63	DELVINE	189
	MESOPOTAM	98	DELVINA	350
TOTAL VLORA DISTRICT				10100

Source: Statistics Yearbook 2011.

3.2.3 Region of Fieri

Currently it has 7,060 hectares of olive groves, of which 1,823 ha or 25.8% of secular olive groves, 3,740 ha or (52.9)% olives of 40-50 years and 1,496 ha or 21.1%, olives planted after 1990.

Fieri district has 3261 hectares of olive groves from which, 864 ha or 26.5% of secular age, 1,675 ha or 51.3% olives of 40-50 years and 720 ha or 22% of olives planted after 1990.

The district of Mallakastra has 706 ha of olive groves, of which 678 ha or 96% of secular olives and 27 hectares or 3.8% of olive groves of 40-50 years.

The district of Lushnja has 3092 hectares of olive groves, of which 280 ha or 9% of secular olive groves, 2,036 ha or 65.8% of olive trees of 40-50 years and 775 ha or 25% of olive trees planted after 1990.

The Region of Fieri is part of the first economic zone as the Region of Vlora. In this area an average 11.8 kg / plant is obtained becoming one of the main areas of olive production, nationwide. The specifics regarding the age of olive plants in this region, is that secular olive trees age occupy about 25% of the total surface, 40-50 year old olives occupy 52% of the total and olives planted after 1990 occupy 23% the total.

These last two categories of olive trees occupy up to 75% of the area, from which over 80% of the production is obtained. This category of relatively new olive groves is the one that requires intervention and treatment in terms of recovery in order to double the production up to 30-35 kg / plant or 50-60 quintals / ha.

Since it is a young olive grove it requires less investments to be renovated compared to secular olive groves and for this olive grove category is required around 50% less of expenses.

Therefore, it should be noted that there is the need to first invest in these categories olive groves to improve the pruning techniques, plant protection and irrigation. In the structure of this area the dominating varieties are Kalinjot, Nisiot, K.M.Berati and Frantoio. New foreign cultivars as KALKIDIKIE for table use and other cultivars are being planted but since there are no studies or recommendations on them, the new problems created are under observation from the specialists of Vlora Centre of Transfer of Agriculture Techniques.

3.2.4 Region of Berati

It has 6702 hectares of olive groves, of which 731 ha or 10.9% of secular olive groves, 2,845 ha or 42.4% of olives of 40-50 years and 3,126 ha or 46.6% of olives planted after 1990.

The district of Berati has 5568 hectares of olive groves, of which 670 ha or 12% of secular olive groves, 2,420 ha or 43.4% of olives of 40-50 years and 2,478 ha or 44.5% of olive groves planted after 1990. In this context, this district has the opportunity to produce more olives, to better utilize all production capacity of this plant and have constant high productivity. The average productivity in recent years is around 12.1 kg/plant. However, the future should be seen under a new light and hopefully the productivity will double or triple and olive cultivation will become a profitable activity.

The district of Kucova has 1,016 hectares of olive groves, of which 6 ha or 0.6% secular olive trees, 379 ha or 37.7% of olive trees of 40-50 years and 630 ha or 62% of olive trees planted after 1990.

District of Skrapar has 118 hectares of olive groves, of which 55 ha or 46.6% of secular olive trees, 46 ha or 38.9% of olive trees of 40-50 years and 17 ha or 14.4% of olive trees planted after 1990. Terrain allows for this level of mechanization: land working for 6565 hectares or 97.9%; treatments for parasites for 88.1% or 5907 ha, production transport for 5812 ha or 86.7%. 1,512 ha or 22.5% of the surface are irrigated.

Local cultivars of this area, are Unafka, which is known as good for pollinating KM Berati, Kotruvsi, Marksi and the White Olive in Pobrat, less common than the KMB, but worthy to be spread in specific areas.

Figure3.3 Old olive tree

3.2.5 Region of Elbasan

This district has 2,862 hectares of olive groves, of which 1,138 ha or 39.7% of secular olive groves, 1,156 ha or 40.3% of olive groves of 40-50 years and 568 ha or 19.8% of olive trees planted after 1990.

Elbasan District has 1,922 ha, of which 622 ha or 32.3% of secular olive groves, 755 ha or 39.2% of olive trees of 40-50 years and 545 ha or 28.3 of olive trees planted after 1990.

The district has of Peqin has 873 hectares of olive groves, of which 491 ha or 56.2 % of secular olive groves, 367 ha or 42 % of olive trees of 40-50 years and 15 ha or 1.7% of olive groves planted after 1990.

The district of Librazhdi has 2 hectares of olive groves from which 0.8 ha or 40% of secular olive trees, 1.1 ha or 55% of olive trees of 40-50 years and 0.1 ha or 5% of olive trees planted after 1990.

The district of Gramshi has 65 hectares of olive groves from which 25 ha or 38.4% of secular olive trees, 33 ha or 50.7% of olive trees of 40-50 years and 7 ha or 10.7% of olive trees planted after 1990. Terrain allows this level of mechanization: land working on 174 hectares or 6%, treatments for parasites on 247 ha or 8.6% , production transport on 315 ha or 11%, irrigation for 263 hectares or 9.1% of the total.

The most common varieties of this region are those of regional origin: i.e Mixani used for oil production consists in up to 60% of the region's olive trees. It is famous for its oil quality and high oil radius. In the last years it has shown vulnerability to verticilioza, sensitiveness to the of "Eye of the peacock" disease..

The Big Fruit (KM) of Elbasan. It consists in a good portion of the cultivation of the region, in about 25-30% of the total olive trees, used by the local for both table and oil production. Among foreign cultivars, planted after 1990, it should be mentioned the variety Frantoio, with 10-15% of the total, with a tendency to be increased in the future overtaking indigenous cultivars.

3.2.6 Region of Durres

This region has 2,497 hectares of olive groves, of which 1,767 ha or 70.7% of secular olive trees, 527 ha or 21.1% of olive trees of 40-50 and 202 ha or 8% of olive trees planted after 1990.

The district of Durres has 1,307 hectares of olive groves, of which 753 hectares or 57.6% of secular olive trees, 384 ha or 29.3% of olive trees of 40-50 years 170 ha or 13% of olive trees planted after 1990.

The district of Kruja has 1190 hectares of olive groves, of which 1,014 ha or 85.2% of secular olive trees, 143 ha or 12% of olive trees of 40-50 years and 32 ha or 2.6% of olive trees planted after 1990. The territory allows for this level of mechanization: work of land on 1,437 ha or 57.5%, treatments for parasites on 1,989 ha or 79.6%, transport of production on 1,645 ha or 65.8% and irrigation on 441 ha or 17.6% of the surface.

The prevalent cultivars in this region are:

1 - The White Olive of Durres for oil production,

2 – The Salted of Kruja used for table,

3 - White Olive of Tirana used for oil,

4 – The Freng used for oil production

3.2.7 Region of Lezha

This region has 311 hectares of olive groves, of which 116 ha or 37.2% of secular olive trees, 33 ha or 10.6% of olive trees of 40-50 years and 162 ha or 52% of young olive trees planted after 1990.

The district of Lezha has 121 hectares of olive groves from which 73 ha or 60.3% secular olive trees, 25 ha or 20.6% of olive trees of 40-50 years and 23 hectares or 19% of young olive trees planted after 1990.

The district of Kurbin has 190 hectares of olive groves, of which 42 ha or 22.1% secular olive trees, 8 ha or 4.2% of olive trees of 40-50 years and 139 ha or 73.1% of young olive trees planted after 1990. Terrain allows this level of mechanization: land working on 250 ha or 80.3%, treatments for parasites on 238 ha or 76.5%, transport of production on 238 hectares or 76.5%. Irrigation is available on 50 ha or 16% of the surface.

This region realizes around 11 kg / plant. The preferred cultivar in this area is "Kallmeti" originating from the same region. This cultivar exists in two forms: with small grains used for oil and large grains which have dual use, for table and oil.

3.2.8 Region of Shkodra

This region has 1,102 hectares of olive groves from which 10 ha or 0.9% of secular olive trees, 764 ha or 69.3% of olive trees of 40-50 years and 304 ha or 27.5% of young olive trees planted after 1990.

The district of Shkodra has 1,078 hectares of olive groves, of which 10 ha or 0.9% of secular olive trees, 764 ha or 70.8% of olive trees of 40-50 years and 304 ha or 28.2% of olive trees planted after 1990.

The district of Malesia e Madhe has 24 hectares of olive groves planted after 1990. Terrain allows this level of mechanization: land working on 801 ha or 72.6%, treatments for parasites on 733 ha or 66.5%, production transport on 578 ha or 52.4%. Irrigation available on 479 ha or 43.4% of the surface.

The prevalent cultivars in this area are:

1 - Kalinjot
2 - Berat KM
3 - Kallmet

3.2.9 Region of Gjirokaster

The region has 1,185 hectares of olive groves, of which 38 ha or 3.2% of secular olive trees, 735 ha or 62% of olive trees 40-50 years and 410 ha or 34.5% of olive trees plantd after 1990.

Gjirokastra district has 88 hectares of olive groves, of which 25 ha or 28.4% of secular olive trees, 53 ha or 60.2% of olive trees of 40-50 years and 10 ha or 11.3% of young olive trees planted after 1990 years.

Tepelena district has 992 hectares of olive groves, of which 5 ha or 0.5% of secular olive trees, 613 ha or 61.7% aged 40-50 years and 374 ha or 37.7% of young olive trees planted after 1990.

District of Përmet has 104 hectares of olive groves, from which 8 ha or 7.6% of secular olive trees, 69 ha or 66.3% of olive trees of 40-50 years and 26 ha or 25% of young olive trees planted after 1990. Terrain allows this mechanization level: land working on 936 ha or 78.9%, treatments for parasites on 529 ha or 44.6%, transport of production on 200 ha or 16.8%. Irrigation is available on 406 hectares or 34.2% of the area.

The most spread cultivars in this area are:

1 - Kalinjoti

2 - Nisjot

3 - Frantoio

The average productivity in this region goes up to 6-8 kg / root.

3.3. Distribution of the varieties or geographical structure by area

The geographical distribution of cultivars is as various as the diversity of climate of Albania, and the climate of the olive cultivation area in particular.

Therefore, the varieties' structure changes not only from a region to region by a district to the other but also from one village to the other nearby village.

The situation of olive groves and varieties' structure of the regions of Tirana and Vlora is described below.

Region of Tirana

a~ The situation of olive groves.

This region has in inventory 4,503 ha of olive groves from which 2,786 ha or 61.8% of secular olive trees, 1,139 ha or 25.2% of olive trees of 40-50 years and 577 ha or 12.8% of new olive trees planted after 1990.

Tirana district owns 2,982 hectares of olive groves from which 1,845 ha or 61.8% of secular olive trees, 806 ha or 27% of olive trees of 40-50 years and 330 ha or 11% of the olive trees planted after 1990.

Kavaja district owns 1,521 hectares of olive groves, of which 941 ha or 61.8% of secular olive trees, 333 ha or 21.8% of olive trees of 40-50 years and 246 ha or 16.1% of the planted olive trees after 1990.

b~The varieties' structure in the region of Tirana.

The structure of olive varieties in Tirana region, shows that secular cultivars, mentioned above, planted near castles have maintained their dominance until nowadays. The secular olive groves occupy the majority of the total cultivated area. In many areas, such as in the communes of Petrelë, Preza, Ndroqi, Linz etc.., there have been found exemplars of more than 1500 years of age, which proves once more the antiquity and the tradition that this area has in cultivating of this plant.

The most common indigenous cultivar in this area is the White Olive of Tirana which constitutes about 60-70% of the olives trees in this region. This cultivar is known for the high radius of oil in its fruit, that goes up to 28% and in particular for its very good quality. It is very productive cultivar, cold-resistant and well adapted for hilly terrains. Since it does not grow very much it is suitable to planting in poor soils and in half intensive olive groves. There are others cultivars which may be called the secondary as Kushan present in Preza, Black Olive of Tirana which is resistant to low temperatures and is present in the high parts of this region. Accompanying and pollinators of White Olive of Tirana are also the Boçi, the Red Olive and Karreni.

Region of Vlora

a- The situation of olive groves.

The area is dominated by autochthonous cultivar Kalinjoti which is also present beyond the borders of the region spreading almost throughout the whole Albanian territory. It should be noted that this region has several of wild olives O.europea olivaster and O. europea ullaster

The situation of olive groves by age groups and districts in Vlora region is as follows:

There are 14,475 hectares planted with olive trees, from these, secular ones are 3987 ha or 27.5%, 40- 50 year old olive trees are 9386 ha or 64.8% and 1.102 ha or 7.6% are youn olive trees planted after 1990. The region is divided into three districts, Vlora, Saranda and Delvin.

The district of Vlora has a total of 10787 hectares of olive groves, from which secular ones are 3199 ha or 29.6%, of 40-50 years old olive trees are 62.1% or 6,700 ha and 888 ha or 8.2%, are planted after 1990.

Saranda district has 2,050 hectares, of which 427 ha or 20.8% of secular ones, 1,486 ha or 72.5% of 40-50 years old olive trees and 136 ha or 6.6% are planted after 1990.

The district of Delvina has 1,638 ha of which 360 ha or 21.9% of secular ones, 1,200 ha or 73.2% of 40-50 years and 78 ha or 4.7% are planted after 1990.

b- Varieties' structure:

In this area, the cultivar Kalinjot constitutes about 90% of the total number of plants; this cultivar constitutes over 40% of the total number of plants nationwide.

This cultivar is known for high adaptability to environment conditions, resistant to drought and winter low temperatures. It has satisfactory growth forming a large crown; an particular exemplar in Narta, Vlora, named "Matka" produced 9 quintals of olives in 1947. This cultivar has an oil radius that reaches up to 30%, with high-quality indicators. Since, the fruits are moderately large, the local residents successfully use it also for table.

The Thin Olive of Himara is another popular cultivar in this region, also very well adapted for dry lands and spreads down to to Saranda district, in particular in Himara area (Sea Coast), from Lukova up in Palasë.

Other cultivars planted in Vlora are Pulazeqin, Nisiot etc., while the foreign cultivar cv.

Frantoio it was well adapted during the last 50-60 years; the first young plants were originally imported from Italy and then the with saplings from country nurseries.

In Vlora, Olive is cultivated in almost all communes exception made for the more mountainous areas of the communes of Brataj, Kuci, Sevasteri and Vranisht. In this region, olives are cultivated up to 600 m above sea level, especially in western parts of mountain Shushica etc.

Table 3.3 The state of the secular olives (ha) by District and Regions of Vlora

District / Region	Total olives (ha)	Secular olives (ha)	olive (50 – 70 year old)	Planted after 1990
VLORA	10787	3199	6700	888
SARANDA	2050	427	1486	136
DELVINA	1638	360	1200	78
Region of VLORA	14475	3987	9386	1102
	100%	27.5%	64.8%	7.6%
TIRANA	2982	1845	806	330
KAVAJA	1521	941	333	246
Region of TIRANA	4503	2786	1139	577
	100%	61.9%	25.3%	12.8%

3.4. Olive cultivars

The Albanian olive groves have a very interesting distribution of cultivars because every area has a multitude of genotypes with varieties and cultivars suitable to table and oil use, and high adaptability to pedoclimatic environment conditions.

The selection over hundreds of years from olive growers has created today's big picture of cultivars, for oil and table use, with high economic value and vital for those areas where the olive cultivation is practiced. The diversity of areas contributed to the diversity of traditions on olive and olive oil creating special features for each area. Above all it has contributed to create different varieties olives in different areas.

We can classify varieties according to their use and according to climate areas.

In relation to the use of the fruit we distinguish:

Cultivars used for table olives. The criteria that characterize use as a cultivar for table olives are well defined and can be synthesized: fruit weight of not less than 5 grams; radius in the pulp (ratio pulp / core) higher than 75%; sugar content (in species for green processing) higher than 4% of the fresh weight, the content of oil (in particular for black processing) less than 20%, the skin is thin, almost invisible (especially for green processing) elastic and resistant to processing, the pulp is softened slightly, slightly fibrous, strong and stable after processing; easy separation of the pulp from the core.

Cultivars used for oil. Oil can be extracted from almost all cultivars, but only those which give satisfactory quantity and quality of oil should be named as such.. Here we distinguish cultivars that have, as a rule, a small fruit around 1.5-2.5 gr. , good core/pulp relation and high content of oil in the fruit. We can mention the Mixan in Elbasan, the White Olive of Kruja and Tirana, the Kotruvsi in Berat, the Thin Olive of Himara etc. This cultivars have not only high oil radius but also a very good quality. The oil obtained from them is generally more viscous, clearer and more fragrant.

Cultivars for dual use. The existence of this third group of olive cultivars with "dual-use" is generally accepted. Generally the typical exemplar is a a cultivar planted for oil production, but that produce fruits which, thanks to their technological and morphological characteristics, primarily the size, in favourable situations (non production year, big fruit) may also be used for consumption.

Here we should mention Kalinjoti which occupy the highest percentage in the structure of our olive (about 42%), Krypsi, Boçi, etc. KM Elbasani. From this point these varieties should be the favourites of the oil industry.

3.5 Different types of olives in Albania

1. The Big Fruit of Berati (KM Berati

BERAT - In the passport of over 2400 years of the ancient city of Berat, two elements attest this antiquity: the castle and the olives! If this first has always been a protected monument at all timed by the laws of the state, Olive continues to be the unprotected "saint". This plant has survived over the centuries, thanks to the generosity of God. We can witness the appreciations that the city of Berat has received for the quality of its olives and the purity as gold of its olive oil, extracted from this plant as old as curative. Not only locals that have their life connected with this plant, but also people in Albania and abroad have been able to enjoy the olives of Berati and the rare oil of olive of this area. According to traditions and legends, olive in Berat is as old as the city itself. Even today, in this green wreath of olive trees one can find olives that are of a secular age.. The map of this plant in Berat includes several areas and there is no house in the village or even in the city that have not owned own dozens of olive trees. Especially after 1990 olive found the master.

And that's where the sad story begins and the drama of " barbarism " against this magic tree. In Albania, before the '90s, there were about 5.5 million olive trees almost half of them were in the district of Berati . For the specialists of that time, who invested everything on olive cultivation and development, the today situation is alarming. According to them, an appeal should be made to to the civic conscience of everyone. Berat has broken the peace with olive and olive feels threatened. This type is a typical cultivar of Berati area. It is available in two forms: large fruit with prolonged grain (10-12gr) and large fruit with rotund grain. It has adapted very well to this area. Its spreading outside this geographical area to north and south is problematic problems. Its productivity is average and alternated. Has medium and early maturing. It is very sensitive to the olive fly (Bactrocera oleae). It is considered the best olive table of the country and as a result all the production it is attractive to the markets for the above mentioned use. In cases of a huge production a part of it can be used for extracting olive oil. *Berat olive oil*: Before 1945, in Berat there was no processing industry exception made for a factory for the production of olive oil, built in 1941 by the family of Jani Tutulani. There was a lot of production of olives but the processing was primitive. Olive oil extracted with simple techniques or mengra where the olives were pressed by stones set in motion by animals. The oil of olive extracted by pressing olives with feet was mostly preferred as a medicine.

2. Kalinjoti.

This variety is original of Vlora area, Mallakaster and Ionian coast. In these areas this cultivar consists in about 85% of all olive groves, while at the national level of reaches the 43% of olive groves.

Thanks to an agriculture policy implemented until the end of the 80s, it spread out of the origine area and today we can find it as far as Lezha and Shkodra. From 1962 to 1970 it was exported to China were today consists in the major part in the structure of cultivars.

- Good and alternated production
- The fruit has medium and late maturation
- Gradual maturation of the fruit
- Suitable for dual use, has high oil range (28%) of good quality.

Figura 3.4 Kalinjot Cultivar

3. White Olive of Tirana

Known also as the White of Durres.

This cultivar is original of Tirana, very common in the area of Middle Albania, mainly in Tirana, Durres and Kruja. Present in small numbers in Shkodra and Lezha, where it is recognized with the same name. Consists in about 1.2% of the country olive population. Cultivated with later maturation, the maturation of the fruit is late and not uniform.

Good resistance to summer drought and cold, it is resistant to diseases such as tuberculosis. It has regeneration properties. It is used mainly to produce qualitative olive oil. It is known also with other names such as: Judge, Salty, Kupac. Mainly located in the area of Tirana and Durres. In Tirana is known also by the name of Boc while in Durres with the name of Krypesi, in some communes (Petrele, Ndroq, Priske etc ...) constitutes the basic variety. Grows well in steep lands. It is not really resistant to olive fly and to tymethi. It is suitable to the area of reference due to some inherited qualities.

- Has dual use
- Has early and staggered maturation , which makes difficult the harvesting
- Distinguished for prodi exchanged over the years.
- Has a lower radius of oil compared to other white olives in the area.

4. Big Fruit of Elbasan

This is a cultivar of Elbasan area and consists in the largest number of the older plants of the area

- Has average and alternated production.
- During the season drops a good part of the fruits without reaching the stage of maturation.
- It is very sensitive to diseases and non favourable environment conditions.
- Has medium to large fruit with a high percentage of oil, this allows to use it as for table and for oil.

5. Red Olive

This cultivar is little present in the area of Tirana and Durres. Presents some good quality and can serve as genetic basis for improvement in the future.

- Has good oil radius.
- It is less resistant to diseases than the white olive of the area.

6. Kusha Olive

This cultivar is little present in the area of Tirana and Durres.

- Oil radius and quality is good.
- Maturation of fruit is medium and late.
- Has good resistance to cold and diseases.
- Grows well on dry hillsides.

7. Kareni

This cultivar is present in the area of Tirana and Durres.

- Fruit is average to big.
- Has low-range oil, which makes the cultivars to be used for table olives.
- Has early fruit maturation.
- Good productivity and resistance to diseases and low temperatures.

This is a cultivar typical of Tuscany, Italy. It has been imported in Albania around the 70s. It is probably the only foreign cultivar which has adapted very well to Albanian climate. Today it is well distributed in Fier, Berat, Lushnje and Tirane and consists of the 4-4.5% of the total of olive cultivars in Albania.

The fruit has average size and matures early

Oil radius around 22-23 %

Use mainly for oil production

Good resistance to low temperatures

Table 3.5 Main characteristics of indigenous cultivars

Cultivar	000/root	Surface (ha)	USE	Fruit weight (gr)	% Oil
K.M.Beratit	1000	7700	Table	6.8	16-18
Kalinjoti	23350	17700	Dual	3.5	26-29
U.B.Tirana	200	1500	Oil	2.1	27-29
Boci	90	700	Dual	3.5	14-18
Krypesi i Krujes	90	900	Dual	3.4	20-22
Bardhi i krujes	90	400	Oil	3.2l	24-27
U.Holl i Himares	70	800	Oil	1.6	15-18
Pulazeqin	50	500	Oil	1.4	20-22
Nisjot	120	900	Oil	3.2	22-23
Kotruvs	80	600	Oil	2.9	24-26
Menagjel	4	-	Oil	2.8	20-22
Mixan	490	3770	Oil	2.5	26-29
K.M.Elbasanit	510	4000	Dual	3.4	20-22
Frantoio	390	2600	Oil	2.8	22-24
In total	26484	45000	-		

CHAPTER IV

THE HISTORY OF OLIVE OIL PRODUCTION IN ALBANIA

4.1 Background of the olive oil production

Olive cultivation in Albania is accompanied by the processing industry of its products, table olives and olive oil. Olive was primarily used for olive oil. This is the reason that the oil processing industry is more developed. According to a 1946 inventory, Albania had 1,768 million of olive plants of secular age. The population was approximately 800 thousand, where nearly 56% of it, lived in the area of olive cultivation. According to an assessment of the Olive Research Institute in Vlora, about 30% of the plants are of 4-20 centuries.

The largest area of secular olives is the area of Vlora, Tirana, Mallakastra, Saranda and Berati.

4.2 The processing of the olive oil in antiquity

Judging from age of the olive groves it seems obvious that their cultivation dates the same period as in with other Mediterranean countries. According to archaeological excavations and written documents, olive has been processed since antiquity. The type technology used at every time depended on available quantity of olives. About 70% of the total quantity of olives have always been processed by the methods and structures of the existing facilities (oil mills) of all times, while the rest have been processed according to traditional ways by foot pressing extracting the oil by hand.

The traditional processing facilities were stone mills. Proof of this processing industry are found today as ruins of oil facilities with one and two stones.

The mills consist in a base of stone, by a stone which rotates on the same base and by a canister and a squeezer. In general, the movement of the stone the mill was provided by two or more people, while in bigger mills the stone was put in motion by animals (horses) or by falling water.

In Byllis, Amantia and Kanina there were found mills, jars and pottery decorated with leaves and fruits of olive dating third century BC

Figure 4 Objects of IV century BC in the ancient city of Kanina, Vlora (1) oil mill, (2) wall surrounding the fortress city. (Photo © H. Ismail)

Figure 4.3; 4.4 Discovered oil mill in Amantia (Vlore) almost 2400 years old (Photo © H. Ismail) and oil mill discovered in Bylis (Mallakaster), evaluated 2,200 years old.

According to the inventory and the information provided by the Olive Research Station, Albania had 546 oil mills in 1900-1945 of which 88% of were found in the area of Vlora, Delvina, Mallakastër and Tirana.

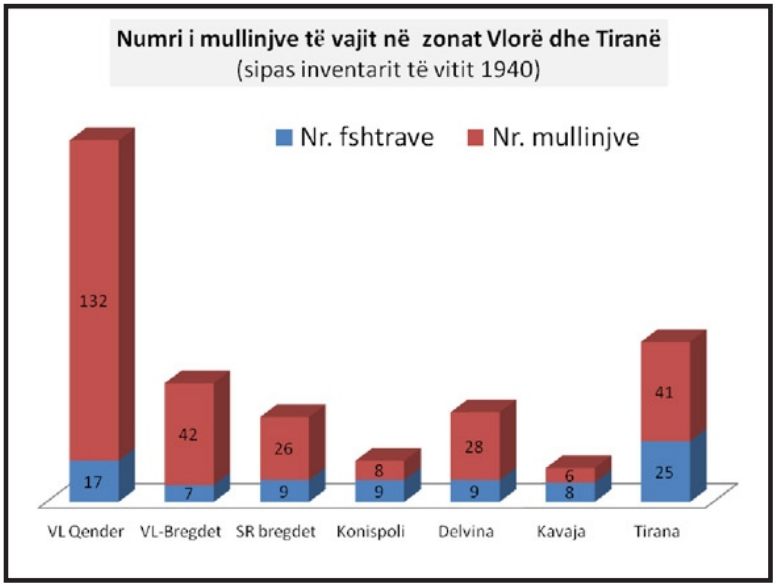
Only in the villages of Tirana and Vlora counties there were 283 oil mills in 84 villages, approximately 3.4 mills for village (Table 4.1, Figure 4.5).

Table 4.1 Number of oil mills by village (1940 inventory)

Vlora	No of villages	No of mills	Tirana	No of villages	No of mills
Central of Vlora	17	132	Kavaja	8	6
Coast of Vlora	7	42	Tirana	25	41
Coast of Saranda	9	26			
Konispoli	9	8			
Delvina	9	28			
Total	51	236	Total	33	47

According to these data, the central region of Vlora reached up to 7.6 mills for village. The number decreased to 6 mills for a village on the coast of Vlora and decreased more in Delvine to 3 mills for a village, ending up in Konispol with less than 1 mill for village. The district of Tirana had only 1.64 mills for a village. These numbers show clearly where was concentrated the biggest quantity of olives which was processed for the extraction of olive oil.

Figure 4.5 The number of oil mills in the areas of Vlora and Tirana (according to the 1940 inventory).



4.3 Current situation of oil mills.

The district of Tirana

The results of this study show that mills in working conditions or their ruins (stones, cans, etc.) were found in 73 villages.

In some villages there were found two or more oil mills. It can be mentioned, Preza with 4 mills, Ndroqi and Lanabregasin with 3 mills. In the villages of Tujan, Petrelë, Kashar Peze Great, Mushnikë,

Çikallesh and Pajonë-Ballashej there were found two oil mills each. (Map in Figure 4.6).

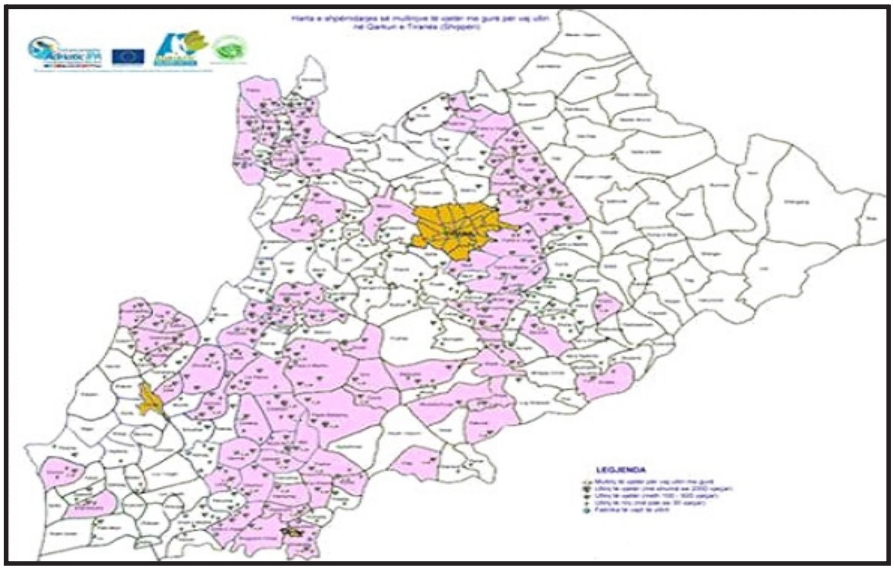


Figure 4.6 Maps of the distribution of old stone mills in the district of Tirana

One of the reasons of the existence of these old mills still today, is that they were inherited from generation to generation within the same family and of the impossibility to introduce new technologies. Only in the last decade these mills have been dismissed from extracting oil.

Figure 4.7 and 4.8 Olive oil extraction facility (mill stone and wooden cans) in Brar of Tirana of around 400 years (Photo © E. Mucha (Jim) right, Photos © H.Ismaili left)


Figure 4.9 and 4.10 Restored olive oil mill (Ndroq-Tirana) (Photo © B. Hodaj) and Olive oil mill (Gërmaj-Kavaj) (Photo © B. Gixhari)

As documented by the pictures, the mills used in the Tirana district in the last four centuries had the same processing technology of oil extraction. The stones pressed the olives and olive oil was extracted from the pulp in wood and straw canisters.

In the district of Vlora

In the region of Vlora there were found oil mills of different periods in 51 villages. Villages like Kanina, Trevëllezër, Gumenicë, Kote, Himara, Delvin and Vagalat had 2 or more mills with stones each, while in some cases even over 7 mills.

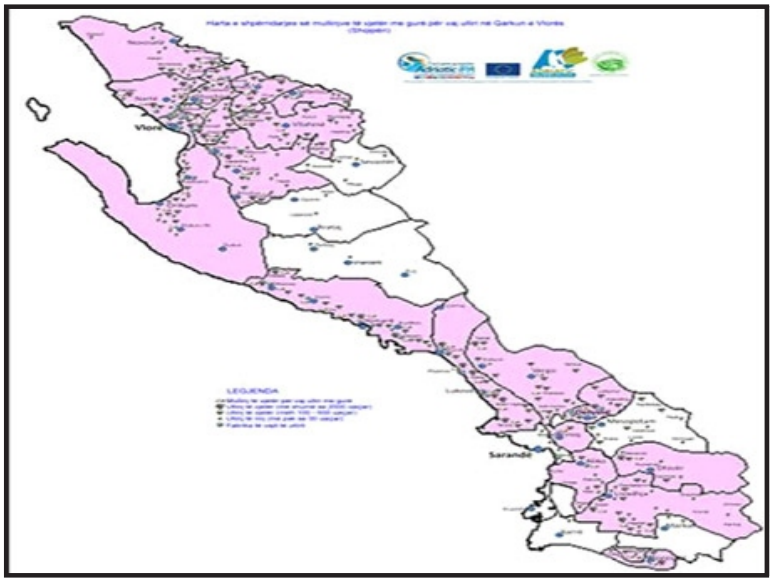


Figure 4.11 Maps of the distribution of old stone mills in the region of Vlora

Currently mills with stones and canisters have only historical value because they are now very rarely used or not used at all, for the extraction of olive oil.

In Southern Albania oil mills were conform to the ancient Mediterranean tradition of oil extraction.

Figure 4.12 Traditional oil mill in Vlora. (Photo © H. Ismail)

The collection and transport of olive oil was generally done by chariots, because of lack of the agricultural mechanisation.

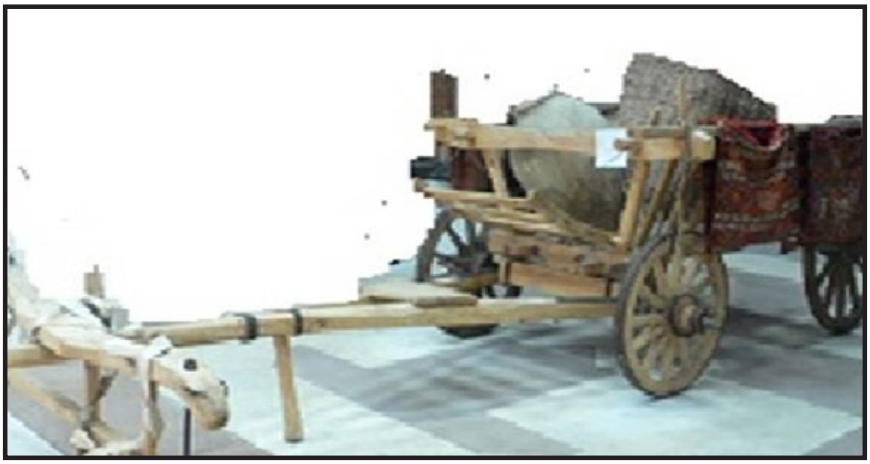


Figure 4.13 Trolley / cart of four wheels, with cans and packaging for olive harvesting

4.4 Modern processing of olives

Processes of olive oil production.

Olive oil is produced by two methods:

1. Method of cold production
2. Method of warm production

The process of the olive oil production has four phases:

1. Washing olive
2. Grinding and homogenization
3. Separation of pomace from the liquid
4. Separation of oil from water.

The extracted oil is first decanted then packaged.

In order to extract high quality oil olives should be fresh and clean. Olives should be cleaned from stones, paper, mud and other solid substances. From the moment of the harvesting, the olive should be handed ove for processing within 6-8 hours . The maximum should be within 24 hours. Washing machines that clean the olives have selection processes that remove any other material from the olives. The use of pressure water, compressed air and vibrating, provides good cleaning of the olives. The Washing machine is the key machinery in this process and it is assisted by other machines such as the elevator olive, the leaves remover, the vibrators and the olive bunker; all these machines are put to work according to specific rules.

Grinding and homogenization

Olives are grinded by strong rotating mills which reach 2500-3000 rounds per minute. The mill should supplied carefully, with the right quantity and continuously otherwise it can burn the electro-engine or olives are not grinded uniformly.

Homogenization is an essential operation to prepare the olive pastry for further processing.

Figure 4.14 Washing of olives

Figure 4.15 Grinding and homogenisation

The division of pomace from liquids is done through a special machine called decanter or horizontal separator. The oilcake and hot water are pumped into the decanter. These can be of different types. All the machines of the extraction line have harmonised specifics in order to eliminate solid materials.

The division of oil from water is done through another special machine called the centrifugal vertical separator. Inside the separator a tambour rotates at 7000 rounds per minute, while 70-100 of conical shaped stainless disks provide for the separation of oil from water. It is worthy of mentioning that there are certain relationships between the thermal needs of the installation and the parameters offered by the boiler as part of this facility. The extracted olive oil should be then evaluated from a qualitative point of view since it is necessary to establish: the oil acidity, humidity, density, soluble substances, peroxides, oil content of the fruit and oil content in the pomace. Being aware of these parameters and comparing them to the standard may help in providing for the necessary corrections in the extraction/production process.

Figure 4.16 Separation of oilcake from liquid.

Figure 4.17 Separation of oil from water.

4.5 Condition of olive processing industry

The nowadays' concept is that the processing industry arises where the raw material is. Only fresh olives give high quality oil. It is reported that in Albania there are installed over 170 facilities having quality oil lines as Pieralis, Alfalaval etc and the oil processing capacity, natiowide, is more than 1,400 quintals / hour.

In both regions (Tirana and Vlora), there are some 130 olive oil production facilities. The number of new facilities is 30, while the functional facilities which do not meet the quality requirements are 70. There are also 30 facilities out of service. In both regions, the processing facilities are distributed by communes or villages.

It is reported that in Tirana Region, in two districts, five municipalities and 24 communes there are 28 olive oil facilities, distributed in different villages. The processing capacity of the region of Tirana amounts at 11% of the national level

In our study, in the region of Tirana there have been identified 27 extraction facilities distributed in different villages. Of these, two modern facilities with centrifuges are in Marikaj, 2 facilities with s tones + canisters are in Preza. In Ndroq there are five oil processing facilities (2 old facilities and 3 new ones) as follows: 1 in the center of Ndroq, 2 in the new neighbourhood, 1 in Varosh and 1 in Kërçukaj.

Other olive oil processing facilities are: 1 in Little Peze, 1 in Helmës Peze, 1 in Great Peze, 1 in Linze, 1 in Lunder, 1 in Mullet, 1 in Yzberish, 1 in Sauqet, 1 in Pinet , 1 in Harizaj, 1 in Kryeluzaj, 1 in Gërmaj, 2 lines in Gose, 1 in Corum, 1 in Vila-Bashtova and 2 in Rrogozhine. (Map in Figure 4.16).

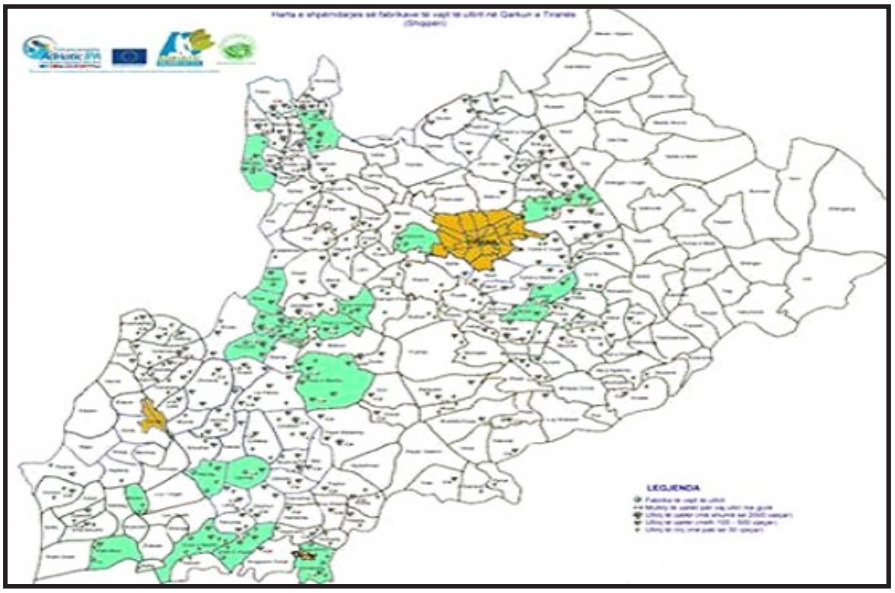


Figure 4.18 Map of distribution of olive oil processing facilities in the region of Tirana

It is reported that in the district of Vlora, in 3 districts, 7 municipalities and 19 communes there are 34 olive processing facilities. These olive oil facilities realize around 30% of the olive processing nation countrywide.

The present study identified 34 olive processing facilities in this region which are distributed as follows:

4 in Shamogjil , 2 in Bestrove, 1in Dhërmi , 2 in Himara (1 old factory with presses and one new), 1 in Vunoi, 1 in Borshi, 2 in Kanina (1 new and one old factory with presses), 1 in Armen, 1 in Selenice, 1 modern facility in Qeparo, 1 in Radhima, 1 in the Muzini Well (Narte), 1 in Panaja, 2 in Llakatund, 1 in Risili, 1 in Peshkepia, 2 in the center of Vlora, 4 in Delvina, 1 in Finiq, 2 in Lukove, 1 in Konispol and 1 in Aliko. (Map in Figure 4.17)

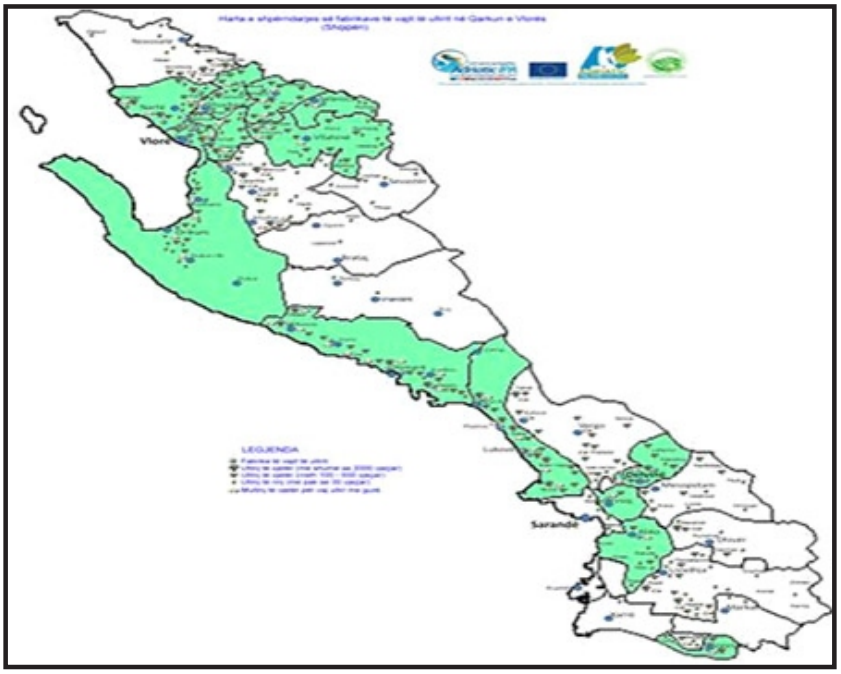


Figure 4.19 Map of distribution of olive oil processing facilities in the region of Vlora

In the region of Tirana there are 5 old facilities with stones and cans systems while others are new facilities with presses or centrifuges.

In the region of Vlora there 4 old facilities with stones and cans system or presses. The rest are mostly new ones.

Oil facilities in the two regions are of small capacity (3.5-4 kW / hour) and average (9-12 kW / hour). In general the installed equipment, in most of the facilities, are imported used presses from other countries (mainly Italy and Greece) of technologies of the years 1970-80. The use of these facilities does not exceed 50-60% of their capacity.

The production of olive oil in cold is realized by presses. By this method, it is extracted poor quality olive oil, because:

1. Production lines imported in Albania are highly amortised
2. The minimum requirements of the production technology are not respected
3. Low qualification of technical – organizational staff

Furthermore the pressing technology has deficiencies from an economic point of view and concretely:

1 Low productivity
2. High costs
3. The remaining oil in the oilcake is 2 times more than in continued lines.

All continued lines have the same work principle: "The production of olive oil with the hot method". This method is still under perfection because work is underway for the determination of technical and technological parameters for the extraction of high quality olive oil. Therefore, there is still to be done regarding the specific choices of machinery. PIERALISI is the society which holds the first place in the world for:

The diversity of machine types
The compactness of machines
The constructive choices
The high quality indicators of the products
The low remaining of oil in the oilcake
The information provided

The products of PIERALISI company can be found all over the world, 70% of the world's olives are processed by PIERALISI's machinery. So far, in Albania, there have been installed 26 olive oil facilities of PIERALISI type, which is around 60% of continued implants. The concentration of hot water damages the quality of the oil, especially regarding the acidity indicator. PIERALISI machinery have solved this problem, by making possible the use of the technological water at those temperatures that does not influences the quality of the oil. The whole PIERALISI machinery is controlled by just one specialist/worker.

4.6 The membership in IOC (International Council of Olive and Olive Oil)

The Albanian Parliament ratified, in December 2008, Albania's membership in the International Council of Olive and Olive Oil. Albania joined the IOC the following 18 February 2009

This membership takes a special importance due to the fact that the promotion of olive cultivation and the production of high quality olive oil for internal and export market, constitutes a priority in Albanian agriculture policies.

With its membership, our country will benefit from the IOC policies in this field, such as:

1. Standardization;
2. Promotion of producing countries and third world countries;
3. Technical cooperation and information exchange among mem ber states;
4. The centralization of information on all aspects of olive products; (online library for users); Besides the increase of production, the IOC seeks to identify in due time new resources in order to promote the consumption of olive oil in countries with little or no use of olives and olive oil (our country ranks among the countries that consumes little olive oil).

In this context, Albanian will also benefit from the programs and activities of the IOC for the future such as:

1. Improvement of the quality of olive products;
2. Financial assistance for the markets in countries with little consumption of olive oil;
3. Involvement of importers associations in olive oil emerging market;
4. Increased attention on the quality control of imported olive oil;

Farmers and businesses involved in the field of production, processing and marketing of table olives and olive oil will benefit from this membership.

CHAPTER V

THE HISTORY OF THE OLIVE GROVES IN THE HISTORY OF CASTLES IN TIRANA AND VLORA

5.1 The history of the olive groves in the history of castles in Tirana and Vlora

The fortification system of cities in Albania has gone through several phases of construction, which can be summarized generally in two periods, that of antiquity or the Illyrian one and in that of Middle Ages. The main cultivated plant or probably the only one who has been present these stages and still survives today is the olive. All forts, in the olive cultivation area, have olives in or around them, and the olives' age is almost the same of the walls built in different times.

If we study the life and development of olives in forts' nearby areas it can be seen that the olive has been a part of the culture, civilization and life of the population in each historical period.

If you put in a "cluster analysis" the history of olives around the forts/castles and the history of these forts you get these conclusions:

Olives age show the forts age and vice versa .

Olives have been planted continuously in Albania, ranging from pre antiquity until today, despite the political and religious situation that has dominated in different times. This is shown by the age of the olives that are near forts. As mentioned above, there are olives of over 1500 years old (the Illyrian), younger trees of the byzantine and ottoman period and even younger olives of our time around and near forts and in nearby villages.

The variety structure of olives is different from fort to fort, even when these forts or castles are located close to each other, showing that the olive plant has a strict adaptation of the various cultivars depending on distance from the sea, the elevation above the sea level, exposure to sunlight, soil characteristics, slope of terrain etc.

As will be discussed below, old olive groves, especially those situated near the forts, consist of several varieties, indicating that besides to the need to different use (salting or oil) there was also the need to combine the varieties in order to provide pollination among them.

The really old olive trees, located near forts, show also the ancient tradition that every house which was built, was followed by the construction of various gardens with trees that will serve as means of subsistence and/or as a complementary to improve the existing landscape.

Observing the vegetation around the forts, we note that the olives are planted in such a way that follow the configuration of terrain and complement the existing vegetation, giving the landscape around the castle a particular aesthetic beauty in all seasons, even in winter when most of cohabiting plants have dropped their leaves.

5.2 History of olive and of some forts in the areas of Tirana and of Vlora.

5.2.1 The castle of Petrelë

Fig 5.1 Fortress of Petrela

The excavations and documents show that this fort was built during the reign of byzantine the emperor Justian I, in the fourth century AD. This was a fortress built by him for the defence of the Empire. The fortress is set on a very steep terrain, inaccessible from south and southeast, which provide the castle of really good protection.

Immediately at its feet there olive plants of 1500 years which match the age of the castle.

The olive groves surrounding the castle are as much interesting to the visitor as it is the history and the architecture of the castle.

As seen in the picture no. 4, the olives have planted in a way that takes into consideration not only the peculiarities of the plant itself but also the terrain's characteristics, filling the land hollows and preserving the balance between existing vegetation whether they are trees or bushes, evergreen or deciduous.

There are olives with trunks of over 3 meters of diameter, which show not only the resistance of this plant but also the favourable conditions of the area which give this plant almost the immortality.

In the area, there also olives of all generations which still produce. There are many olives of 500-600 years, planted very likely in the glorious age of Skanderbeg.

Olive variety's structure has been stabilized during the centuries, which should be considered for the new plantings in nearby areas. The dominating variety is the White Olive of Tirana, followed by Mixan, black olive, etc.

Fig 5.2 Petrelë, olive tree of over 1500 years

Fig 5.3 Petrelë Olive tree of over 600 years

5.2.2 The castle of Preza, Tirane

Fig 5.4 The Castle of Preza

It is located above the village of the same name, at the crest of the hill. This is a small castle which has started to be built in the fourteenth century and ended in the early fifteenth century, by the Topiaj, the feudal family of the area. The castle was declared a culture monument. This castle is also very close to the international airport "Mother Teresa", Rinas.

The fortress is surrounded by olive groves of 400-500 years, with normal growth and vegetation, which increase the economic and touristic interest of the castle and the surrounding area. Greening of olives invigorates this touristic site in all seasons.

Olive groves olive varieties near the castle are mainly those of the central Albania, the White of Tirana, the Black Olive and Boci. In contrast to the surroundings of the castle of Petrela, no Mixani olives are present here.

5.2.3 Fortress of Varosh (Ndroq)

Fig 5.5 Fortress of Varosh (Ndroq)

The ceramic objects found on the surface belong mostly to the ceramics used in building, as Roman tiles dating IV-VI century. In the castle there were found amphora fragments dating back to the I and IV century BC, and fragments dating in the late Middle Ages.

A mix of stucco and powdered brick was used to connect the stones to each other; this technique was used massively in the IV-VI century. The upper part of the wall was built with a different technique than the lower part.

All this information can give an acceptable conclusion regarding the time of construction of the walls. The internal perimeter wall must have been constructed in centuries. IV-VI. Then as a result of damages, it was later rebuilt at the beginning of the Turkish invasion.

Olive that grow close to the fortress of Varos are very old. Their age is comparable to that of olives that are near the castle of Petrelë. There are olives, as shown in the picture, that have a neck of the root around 4-5 meters on which secular trunks grow.

These olives are cultural monuments as the fortress itself, because besides their age of over 1,500 years, the place where they have survived and the form of the crown, minted periodically in the centuries, is specific.

The olive varieties in the area are the White of Tirana and the Black Olive, old exemplars of which can be found.

Fig 5.6 Over 1,500 year old olive tree near the fortress of Varosh

5.2.4 Fortress of Kanina (Vlore)

Fig 5.7 Castle of Kanina (Vlore)

The fortified city of Kanina was built from the fourth century. In its fortification system, some phases of construction can be distinguished, stretching in two periods, in the ancient and medieval ages. There are some remnants of the Illyrian wall, which were found in almost all parts of the castle.

Reconstruction and reparations of the perimeter walls have been done in the Medieval Ages. The medieval wall was mainly built average size and unworked stones of the ancient wall connected with stucco and plaster.

The olives near the southern wall of the fortress are spread and combined with other plants, giving to the landscape around the castle, the look of a rocky ornamental garden.

The reason of this planting is the very rocky terrain therefore olives are planted in some specific spots. Going down from the walls of the castle there are small blocks of very old olive trees, planted with regular system and in diffenrent varieties to provide a combination for different uses (table or oil) and pollination. The main variety of olives near the fortress of Kanina is the Kalinjoti from which, it is believed, the castle received the name Kanina.

5.3 Olives in tourism and landscape.

The presence of olive groves around old cities suggests that this can be used to promote agro-tourism in ancient cities like Berat, Elbasan, Tirana, Vlora, etc.. Old olives, as eternal green knights, co-existing with the bright and clean sky, the sun and moon, are a testimony of the glorious history of the Albanians, the olives are the providers of life, of curing and healing oil, a rare and magic elixir, which is found in Albania in its fullest and tastiest form, as shown in the Illyrian gods table.

In the last decade, olives are increasingly used also as ornamentation in tourist resorts, major shopping centres, airport, parks, villas or even in the rings of traffic, to add a historical and pleasing touch.

This has created a legal market, and sometimes an illegal one, of old olive trees. As part of a broad program to plant 20 million olive trees, the government has ordered that all new tourist resorts in the Albanian Riviera should include plantation of olive trees in their gardens.

Fig 5.8 Old olive trees transplanted around Mother Teresa Airport in Tirana, to improve the image

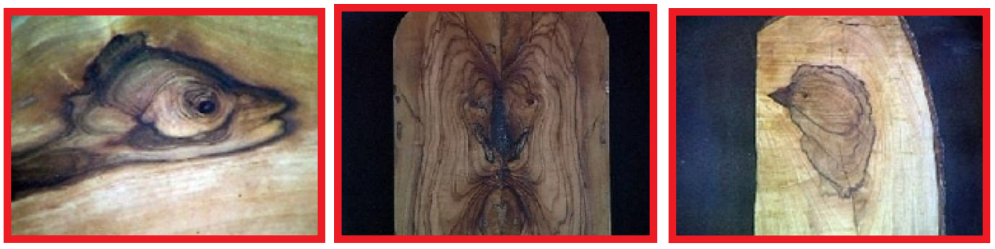
Fig 5.9 Old olive trees extracted from their original place and prepared in large containers to be sold as ornamental plants

5.4 The olive wood and use of its products.

In old times, when the plows were pulled by bulls it was usual that the share was made of olive wood to increase the depth of tillage and to ensure a longer working life, due to the hardness of the olive wood. For such plows, yokes were made using treating olive branches with fire to create a curvature. Olive cores were used to make rosaries for the faithful.

During the 1980 olive wood is used to hold curtains and chandeliers, also exported as souvenirs. Oilcake has also been used as fuel for plaster furnaces. Very rarely, pruned branches have been used as firewood.

Muhammad Trepçi, an artist, has exhibited his creations from the olive tree at the National Museum of Rome. According to the author, these pictures simply do not coincide with the annual growth rings, but are instead designed by light, which shows the ability of olive trees to become photogenic.



CONCLUSIONS AND RECOMMENDATIONS

Environment protection and olive growing

The olive tree, which has been cultivated since ancient times, is daring, little demanding and well-adapted to the harsh conditions of the Mediterranean region. The olive is a typical feature of the landscape in these regions and makes an efficient use of available water resources.

Olive cultivation very often has a positive impact on the environment and in the landscape conservation. It is an essential factor in fighting desertification, which is one of the biggest environmental problems in the Mediterranean Regions. Moreover, olive groves significantly contribute towards biodiversity conservation of these regions by providing shelter and food to the wild fauna,.

Traditional plantations are more valuable in terms of environment and landscape.

As a result of generally spread farming techniques, involving minimal use of non-organic inputs, they do not harm, but rather enrich the concerned ecosystems. On sloping sites, traditional plantations are often created in terraces, helping to reduce erosion and land-loss problems.

However, in function of low productivity of traditional olive trees, which are located in poor soil, their non-profitability often creates problems. When such olive groves are abandoned and they are not replaced with other cultures, they gradually turns into a kind of shrub. If not properly maintained these bushes become a risk in summer fires, one of the main environmental risks for the regions of Mediterranean.

Nevertheless, there are cases when olive plantings have damaged the environment. Over the past few years, new plantations have been established after cleaning marginal lands but at the condition that solutions are found for the concerned environmental ecosystems. In many cases where these plantations are on sloping ground, no measures were taken to reduce the risk of erosion (planting ground covered, working the land along the level lines etc.).

In general, the intensification of olive growing is associated by increased use of inputs such as fertilizers and plant protection products (insecticides and herbicides), and also irrigation, which can aggravate water shortages in some regions.

Such systematic cleansing of vegetation by chemical, mechanical or technical tools has a negative effect on biodiversity and increases losses of soil organic matter. Excessive intensification is therefore a source of environment deterioration and erosion, or desertification.

Cultivation techniques which aim at protecting the environment, such as organic production and strategies for greening and managing terrain for cover, are being implemented more and more in olive growing, but are still being used by a small part of subjects.

Although rural development programs of olive production areas incorporate agri-environmental measures of olive groves, there is still much progress to be achieved in this field, in particular with respect to the degree of use of available budgets.

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Sitography

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http://www.internationaloliveoil.org

FAO (FOOD AND AGRICULTURE ORGANISATION):

http://www.fao.org

NAOOA (NORTH AMERICAN OLIVE OIL

ASSOCIATION):

http://www.naooa.org

AUSTRALIAN OLIVE ASSOCIATION:

http://www.australianolives.com.au

ASOLIVA (SPANISH OLIVE OIL EXPORTERS

ASSOCIATION):

http://www.asoliva.com

ASSITOL (ACCOCIAZIONE ITALIANA DELL'

INDUSTRIA OLEARIA):

http://www.federalimentare.it

CHAPTER VI

STUDY ON CURRENT SITUATION OF USE OF OLIVE OIL IN MEDITERRANEAN COUNTRIES.

Albania is a country with an annual productive capacity of 125 000 tons of olives and approximately 13 000 tons of olive oil (MAFCP 2012). Olives count around 8000.239 plants, from which 4829.159 are currently in production, distributed in approximately 118 000 small farms. From several years olive cultivation is considered a fundamental sector of the agriculture and olive oil is an inseparable part of the Albanian diet.

Currently, Albania is considered as one of the important countries where olive is cultivated, due to its geographical position, which provides for the necessary climate and environment conditions for its cultivation. Olive is cultivated mainly in the western part of the country along the Adriatic and Ionian coast, but it is also cultivated in the inner regions in hilly lands towards the central part of the country, spreading in nine regions and other few communes and villages.

During the last years the investments in the expansion of cultivated surfaces and the processing industry have been increasing in order to meet the growing demand for its sub-products (olive tables and olive oil). Nevertheless, the sector is still facing problems related to the development paces and is still far from the potentials offered by the climate, land and additionally, internal and foreign markets.

6.1 Production of olive oil compared to other Mediterranean countries.

The world production of olive oil is concentrated in the Mediterranean countries. (Turkekul 2010). During centuries, olive has played an important role in the development of rural communities, as a consistent source of income and employment in the Mediterranean countries. The preservation of olive groves, in production conditions, contributes to the sustainability of the natural resources through their conservation aiming at the protection of land, reduction of losses from precipitations and their use. Beside the simple economic aspect, olive farms have also a significant social meaning which has influenced the distribution of the regions and the territory development policies.

The climate conditions and the tradition have influenced the olive oil productive potentials of the European Union countries. The EU has been considered as the main producer of olive oil in the world. Worldwide, olive oil production averages 2.7 million tons, of which 76.6% comes from the EU. Also, 50 % of its trade is concentrated in it. The other main olive oil-producing countries are Tunisia, Turkey and Morocco.

On the other hand, it is important to point out that consumption of olive oil is concentrated in the producing countries. In 2007-2008, consumption in the European Union was 1.9 million tons (69.9% of the world's consumption). Apart from the European Union, major olive oil consumers are Syria (4.1%), Turkey (2.2%), Morocco (2.1%), and Tunisia (1.6%) (IOOC 2009). These statistics show clearly that the main producers are also the main consumers of olive oil.

Box 1: Main producing countries of olives in the Mediterranean

Spain

Is the leader of the production of olives in the world with 2.150.000 ha of cultivated surface, 280 millions of olive plants and a production of 1.287.000 tons of olive oil and 475.000 tons of olive tables. The strategy of the olive sector aims as expanding the olive groves by 60 000 ha per year. The introductions of new methods and techniques, such as the super-intensive olive groves, have revolutionized the quality of olive oil.

Italy

Has a cultivated surface with olives of 2.130.000 ha, which amounts to 12.5 % of the total of agricultural land. The strategy of this country focuses on the quality of olive oil which provides for an annual income of 2.010 million euro or 4.7 % of the agricultural production. Olive provides for 40 million working days. Farms are generally small (less than 2 ha), which is one of the reasons that olive oil is used mainly for personal consumption.

Greece

Has a cultivated surface with olives of 1.140.000 ha, which amounts to 21,1 % of the total of agricultural land, with 170 million plants, where 1/6 is used for the production of olive tables. The main varieties are Koroneiki which occupy 50-60 % of the cultivated surface and other varieties such as Konservolia, Kalamata and Chalkidiki. Has a plan for expanding olive groves by 500 ha/year. Greece produces 370 thousand tons of olive oil and 120 thousand tons of olive tables.

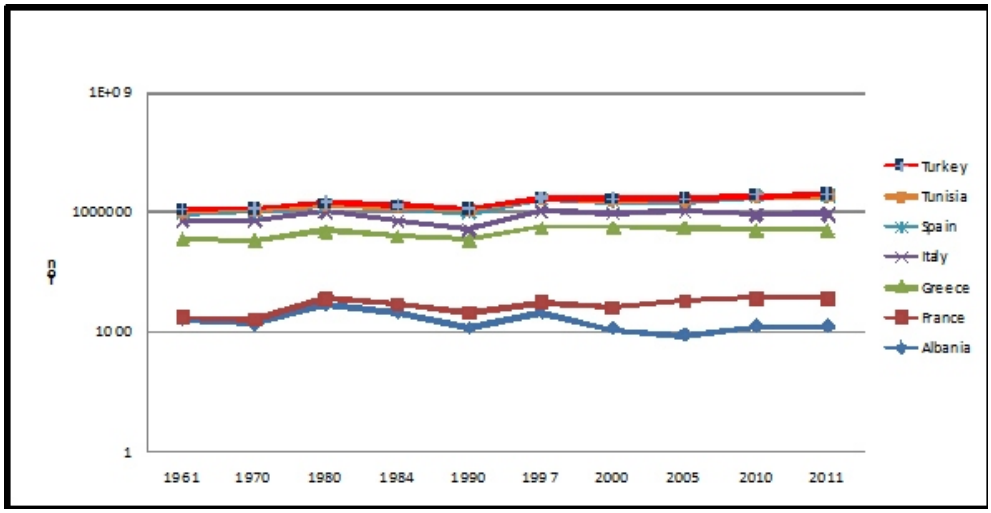
Tunisia

Has 1.680.000 ha of olive groves or 34 % of the agricultural land, with 65 million of plants. It produces by organic farming in 75 thousands of olive groves. Olive is cultivated in 269000 farms or 57 % of agricultural farms. Tunisia produces around 170 thousands ton of olive oil and 19 thousand tons of olive tables from which 45 % supply the agriculture exports. Has a small density of plants, 100 plants/ha in the north, 60 plants/ha in the centre and 20 plants/ha in the south due to the difficult land and climate conditions. The productivity is low. It has been planting super-intensive olive groves for few years for a total of 5000 ha. The consumption of olive oil is 43 thousand tons or 6 litres/capita, from which less than 10 thousand tons goes through the normal commercial channels. An agreement with the European Community, dated 1976, puts Tunisia in a privileged position to access the common market including olive oil.

Source: Olive study

The production and consumption of olive oil in Albania compared to other main Mediterranean countries is shown in graphics 1 and 2.

Graphic 6.1 Production of olive oil in some Mediterranean countries (tons).

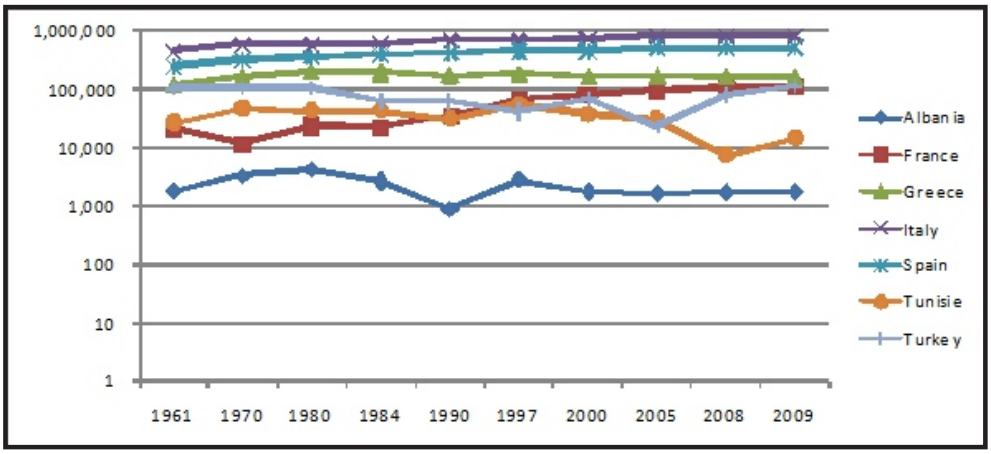


Source: FAOSTAT[1]

The above graphic shows that Albania has the lowest production rate of olive oil in the Mediterranean. The main producer is Spain followed by Turkey. The national production is clearly behind the production rate of other Mediterranean countries. Albania reached its maximum production in 1980 with 4825 ton and since then the production has decreased. Only in the last years efforts are being made to increase the production of olive oil. Albania has the advantage of being a Mediterranean country and should use this fact to become known in the international market. In the future, olive and olive oil will not be an exclusive of the Mediterranean since, according to Turkekul (2010), olive cultivation has spread to other new countries such as Argentina, Chile, China, Brazil, Australia and South Africa.

[1]As of June 2013

Graphic 6.2: Olive oil offer from main producing countries (tons)



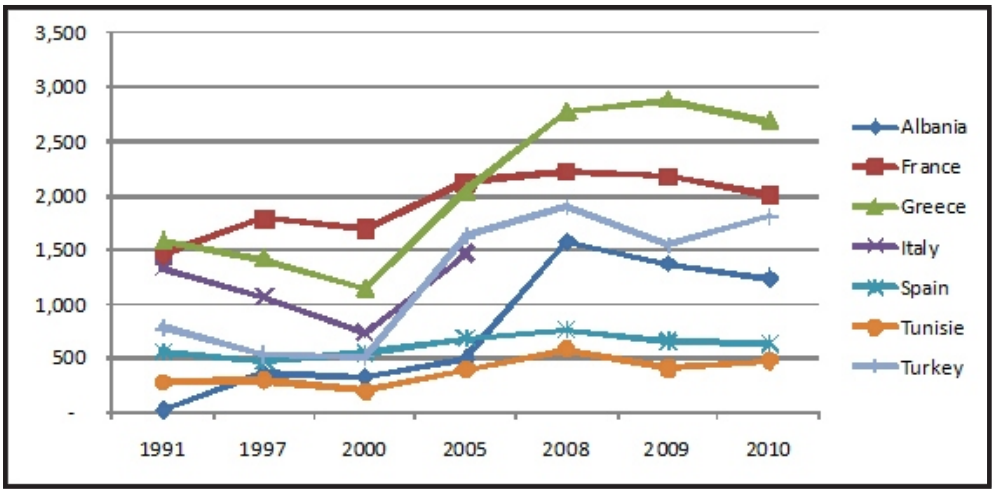
Source: FAOSTAT

The graphic shows that the Mediterranean countries provide for an important offer of olive oil. The main offer comes from three countries, Italy, Spain and Greece. The leading position in the market of olive and olive oil defines, among others, their impact on the international price.

According to Tasdogan C and others (2005), export if olive oil is a imperfect competition. The market is dominated by Italy, while Spain and Greece are part of the competition. Italy has a bigger market dominance compared to other competitors because it resells as a local product olive oil imported from other countries of the region (Turkey and Tunisia).

Furthermore, the same can be said in regard to the prices of olive tables, where again the EU Mediterranean countries dominate the market. It should be noticed that the Albanian olive prices rose after 2005 as a result of an increasing demand for olive tables and olive oil.

Graphic 6.3: Prices of olives according to the years (US $/ton)



Source: FAOSTAT

In the future, it will be very difficult for Albania to defend this position in case no immediate measures are taken to improve quality and provide support to autochthone varieties to be planted.

6.2 Consumption rate of olive oil in Albania compared to other Mediterranean countries.

The macroeconomic information and the national averages per capita (MKB) do not allow for a sufficient cognizance of the food consumption. This information does not provide for a clear idea on how food, in quantity and quality, is distributed between different socio-economic groups. It does not allow for a satisfactory understanding of self-consumption or family processing, which are the basis of food economy in a significant part of non-developed countries.

The method of consumption in kilograms per capita of the main categories of food and the one of the origin of the proteins, show the importance of differentiation of consumption according to their origin: vegetal or animal.

On the other hand such differentiation is important with regard to the consumption level (because it requires many vegetal calories to obtain an animal calorie, which of course costs more).

While popular language describes the low level of elasticity of agricultural demand with the say "one person has only one stomach to feed", the research conducted by Cépède and Lengellé, after the FAO first worldwide questionnaire in 1964, showed that "the stomach" of a New Zealander was worthy "four stomachs" of Koreans (according to the result of the study New Zealanders were, in average, the better fed while the Koreans were the worse fed.

From these analyses we have studied on the consumption of olive oil in Mediterranean countries according to the calculations of FAOSTAT.

Table 6.1: Consumption of olive oil in Mediterranean countries in years (kg/capita/year)

Countries	1961	1970	1980	1984	1990	1997	2000	2005	2008	2009
Albania	1.1	1.5	1.6	0.9	0.3	0.9	0.6	0.5	0.6	0.6
France	0.5	0.2	0.4	0.4	0.6	1.1	1.4	1.6	1.8	1.9
Greece	14.6	19.1	20.4	19.7	17.5	17.3	15.5	15.8	14.7	14.9
Italy	9.1	10.6	10.5	10.9	12.3	12.3	13.1	14.1	14	13.8
Spain	8.2	9.6	9.4	10.5	10.9	11.7	11.6	12	11.3	11.5
Tunisia	6.3	9.3	6.5	5.9	3.8	6.2	4	3.2	0.7	1.4
Turkey	3.7	3	2.4	1.3	1.2	0.7	1.1	0.3	1.2	1.6

Source: FAOSTAT

According to the data published by FAOSTAT, Albania has a low rate of consumption of olive oil per capita of only 0.6 kg in a year. This figure is far distant from other Mediterranean countries such as Greece (15 Kg per capita in a year) or Italy (14 Kg per capita in a year). The major consumer per capita in the world is Greece followed by Italy and Spain.

According to Ghersi G. (1990), the structure of consumption is a reflection of the differences of income in the geographical and socio-economic structure of the production-distribution apparatus.

Disparities in the level of income, which effects are really significant on expenditures of non-food consumptions, are the main factor which explains disparities in the consumption level. The income effect is really visible from one country to the other or, within the same country, from one social class to the other. When the expenditure for food raises such effect is more tangible in classes with lower income rather than those with higher income.

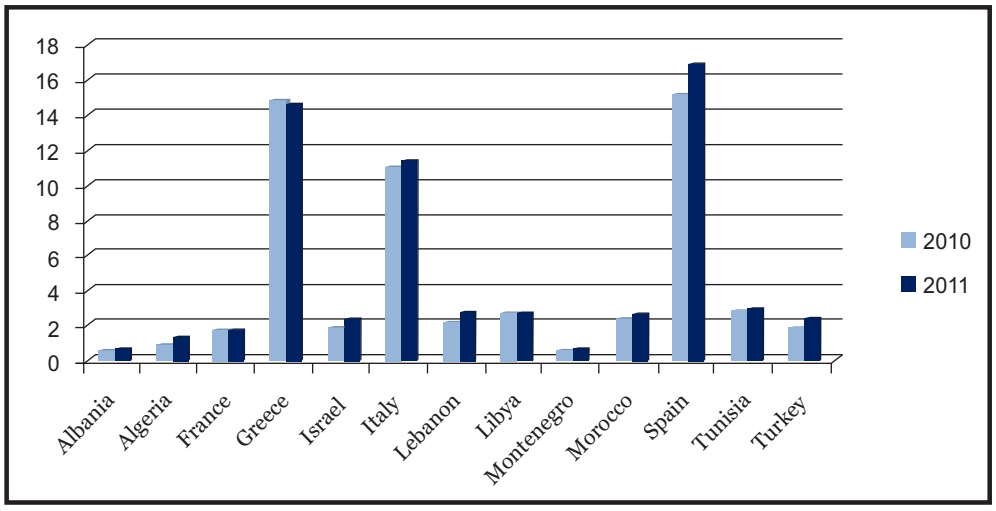
Furthermore, in order to analyse the level of oil consumption in different countries, we should analyse for how long a certain country has been following the traditional Mediterranean diet. The countries that have most followed this food consumption model are the countries which traditionally produce olive oil. According to importance and durability of the diet, Greece is in first place followed by Italy and Spain. Exception made for the first country, where olive oil consumption is 66% of the total vegetal oil consumption, in Italy and Spain olive oil consumption is less than 50% of the total vegetal oil consumption. In the other Mediterranean countries such figure is much lower.

All the above information makes clear also that the Albanian consumer has a weak connection to olive oil as a result of the structure of food consumption, tradition and the income effect.

Compared to the other Mediterranean countries Albania still has a lower number of olive trees per capita and the lowest olive oil consumption rate in the region.

A study carried out in 2009 from MAFCP on olive sector in Albania, shows that the production of olive oil from the processing industry is 6000-8000 tons, while the consumption rate is 2-3lit/capita/year, around ten times lower than the consumption rate in Greece.

Graphic 6.4: Availability of olive oil in kg/capita/Year in some Mediterranean countries



Source: FaoStat

As can be clearly seen from the above graphic, the Albanian agro-industry produces around 15 times less olive per capita than the Greek one. On the other hand, it should be pointed out that this situation is not a creation of the transition period but a structural characteristic of this branch of the agro-industry.

Table 6.2 Oil consumption in the Mediterranean and food propensity in general

1990-2010	Annual average (100 ton)	Coeficient (%)	Min (100 ton)	Max (100 ton)	Annual growth (%)
Production	2441.2	20.4	1453	3174	3.7
	EU 78%	22.3	993.7	2463.5	4.1
Consume	2436	17.5	1666.5	2923.5	2.8
	EU 70%	16.4	1214.5	2078.9	2.3
Export	481.9	30.4	256.5	662	3.4
	EU 54%	28.4	146.1	352.8	5.2
Import	507.8	29.1	288.5	704.5	3.5
	EU 32%	35.8	42.4	231.8	0.2

Source: IOC, FaoStat

The olive oil world market has experienced dramatic changes in the last decade which resulted, among others, in a quantitative and qualitative expansion of the offer and demand, and a significant intensification of the horizontal and vertical competition of the product marketing channels. (Samir Mili 2005).

Table 6.3 Indexed comparative advantages

Tunizia	135.6
Greece	64.7
Spain	32.8
Turkye	19.2
Maroc	13.1
Jordan	10.5
Porugal	7.9
Italy	5.6
Siri	3.9

Source: Several international sources

The analysis of the continuous division of the olive oil market shows that Tunisia is the most competitive in the market. (2000-2004, 2005-2008). All other countries of the region have reflected a significant fall of the competitiveness in the international markets. In the same timeframe, although the Greek exports increased, its competitiveness decreased due to the diminution of the demand its internal market. The success in achieving a sustainable and durative competitiveness in the olive oil market depends on production method, organisation and agriculture policies of each country. Currently, it is necessary for a country to develop not only strategies for increasing the production of olive oil but also to measure the demand and the future expectancies of the consumers.

Olive oil is lately being considered, in many world markets, as the best alternative of consumable oils which helps in reducing cholesterol and fat. IN the last decade significant efforts have been made to improve the quality of olive oil produces in the EU (European Commission, 2000).

The traditional Mediterranean diet, in which the olive oil is the most characteristic product, has contributed in lowering the rate of chronic diseases in the Mediterranean region and has been proved as a model of healthy nutrition (Wahrburg et al., 2002). As a result its reputation has increased and it's being appreciated inside and outside the Mediterranean region. The producers of olive oil, the exporters and the public and private institutionas, in and outside the EU, have started awareness campaigns aiming at informing the consumers on the healthy characteristics of the various categories of olive olive oil.

[2]More detailed in the last chapter of this study

CHAPTER VII

NUTRITIONAL VALUES OF OLIVE OIL

7.1 Introduction

Human beings consume mainly product of agriculture origin that have been subject to continuous transformations in the food chain: animal related, agro-industrial and gastronomical. The food chain can be analysed in three models of continuous transformations of the primary food sources.

i) In some cases, the food products remain very near to basic agriculture products and the food chain in this case can be called "short", this means that they include only a limited number of intermediate transformations.

ii) In domestic economies, the entirety of the production activities, the transformation and consumption of food remains within the same consumption socio-economic unit.

iii) On the contrary, in industrialised countries the food is more and more different from the basic agricultural product. The processing of agro-industrial product requires an increasing number of intermediaries having in conclusion many added values. (agriculture, agro-food industry, industry and connected services, distribution).

7.2 Food science and nutrition practices

Human beings feed to live and satisfy their needs. Food sciences are really complex and, today, this study field is acquiring more importance.

"Food science is not a science in itself: it includes chemistry, physics and physio-pathology, aiming at the resolution of problems related to food and life." The implementation of the food science shows that "objectively, the nutrition traditions have strong basis in the major part of the cases." (Gersi 1998).

It should be said that during the years, mankind has been guided by instincts rather than science. In no country, the alimentary practices are a product of food sciences, but these play an important role in modifying the excesses or shortcomings of these alimentary practices. Consumption behaviour is nothing else but a reflection of the production and of decision-taking rules.

-Energy requirements

Human beings need energy. Calories are units for measuring the amount of energy that food provides. Human beings consume calories for living and interacting.

The energy requirements correspond to the necessary expenses of energy that make possible the existence: like breathing, blood circulation, digestion etc. The need to interact is in relation with the type and the importance of the activities carried out in a certain amount of time.

The needs of the individuals are strictly connected with their weight and age, sex, environment conditions and other ecological factors. Nutritionists refer to the concept of “Woman” and “Man” in order to have the possibility to calculate the energetic needs of the populations. However, the standards used by nutritionists can be taken as basis for biological rules: people can live in good health condition at different levels of consumption.

-Protein requirement

The minimum level of protein requirement of an individual is a key indicator of the quality if food regimes. As per any other requirement, the proteins requirement is considered as an individual characteristic (FAO 2007). The protein requirement of an individual is defined as the lowest level of dietary protein intake that will balance the losses of nitrogen from the body in persons maintaining energy balance at modest levels of physical activity.

The protein requirement evaluation is based on the constant observation of the protein consumption and energy consumption (equilibrium caloric-proteinic)

J. Trémolières points out their importance in food: proteins satisfy around 12% energy requirement, and this figure is also supported by the calculations made by FAO for the major part of the developed countries. The numbers are different in poor countries and goes 9 – 13% of the total energy requirement (For instance: the recommended meal for an adult 30 – 60 years old, who weighs 70 kg is in average 2700 kcal with 53 gram protein from which 50% of animal origin).

7.3 Nutrition

Nutrition is a very important of our everyday life. The value of a portion is calculated according to the totality of food consumed during a meal, which is then transformed in kilocalories, protein, lipids, glucid and in oligo-elements.

The table below shows a simplification of the composition of the different products and shows that food can be classified in large categories of products according to their nutritional characteristics. On the basis of an international classification six groups of food can be identified. The division in these groups can help in better understanding the nutritional values of olive oil.

The first group, which is also called as "essential" includes meat products, fish, eggs and dried vegetables. The main characteristic is that the products of this group have large quantities of protides, minerals and vitamins.

[3]The analysis is from "Agro-food Economy" of G. Ghersi

Table 7.1 Characteristics of some food products

Products	Composition per 100 g of product		
	No. calories	Protides (g)	Lipids (g)
Group 1 : meat products, fish, eggs and dried vegetables (protide, vitamin B, iron)			
Caw	217	14.9	17.0
Veal	146	15.1	9.0
Cattle	168	15.1	11.5
Swine	396	10.4	39.0
Sheep, goat	241	11.9	21.1
Horse	94	15.0	3.0
Poultry	129	12.0	8.6
Other meat (rabbit etc.)	118	17.0	5.0
Eggs	144	11.0	10.4
Fresh or frozen fish	62	8.8	2.7
Salted or smoked fish	221	32.3	9.7
Conserved fish	188	20.0	11.0
Dry vegetables	345	22.2	2.1
Group 2 : Milk products (protides, calcium, vitamin A, B2)			
Non skimmed milk	65	3.5	3.5
Skimmed milk	39	3.6	0.4
Milk cream	204	2.9	20.0
Condensed milk	133	7.0	7.9
Milk powder	492	26.0	27.0
Cheese	341	34.0	21.0
Group 3 : Lipids (vitamin A and D for butter)			
Butter	884	--	100.0
Oils and fats (vegetal and animal)	884	--	100.0
Olive oil	884	--	100.0
Group 4 : Cereals (carbohydrates, vitamin B), potatoes and sugared products			
Grain	350	11.7	1.5
Other cereals	340	9.7	3.0
Rice	360	6.7	0.7
Potatoes	70	1.7	0.1
Sugar	387	--	--
Honey	290	--	--
Group 5 : Fresh vegetables and fruits (mineral salts, vitamins, carbohydrates			
Fresh vegetables (including conserves and juice)	22	1.4	0.2
Fresh fruits (including conserves and juice)	46	0.5	0.3
Citrus (including conserves and juice)	31	0.6	0.2
Dried fruits	267	2.8	0.6

Source: G.Ghersi, « Economie Agro – alimentaire »

The third group, (fats group) is the one of free lipids of vegetal or animal origin. These foods have generally high caloric levels. Overuse of the products of this groups influence negatively the human organism by raising the probability of cardio-vascular diseases, diabetes, obesity etc.

The fourth group is heterogeneous. It includes cereals and their sub-products, potatoes and sugared products. The mains characteristic is that these products have high level of carbohydrates and high energy level.

The fifth group includes the fresh products, vegetable and fruits which are rich in water, vitamins and mineral salts. Dried fruits have high level of calories.

The sixth group includes beverages. Water is the only beverage necessary to the human organism. On the other hand, alcoholic drink may have harm consequences on the human body.

7.4. Nutritional values of olive oil

Olive oil is considered to be one of the healthier oils; it is reach in beneficial fats from which the human body profits energy and good health. 100 grams of olive oil contains:

Unsaturated fats with multiple double connections 11 g

Unsaturated fats with one double connection 73 g

Omega -3 fats 1.5 g

Omega-6 fats between 3,5 and 21 g, depending on the type of oil

Vitamin K, 62 ug

Vitamin E, 14 mg

Saturated fats , 14 g

100 grams of olive have 884 calories (table 4). It contains also polyphenols which help in balancing the sugar levels in the blood and the reduction of various infections. It has also phyto-additives which offer protection toward infections and chronicle degenerative diseases.

Olive oil values are increasing day by day, because various studies continue to reveal numerous health benefits. When researchers began to seek the reasons why the peoples of the Mediterranean area are generally healthier and have a longer life than other people, they discovered that this was as a result of a healthier diet. They believe that this diet is healthier as a result of the large consumption of olive oil in these areas.

However, it is good to understand that olive oil is a healthy choice not only for what it is, but also what is not. Thus, whereas olive oil is more efficient to maintain healthy cholesterol levels, many other fats can replace it, like butter or fats, or any other kind of partially hydrogenated fat, cause cholesterol growth.

The beauty is that the peoples of the Mediterranean basin have profited from the benefits of olive oil for thousands of years, without knowing all the scientific information that we are aware today. Olive oil was highly appreciated in ancient Mediterranean cultures, not only as food but also as lighting oil lamps and other medical uses. There have been legends about the origin of the olive tree, which has represented peace and fertility. The word "oil" comes from the Roman "oleum", which itself derives from the word "oliva" - which means olive.

Today, olive oil is extracted by processing olives in industrial machinery, but ancient people were just pressing olives by feet or stones, or by a press mill set in motion by the power of animals. The pressed olives were turned into olive paste and put in canisters. These canisters were put between two discs, the discs were put one above the other and pressure was put on them. The pressure made olive paste to squeeze and oil was so extracted.

A presentation below will show exactly what nutritive elements a bottle of olive oil has.

In Greece, olive oil has been considered, for thousands of years, as blessed by the Gods. Olive was known as the "gift of the Gods". According to Greek mythology, olive was donated by the ancient Greek Goddess Athena and later was named by Zeus as the most beneficial food of that time.

Cooking food with healthy olive oil will significantly improve their taste. Olive oil improves the taste and scent of fresh salads.

Olive oil is a complex compound consisting of fatty acids, vitamins, microscopic particles, soluble components and olive oil. The main fatty acids are oleic acid and linoleic acid.

Oleic acid is unsaturated acid with one double bond in its molecule and constitutes 55-85% of Olive Oil. Linoleic acid contains some double bonds in its molecule and constitutes about 9% of Olive Oil. Olive oil also contains a small amount of saturated fats. Unsaturated acids of olive oil reduce levels of HDL and LDL in the blood. On the other hand, unsaturated acids help to control LDL levels by increasing HDL levels. No other fat produced naturally contains such high levels of unsaturated acids with a double bond (oleic acid) as olive oil. Moreover, the content of unsaturated fatty acids in Olive Oil is well protected by antioxidant substances occurring naturally in this oil.

Olive Oil color depends on the olive fruit pigments that are green, due to high contents of chlorophyll.

Ripe olives give yellow oil, due to the presence of pigments carotenoids (orange-red to yellow). There are 5 mg of plant polyphenols antioxidants in every 10 grams of olive oil. Dark green variety of Olive Oil contains more antioxidants. Olive oil is second best natural source of vitamin K. The greener olive oil is, the

How olive oil should be stored? Olive Oil enemies are light and heat. Olive oil should always be kept in a fresh environment or in the refrigerator. Because olive oil with high quality hardens in the freezer, it is advised that it be immersed in hot water before use, in order to have it return to a liquid state. It is advised that olive oil be bought in small bottles, in order to make sure that is always fresh.

7.5 Production, marketing and composition.

The olive tree belongs to the botanical family *Oleaceae*, the most important species of which is *Olea europea sativa*. It is characterized by high longevity. The olive tree is adapted to heat and drought and it fits well in the environment where it grows. Ideal conditions for its growth, average temperatures are 15 to 20 degree Celsius, especially in Mediterranean countries. During maturation, the olive oil content increases and reaches 15 to 30% of the total weight of the fruit. Harvesting is done by November until February, using the traditional method of harvesting by hand. Shaking the Olive trees and the collection of the fruits in nets posed under the trees increases significantly the amount of olives fruits collected. After harvesting, the olives must be divided in categories, particularly the amount of olives that were collected from the ground.

7.6 Natural olive oils

Natural olive oils are obtained from olive fruit by mechanical or physical means. Currently it is the only oil that is obtained directly from the fruit, and when properly processed, preserves intact the taste and smell of the fruit.

First, olives are washed to remove residual impurities (dust or soil). Then they are grinded using suitable grain mills or rotary hammers in modern mills.

To separate the solids from the liquids, the olive paste is delivered in a horizontal centrifugal separator, where under the action of centrifugal force it is squeezed to the sides of the cylinder, while fluid (oil and water mixture), is divided by the pastry in the center of cylinder and removed from the separator through a tube. Separation of oil from vegetation water is done either traditionally or mechanically. The traditional separation is achieved through natural gravity decantation, in decantation tanks. Mechanized separation is done through a vertical centrifugal separator.

7.7 Refined Olive Oil

Olive oil that has natural flaws in terms of loss of taste and smell like or that has high acidity , can be suitable for consumption only after going through a refining process. The refining process includes neutralization, deodorization and de-coloration. Neutralization serves to eliminate excessive fatty acids contained in the oil. For this purpose an acid neutralizing agent is used, such as sodium hydroxide. Low quality olive oils have an abnormal or more intense color. This color flaw is corrected by the de-colorization process. This is a physical process which is realized through “surface absorbing”, during which natural coloring substances are absorbed by whitening soils or active carbon. The purpose of deodorization (treatment of oil with steam in vacuum regime and high temperature) is to eliminate bad smells and odors of the oil.

Refined olive oils are pale and not very viscous. They have almost no smell or taste and have a very low acidity.

7.8 Quality of marketed oil

Olive oil is sold, in the international market, at a price higher than other vegetable oils. Consequently, falsification of olive oil with other oils has always been and remains a big risk.

To ensure a fair trade and to protect consumers, the European Commission (EC) has issued definitions and criteria for olive oil and the oil extracted from olive pomace. These criteria have been defined in order to distinguish the different types of olive oil and for the protection of their quality and purity. They provide for restrictions on composition of fatty acids, free fatty acids, aliphatic alcohols, sterols content and composition, peroxides level, trilinolein and presence of saturated fatty acids in the second position of triglycerides. The mentioned criteria provide also on sensory characteristics of virgin olive oil.

Since 1991, Instruction No.. 2568/91 is mandatory for member countries of the European Community. In compliance with these standards, there are different categories of quality of olive oil and the olive pomace oil. However, four of these categories can be directly consumed by consumers.

The word Olive Oil means oil obtained only from the fruit of the olive tree. It excludes mixtures with other types of oils. Oil obtained from olive pomace cannot be called olive oil. According to the criteria which define the standards, olive oils are classified in six categories: extra virgin olive oil, virgin olive oil, refined olive oil, olive oil, refined from wastes, oil from residues of olives.

Virgin Olive Oil – is olive oil obtained from the fruit of the olive tree by mechanical or physical means, in particular thermal conditions, which do not cause deterioration of the quality of the oil. Virgin oils do not undergo any treatment except washing, milling, pressing, centrifugation and filtration. When virgin olive oil is to be used for consumption in its natural state, it is classified in one of the following ways:

Extra virgin olive oil - is virgin olive oil which has a sensory degree higher than 6.5 and a content of free fatty acids, expressed as oleic acid, of not bigger than 1 gram per 100 grams of oil.

Virgin Olive Oil - is virgin olive oil containing not more than 2 grams of free fatty acids per 100 grams of olive oil and sensory degree at least of 5.5. Ordinary virgin oil is olive oil with acidity content not higher than 3.3 grams per 100 grams of olive oil and a sensory degree not higher than 3.5.

Refined Olive Oil is the oil obtained by refining virgin olive oil.

Olive Oil is the oil that consists of a mixture of olive oil, refined olive oil, both suitable for consumption.

Olive Pomace Oil is the oil that is obtained from the treatment of olive pomace from the processing with organic solvent. It can be classified as follows:

- *Refined olive pomace oil* - which is obtain from the refining of oil obtained from the olive raw oilcake.
- *Pomace Olive Oil* is a blend of refined olive pomace oil with virgin olive oil. In any case, this oil cannot be labelled olive oil.

The different types of olive oil and olive pomace oil are identified according to the purity and quality criteria defined in EU marketing standards. For each type, maximum and minimum limits are established regarding content of different parameters.

All these types of oil are classified with regard to three main aspects:

(i) Acidity: extra virgin olive oil (EVOO) (acidity up to 0.8% as oleic acid), virgin olive oil (acidity up to 2.0%), olive oil (a blend of refined olive oil and virgin), and olive oil from the residues (a mixture of olive oil and virgin oil from olive residues);

(ii) The fact that they were obtained by different physical or chemical means. Virgin (Voo) means that olive oil is produced from the use of physical means with no chemical treatment. Refined olive oil (ROO) will mean that oil is chemically treated to neutralize strong tastes (described as shortcomings) and acid content (free fatty acids), but its lipid composition is the same as for Voo;

(iii)Content of micro-components: such as phenols, etc. (Boskou, 2006). The different resistance to oxidation between virgin oil and refined oil makes the distinction between 6 types of oils.

The acidity of the oil is defined as a percentage, is measured by weight, and of content of oleic acid in it. It is a measure of the chemical degradation of oil; as oil degrades, more fatty acids are freed from the glycerides, increasing the level of free acidity and its decay in this way. Another measure for the chemical degradation of the oil is the organic peroxide, which measures to which extent the oil is oxidized. Subsequent systematic studies have shown that Voo has particular composition, in terms of phenolic antioxidants, which cannot be found in any other vegetable oil (Servili, 2009).

7.9 Composition of olive oil

Olive oil is a mixture of glycerides, which are esters of glycerol with fatty acids. In addition, olive oil contains small amounts of free fatty acids, glycerol, phosphatide, flavor compounds, sterols and small quantities of other ingredients.

Fatty acid in large quantities in olive oil is oleic acid monosaturuar (C18: 1). The average composition of olive oil is as follows:

Palmitic Acid (C16:0) 7.5-20%

Palmitoleic Acid (C16:1) 0.3-3.5%

Stearic Acid (C18:0) 0.5-5.0%

Oleic Acid (C18:1) 55.0-83.0%

Linoleic Acid (C18:2) 3.5-21.0%

Other acids 1.5-3.2%

Fatty acid composition of olive oil is influenced by many factors, such as the olive tree variety, climatic and agricultural factors.

Non-glyceride fraction of olive oil consists of several groups of components such as fatty acid esters, hydrocarbons, sterols, triterpenic alcohols, tocopherols, phenols, phospholipids, chlorophyll and flavor components.

Although the largest amount of fatty acids is esterified with glycerol, small amounts of fatty acid esters to form other types of alcoholic compounds, including methanol, ethanol and triterpene alcohols. The leading triterpene in olive oil is squalene, a biochemical precursor of olive sterols. Olive oil is rich in squalene than most vegetable oils. Furthermore, it contains polycyclic aromatic hydrocarbons, as well as small amounts of b-carotene.

The main sterol present in olive oil is b-sitosterol, which constitutes about 95% of the total sterol. Campesterol constitutes 3%, and the remaining 2% are other sterolic ingredients.

Most of tocopherol in olive oil is a-tocopherol, which constitutes the highest activity of vitamin E. Its content is on average 15-25 mg/100g. In general, natural olive oils have higher content of vitamin E than refined olive oils.

Olive Mezokarpi contains phenolic compounds, which are soluble. Some amount of phenolic substances pass in the olive oil. The main polyphenols in olive oil are tyrosol and hydroksityrosol, which are produced by hydrolysis of oleuropein, the bitter component of olive.

Virgin olive oil has a characteristic nice flavor. The main groups of taste and flavor substances are aliphatic and aromatic hydrocarbons, alcohols, aliphatic and terpenic, aldehydes, ketones, ethers, esters, furan and derivatives of thiophene. Taste complex substances change in case of quality deterioration during the storage of oil.

7.10 Olive oil analytical quality assessment

Acidity

Lipolytic processes in the olive, start breaking the triglyceride structure in during the maturation of the fruit. This is observed more during harvest. These processes are intensified by hydrolysis and lipolytic auto-oxidation leading to the formation of free fatty acids, which lower the sensory quality of the oil. The higher is the content of free fatty acids, the higher is the quality of olive oil. The content of free fatty acids is influenced mainly by the harvesting period, the duration between harvesting and processing, and the storage conditions of the olives.

Peroxidation

The peroxidation of fats, which causes oxidative bittering, is the main reason of deterioration of olive oil during storage. Unpleasant taste and bad smell of olive oil is due to the oxidation of unsaturated fatty acids, which is initiated from free radicals and causes the formation of substances that have unpleasant odor and taste.

The formation of peroxides depends on many factors. All the factors, that promote the formation of free radicals, such as light, high temperature in processing or storage of oil and contact with metals, increase fats peroxidation. Therefore, the conditions and duration of storage of the olives, as well as of produced oil are of the highest importance.

Purity parameters

The content of sterols, erythrodiol, uvaol and alcanols are very important for the detection of quality and purity of olive oil. These components are in small quantities, they cannot be converted or structurally broken, but can be separated from the oil with proper techniques, with the aim of quantifying them.

Sterol composition is special and unique for each vegetable oil. For olive oil, the main sterol is b-sitosterol; campesterol is also present in measurable quantities. Detection of other sterols during analysis is an indication of falsification of olive oil with other oils or fats, i.e. mixtures of olive oil with sunflower oil are revealed by the presence of stigmasterol, which is normally not found in olive oil.

The total sterol content is much higher in natural olive oil than refined oils. Therefore, the total amount of sterols may indicate that a natural olive oil is mixed with refined olive oil. EU regulations stipulate for minimum content of natural oils sterols.

Contents of eritrodiol and uvaol is much higher in the olive oil obtained from pomace than normal olive oil, therefore the presence of these components shows that a part of olive oil is mixed with pomace oil.

Another parameter of the purity is the specific spatial distribution of the major part of fatty acids between positions 1,3 and 1,2 of glycerol in oil. All vegetable oils are characterized not only by a specific composition of fatty acids, but also by a specific distribution of their fatty acids within triglycerides: saturated fatty acids are concentrated in position 1,3 and almost no position 1,2, which is mainly occupied by unsaturated fatty acids. If the amount of saturated fatty acids in the second position increases, then it can be said that there is a mixture of olive oil with another one.

7.11 Olive oil sensory evaluation criteria

Sensory analysis of olive oil is carried out by a test panel of the International Olive Oil Council. In this test, selected 8-12 experts analyze the bouquet (including taste and aroma) of virgin olive oil, as well as the intensity of different indicators in the bouquet (for positive taste or aroma: “apple” “fruit” , “green leave”, “grass”, “bitter”, “sweet”, “harsh”, while for negative opinion: “wine or vinegar”, “metal”, “earth”, “clay sediment”, “bitter”.

The final classification is given based on a point scale that runs from 0 points, indicating that oil has many flaws, to 9 - that shows that there is no kind of defect. Extra virgin oils should have an evaluation of at least 6.5.

There are more than 50 varieties of olive, which have specific smell, taste and color. For example, olive oil from Tuscany has the taste of the fruit of the olive, but less piercing, while oils from Malaga have slight taste and golden yellow color.

Moreover, the sensory properties of oil are affected by agricultural and climatic factors, as well as time and method of harvest.

CHAPTER VIII

SCOPE AND METHODOLOGY

8.1 Scope of the study

For many years the processing of olives has provided an important source of income and employment for rural communities Albanian. It is an important part of the culture of many rural communities in Preza and Petrela in Tirana, Kanina and Himara in Vlora. Also in many Mediterranean countries olive is the main economic activity and is the basis for many other sectors (Beaufoy 2002:11).

However, the transition period has negatively impacted on olive cultivation and growth, as well as the level of production of quality oil in accordance with European standards.Under these conditions the main questions raised are:

- Are the Albanian consumers willing to pay more in order to obtain standardized olive oil?
- Are native varieties considered important for the Albanian consumers?
- Are market liberalization and the continued rise in the level of income per capita directing customers to the Mediterranean diet, or are the consumers abandoning this healthy method of consumption?

Based on these questions we have raised the hypothesis of the study that needs to be proved regarding customer preferences for standardized olive oil.

H1: Quality of olive oil affects the Albanian consumer preferences.

H2: Albanian consumers are part of the Mediterranean diet.

In the first part of the study we have analysed the situation of olive production, consumption level, and the level of exports and imports in the Mediterranean area and Albania. In addition, we have analysed the nutritional values of olive oil with the aim of identifying its role in consumption and diet. All information that we have gathered are the result of research regarding the development and analysis of this sector of prevailing documents in Albania and abroad.

Some of the main types of information that we have used during our work can be summarised as follows:

1. General information regarding the development of olive production and social and economic traits of the Tirana and Vlora area that have been identified as study zones. The relevant information has been gathered by documents available at the Ministry of Agriculture, Food and Consumer Protection, Regional Directorates of agriculture, Institute of Statistics etc.
2. Information about the level of consumption and production of olive oil in the Mediterranean. In this context, a sector comparative analysis was made and to this end the statistical data of FAOSTAT have served as a source.
3. Additionally, for this study have been used secondary data about the level of availability consumption of the Albanian consumer for the period of 1984 to 2009 as reported on the official website of the Food and Agriculture Organization of the United Nations (FAO), and the average level of GDP/capita of the same period as reported in nationmaster site, calculated in dollars. These data allow us to have information about the period prior to the 1990s, giving us the ability to see the effect of the events of these years on the average level of food consumption of Albanians.

4. Information on nutrition values of olive products (oil, grain) compared with other products and additionally, its impact on human health. This information has been obtained based on studies conducted in this field and in laboratory tests conducted to assess the qualities of olive oil.
5. Primary data collected through surveys conducted in Tirana and Vlora area regarding the level of consumption of olive oil and the willingness of consumers to pay for an indigenous and standardized olive oil. Surveys were conducted during the period of January to April, 2012.
6. Survey of professionals of the field (specialists, extension services representatives, agronomists, etc.) which enabled us to obtain more specialized information on the sector..

Furthermore this period served to highlight the main problems of the development of olive production in Albania and also to define research questions and hypotheses of the study which we have mentioned above. The latter serve as the main base in the realization of the study.

8.2 Defining the study area

Selection of the study area cannot be accidental, because we had to analyze areas that were part of the comprehensive study of the olive project. Study areas were defined on the basis of surface planted with olive trees. Based on such criteria the first place is taken by the Region of Vlora with 23.3% and the third place was taken by Tirana district with 7.89%. (MAFCP, 2011)

[4]The concept of food availability which is calculated based on the level of production, imports, exports and other non-food uses of a food product is different from the concept of food consumption, which is measured through customer surveys consumer. Application of these surveys in Albania is relatively recent therefore it is difficult to have data on long periods of time. Method of food availability can be considered as applicable to determine the level of consumption only if we consider as true two important assumptions: 1) distribution of food products is relatively equal between different groups of Albanian society, and 2) the level losses in manufacturing process, transportation, processing, distribution, consumption is not significant.

Surveys were conducted in the region of Tirana and Vlora, based on the following three reasons:

1. The largest part of the population of the country is situated in these regions;
2. They have the main share of oil production in the country;
3. The highest level of consumption of olive oil and table olives has been observed in these districts.

On the other hand the aim of the survey was to identify customer preferences and therefore their survey in Tirana and Vlora is sufficient and gives us answers regarding these preferences.

8.3 The profile of Tirana

Tirana is, at the same time, the centre of the region and of the district that has the same name, and additionally is the capital of the Republic of Albania. It is situated in the centre of Albania, about 35 km east of Durres, about 40 km north-west of Elbasan in a valley surrounded by Dajti Mountain in the east, Sauk and Kërraba hills to the south, Yzberisht and Vaqarr hills to the west and those of Kamza in the north. The city was founded in 1614 by Sulejman Pasha Bargjini originally from Mullet; however the name of Tirana has been mentioned for the first time in 1418 in a Venetian document. Tirana was proclaimed as a provisional capital of Albania on February 9, 1920 by the Congress of Lushnja and subsequently members of the National Council entered the city on 11 February 1920. Finally, Tirana was proclaimed the capital of Albania in 1925 by the Constitutional Assembly. The city of Tirana is the largest city in Albania and the largest economical, administrative, political, industrial, academic, social and cultural centre of the country.

The population of Tirana has rapidly increased from 250,000 in 1990 to 350,000 in 2001 and to around 500.000 in 2011. It has been foreseen that by 2025 the population of greater Tirana area will be around 1 million inhabitants.

Tirana is located 110 meters above sea level. The average altitude of the field of Tirana is 521 m, while the two highest mountains close to the city are Dajti Mountain with an altitude of 1612 and *Mali me Gropa* with an altitude of 1828 m.

The city is located about 34 kilometers from the Adriatic Sea to the west. From the south and west is surrounded by relatively low hills, and on the northwest Tirana lies on a flat area.

In the northern part of the City flows Tirana River. A few kilometers away on the southern side flows Erzeni River. The area of the capital city is about 31 km², whereas the area of the district is 1,288 km² which includes four sites: Tirana, Vora, Kamza, Krraba and 150 villages.

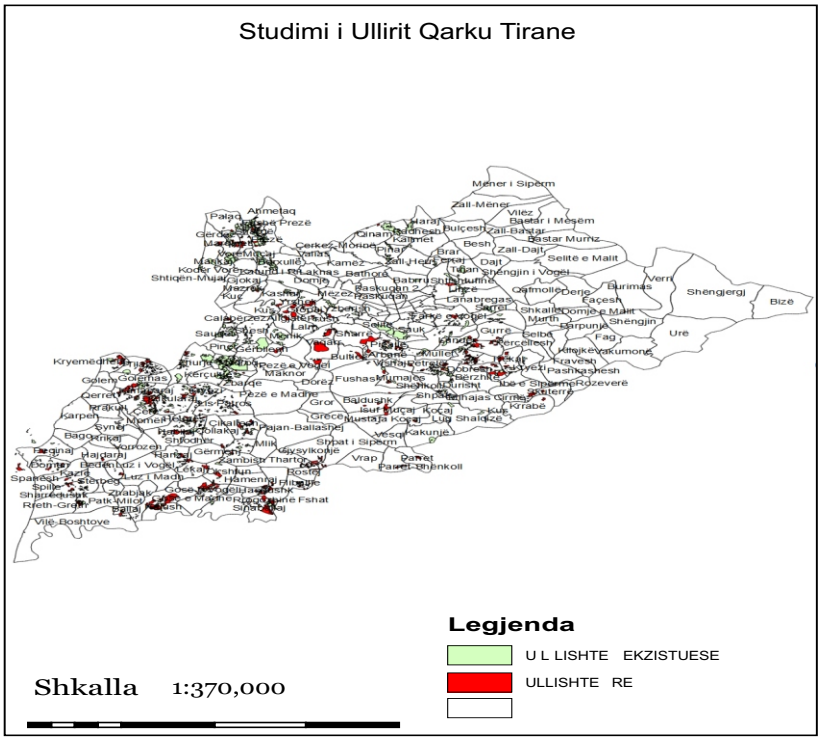
In Tirana prevails a subtropical-Mediterranean climate with winter rainfall and annual average temperatures in July +24° Celsius and in January +7° celsius. The average rainfalls per year are about 1189 mm.

However, Tirana is not only urban. It has a developed rural area which consists of 18 communes with 10 to 12 villages each. The average size of a farm is 1.28 ha. Moreover, the agriculture is developing with a high pace. The District of Tirana has undergone through an improvement of the structure, efficiency and incomes. In 2012 there were 802.500 fruit trees, which produced more than 13.200 tons of fruits. In addition, there were 697 thousand olive trees which produced 10700 tons of olives. Over 200 hectares of new vineyards were completed by the end of 2012. Production of crops and vegetables has increased by 15 and 5% as a result of increased efficiency due to the application of modern technologies and inputs.

Furthermore, the agro-industrial sector has given its impact. There are around 623 subjects that have employed 3644 employees. Currently, in a district scale, operate, in accordance with applicable laws, 114 regional milk processing units and 55 processing plants for olive oils.

Export is a key factor in agricultural and natural production. In 2012, agricultural products like vegetables (tomato, cucumber, tangerines, potatoes, etc.) sapling and medicinal plants were marketed in significant amounts in several EU countries, Russia, Switzerland and Kosovo.

Map 8.1 The state of olive production in the Region of Tirana



Source: Olive study, 2009

[5] The data have been obtained by the Region of Tirana
[6] Information on the olive groves on the district of Tirana will be provided in the annex.

8.4 The profile of Vlora

Vlora is a coastal city in southwest Albania. Vlora is the second largest port after Durres, with a population of approximately 200,000 inhabitants (INSTAT 2013). It is located in southwest Albania, on the Adriatic Sea and is the center of Region and District of Vlora. Vlora's climate is a typically Mediterranean climate with wet and warm winters with a hot summer, with temperatures reaching up to 40 degrees Celsius.

In the ancient times Vlora was called Aulona. It was noted by many foreign travellers and chroniclers as one of the major cities of South Illyria, which flourished after the fall of Apollonia and Orikum.

The denomination Vlora is one of the few geographical names of the eastern coast of the Adriatic that has persisted since antiquity.

According to archaeological materials, it has been proved that in the seaside of Vlora, as well as his inland territory, the defensive features of the cities could be distinguished. Recent excavations in Kanina and Himara have given further evidence of the Illyrian culture on the late antiquity and the early Middle Ages, regarding the autochthony and the continuity of Illyrian- albanon and medieval Albanian. In the VI century a.d. and on a continuous basis during the Middle Ages, Aulona is mentioned in the list of the coastal port cities as an important port that had a developed seamanship that exported olive oil, salt, timber and olives. Additionally, it was well established as a commercial center considering that as in various countries of Europe even in Valona were held many fairs. Another established commercial place on the Vjosa bay was the Spinarica wharf. It had not only local merchants but also commercial consul of Ragusa, Venice, etc.

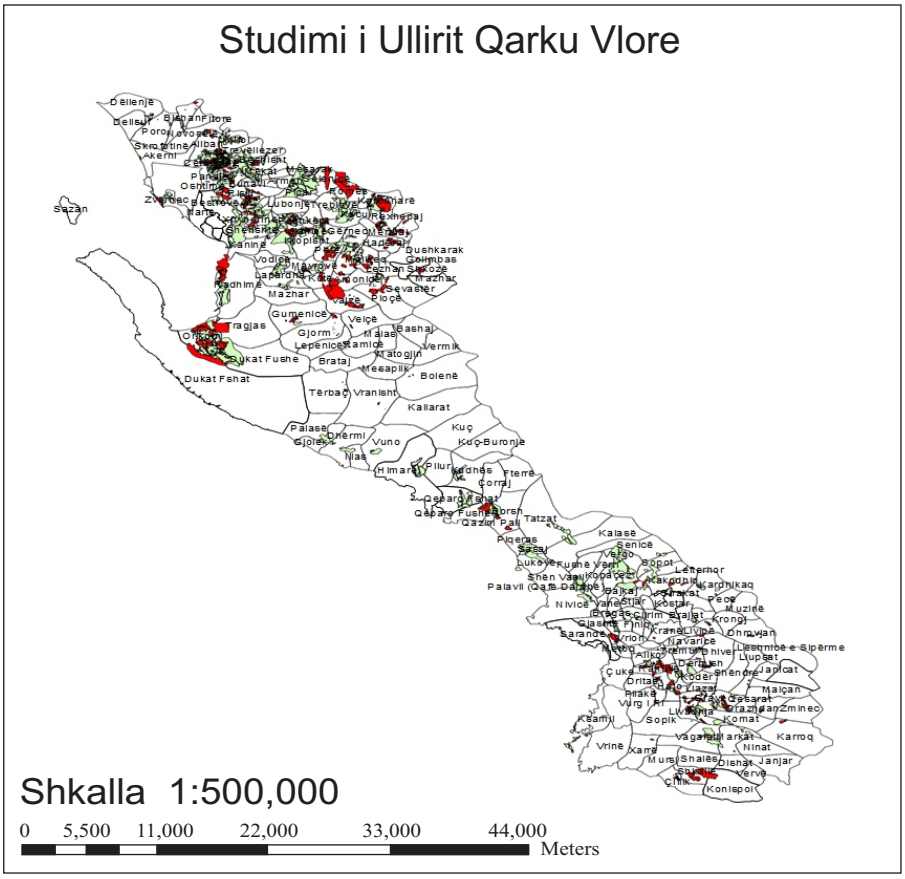
In the Middle Ages Vlore and its regions were conquered several times, by the Norman they were invaded in 1081, then Venetian occupation was established in 1205 and subsequently under the German Hohenstaufen rule, as has been described by Jireçeku in his study. In 1272 Vlora appears as a developed and cultural center of the Kingdom Arbëria, where the chronicles report development of crafts, trade, husbandry and forestry.

[7]Data from the official website of Municipality of Vlora

In the XVII-XVIII centuries, Vlora was one of the most important harbors of southern Albania, after Preveza, because its bay offered to boats considerable protection from storms. The Vlora wharf had large warehouse for the collection and storage of agricultural products that came from the farmers of Berat, Gjirokastra and Myzeqe. During that period exports to several cities such as Trieste, Venice, Vienna, Corfu, Istanbul, Izmir, Brescia, Bari, Monastery, Janine, Malta and Cyprus were developed. Vlora exported the following: olive oil - 20,000 barrels, olives - 11,000 *barrë*, salt - 1.5 million kilograms, unwashed wool - 15,000 oka, lamb and rabbit skin - 20,000 pieces, turtles - 40,000 pieces, leech, poultry, sheep, horses, slaughtered meat, salted fish, fish eggs, greenhouse, asphalt, corn, oat, rye, beans, firewood, sumac, white canine honey, Narta wine and Vlora "Vlosh" wine.

Exports such as leather hides, rugs and other local traditional producs were highly requested items from the cities of Istria, Trieste and the Alpine regions. The olive brand "Vlonjak", which was older than the Italian and French brands, distinguished itself for high yields of oil. In 1900, Vlora had over 100,000 olive trees, whereas it currently owns around 555,000 olive trees. (MAFCP 2012).

Map 8.2: The state of olive production in the Region of Vlora



Source: Olive study, 2009

8.5 Analysis of the survey

Used survey

The used survey was closed. The survey had the following parts:

Data collection

The collection of data was mostly based on field work and in collecting them from various customers. The collected data are quantitative and qualitative. The following are the considered indicators for these two categories of data.

Quantitative indicators

Economic indicators which measure:

- Standard of living (household income)
- The level of development in the study area
- The level of consumption of olive oil
- The price of olive oil

Qualitative indicators

- Consumer preferences regarding place of origin (the region where the oil comes from), taste, and quality of olive oil.
- Method of consumption of olive oil
- Place of purchase
- The method of processing and level of standardization

The collection of data on the analysis of customer preferences was conducted through a socio-economic survey. Conducting surveys was an important element which provided general and specific information connected to the study area.

8.6 Conducting the survey

Surveys in the study area were conducted in the months of January to April, 2012. The surveys were conducted in two phases. In January the survey was tested in the area through a pilot survey. The number of test surveys was 20. The test surveys showed that household income data were not initially taken into consideration, which hampered our ability to make a connection between income and level of consumption. Additionally, errors in the coding of the survey were noted. In conclusion we can say that the implementation of the pilot survey was very valuable, considering that it made possible several modifications which were necessary for the final survey.

The second phase of the survey was implemented during the months of February to April. With the aim of distributing the surveys in proportion with the populations of these districts, 900 surveys were conducted in Tirana and 200 were conducted in Vlora.

All respondents were selected randomly. Random selection is the best way to obtain a representative sample. Considering that no technique can guarantee a representative sample, this method offered the highest probability of representativeness as compared with others (Henry 1990).

The surveys were conducted in private with one of the family members and without the participation of other members so that the collected information was as accurate and in this way the respondent could not be influenced by the opinion of the rest of the family.

Control of surveys

The control of surveys was carried out in two stages. The control took place immediately after finishing the survey, and it searched for possible errors or omissions that may have been made during the survey process. Whereas in the second stage the comparison of data was performed with the aim of verifying the reliability of information gathered from the respondents.

8.7 Analysis of data and processing of information

The survey was coded in advance in order to enable the processing of the results collected from the surveys. Subsequently, to facilitate the processing of the surveys a database in Microsoft Office Access program was set up.

During programming of the database a special consideration was given to the automatic control of the data with the aim of reducing errors while transferring information in electronic form. At the same time, the database provided for an automatic logical control of the values of several variables (i.e. the number of working-age members of a family, cannot be higher than the total number of family members). This control achieves the lowering of the level of errors during data transfer and at the same time, a second control of the way how the surveys are completed is achieved.

At the same time, to avoid possible errors regarding income of the consumers, the database compiles an automatic calculation of consumer' income, based on the number of the family members and those of working age. Additionally, the calculation is assessed on the basis of minimum and maximum salary in Albania.

Their processing is done by using the computer programme SPSS 13 which aimed to build a statistical model and to achieve an indirect analysis of consumer preferences regarding olive oil.

Table 8.1: Components of the study methodology

Components of methodology	**Practical elements of methodology**	**Study features**
Choosing practical methodology	Collecting information through surveys	Consumer surveys
	Defining the study area	Surveys conducted in Tirana and Vlora (traditional areas of olive oil production and consumption)
	Used survey	Closed survey
	Organization of surveys	Conducting a number of representative surveys (900 surveys in Tirana and 200 surveys in Vlora)
Collecting practical information	Conducting surveys	Personal surveys (face to face) with one of the family members
	Survey control	Control for possible errors (physical control)
Processing of collected information	Creating a database in Access	Processing of data in Access, SPSS and Excel
	Econometric model	Building an econometric model to assess the preferences of consumers Statistical model of the following type: "nominal logistic regression" that is written as follows: $\ln(pA/pC)=\beta ao + \beta a_1X_1 + \beta a_2X_2$ $\ln(pB/pC)=\beta bo + \beta b_1X_1 + \beta b_2X_2$

Source: Personal contribution

The above table presents our work on effective selection of analysis elements with the aim of collecting real and full necessary information.

This study, with the aim of defining the meaning of variable has used the following definition: "A variable is something that can take more than one value, and those values can be words or numbers" (Bernard 2000).

Given the qualitative variables from which we expect the final result and the independence of other variables which we have chosen to predict the expected outcome we will use a statistical model with many qualitative variables.

The study was conducted according to the statistical model "nominal logistic regression," that, in our case is written by the following equations:

- $\ln(pA/pC)=\beta ao + \beta a_1X_1 + \beta a_2X_2$
- $\ln(pB/pC)=\beta bo + \beta b_1X_1 + \beta b_2X_2$

Pseudo R^2

Cox and Snell	.107
Nagelkerke	.123
Mc Fadden	.055

Source: Processing SPSS

There are various pseudo R^2 that in statistics can be used to measure the strength of connections between dependent and independent variables. They are not as valuable as R^2 in statistical regression because their interpretation is not straightforward (Norušis 2008)

R2 has higher values than 0 therefore is positive, but not high values because it is measured in different tests and this shows the relationship between independent variables with a positive value but affected by each of the events that will happen.

[8] Logarithmic regression is a technique used in predicting the results when we have a dependent variable and one or more independent variables. It is used in evaluating parameters with qualitative data.

[9] The SPSS test resulted that all three pseudo R^2 results come up.

Parameter Estimates

Quality[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp (B)	
								Lower Bound	Upper Bound
1	Intercept	-1.315	.612	4.616	1	.032			
	Quantityperyear	.016	.007	5.804	1	.016	1.017	1.003	1.030
	[Familymember=1]	-.845	.895	.891	1	.345	.429	.074	2.484
	[Familymember=2]	1.167	.658	3.150	1	.076	3.212	.885	11.654
	[Familymember=3]	1.106	.636	3.028	1	.082	3.022	.870	10.500
	[Familymember=4]	.482	.618	.609	1	.435	1.619	.483	5.431
	[Familymember=5]	.865	.636	1.851	1	.174	2.375	.683	8.259
	[Familymember=6]	-.038	.704	.003	1	.956	.962	.242	3.823
	[Familymember=7]	0[b]	.	.	0	.	.	.	.
	[Cityofliving=0]	1.202	.245	24.006	1	.000	3.325	2.056	5.378
	[Cityofliving=1]	0[b]	.	.	0	.	.	.	.
2	Intercept	-2.173	1.064	4.170	1	.041			
	Quantityperyear	-.010	.010	.990	1	.320	.990	.971	1.010
	[Familymember=1]	1.229	1.170	1.104	1	.293	3.418	.345	33.851
	[Familymember=2]	1.633	1.104	2.188	1	.139	5.121	.588	44.600
	[Familymember=3]	1.325	1.090	1.477	1	.224	3.761	.444	31.843
	[Familymember=4]	1.442	1.065	1.834	1	.176	4.227	.525	34.058
	[Familymember=5]	1.610	1.082	2.214	1	.137	5.001	.600	41.685
	[Familymember=6]	.745	1.161	.412	1	.521	2.106	.216	20.500
	[Familymember=7]	0[b]	.	.	0	.	.	.	.
	[Cityofliving=0]	.773	.307	6.358	1	.012	2.167	1.188	3.954
	[Cityofliving=1]	0[b]	.	.	0	.	.	.	.

a. The reference category is: 3.

b. This parameter is set to zero because it is redundant.

Source: Processing SPSS

The model that we have created has been processed with SPSS program which offers five opportunities on connections of functions. We have used the following function:

Logit f(x) = log(x / (1 – x)).

We have used this function because the dependent variable has relatively equal categories and provides more evaluation of interpretable parameters including reports of the coefficient as a measure of the size effect and the use of connections of other functions does not bring any substantial changes.

From the table on the parameter creation as edited on SPSS we can come up with the following equations:

- $Log(pA/pC)=-1.315 +0.016xa_1 -0.845Xa_2+ 1.167xa_3 +1.106xa_4 + 0.482xa_5 +0.865xa_6 – 0.038xa_7 +1.202za_1$
- $Log(pB/pC)=-2.173 - 0.01Xb_1 +1.229Xb_2 + 1.633xb_3 + 1.325xb_4 + 1.442xb_5 + 1.610xb_6 + 0.745xb_7 + 0.773Zb_1$

The table above shows that the dependent variable is the quality of olive oil. Independent variables are: the amount of oil consumed in a year, the city where consumers live, the number of family members.

p - probability of event

A,B,C, - three different events (of the quality of oil)

X_1-the quantity of olive oil consumed in a year

$X_{2\text{-}7}$- number of family members that are living in the household

Z_1 –city where they live

8.8 Data interpretation and conclusions

Data interpretation is focused in two level of analysis:

- technical
- analytical

On the technical level, the information that has been processed on SPSS13 was transferred to Word and Excel in charts and tables to facilitate their interpretation.

Whereas on the analytical level, the processed information has allowed to create types of consumers for each of the study zones.

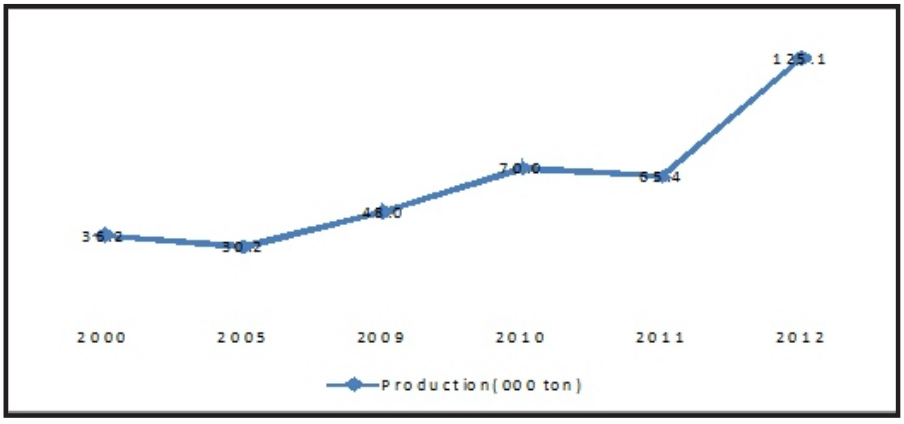
CHAPTER IX

GENERAL OVERVIEW OF OLIVE GROVE AND PROCESSING INDUSTRY OF OLIVE OIL IN ALBANIA

9.1 Current situation

Olive cultivation is one of the main production sectors in the country. Olive production has increased significantly in the last years, reaching 125,000 tons in 2012. Production of olives nearly doubled compared to 2010. In the meantime there are no statistics for the production of table olives versus olives for processing, because very often the same varieties of olives that are commonly used for processing in Albania are also often used for table olives. Furthermore, there are some varieties that, technically, can be traditionally used for both purposes.

Graphic 9.1 Production of olives (in 000 ton)



Source: MAFCP, Statistics Yearbook 2012

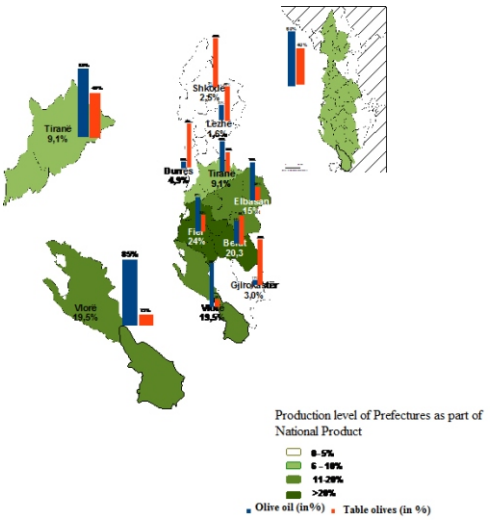
Increase of production of olives in recent years has been driven by the subsidies granted by MAFCP through national support schemes. Initially support for farmers was focused on the processing industry (Japanese Government grant), with modern production lines for olive oil.

Afterwards, it became clear that without increasing the planted surfaces, this industry could not be successful; as a result olive cultivation area has increased by about 60% since 2007.

Olive production is concentrated in the district of Berat (23.8% of the total production) and Vlora (23.4%), followed by Fier (18.7%) and Elbasan (17.8%) which together produce 83.6% of the total production in Albania. In all these regions the production is mixed, with table olives and olives for olive oil - in the case of Berat, great job is being done in terms of production of olive tables.[10]

Distribution of olive groves nationwide is shown by map no. 3, which provides in detail for the level of olive groves and the production level of various prefectures in percentage of the total production. From the map it is clear that productivity is very different in different prefectures.

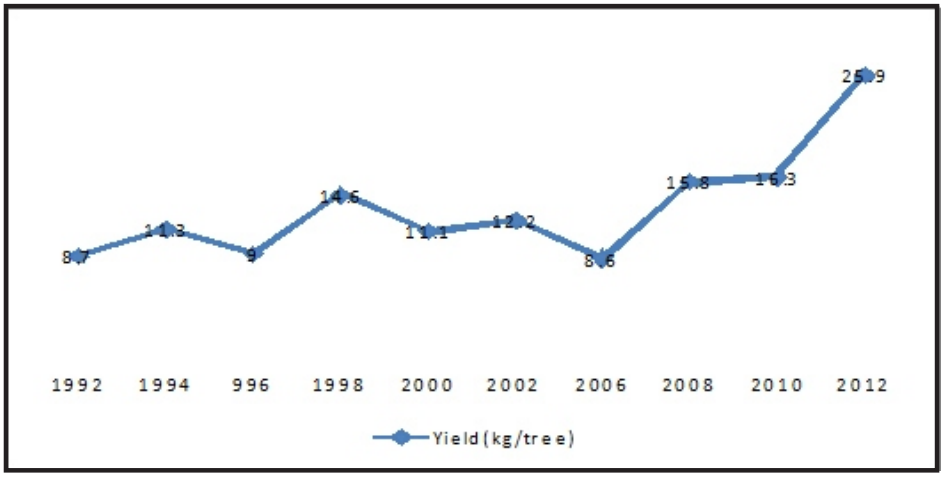
Map 9.1 Production according to prefectures



[10]Information on Berat region is taken from the inter-sectorial strategy "On consumers' protection », 2014-2020,MAFCP

Moreover, the productivity of olives has been a significant growing in the country from 8.7 kg / plant in 1992, to 16.3 kg /plant in 2010. Also, a significant increase in productivity can be seen from 2010 to 2012, where the national average productivity raised to 26 kg for plant. (See graphic 6)

Graphic 9.2: Productivity of olives in kg/plant, in 1992-2012



Source: Statistics Yearbook 2002, 2005, 2008, 2010, 2012 MAFCP

Olive cultivation spreads in nine regions and olive groves consist in about 5.9% of the arable land in the country. This indicator is higher in Vlora region with 23.3% and 12.6% Berat, which also have the largest cultivated surfaces, followed by the regions of Tirana with 7.89% and Fier with 5.78%. 84.7% of the olive groves are concentrated in these four regions.

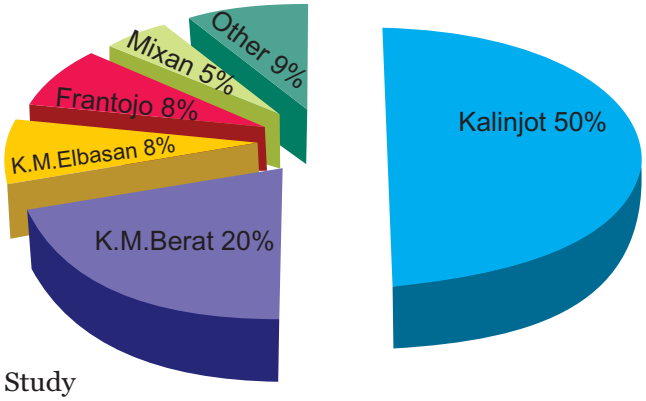
It should be noted that the productivity of the olive groves in the prefecture of Fier and Berat is much more important than in the prefecture of Vlora due to greater refraction of territory.

Also on the other hand, it is worth mentioning that production continues to be modest and highly fragmented because farmers are not aware of the necessary services that the olive tree requires (Starting from the agronomic services to harvesting, processing and storage of olive oil).

9.2 Variety structure and role of autochthone varieties

The olive tree continues to maintain an important link with local autochthonous varieties also because of the support offered by agricultural policy before 1990 (MAFCP 09). Despite the lack of a policy on varieties after the 90s, autochthonous varieties retain a dominant position in the Albanian olive groves

Graphic 9.3: Structure of cultivars of Albanian olive groves



Source: Olive Study

According to a study conducted by Insight Consultant about Albanian autochthonous varieties, supported also by the results of pluri-annual studies conducted by Albanian researchers (Kafazi, 1980; Kafazi & Muço, 1984; Osmani, 1993; Ismaili, 1995; Kafazi, 1995), the Albanian autochthonous varieties used for oil production are: Kalinjoti, Kallmet, Kruja White Olive, Tirana White Olive, Frëngu, etc.

[11]The autochthonous variety of Kokërrmadhi (Big-fruit) of Berati, although used for both purposes (table and oil), is generally considered as olive tables variety.

Currently, the variety structure of the country is dominated by Kalinjoti, with about 50% of the total followed by Kokërrmadhi of Berat with 20% of the total of plants.

Box 2: Principal autochthon cultivars for olive oil in Albania, characteristics and geographical locations

1. Kalinjot

Its origin is in the olive production area of Vlora and Mallakastra and the Ionian Sea and this variety makes up about 85% of the plants in that area. Nationwide, 45% of the plants are of Kalinjot variety. This is the only variety that can be found outside the areas of its origin (like in Lezha, Shkodra etc.). Kalinjoti is accompanied with another variety named Pulazeqin which performs the pollination, thus increasing the level of productivity. Fruit weight is 3.64 grams. Pit weight 0.49 g. The oil radius to the pulp is 86.4%. Production is good and alternated. Dual use, oil and table.

2. Kallmet

The origin of this variety is from Lezha and Shkodra. Fruit weight is 3.76 grams. Pit weight is 0.76 grams. The percentage of oil in the pulp is 87%, production is good and the periodic, oil radius in industrial production is 22-23%. Can be used for processing and table, averagely sensitive to cold and drought, early maturing (October-December).

3. Kruja White Olive

Originates from the area of Kruja, it ranks second in terms of proliferation in the region, and constitutes about 23% of the secular olive plants nationwide. Fruit weight is 2.04 grams. Pit weight is 0.37 grams. Oil radius in industrial processing is 24-25%; The oil quality is good. It is good variety that resists drought and cold, and well suitable to be cultivated in hilly areas.

4. Tirana White Olive

This is an autochthonous variety of Tirana area, but spreads also in Durres, Kruja, Lezha and Shkodra. Fruit weight is 2, 1 gr. Pit weight 0.35 grams. The oil radius in industrial production is 24%, and has a good resistance to cold, drought and diseases.

5.Frëngu

Despite the name its origin is in the hilly area of Tirana. Thi is par of secular olive plants.

6.Mixan

Its origin is from the regions of Elbasan and Peqin. Fruit weight is 2.3 grams and the pit weight is 0.36 grams. Oil radius in pulp oil is 84%, productivity is high and constant. Oil radius in industrial processing is 24%. The oil is of good quality and this variety is appropriate for poor soils.

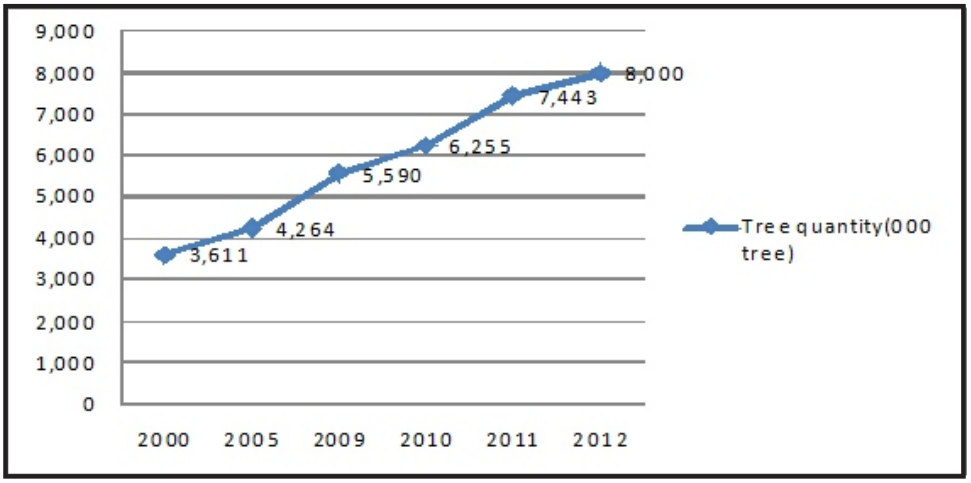
7. Kotruvsi

Autochthonous variety that spreads in some areas of Berat and Fier. Fruit weight 2.4 gr., Pit weight 0.54 gr. Oil radius in pulp is 77%, constant productivity and oil radius in industrial processing at 24-25%, resistant to drought tolerant and can grow in shallow and poor soils.

8.Himara Slim Olive

Originating from the area of Himara fruit weight 1.37 gr. Pit weight: 0.33 gr. Oil radius in pulp 76%, industrial radius 16%. Very good quality of oil. Variety suitable for skeletal lands and good resistance to drought.

Graphic 9.4: Number of olive plants in 2000-2012 (in 000 plants)



Source: Statistics Yearbook 2012 MAFCP

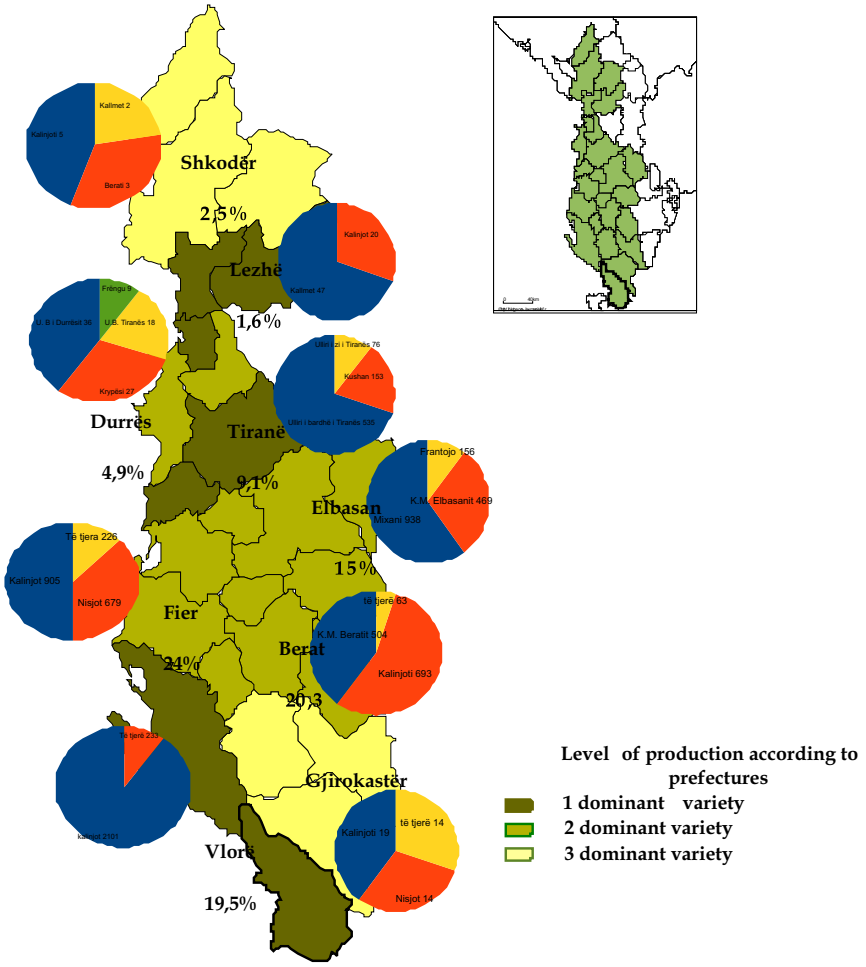
As can be seen from the graph, the number of olive plants is growing because olives have been one of the main priorities of MAFCP. In our country, there are some autochthonous varieties which are mainly related to a specific geographic area.

Therefore, it should be the objective of supporting policies that, in supporting the olive culture, to aim at creating homogeneous areas (in terms of varieties) that can later apply quality labels or labels that show the link between the product and the territory.

One of the paths that can be followed, in order to increase the connection between consumer and product, is the promotion of the connection of olive oil with a specific territory, and a certain variety.

The level of oil production has the same characteristics of the variety structure of Albanian olive grove. The most important part of production capacity consists of Kalinjoti variety, which provides for the main quantity of oil nationwide and constitutes over 70% of the variety structure in Vlora region. In the following chart, the main varieties are presented at the regional level for each olive cultivation area.

Map 9.2: Distribution of oil production according to varieties in the olive cultivation area



Source: Olive Strategy, MAFCP 2010

This map gives us two important information: the level of concentration of varieties at the regional level, where in our case we distinguish region in which one variety prevails (Vlore, Tirana, Lezha), regions with two dominant varieties and regions where there are three main varieties, and secondly, the possibility of production by varieties.

It is important to point out that the regions in which there is a significant concentration of varieties offer a limited amount of production (Tirana, Lezha) with Vlora the only exception.

In the main production areas two main varieties can be found, which are also the leading autochthonous varieties (Kalinjoti, Kokerrmadhi of Berat and Minxani KM). Regions that have over 3 varieties in their olive groves have a minor importance in national production.

From the analysis, it can be said that two varieties, for the production quantity and characteristics at the national level, can play the role of autochthonous varieties and can be promoted as products of the territory. These are the Kalinjoti which occupies a central place in the production as well as in the area Minxani in Elbasan but of a lower importance. Their own agronomic characteristics and concentration in a limited area as well as oil-producing qualities make these varieties as products of the territory in all elements.

The question is whether this was considered in planting new olive trees in Albania.

For sure this question is very important because it will directly affect the growth of export of olive oil.

Despite the increase of areas cultivated with olive trees it can be noted that the structure of autochthonous varieties is not being preserved seen no, but many newly planted varieties are coming from neighboring countries. A typical case is planting Frantoio, an Italian variety, as it is considered as a very productive variety for oil production. This fact is illustrated by the new plantings structure aided by state financial support for the district of Vlora.

Box 3: New olive groves supported by state financial aid (2007 - 2011)

1. No. of Project applications 1285
   Field 331 ha
   Hill 660,5 ha
2. Planted are in total 991,5 ha
   Traditional 721,5 ha
   Intensive 270 ha
3. No. of plants in total 314059
4. Varieties, Kalinjot 295 ha, Frantoio 580 ha, other 116,5 ha

Source: Agriculture Department Vlora

The figures show that, over a 4 year period, Frantoio is planted more than twice than Kalinjoti which is autochthonous Albanian variety. It is understood that to Albanian farmers profit is very important, but the payoff in the future will be limited, because international markets will require only those products that will be able to receive quality signs as PDO, PGI and GI. Europe has a long tradition in using schemes of territory products (box 4).

Box 4: Quality indicators of territory

Geographical Indications - GI

The rules for protection of names of products whose specific character is determined by their geographical origin (protected denomination of origin PDO and protected geographical indications or PGI), were drafted so that products meet customer expectations in two ways. Firstly, because a large number of these products have excellent qualities, such as taste, flavour, etc. and secondly, because the local modes of production of these products are creating a link between consumer confidence, production, the country from which the product originated and the people who live there and produce competitive products. The two types of geographical schemes show the different levels of connections with the geographical regions.

Protected denomination of origin (PDO)

Products that bear the Protected Denomination of Origin (PDO) have proven features that are the result of the geographical are in which are cultivated and of the skills producers in that region. To be a PDO it is necessary that all stages of the production process be carried out in assigned area. The legal definition dates back to 6 July 1966. The law provides that:

"PDO is the geographical definition of a country, a region or a locality which serves to distinguish a product which is originally from this country, as well as its quality or characteristics that depend exclusively by the geographic territory" (including geographic and human characteristics).

In conclusion, Protected Designation of Origin is the name of an area, a specific place or, in exceptional cases, the name of a country, used as a designation for an agricultural product or a foodstuff:

- comes from such an area, place or country
- whose quality or properties are significantly or exclusively determined by the geographical environment, including natural and human factors
- the production, processing and preparation should take place within the determined geographical area

Products connected to a special method of production

The scheme of Traditional Speciality Guaranteed, (TSG), is used for products with special features which either contain traditional elements or are produced by traditional methods. Among the names of products in this group may be mentioned 'bread Kalakukko' ham 'Jamon Serrano' and beers 'Kriek'. These names were recorded at the request of Finland, Spain and Belgium, although they can be used by all farmers who respect the specific mode of production. Their character "specific" refers to the properties or groups of attributes which distinguish products from other similar products or food products of the same category.

In the new context of the Common Agricultural Policy and the WTO, Geographical Indications are of interest not only for European farmers, but also for those in developing countries (Ilbert, H. and tj 2005).

One of the policies that aim to enhance the quality of the product is that of quality certification. This policy is closely associated with the identification of the origin of products through territorial labels like PDO, GI, Biological Agriculture (AB) etc. It takes a new dimension through quality differentiation strategy which was adopted on 14 February 1992, under Regulation 2081/92 concerning the protection of origin for agricultural products and foodstuffs. This regulation has a significant importance for countries that are highly related to the quality and the reputation of the products of their territory. They have received assistance for promotion of products that have a GI. On the other hand the development of the CAP was associated with a lower level of protection for European farmers from market risks, but at the same time it became more concrete considering the advantages that come from the diversity and quality of products through the quality of origin. However, such a policy must be credible to all stakeholders, from consumers to producers, to public bodies etc. (Barjolle and others, 1998). Precisely for this reason, the assessment of the product-area connectivity is very important. Many research works have been conducted and many others are in the process, because currently the use of territory product names has become very abusive (Berard, L. Marchenay, Ph. (2007). The discussion is whether these territory products should be considered as superior products (Luisa Menapace and tj 2008).

On the other hand, many studies have demonstrated theoretical welfare coming as a result of using the GI indicators. According Zago and Pick (2004), GI have large effects on welfare, especially when widely the quality affects the offer. Based on this assumption it should be understood that it comports a fixed cost to develop a GI market. Furthermore, Lence and others (2007) suggest that they needed some degree of market power to form associations of producers who supply a GI, and also show that the welfare of GI depends on the degree of protection of property rights.

Therefore, the recognition and identification of olive oil as a territory product will influence positively in several directions:

- In increasing the competitiveness of Albanian products in international markets.
- In improving of the quality of olive oil in a large scale,
- In consolidating local producer organizations. Currently farmers are interested only to send or sell their olives in the factory and not to produce a product under the brand name of a territory. Therefore in the future, production of a quality olive oil will not only be part of agro-industry but will include also rural communities which will attempt to increase the reputation of their areas.
- The consolidation of rural territories and improvement of welfare in these areas.

However, on the other hand it should be noted that certification of territory products is expensive. According to Réquillart (2007), producers have few opportunities to get a quality certificate: a. be certified independently; b. be part of a "cartel" to share the costs of certification, but manufacturers be competitors regarding the quantity; c. be part of a "cartel" and to share not only the costs of certificate but also to be allies; d. be not certified.

Their analysis continues further and indicating that generally certificate costs can be shared among the participants in some situations, authorizing so collusion/hidden pacts between the producers in order to improve their welfare.

In these conditions, the difficulty becomes even bigger for Albanian manufacturers whom not only are not yet aware and well informed about the existence of these quality schemes but also not willing to pay additional costs for their products.

On the other hand, the MAFCP has not done much in this direction, since there is not a concrete strategy for supporting and promoting territory products. Furthermore, the needed legal framework should be adopted; structures be created aiming at making possible the certification of territory products in Albania.

9.3 Olive oil processing industry

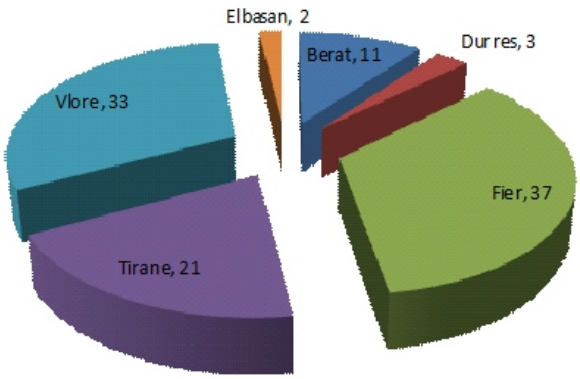
Olive oil processing industry consisted of 107 enterprises in 2010. These were mainly concentrated in Fier (35%); Vlora (30%) and Tirana (20%), with a total production capacity of approximately 200 tons of olive oil per day.

Of 107 production lines of olive oil, 67% were bought used and only 33% were bought brand new. Types of prey are mainly of Italian and Greek production, but there are also other types originating from other countries.

It is worth mentioning that most of the presses imported from Italy and Greece were used and of a technology dated '70s. The same can be said for continuing lines.

The mentioned figures represent only the official number presses, but in these areas operate also many unlicensed enterprises which bring their number to around 160. Graph below shows the distribution of these oil factories/presses by region.

Graphic 9.5: Number of olive oil enterprises in 2010



Source: MAFCP 2011

At the same time, in order to have a clearer situation of the country, the table below provides for the distribution of enterprises by cities and also the applied prices to the processing of olives (ALL / ton).

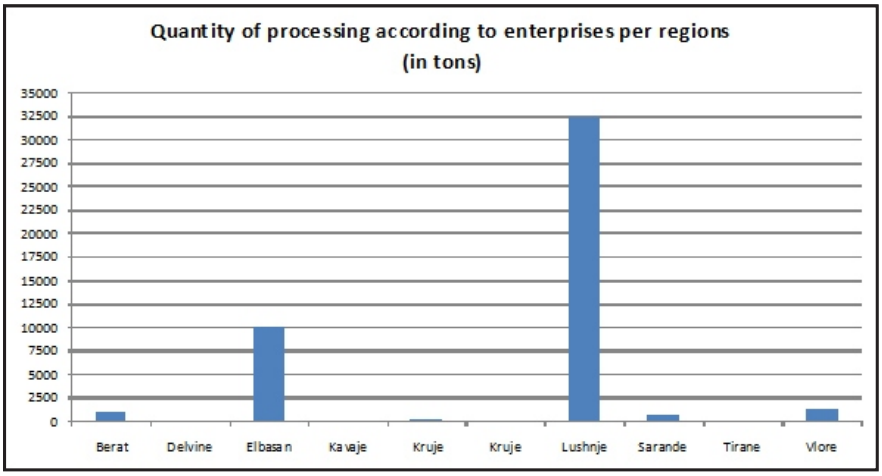
Table 9.1. Number of processing factories in Albania and prices for the procession of olives (ALL/Ton)

Price/cities	410	420	425	429	430	434	450	500	510	520	570	600	620	700	800	TOTAL
Berat							1								10	11
Delvinë											1	1	1			3
Elbasan												1				1
Fier															21	21
Kavajë								5				1				6
Krujë														3		3
Lushnje								7								7
Mallakastër														9		9
Sarandë	1	2	3	1	1	1										9
Tiranë								11				3			2	16
Vlorë									14	7						21
TOTAL	1	2	3	1	1	1	1	23	14	7	1	6	1	12	33	107

Source: MAFCP, 2011

Domestic production is improving in terms of quality and quantity, but suffers from high price of non-processed olives. As shown by the table, about 42% of companies pay 700-800 ALL /ton. On the other hand farmers prefer to use oil factories as service providers, paying a fee for processing their olives. This fact proves the large concentration of factories in the district of Fier, although Fier does not occupy an important position in producing olives. The majority of domestic production sold (informally) directly to consumers by farmers or olive oil factories. Also the number of employees in this sector is very limited, only 236 workers and most of them are seasonal. A company employs an average of 2-3 workers.

Graphic 9.6: Quantity of processing according to enterprises per regions



Source: MAFCP

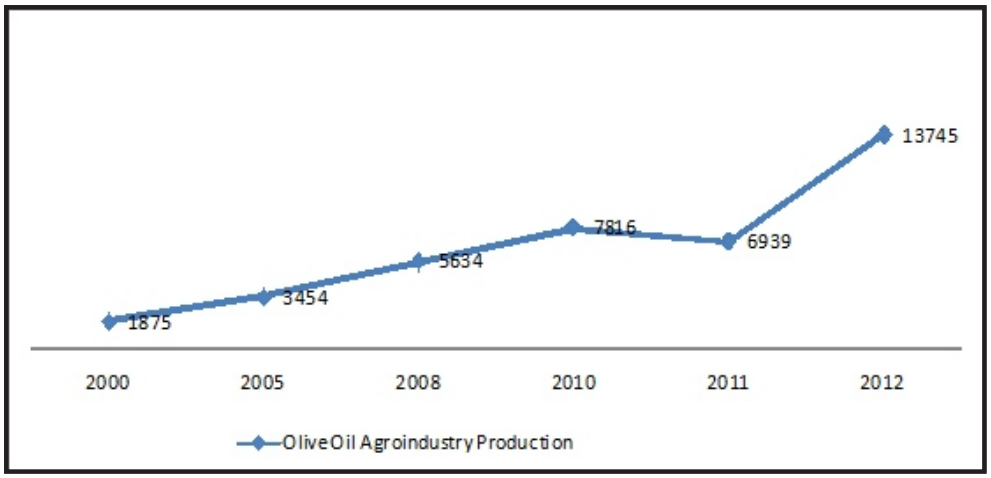
Most of the mills used for olive processing are in good technical and technological state. Most of the olive oil is processed in Lushnja area (part of Fier), because there is large number of oil factories in this area. They can process up to 340 tons of olives per day and on average each mill can process up to 3.3 tons of olives per day. As mentioned above, many of them were purchased with the contribution of donations of the Japanese with the intermediation of the Ministry of Agriculture, Food and Consumer Protection (in that period). At the same time the existing geographical distribution of factories seems a good opportunity to preserve the qualities of olives aiming at extracting olive oil that can meet the standards required by customers.

The number of olive oil processing plants is sufficient for all planted surfaces, taking into account their geographical distribution and the processing capacity compared with the theoretical capacity is only 59%. This figure allows these factories to increase the utilization of their capacities.

The following graphic shows the performance of olive oil production in 2000-2012. As can be seen during this period there was a significant increase of olive oil production.

This figure reached a maximum in 2012, when production was 13,745 tons of olive oil, with an average retail price of 515 ALL / litre (approximately 4 euros / litre).

Graphic 9.7: Production of olive oil in years 2000-2012 (në ton)



Source: MAFCP

Olive oil produced is destined mainly for domestic consumption. Despite the increase in the production of olive oil, imports have continued to grow, reaching 1,331 tons in 2012, marking an increase of 85% compared to 2007, while exports are very low and sporadic. The quantity exported is decreasing decrease from 20 tons that was in 2009 to 10 tons of olive oil in 2012. Imports consist mainly of low quality olive oil which is usually packaged and marketed as olive oil produced in the country and partly from packaged high quality olive oil, which is usually marketed in supermarkets[12].

[12] National Strategy on Consumer Protection 2014-2020

The table below shows the Albanian commercial balance for olive oil during 2009-2012.

Table 9.2 Albanian commercial balance for olive oil in tons

Name	Year			
	2009	2010	2011	2012
Produced quantity	5060	7816	6939	13745
Export	20	16	10	10
Import	1075	1213	1207	1345
Balance	**6115**	**9013**	**8136**	**15080**

Source MAFCP 2013

The Quality of Olive Oil, in Albania, suffers many issues related to the methods of olive cultivation, agronomic techniques followed, processing and storage of production phases, which affect directly the quality of the oil.

Regarding the legal framework for this sector it should be noted there is law in force, law Nr.8944, dated 19.9.2002 "On production, labelling and marketing of olive oil." However MAFCP has set up a working group which is working to draft a new law for the olive oil[13] sector. This law will be approximated with the EU Regulation no. 1234/2007 concerning the classification of olive oil and pomace olive oil and Regulation (EC) Nr. 1019/2002 on marketing rules for olive oil. Also, the new law will be harmonized with the COI rules for trading of olive oil and pomace olive oil.

9.4 Main issues of processing of olive oil

The development of oil processing industry continues to reflect the same problems facing the sector of olive production and agro-processing sectors in Albania.

Olive oil processing industry consisted of 107 enterprises in 2010. These were mainly concentrated in Fier (35%); Vlora (30%) and Tirana (20%), with a total production capacity of approximately 200 tons of olive oil per day.

[13] The amount of pomace olive is calculated at 30% of the total used for oil production, depending on the production of olive oil and of the quantity of olive fruits use for these amount, with an average productivity of 15%. (1 ton olives =150 kg Olive oil),

The small quantity produced nationwide is not the only weak point of the agro-processing sector, another problem is also the quality of oil produced. Olive oil produced in the country suffers from significant problems in terms of quality. This low quality is the product of two main elements i) problems in olive cultivation and harvesting, ii) problems that arise during the processing and marketing of the product.

Therefore, in brief, low quality of oil is caused by these factors in the process of agricultural production:

i) Insufficient services during cultivation process, which increases the level of fruits affected by diseases (mainly olive fly) and cause to increased acidity level of the final product.

ii) Various diseases that do not allow a quality production of olive fruits (here we can mention the peacock eye).

iii) Harvesting after the ideal timeframe for the extraction of extra virgin oil. Historically, farmers have been convinced that oil has a higher quality when olives are fully mature.

iv) Wrong practice of delivering the olives for processing product few days after harvest.

v) Conservation of olives in plastic bags.

vi) Lack of selection of olives by quality and variety which leads to the production of a mediocre quality oil.

Regarding the level of processing of olive oil in our country the main problems are:

i) Significant waiting time in factories before processing.

ii) Traditional problems related to the processing of the product (lack of specialized personnel).

iii) Blending of olive oil with other vegetal oils.

iv) Storage in tankers not suitable for conservation or packaging in plastic bottles which do not preserve the original qualities of the product.

v) Lack of standardization of the plant (in terms of building, sanitary and phyto-sanitary measures etc.)

vi) Not washing machineries after each process of extracting olive oil. As a consequence of all these issues, customers do not have trust in the quality of Albanian oil brands.

To attach the consumer directly to the product, it is not enough to increase the quality of the product, in terms of decreasing the acidity (European rate is less than 0.8%), but it seems also needed the attachment of the consumer to a variety or to a specific area at the national level.

CHAPTER X

ANALYSIS ON CONSUMERS' PREFERENCES ON CONSUMPTION AND STANDARDS OF OLIVE OIL.

10.1 Introduction

This chapter focuses on the impact of quality standards and especially the products of the territory (ie GI, PDO or TGS olive oil) in the preferences of the Albanian consumers.

In contrast with previous studies of Imami D. and other (2008, 2009) whom have measured customer tastes and preferences according to the theory, we focus the on quantity purchased, and on the consumption of olive oil by Albanian consumers. At the same time, we try to understand whether there is a link between the quality perceived by consumers and real quality standards. Therefore, this analysis aims at verifying whether the local consumers are aware of the importance of standards (including certificates and territory) and whether they are willing to pay more for such a product.

The analysis is based on answers given by consumers in the two chosen regions: Tirana and Vlora.

According to the questionnaires, the Albanian consumers are:

- Knowledge of olive oil from the Albanian family
- Criteria for choosing a qualitative oil from an Albanian consumer
- Consume level and consumption way of olive oil in the Albanian family
- Awareness toward standardisation

10.2. Analysis of consumers' preferences

Historically it was thought that Albania, as any Mediterranean country has the common food consumption patterns as the region, at least in ingredients.

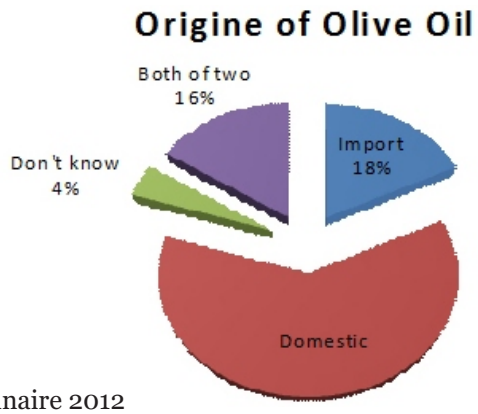
No questionnaire response shows any lack of information about olive oil.

They are not influenced by the price of the product. The analysis of the questionnaires does not show any connection between the oil price and At a first glance all Albanian consumers consume olive oil, but what is more important is to understand the amount of its use.

Albanians buy olive oil based on family tradition and obtained information from generation to generation during time. These preferences can be listed starting from the origin of olive oil used for consumption in the Albanian market to the manners of production, the marketing place, packaging, offering price, aroma and taste. Another factor is the level of income of local consumers. Generally consumer income, but only between the income and the amount of oil consumed. This fact implies that consumers with lower incomes prefer not alter quality of oil consumed but rather reduce the used amount.

According to the analysis of the questionnaires, the preferred oil origin from Albanian consumers is the national one at 62%. Meanwhile the origin of olive oil import is preferred by only 18%. The graphic below shows the results.

Graphic 10.1: Purchase of olive oil according to origin



Source: Questionnaire 2012

Consumers prefer more domestic oil (a fact that is proven also in previous studies) because they are familiar with the taste and believe in its quality. Ultimately consumer preferences are increasingly associated with the origin of olive oil (Guerrero J 2012)

However, this trust is based solely on consumer's perceptions and does not determine the real quality oil for some reasons:

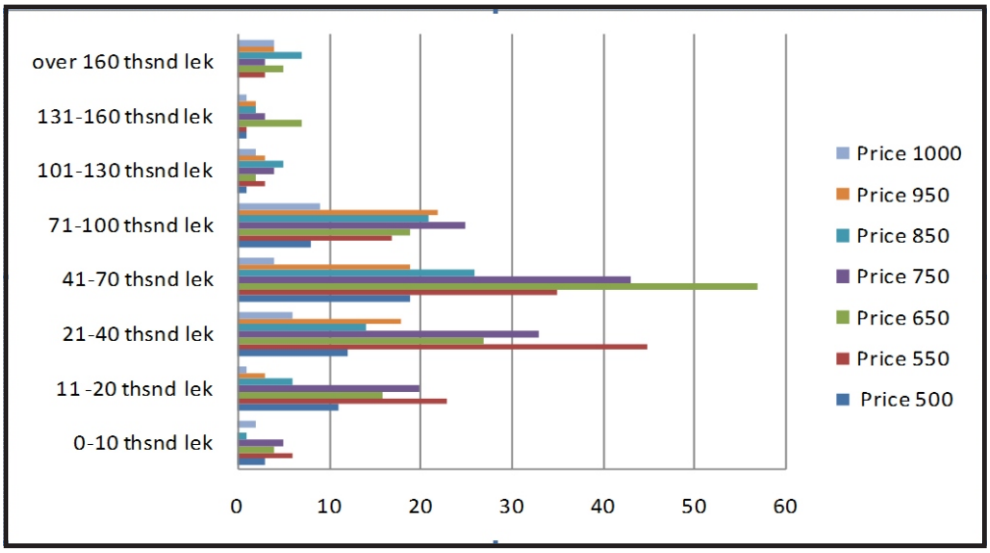
- The taste that consumers prefer is not equivalent to quality (as mentioned above domestic oil suffers from high acidity)
- Domestic oil does not correspond to a specific olive variety, as consumers not only are not interested in this, but neither have the necessary information. Most of the customers simply distinguish the origin but not the variety of olive. Consequently, the analysis of the questionnaires shows that the preferred origin of Albanians is olive oil produced in the region of Vlora to the extent of 43%, followed by oil produced in the region of Berat at 21%, and the oil of Tirana and Elbasan.
- Good part of the imported oil served as domestic oil (we have analyzed in detail this in Chapter 4) which explains the reason for the growth of the latter.
- Consumers have minimal information on standards.

Preference of domestic oil towards the imported one is supported also by the analysis on the average income of buyers which do not show any significant relationship between income level and origin. This means that if the customer is convinced that domestic oil is better he will continue to purchase it regardless of income. Even the price of every product (with different origins) does not influence the quantities required by the internal market. So although import products respond to the price of the domestic product, again that is not the most requested from the market.

But which is the preferred price level of the consumers?

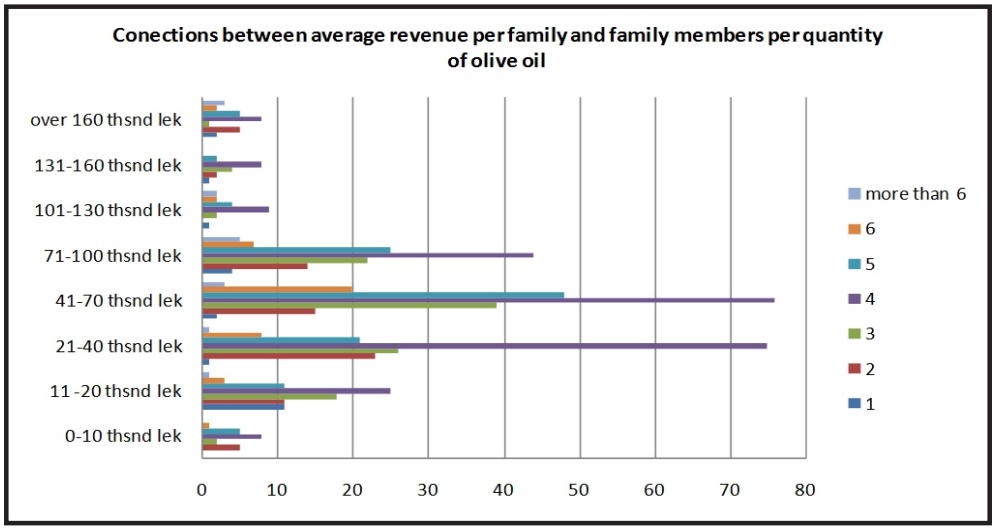
The following graphics show that the average price level of olive oil is one that corresponds to the highest level of purchases. The impact of the average income per family if they consume or not olive oil in the Albanian market results in a direct proportion, but fails to reach extreme values (not necessarily the monthly income, the more expensive oil olive). Also what catches the eye in the graphic is that buyers with higher incomes have excluded the purchase of very low price olive oil and buyers with very low incomes buy expensive olive oil only sporadically.

Graphic 10.2 Link of byers with average income toward average purchase price



Source: Questionnaire 2012

Graphic 10.3 Quantity of oil purchased each month by the average income household taking into account number of family members



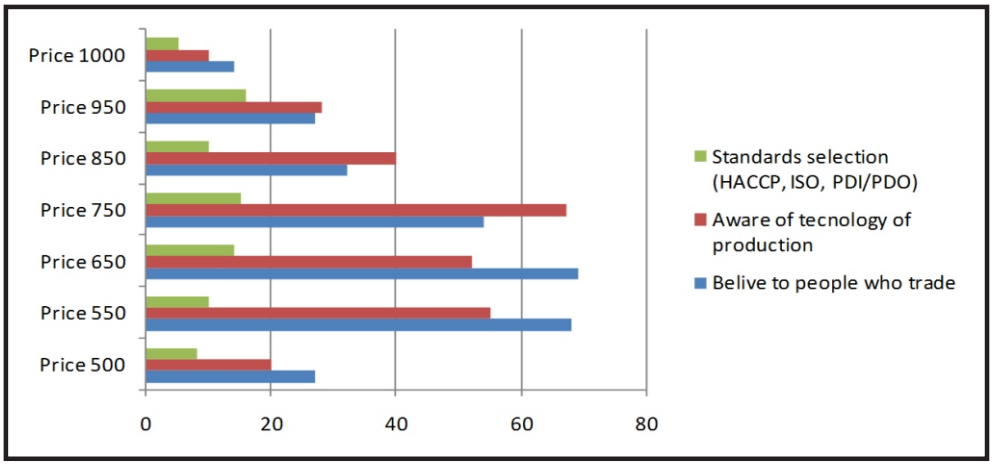
Source: Questionnaire 2012

As can be seen from the chart above main quantities of olive oil are consumed by families with 4-5 members and with average incomes. Generally, larger families and with lower income buy smaller quantities of olive oil. Therefore, with the increasing number of members and decreasing of the income consume of olive oil diminishes.

10.3 Impact of quality standards in consumers' preferences

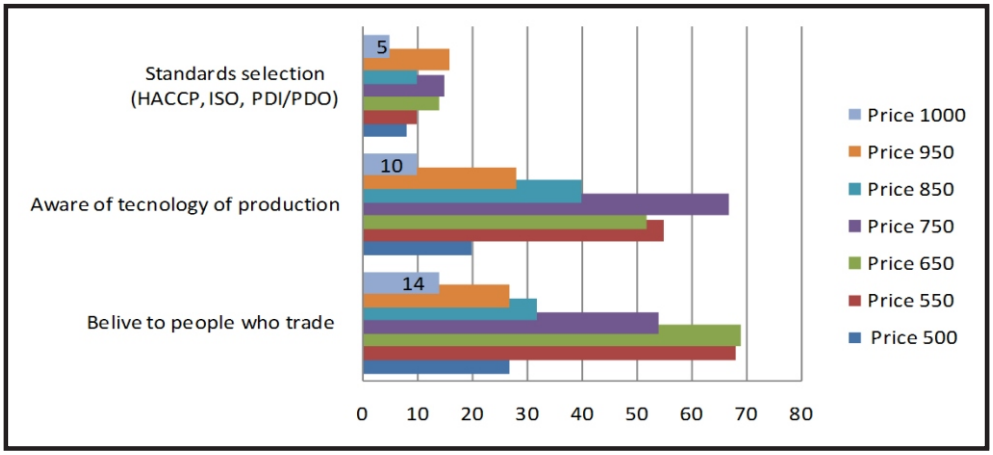
The Albanian consumer is very attached to the seller. This is translated into certainty about the quality of olive oil. Even when the oil price can be low or high (depending on season) consumers buy it because they trust the seller. Furthermore, if this relationship is of a long term, consumers benefit from discounts. In cases when consumers choose to buy the product directly to the factory, the price they receive is at average levels. When choosing an olive oil that is produced in the factory and contains ISO quality standard then consumers accept to buy it at a price above the average.

Grafiku 10.4: Choice of quality according to the price of oil



Source: Questionnaire 2012

Graphic 10.5: Selection of standards according to the price of olive oil



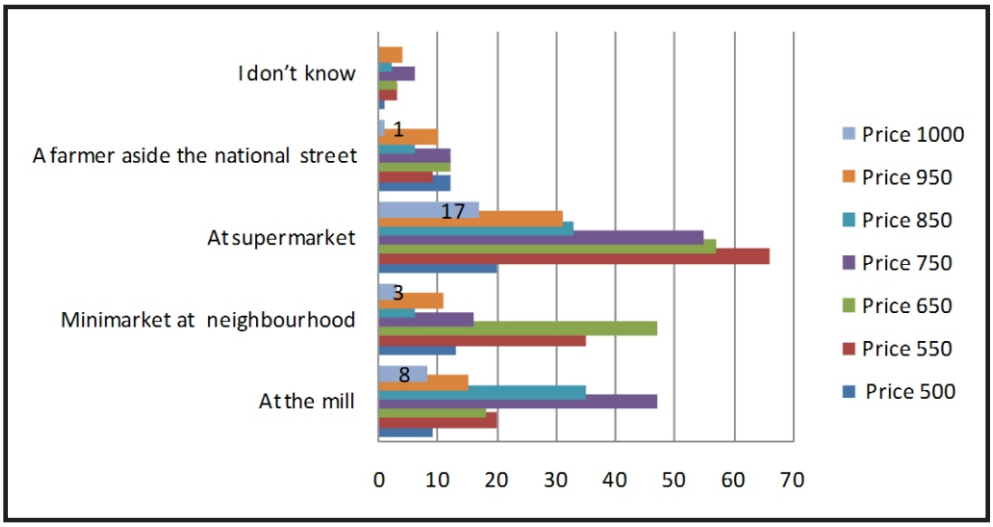
Source: Questionnaire 2012

Scustomer interaction with the seller of oil or with the oil production facility is very important as a part of the population has shifted from rural to urban areas and consumers continue to use the direct relationships with (close in time) the village. They generally continue to buy olive oil to their acquaintances or use olives that have inherited themselves to produce olive oil. But on the other hand they do not have the information or the knowledge necessary to produce quality oil.

Furthermore, this trend has started to be embraced by the population living in cities and having no connection with the rural areas. Part of customers have established trust links with oil producing facilities or traders during the holidays (especially those customers holidaying in Himara, Qeparo, etc.). Another part of consumers prefer to go directly to the mills/producing facilities in villages near towns. In the last years consumers have become more “intelligent" in providing olive oil needed for their families. During the harvest period they buy substantial quantities of olives from farmers and process them at the mills. In these conditions the cost of olive oil comes lower, around 400-500 ALL per liter. However, the difference is not very significant compared to the price of some domestic oils offered by the market. These customers believe that the oil produced from them is much more qualitative than the one traded, which is wrong in most cases.

However, the major parts of consumers purchase oil in retail market.

Graphic 10.6: Relationship with retail market and prices



Source: Questionnaire 2012

Retail olive oil market, according to customers interviewed, is dominated by supermarkets with 37 %. The higher is the level of income, the more consumers trust supermarkets in buying olive oil. This trend is followed by direct sales on site and sales in stores near home. Despite this, supermarket purchases dominate each separated group regardless the income level or the price. Results show supermarkets achieve higher sales for all kinds of prices. Supermarkets achieve higher sales because of availability of brands and bigger price floating. Customers also consider olive oil bought in supermarkets as safer and hygienic. Another reason why customers prefer to buy more in the supermarkets is that olive oil is here better packaged and thus preserves better its values. Sales in producing facilities are bigger in relations to average price levels, while the “downstairs shops” realizes bigger sales with regard to prices below the average.

The analysis shows also that some customers (not many) prefer to buy olive oil in informal markets, (from a rustic roadside) as well as oil with unsafe packaging or used package (the most typical case is the use of 1.5 liters plastic bottles previously used for refreshment/soda drinks). In these cases, consumers are persuaded by first hand evidence for its quality such as smell or taste.

Another sign for the selection of quality olive oil by consumers is the fact that they prefer the packaging be sealed in the mill, but in most cases this is plastic package. This fact confirms once again that Albanian consumers have little knowledge on quality of olive oil.

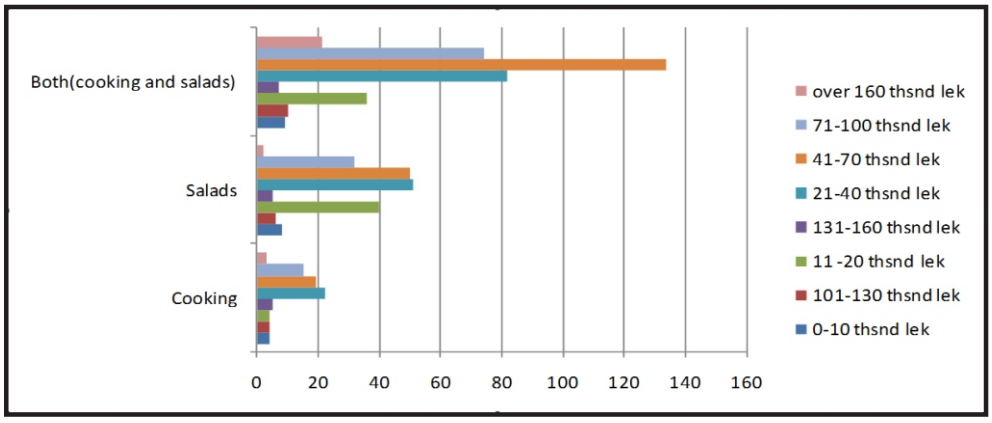
These forms of product selection are fanatically followed by the Albanian customer, as he trusts a lot in direct connection the manufacturer or by maintaining loyalty to products selected by him in any of the organized retail market forms (supermarket or downstairs shop).

Therefore, customers do not take into consideration the necessary indicators required by standardization aiming at the consumption of a healthy product. This fact is evident because 24% of customers buy olive oil which is produced directly in the mill. They have no trust in the transparency of the quality of olive oil, although prices are relatively at the same level. On the other hand, about 37% of consumers prefer to buy olive oil at the supermarket, where packaging and storage is transparent and reliable.

10.4 Level of consumption of olive oil of interviewed consumers

The use of olive oil and its level of consumption are very important to analyze because through them the trend of local customers in the future can be understood.

Graphic 10.7 Use of olive oil



Source: Questionnaire 2012

The graphic shows that olive oil is use for cooking and salad, but this mainly from consumers with high incomes. Furthermore, the interviews show that it is not the only ingredient in cooking in kitchens Albanian. An important place is occupied from sunflower oil (mainly in families with low incomes) corn oil (families with average and high income), and butter which is used by almost all families, as part of the tradition of the Albanian cuisine. Therefore, the use of olive oil in daily diet is associated more with feeding culture and family tradition.

The rate of consumption of olive oil does not depend on the preference for its special qualities or the price or the level of income but only on the number of members of a family. We can say that olive oil is a usual food product in Albanian consumer diet, although sometimes in limited quantities. Its consumption on a regular basis for every family makes its consumption depend more on the number of family members. In Albanian families consume orientation, based on number of family members, makes eventual requests to replace this product with another similar product not very flexible. Family members who did not deal with the purchase of this product were also aware of all its qualities and also on its use.

The only connection in right proportion in domestic oil consumption of Albanian consumer is the one with the number of members of a family, not the one with the income level (the greater the number of family members, the greater the oil quantity purchased. The conclusion of the analysis of the questionnaires is that olive oil consumed per capita is the same for all interviewed consumers.

Consumption of olive oil per capita of interviewed families is 5.6 litres per capita in a year.

Concluding, it can be said that Albanian consumers can choose the quality of olive oil at the purchase moment. Generally Albanian consumers establish close relationships with the seller but however other elements such as the area were relatives live, family members (more than one) and price level cannot be excluded.

When the family has only one member the consumer tends to buy more olive oil of high quality standards. Therefore, there is a low probability that European quality standards (HACCP, PDO / PDI, ISO) be required from customers.

The Albanian market of olive oil does not offer high quality since the quality as required by consumers results also low. This is due to the lack of information on high quality features of this product and of the price which accompanies this quality. However, according to Réquillart (2007), consumers, in the absence of a quality certificate, cannot understand the quality of the product they buy, therefore they can only conclude for an «average» level of quality.

10.5 SWOT Analysis

Given the overall analysis of the olive oil sector in Albania and the analysis of questionnaires it seems useful to carry also out a SWOT analysis.

Strengths

- Product of high quality and positive image. Currently olive oil is considered, in many markets, as a high quality alternative to other vegetal oils. Product specialty is health, taste, safety, etc. The traditional Mediterranean diet, which main characteristic product is olive oil, has contributed in reducing chronic diseases in the Mediterranean region and has been proved as a model of healthy nutrition (Wahrburg and others, 2002).
- A significant number of consumers appreciate the taste of olive oil and use it as part of the Mediterranean diet. As a result, they are willing to pay higher prices for olive oil than other vegetal oils.
- Albanian regions which with olive cultivation and olive oil production have a positive image for this reason.
- Several varieties. In Albania there are many different autochthonous olive varieties as Kalinjoti, Kallmeti, Kruja White Olive, Tirana White Olive, Frëngu, etc.

- Good level of technology and of the processing industry. Positive developments in the olive oil sector in Albania in recent years, favored by foreign donations channeled through MAFCP, have brought significant improvement in terms of restructuring and modernization of farms and processing industry.

- Benefits to the environment and rural development. Beside the purely economic aspects, olive farms bring an increased benefit from a social and an environmental perspective. The olive tree is strong, well-adapted to climatic difficulties in the Mediterranean region and makes possible an efficient use of the scarce water resources, although it is not very resistant to frost.

- Cultivation of olives has a positive impact on rural development as long as it contributes in reducing the high level of unemployment, especially during the harvest season

- In addition, olive cultivation is increasing the number of rural activities combined with tourism.

- Promotion. Leading private companies in the olive oil sector and public institutions have spent considerable amounts of money to promote their brands of olive oil (i.e. olive oil Shkalla or Musai have won a certain number of international awards).

- Increase of areas cultivated with olive trees. Olive cultivation is one of the priorities of government policies. By 2012 Albania has cultivated 9 thousand hectares or 5 million young olive trees with funding from the Government (MAFCP, 2013).

Weaknesses

- Low quality of services (irrigation, spraying, pruning) which directly influence the quantity and quality of production. The low quality of services has direct consequences on productivity per plant, which currently does not exceed 16 kg olives per plant, and on quality of olive oil which results in high acidity.

- High price and low incomes cause elasticity of demand in non-traditional areas of olive oil consumption. In non-traditional olive oil production areas (mainly north-east of the country), many customers consider olive oil as a non-essential product, therefore the demand has a tendency to be more flexible than in traditional production regions. In traditional areas, increases of prices (up to a certain level) causes only small temporary decrease of consumption, while in non-traditional areas increases of prices may cause the substitution of olive oil with other types of oils (olive oil may be substituted with other types of vegetable oils).

- Low production rate and marketing costs. Olive groves cost structures depends on lot of variables, the amount of land (slope, ground level), productivity rate etc. The data available in Albania do not provide adequate basis for possible comparisons. Usually, unit costs are lower for high levels of production and higher for lower levels of production. In addition, production costs per hectare are higher for olives cultivated in hilly parts (European Communities, 2003).

- Non-elastic structure of the offer. The century lifespan of the olive tree is a non-flexible feature of the production given in time. This feature undermines the opportunities to capitalize in the market in the moments of falling demand and the price is low.

The initiatives to plant new olive trees give results in the medium and long term. Olive production does not allow the farmer to afford flows and market price modification. In cases of low price for short period of time farmers adapt by providing the services to olives with less costs but if the drop is little prolonged it may cause abandon of harvesting.

- High production and price fluctuations. Fluctuations in cases of high production, are associated with changes in climate and the characteristic alternation of olive groves, where high production tend to be followed by lower production in the following year. Olive production for plant is an indicator of this phenomenon, in 1998 production was 14.6 kg / plant, in 2000 11,1 kg / plant, in 2002 12.2 kg, in 2006 at 8.6 kg / plant, in 2008 15.8 kg. Variation of production causes fluctuations in the market price of olives and olive oil.
- The lack of necessary legislation in place for territory product certification.
- Non-selection of varieties. Generally, producers have started to be more interested in the quality of olive fruit and not on olive oil produced from a specific variety.
- Lack of organization of rural communities to produce on the basis of their territory. Currently industry of olive oil production is part of the agro-industry and not of rural communities. The rural world is prevailing in the sector.
- Abuse of importers. Olive oil of poor quality from imports is offered as domestic oil, this fact is actually lowering its reputation in the domestic customers themselves.

[14] Bill Vorley (2002) Sustaining agriculture: policy, governance, and the future of family-based farming, DFID, KfW, Sida

Opportunities

- Changes in consumer preferences and increasing demand for olive oil. The growth of income per capita and change of consumption patterns towards safe and healthy products.

- The products of the territory (PDI and PDO). Cultivation of autochthonous varieties that are consolidated, both in terms of climatic conditions and in terms of quality of their products. Also domestic customers are aware of the values these products. There is a strong link to the olive oil of Albanian origin and the traditional processing methods recognized by consumers (Kalinjoti, Kallmet, Kruja White Olive, Tirana White Olive, Frëngu, etc.). Certification of these products by PDI or PDO, in the future, will be a significant opportunity not only for export purposes but also for enhancing the reputation of rural communities.

- MAFCP priorities. Cultivation of new olive groves increases each year, reaching 3,000 ha / year, of which 80% is funded by subsidy schemes with the support of the state budget (MAFCP 2013).

- Innovation. Many commercial companies consider that product innovations are an opportunity to argue the benefits and market divisions. In addition, products that have been successful in the markets such as daily brands, have introduced new packaging that facilitate the transport and storage in the modern channels of retail, improving storage of olive oil, and preserving the qualities of the product by keeping away the oxygen and light

- The increase in exports due to the global liberalization of trade of agricultural products. The liberalization of trade in agricultural products enables improved access to international markets. Trade liberalization is expected to continue in influencing international markets of olive oil and for Albania this is a good opportunity to increase the competition. This factor will contribute towards increasing the quality of olive sub-products.

Threats

- Competition from cheaper vegetable oils. Olive oil must compete with sunflower oil, soybean, corn, etc. All oils have their own unique characteristics. In markets where olive oil substitutes are accepted only the price can only affect a part of the market. Compared to other vegetable oils, olive oil is more expensive.

- Offer of olives and therefore of olive oil is increasing faster than the demand for this product. This increase is the result of the increased supply of olive production in the immediate expansion of areas planted with olive trees. In 2000 the amount of olive oil was 1,875 tons reaching 7,816 tons in 2010, it means four times more within a decade. If this growth will not be associated with increase in demand for this product we will have an immediate decrease of the sales price.

- Increased supply from imports. Olive oil products that come from imports have considerable weight in the Albanian market. This is due to the growth of the world trade liberalization, the higher quality of products offered by the import and the competitive price compared to the domestic products.

- In the future Olive will not only be considered as a Mediterranean product, since it has started to be cultivated in other regions such as China, Argentina, and Chile etc.

- The great reputation of other Mediterranean countries in the production of olive oil makes very difficult the recognition and consumption of Albanian products.

CHAPTER XI

IMPORTANCE OF THE MEDITERRANEAN DIET IN ALBANIA AND ROLE OF OLIVE OIL ON HEALTH

11.1 History of the development of the Mediterranean diet

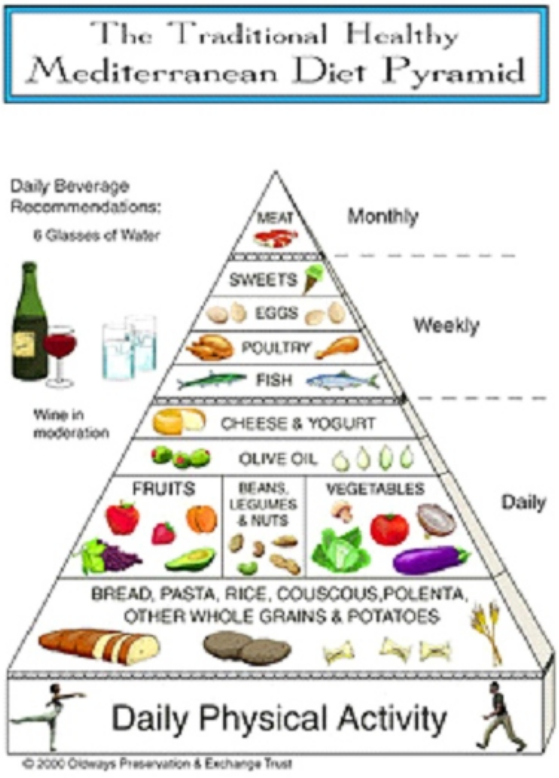
The Mediterranean diet rather than a diet, can be describes as a unique and traditional pattern that refers to the traditional foods of the countries bordering the Mediterranean as Southern Italy, France, Spain, Greece and South Turkey.

The diets of the people of the Mediterranean have been of interest in the period of antiquity, fact which is proven by the works of Ancel Keys during the 50's. However the first real study on food consumption in the diet of the Mediterranean was done after World War II. The study was undertaken in 1948 by the Greek government, aiming at the improvement of the economic, social and health of the country after the war. This study was carried out by the Rockefeller Foundation on the island of Crete. The researchers concluded that food habits of the population were in harmony with their needs and their natural and economic resources. (Marion Nestle 1995).

Furthermore, many studies made in the 60s (Cresta and others, 1969) found that diets in the Mediterranean area were characterized by a large amount of grains, vegetables, fruit and fish and a smaller quantities of potatoes, meat, milk products, eggs and sweets. Traditional Mediterranean diet was characterized not only by a large amount of consumption of fruits and vegetables, but also from a considerable amount of olive oil which was considered as the main source of unsaturated fats.

In the same period, during the years 1963-1965, a series of studies were carried out by EURATOM where 3725 families in 11 regions in six European countries were examined. Nine regions in Northern Europe and two in Southern Europe were selected. This study highlighted the value of the Mediterranean diet and considered olive oil as the main food of this population.

Afterwards, in the 70s a series of other studies were carried out to examine the values of Mediterranean diet on cardiovascular diseases (Keys, 1970, 1975.1980) where seven different states were examined. Countries studied were: USA, Japan, Greece, Italy, the Netherlands, Finland and the former Yugoslavia. All these studies highlighted the health benefits of the Mediterranean diet.



The Mediterranean Diet Pyramid diet was first introduced in 1993, at the International Conference on Mediterranean Diet held at the Harvard School of Public Health in Boston (Willet and others, 1995).

Since that time various Mediterranean Diet Pyramids have been defined for the populations of Greece, Spain and Italy, according to on food habits (Mediterra 2012).

In 2008, Oldways Preservation & Exchange Trust released a new updated version of the Mediterranean diet pyramid during the 15th Annual Convention of the Symposium on Mediterranean Diet (MA) (Oldways Preservation & Exchange Trust, 2009).

The International Center for Studies in Mediterranean food cultures (CIISCAM), in November 2009, reached the first international consensus on a modern Mediterranean diet pyramid revised (CIISCAM, 2009).

The eighth international congress of the Mediterranean diet, held in Barcelona in 2010, redesigned and completed an informative text by the international scientific committee of the foundation of the Mediterranean diet. After that the modern Mediterranean Diet pyramid was updated to reflect the modern lifestyle.

The modern Mediterranean Diet pyramid was developed thanks to all the scientific evidence for the health benefits of all its nutritional recommendations brought by experts, anthropologists, sociologists and specialists in agriculture. The Pyramid recommends the daily, weekly and circumstantial portions in order to follow a healthy and balanced diet.

Box 5. Definitions from nutritionists

It is really interesting to compare the different definitions of the Mediterranean diet recommended by Nutritionists.

Ancel Keys: “"What is the Mediterranean diet? A determination may be that it is what native Mediterranean eat. But, as we know and think now, it is a relatively new invention. Tomatoes, potatoes and peas, for example, came from America long after Christopher Columbus discovered the New World. I pointed out that the heart of what is considered Mediterranean diet is mainly vegetarian: pasta in many shapes, green leaves painted with olive oil, all kinds of seasonal vegetables, and often cheese, all closed with fruit and systematically rinsed with wine "(Keys, 1995).

Marion Nestle: "A plant broad-based one day pattern with of societies or countries surrounding the Mediterranean Sea. For the purposes of the discussion in this supplement, however, the specific terms of reference of diets in the early 1960s in Greece, southern Italy and other Mediterranean regions in which olive oil was the main source of dietary fats "(Nestle, 1995).

Walter Willett and others: “The term ' Mediterranean Diet ' has a specific meaning. It reflects food patterns typical of Crete, most part of Greece and southern Italy in the early 1960s. The definition of the specific time period and geographic areas is based on three identified reasons: 1) increased life expectancy in these areas is at the highest levels in the world. On the other hand the rate of coronary heart diseases, diseases of carcinogenic nature, as well as several other chronic diseases associated with food in the Mediterranean diet were the lowest levels in the world since the early 1960s , despite the limitations to access of existing medicines.

Data on daily availability and consumption of food in the Mediterranean region describe the nutrition model with more joint characteristics. 3) the daily model shares many common characteristics and is associated with a lower rate of chronic diseases and long life expectations according to epidemiological studies worldwide ... As defined here , it is associated with many traditional areas of olive cultivation in the Mediterranean region. In this way, the general wording 'Mediterranean diet' refers to the food ration model, used in olive cultivation regions of the Mediterranean area from more than 30 years "(Willet and others. 1995).

Ana Ferro-Luzi dhe Francesco Branca: "Since the first survey in 1960 from Keys, the Mediterranean diet has been under the careful scrutiny of researchers and public health professionals aiming at promoting its healthy qualities. Detailed analysis of nutrition observation made in Italy at that time allowed the definition of an Italian-style Mediterranean diet, characterized from low fats (<30% of energy), low unsaturated fats (<10% of energy), high complex carbohydrates and rations rich in fiber "(Ferro-Luzi and Branca, 1995).

Antonia Trichopoulou and Pagona Lagiou: ""The term 'Mediterranean diet' refers to the ration model set up in olive cultivated areas of Mediterranean regions which was described from the 1960s onwards. There are numerous variants of the Mediterranean diet, however some common ingredients can be identified: the high rate of unsaturated/saturated fats; ethanol consumption at moderate levels, mainly in the form of wine; high consumption of vegetables, fruits and cereals; Moderate consumption of milk and its products mainly under the form of cheese; and low consumption of meat and its products "(Trichopoulou and Lagiou, 1997).

Lluis Serra-Majem and others: "The term 'Mediterranean diet' represents the model of food ration which is characteristic of most countries in the Mediterranean Basin during and after the 1960s. Association between life expectancy, reduced mortality, mitigation of cardio vascular diseases, and other diseases related to eating habits and food rations model in these countries have proved this concept "(Serra-Majem and others. 2004).

On 16 November 2010, UNESCO adopted the Mediterranean diet pyramid comprehensive list as follows: "The Mediterranean diet contains a set of skills, knowledge, practice and tradition, including the crops, harvest, fishing, conservation, processing, preparation and especially consumption of food. The Mediterranean diet is characterized by a nutritional model that has remained constant in time and space, focused mainly on olive oil, cereals, fresh fruit and dried vegetables, a moderate amount of fish, dairy products and meat, spices and more aromatic plants all accompanied by wine, always implementing the respective beliefs of each community "(UNESCO).

Extracted from Mediterra 2012

11.2 Structure of consumption of food regime in Mediterranean diet

In general, the traditional Mediterranean diet is characterized by eight key components (Trichopoulou, 2000):

1. High ratio of unsaturated fats (monounsaturated fat);
2. Moderated consumption of ethanol;
3. High consumption of legumes;

4. High consumption of cereals (mainly bread);
5. High consumption of fruits;
6. High consumption of vegetables;
7. Low consumption of meat and its sub-products;
8. Moderated consumption of milk and its sub-products.

Mediterranean diet is characterized by abundant non-animal foods rich in vitamins, antioxidants and high content of unsaturated fatty acids (olive oil as a main source of fat), which potentially protects against age-related diseases and it is known so as the "functional diet" regarding the protection of human health (Ortega, 2006).

Also, researchers have determined the structure of the food regime according to Mediterranean diet.

Table 11.1 Structure of the food regime according to Mediterranean diet (in gr/day/capita).

	Mediterranean diet (gr/day/capita)
Alcoholic drinks	23
Cereals	453
Fruits	463
Vegetables	191
Legumes	30
Potatoes	170
Eggs	15
Fish&seafood	39
Meat	35

Source: Trichopoulou dhe Vasipoulou 2000

The question is whether Albanian consumers follow the Mediterranean diet?

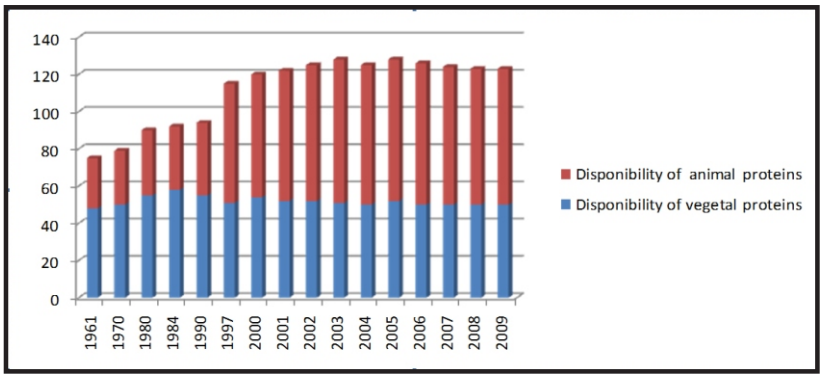
The continued increase of Albanian consumers' income has brought significant changes in food availability for the Albanian consumers.

To analyze this fact, it was useful to take into account the consumption and level of income for a period of 48 years (1961-2009) and to consider the existing relationship between consumption and income level.

The significant changes that Albanian society has undergone through the 1990s have caused with significant changes in the average consumer's diet. Of course, these changes are the result of many factors, among which the most important are changing of availability of food products for consumers, as well as income level. More than 20 years after the liberalization of the markets and the increase of availability of food in our country it seems to be normal to raise the question: what is the average Albanian consumer's food regime and what are its characteristics compared with diet Mediterranean diet which should be the traditional way for the Albanian consumer's nutrition.

During 1961-2009, the Albanian food regime has experienced an increase in the level of consumption, although consumption has not passed the level of 3000 Kcal. What is most notable in the food regime is the increase of the level of protein of animal origin in addition to proteins of vegetal origin which are still important despite a slight decline. Thus, the level of available protein goes from 81.85 g / capita / day in 1984 to 97.42 g / capita / day in 2009. The theory of consume (Ghersi, 1988) shows that growth of GDP / capita increase consumption level in general and in particular the consumption of animal protein origin increases since their higher price makes them less present in food regimes of consumers with lower incomes.

Graphic 11.1 Structure of proteins in food availability in Albania during 1961-2009



Source: FaoStat

Classifying food regime in this way is helpful to determine the consumption level of the average Albanian consumer based on the average food availability and to determine the evolution of the food regime in Albania.

Table 11.2 Classification of food regimes according to calories level and proteins structure

	Consumption level in Kcal	Animal proteins level	Albanian regime
1	High 3000-3600 Kcal, proteins >100 gr.	Relatively high > 60 gr.	
		Relatively low <60 gr	Years 2009 – 2914,95 Kcal, Proteins : 99,16gr, 50, 87 gr animal proteins
2	Intermediate 2700-3000 kcal, proteins	Relatively high >40 gr.	Years 1999- 2891,76 Kcal, proteins : 96,12gr, 42,19gr. Animal proteins
	>90 gr	Relatively low >20 gr.	Years 1984- 2754 Kcal, Proteins : 81,25 gr, 22gr. Animal proteins
3	Low <2700 Kcal, proteins deri 55 gr	Relatively high >10 gr.	
		Relatively low < 10 gr.	

The graphic above shows that in a 48 -year period, the level of the average consume in Albanian regime, measured by the consume availability, has passed from the lower group of the intermediate consume level to the low group to the high consume level. For sure, one of the factors that affect the level of consumption is level of income. Certainly, the period 1984-1999 carries some important dates that have reduced the availability of food as a result of fluctuations of economic development in the country. It is sufficient to mention here the severe food crisis in the late 1980s and early 1990s, the general economic and social crisis of 1997, as well as the difficult economic resurgence of the 1990s, to justify the long period of time needed to perform this shift in the level of food consumption

Under these circumstances it is important to define, the kind of the relationship between income level and the main types of food products.

Table 11.3 Coefficients of correlation of consumption of vegetal and animal products and level of GDP/capita

Vegetal products	*Correlation*	*Animal products*	*Correlation*
Alcoholic drinks	0,70	Animal fats	-0,18
Cereals without beer	-0,67	Milk without butter	0,50
Fruits without wine	0,88	Eggs	0,49
Vegetal oils	-0,46	Fish, sea fruits	0,72
Vegetables	0,55	Animal products	0,62
Legumes	0,28	Meat	0,79
Vegetal products	-0,40	Kcal Total	0,46
Kcal total	0,46	Meat proteins in grams	0,65
Vegetal proteins in grams	-0,61	Proteins Total	0,56

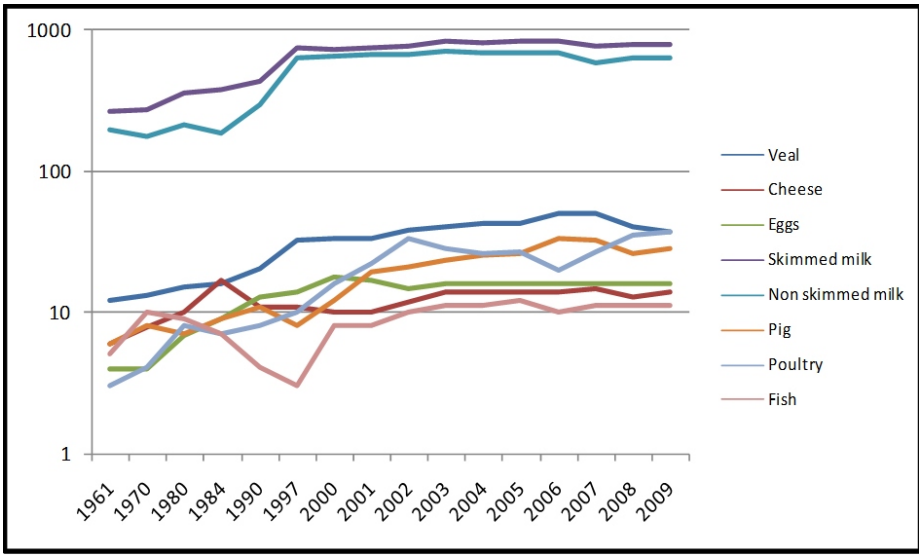
In this way we have calculated the relationship between income and types of foods. The above table shows the correlation in 1961-2009.

The above table shows that the increase in income of the Albanian consumer produces an increase of consumption of fruits and vegetables; this is the strongest connection that exists between income levels and consumption levels.

The second product which is most influenced by the level of income, is meat which seems much more present on our tables if we are richer.

The third product which fish and seafood products, seems less connected to income level but still significantly associated with the customer's income level.

Graphic 11.2 Tendency of available animal products in Albania in years (gram/capita/day)



Source: Faostat

The Albanian food regime has undergone some significant changes as a result of continued increase of consumers' income. This increase has not been continuous and uninterrupted, but it has followed the economic changes in Albania (1991, 1997 etc.), which have directly influenced and conditioned the level of consumption of Albanians.

Currently, Albania can consider itself in the group of countries with high consumption of food making, in 48 years, a significant jump from the second group of mid-level consume to the second group of high-level consume. The period of transition from one group to the other group reflects the mentioned economic and social developments in the country.

As seen from the graphic above, Albanian consumers consume significant amounts of milk and meat. They constitute the main source of animal protein. At the same time there is an increase in consumption of fish, but still its consumption continues to be moderate with only 11 grams per capita per day, while according to the Mediterranean diet such consumption should be at 39 grams per day per capita. Therefore Albanians consume about three times less fish than the Mediterranean diet recommends. At the same time, the more income increases the more Albanian consumers are oriented toward meat consumption. Beef consumption is about 50 grams per capita per day, while the Mediterranean Diet rate is 35 grams per capita per day. The data show only a decrease to 37 grams per day in 2009 but this seems rather related to the global economic crisis.

The table below shows the daily consumption of olive oil. Albanians consume only 14 kcal of olive oil per day, while other Mediterranean countries consume about 300 kcal of olive oil per day.

Table 10.4 The daily consumption of olive oil

Country	1961	1970	1980	1984	1990	1997	2000	2005	2008	2009
Albania	27	37	39	23	7	22	14	13	13	14
France	11	6	11	10	15	28	34	39	43	45
Greece	352	462	493	478	424	420	376	382	356	361
Italy	221	257	253	263	297	297	316	343	338	335
Spain	199	233	229	253	265	284	281	290	275	278
Tunisia	152	225	157	142	92	151	96	78	18	34
Turkey	90	72	59	31	28	17	27	8	28	38

Source FAOSTAT

Last, the increase of income carries the Albanian consumer away from regime of the Mediterranean diet, diet which should naturally belong to the Albanian consumer. Thus becoming richer, Albanian consumers fed in a worse and and less healthy way.

11.3 The role and importance of olive oil in the treatment of various diseases.

Olive oil is currently considered as one of the main ingredients of the Mediterranean Diet and has been very often subject various studies on its positive qualities and values for the human body.

Since antiquity, peoples of the Mediterranean have used olive oil as a balm for softening and increasing moisture of dry skin, for hair shining, muscle massage, wound cure, preventing wrinkles and treating insomnia. Moreover, this "medicine" is known for giving aid to brain development and bones to children and adults, while preserving their metabolism in cases loss of calcium. The majority is not aware that olive oil is similar to breast milk in terms of fat content. For this reason it plays a major role in the development of secondary nervous system in children.

Traditional nutrition habits of the Mediterranean area have been consistently associated with lower risks of cardiovascular diseases and cancer, (Lorgeril, 2006) (Trichopoulou, 1997, 2000 and 2003) and probably other chronic diseases (Lorgeril, 2008). On one hand, inlcuding in food consumption such natural elements which improve the condition of the aforementioned diseases, highlights the fact that the use of such antioxidants in the diet is likely to have a protective role (Seifried, 2007). On the other hand, a low content of saturated fats in the diet, has been proven to be associated with lower risk of certain diseases, as nutritional elements can positively influence: colon cancer, cardio-vascular diseases (CVD), hypertension, etc. (de Lorgeril, 2006).

Accordingly, this way of food consumption is already known for its special values in reducing cardio-vascular disease and lower probability of cancer (Keys, 1980), (Keys, and other., 1986), (Kouris-Blazos, and others, 1999), (Trichopoulou, 1988), (Trichoupoulou, 2000). All these studies have concluded that the natural structure of saturated fats with unsaturated ones, the presence of abundant fruit and vegetables, as well as high levels of vegetable protein (legumes) compared to those of animal origin in the Mediterranean Diet, make the latter the healthiest way to feed human society.

An important institution on diets tells us that the Mediterranean diet carries a significantly lower risk for coronary heart disease (Trichopoulou, 1997 , 2003). In addition, studies show that the compliance to the Mediterranean diet has been effective in the prevention of secondary cardiovascular diseases (Lorgeril, 2006). Olive oil, as the main source of fat in the Mediterranean diet, is closely related to the decrease of deaths from cardiovascular diseases (Trichopoulou, 2001). Data from clinical studies show that consumption of olive oil can provide heart health benefits, such as favorable effects on regulation of good cholesterol and oxidation of bad cholesterol (LDL) (Covas , 2007).

Additional evidence suggests that the phenolic content of the olive oil can help and bring its benefits in protecting against heart diseases. Therefore, findings on the great values of olive oil in the diet consider the latter as an important nutritional component.

Many recent studies as well as the previous ones conducted by different researchers have shown that phenols contained olive oil change the state of oxidant/antioxidant of nutrients. These results are supported by results obtained from an international study (EUROLIVE), where participants (n = 200) were randomly selected to take 3 times a day from 25 ml olive oil for 3 weeks. The selected olive oils had low phenolic content (2.7 mg / kg of olive oil), medium (164 mg / kg) , or high (366 mg / kg) , but were different in their composition. Phenolic content provided a direct benefit for plasma lipids and damages from oxidized lipids (Covas, 2006b). A subset of subjects showed that the three types of olive oils have caused an increase in plasma and LDL oleic acid content ($P < 0.050$). In addition, olive oils rich in phenolic compounds have led to an concentrated increase in LDL ($P < 0:05$) and this is directly linked to oil phenols.

This may explain the increase of the resistance of LDL to oxidation and reduction of oxidized LDL, which was observed within the scheme of this clinical trial (Gimeno, 2007). LDL phenolic content is related to its concentration in HOTYR plasma (Covas, 2006b) and its presence in LDL has been demonstrated afterwards (Torre-Carbo, 2007). Previous studies have not been able to demonstrate such findings because of some deficiencies summarized below (Covas, 2007):

General results from studies conducted on humans have identified these data:

(i) The protective role of olive oil phenols against cardiovascular diseases, including oxidative damages to lipids;

(ii) The fact that phenols contained in olive oil are helpful in improving health and can not be considered only as a source of fat;

(iii) Experimental design of studies (intervention period);

(iv) Monitoring and the type of applied diet (amount of phenol consumed, the type of olive oil);

(v) Samples of the population (size and homogeneity);

(vi) Physiological characteristics of participants (age, sex and oxidative status, etc.);

(vii) The sensibility and sensitivity to stress.

Balance of the pro-oxidant and antioxidant reactions is regulated in the body, therefore interventions with rich antioxidant in components of dietary doses exercise only marginal effects on health. (Giustarini, 2009). In fact, numerous studies have shown that: the protective effect of the phenolic ingredient of olive oil on oxidative damage in humans is associated with oxidative status of the participants (males in a diet low in antioxidants, women after menopause) or in patients with high stress condition (coronary heart disease, high cholesterol levels, etc.).

Currently, there are no studies in Albania on the authentic values of olive oil, or regarding the role it plays in the reduction of a variety of diseases. Olive oil is generally only used in popular medicine for the cure of diseases or as an element that contributes to the improvement of human beauty. A typical popular medicine has been "*basani flowers*" immersed in olive oil. This composition was seasoned for 40 days. This remedy was used as ointment to cure the wounds and as syrup to cure diseases of the stomach.

In this context, it is very important to carry out proper studies to verify and assess the real impact of olive oil on the Albanian population.

CONCLUSIONS AND RECOMMENDATIONS

- The varieties' structure of Albanian olive groves, allows for a rapid development of the territory products, areas in which varieties are clearly defined, with historical and cultural tradition of cultivation, are very positive basis for further evaluation of this culture.

- Albanian producers are still not aware and informed about the existence of quality schemes offered under the name “product of the territory”.

- Recognition and consolidation of territory products can be used as an opportunity for improving the welfare of rural communities.

- Certification of territory products is costly and currently it is difficult for Albanian farmers to afford the costs of such certification.

- Albania has the lowest rate of olive oil production in the Mediterranean and only in recent years efforts are being made to increase the amount of olive oil produced. Albania currently has the advantage of being a Mediterranean country and should use this fact as soon as possible to become known in the international markets. In the future, olive and olive oil will not be the only an exclusivity of the Mediterranean because according to Turkekul (2010) olives are spreading to new locations as Argentina, Chile, China, Brazil, Australia and South Africa.

- Compared to other Mediterranean countries, Albania continues to have the lowest number of olives per capita and the lowest rate of oil consumption in the region as a result of food consumption structure and income effect. Albania is considered a country with low income in region.

- It is very difficult for Albania to increase the export of olive oil because of the imperfect competition, where the market prices are dominated by Italy, while Spain and Greece are part of the competition.
- It seems that in Albania, we can determine as important for an evaluation process three main varieties: Kalinjoti, Minxani and Tirana White Olive Tirana, the latest being the variety that will play an important role in the future.
- Albanian consumers generally create trust relationships with the supplier, but other elements such as the area where they live, family members (with more than one member), the price level are not excluded.
- Consumers prefer domestic olive oil because they are familiar with the taste and believe in its qualities. This belief is based only on customer perceptions and does not reveal the real quality of olive oil. Albanian consumers have a wrong perception about the quality of olive oil.
- European quality standards (HACCP, PDO / PDI, ISO) have a low probability to be followed by consumers.
- The Albanian market of olive oil is not of a high quality with regard to domestic producers because also the quality required by customers results low. This is due to the lack of information on which are the high quality features of this product and the price which goes along with this quality.
- Numerous consumers appreciate the taste of olive oil and use it in the Mediterranean diet. As a result, they are willing to pay a higher price for olive oil rather than for products of animal origin that cause obesity.
- The Albanian consumer is not part of the Mediterranean diet.
- Increase of income takes away more and more the Albanian consumer from the Mediterranean diet, to which he naturally must belong. Thus in becoming richer, the Albanian consumer is fed worse and in a less healthy manner.

- Identification and determination of potential areas that could produce an olive oil able to carry logos of quality territory products is an important step to promote them. Studies and programs in this regard are rare (i.e. similar to the French program initiated by MADA to identify the products of the territory of mountainous areas).

- MAFCP should not limit itself to the drafting the law on the territory products and quality schemes but should develop concrete action plans to guide and help farmers to cope with the costs of certification. Also encouraging certification can serve as a basis for developing a series of regional and cross-border projects initiated by the government and research institutions in the country.

- Also MAFCP should orient the existing support schemes in favor of autochthone varieties and this fact will encourage farmers to cultivate them.

- Albania is producing quality olive oil from the variety Frantoio, thus is unable to identify him as a territory domestic product. Albania should follow the example of Turkey (Turkekul 2010) which exports it to Italy and then the Turkish oil sold as Italian oil.

- Establishment of a plant for refining olive oil would serve in improving its quality (i.e. defects in terms of loss of aroma or taste and high acidity), in order to become suitable for consumption.

- Local consumers should be informed about the quality standards of olive oil, because consumption of a low quality oil has severe consequences on human health (here we can mention liver damage). This can be done through raising awareness campaigns in television, MAFCP engagement, MoH and of the scientific and research institutions. The main objective at this stage should be to inform consumers about the origin of olive and characteristics of the area where olives were cultivated. So the goal should be to communicate to consumers the manners of cultivation and production of a secure oil (J. Guerrero, 2012)

- National competitions for degustation of olive oil should be organized so producers are encouraged to produce quality oil and avoid abuses.

- Albania as a Mediterranean country should be part of conferences and programs that are drafted each year in order to promote the Mediterranean diet.

- Development of a Nutrition Plan. Albania has never had a Nutrition Plan to promote the right foods and clarify what to include in a healthy diet. In this context, it is important to make a detailed analysis, in all regions of Albania, on the consumption by area, the pattern of food consumption and the level calories in food. The development of a Nutrition Plan itself includes many concepts which will be useful in a later moment in determining the indicators that will assist the quality of life, reducing cardiovascular diseases, carcinogenic nature diseases etc.

- The Nutrition Plan should be part of government policy as it contributes significantly to reducing the financial costs of public health. This means that an individual who lives in a healthy way will spend less on health services compared to someone else who does not. In other words, the wrong foods increase the risk of obesity, cardiovascular diseases, and diabetes at an early age.

- Realization of scientific studies to prove the values of olive oil for the Albanian population.

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Annexes

ANNEX 1

Questionnaire on manners of selection of olive oil from the consumer

I. General Information on consumption level

1. **Age** : 18-35 ☐ (1); 36-45 ☐ (2); 46-60 ☐ (3); Over 60 vjec ☐ (4)
2. **Sex**: male ☐ (1); female ☐ (2);
3. **Education**: nine-year obligatory education ☐ (1); medium ☐ (2); university ☐ (3);
4. **Monthly income level**: 0-10 thousand ALL ☐ (1);11 thousand -20 thousand ALL ☐ (2); 21-40thousand ALL ☐ (3); 41-70 thousand ALL ☐ (4); 71-100 thousand ALL ☐ (5); 101-130 thousand ALL ☐ (6); 131-160 thousand ALL ☐ (7); more than 160 thousand ALL ☐ (8);
5. **City where you live** _____
6. **You live**; alone in an apartment ☐ (1); alone in dormitory ☐ (2); in a family (3);
7. **How many members your family has**: one ☐ (1); two ☐ (2); three ☐ (3); four ☐ (4); five ☐ (5); six ☐ (6); more than six☐ (7);
8. **Who purchases the olive oil in your family**: you ☐ (1); somebody from the family ☐ (2); somebody else ☐ (3); I do not know ☐ (4);
9. **How many times per month you purchase olive oil**: once ☐ (1); twice ☐ (2); three times ☐ (3); more than three times ☐ (4); I do not know ☐ (5); ;
10. **Quantity of olive oil purchases by your family**: every time the same ☐ (1); depending on the previous consumption ☐ (2); I do not know ☐ (3);

11. **Quantity of olive oil purchases by your family**: every time 0.5 lt ☐ (1); every time 1 lit ☐ (2); every time 1.5 lit ☐ (3); every time 2 lit ☐ (4); every time 3 lit ☐ (5); every time 5 lit ☐ (6);
12. **How do you use olive oil**: in salad ☐ (1); cooking ☐ (2); both ☐ (3); none of them ☐ (4);

II information on purchase of olive oil

13. **Where do you purchase olive oil**: From a villager aside of the road ☐ (1); downstairs shop ☐ (2); directly in oil facilities ☐ (3); in supermarkets ☐ (4); all of them ☐ (5); I do not know- (6)
14. **Do you purchase always the same olive oil**: Yes ☐ (1); No ☐ (2);
15. **How much do you pay for olive oil:** less se 500 ALL (1); 501-600 ALL (1); 601- 700 ALL (2); 701-800 ALL (3); 801- 900 ALL (4); 901- 1000 ALL (5); more than 1001 ALL (6);
16. **The origin of olive oil you purchase is**: domestic – (1); import –(2); both of them-(3) I do not know – (4)
17. **If oil you purchase is domestic from which region do you prefer it**: Vlora – (1); Berat – (2); Elbasan – (3) Tirana – (4); other – (5)
18. **If oil you purchase is domestic, which method of processing do you prefer**: artisanal (pressed with feet) – (1); factory processing – (2); both of them – (3)
19. **If oil you purchase is from import which region do you prefer**: Greece – (1); Italy – (2); Spain– (3); France – (4); other - (5)
20. **Oil you purchase is**: packaged in used plastic containers ☐ (1); packaged in plastic containers sealed in the factory ☐ (2); packaged in used glass containers ☐ (3); packaged in glass containers sealed in the factory ☐(4); packaged in used metallic containers – (5); packaged in metallic containers sealed in the factory – (6)
21. **The oil you purchase is**: safe and hygienically clean ☐ (1); not hygienically clean ☐ (2); I do not know ☐ (3);

22. **The oil you purchase is hygienically clean because**: you know the person who brings it to you and trust him ☐ (211); you know the production facility ☐ (212); the facility products according to ISO standards ☐ (213); the facility products according to HACCP standards ☐ (214); the product is imported ☐ (215); the product has good reputation ☐ (216); I know from the media that the production facility uses safe and modern technology ☐ (217); packaging in sealed containers guarantees hygiene ☐ (218); the price of the product is high ☐ (219); the product comes from organic farming (220); it has quality labels PDO, PDI (221).

23. **You do not know the level of hygiene of the oil because:** you cannot trust villagers ☐ (222); the producers do not complain to rules and standards ☐ (223); imported products are unmonitored ☐ (224).

III. Quality of purchased oil

24. The oil is of a high quality if: has olive aroma ☐ (231); fresh ☐ (232); tasty ☐ (233); clean ☐ (234); imported ☐ (235); produced in the country ☐ (236); pricy ☐ (237); packaged in glass ☐ (238); packaged in metal ☐ (239); other specify_____ _____ ☐ (240)

Thank you for your cooperation
Contact number:

ANNEX 2

Table 1 Production of olive oil in some Mediterranean countries (ton)

Vendet	1961	1970	1980	1984	1990	1997	2000	2005	2010	2011
Albania	2056	1571	4825	3000	1246	2960	1175	800	1300	1300
France	148	497	2000	2000	1700	2600	2800	4900	5800	5700
Greece	215000	186086	328830	251593	197000	411285	408375	386385	352800	351800
Italy	394100	419900	690500	343200	163250	652039	507400	671315	526778	542100
Spain	360768	434300	445700	702741	639400	1122760	962400	819428	1536500	1564700
Tunisia	37530	90000	115000	95000	165000	90000	115000	210000	120000	192600
Turkey	119500	118000	170000	80000	80000	40000	185000	115000	161600	177900

Source FAOSTAT

Table 2. Quantity offered of olive oil in Mediterranean countries.

Countries	1961	1970	1980	1984	1990	1997	2000	2005	2008	2009
Albania	1,850	3,300	4,300	2,700	900	2,805	1,813	1,668	1,755	1,809
France	21,858	11,931	23,813	23,315	35,291	66,606	82,609	98,402	110,037	115,566
Greece	122,028	167,654	196,274	195,176	177,781	187,712	170,474	176,317	166,032	168,678
Italy	454,600	566,700	588,000	615,700	697,616	698,048	744,201	830,077	836,795	833,727
Spain	252,190	324,995	354,294	400,923	425,519	464,889	466,636	518,762	511,684	523,217
Tunise	26,968	47,600	41,882	42,023	31,283	56,973	37,652	31,886	7,548	14,509
Turkey	107,225	105,776	107,661	62,809	63,497	41,989	71,413	23,647	82,341	113,921

Annex 3
Number of quality products officially recognized at the European level

Countries	PDO	PGI	TSG	Total
Austria	8	6	0	14
Belgium	3	5	5	13
Cyprus	0	1	0	1
Czech Republic	6	19	4	29
Denmark	0	3	0	3
Finland	3	1	3	7
France	82	102	0	184
Germany	32	54	0	86
Greece	65	23	0	88
Hungary	4	4	0	8
Ireland	1	3	0	4
Italy	163	85	2	250
Lithuania	0	0	1	1
Luxembourg	2	2	0	4
Netherlands	5	3	1	9
Poland	6	14	8	28
Portugal	58	58	0	116
Romania	0	0	0	0
Slovakia	0	7	2	9
Slovenia	1	1	3	5
Spain	79	68	3	150
Sweden	1	3	2	6
United Kingdom	16	19	2	37
Total	515	481	36	1032

Source: Qualigeo, updated on 31 August 2011.

Annex 4
List of foods and respective caloric values

Aperitif (for 100 g)	
Melted cheese (per part)	16 calories
Peanuts(piece)	10 calories
Chips	479 calories
Fish cream	185 calories
Cajun nuts	612 calories
Fish eggs (1 teaspoon)	28 calories
Black olives	336 calories
Green olives	123 calories
Pistachios	617 calories
Pringles (classic)	540 calories
Salmon cream	320 calories
Drinks	
Beer tin = 33 cl	178 calories
Non-alcoholic beer = 33 cl	9 calories
Calvados = 4 cl	100 calories
Dry Champagne glass	70-85 calories
Sweet Champagne glass	120 calories
Coca cola glass = 250 ml	100 calories
Cognac glass = 4 cl	192 calories
Raki = 4 cl	94-112 calories
Martini glass = 8 cl	128 calories
Muscat wine glass = 15 cl	240 calories
Orange juice glass = 15 cl	11 calories
Pastis = 4 cl	130 calories
Pepsi 100ml	42 calories

Mineral water	0 calories
Wine Porto glass = 7 cl	80 calories
Rhum glass = 4 cl	154 calories
Sprite 1 glass = 15 cl	54 calories
Cold tea 100ml	30 calories
Vermouth glass = 7 cl	77 calories
White wine 10° glass = 15 cl	108 calories
Red wine 12° gote = 15 cl	105 calories
Vodka = 4 cl	100 calories
Whiskey = 8 cl	384 calories
Sweets (per 100 g)	
Chocolate with cereals for losing	79 calories
weight	518 calories
Chocolate Kit Kat	423 calories
Chocolate Mars	531 calories
Chocolate Muesli	467 calories
Chocolate Snickers	499 calories
Chocolate Twix	526 calories
Bonbons M&M'S	388 calories
Biscuits	338 calories
Apricot jam	316 calories
Pineapple jam	464 calories
Chocolate biscuits	288 calories
Milk cream	451 calories
Pistachio ice cream pistachio	235 calories
Chocolate ice cream	192 calories
Vanilla ice cream	165 calories
Empty crepes	227 calories
Butter croissant	406 calories
Pastashu	262 calories

Ferrero Rocher	560 calories
Chocolate cake	360 calories
Empty Gaufre	291 calories
Honey	304 calories
Nutella	530 calories
Chocolate croissant	410 calories
Fruit cake	356 calories
Butter biscuits	495 calories
Pop corn	382 calories
Sorbet	90 calories
Sea food and mussels (per 100 g)	
Mussels	80 calories
Shrimps	98 calories
Oysters St-Jacques	74 calories
Crab (conserve)	103 calories
Fresh crab	85 calories
Shrimps (ten)	49 calories
Grey shrimps	98 calories
Seafood	85 calories
Pealed shrimps	98 calories
Homard	80 calories
mussels (12)	110 calories
Fish (per 100 g)	
Sardines	160 calories
Eels	250 calories
Smoked eels	305 calories
River fish	79 calories
Carp	100 calories
Shish fish	78 calories
Dried cod	79 calories

Squid	89 calories
Reservoir carp	90 calories
Wild carp	145 calories
Plaice	65 calories
Caviar	275 calories
Cod	92 calories
Sea eel	110 calories
Sea bream	78 calories
Sword fish	116 calories
Sturgeon	125 calories
North sea flatfish	117 calories
Fat fish	120 calories
Dried fish	265 calories
Very fat fish	180 calories
Fatless fish	75 calories
Creamed fish	175 calories
Salted fish	320 calories
Sardines in oil	125 calories
Fresh sardines	77 calories
Salmon (conserve)	170 calories
Fresh salmon	200 calories
Smoked salmon	265 calories
Sole	78 calories
Fish soup (1 portion)	90 calories
Tuna in oil	280 calories
Tuna conserve	225 calories
Fresh tuna	225 calories
Trout	103 calories
Koran/belushkë	151 calories

Meat (per 100 g)	
Interiors	120 calories
Stomach soup	290 calories
Lamb	280 calories
Bacon	110 calories
Fillet (cow)	200 calories
Cow steak	94 calories
Horse steak	115 calories
Cow meat	330 calories
Salted cow meat	171 calories
Skylark	116 calories
Swine meat	320 calories
Veal meat	422 calories
Deer meat	450 calories
Sausages	110 calories
Brain	160 calories
Salamis	120 calories
Horse meat	122 calories
Goat meat	330 calories
Roe	300 calories
Heart	330 calories
Salted meat	289 calories
Turkey	171 calories
Veal escallop	257 calories
Liver	302 calories
Fois grass	360 calories
Frog	133 calories
Hamburger	560 calories
Hot-dog (unit)	400 calories

Raw ham	670 calories
Baked ham	104 calories
Paris ham	520 calories
Smoked ham	605 calories
Tongue	305 calories
Hare	410 calories
Rabbit	289 calories
Fat	160 calories
Merguez	455 calories
Marrow	342 calories
Mortadella	330 calories
Liver cream	342 calories
Mutton	300 calories
Village Pâté	300 calories
Liver Pâté	330 calories
Head Pâté	129 calories
Swine	115 calories
Swine (pulp)	330 calories
Swine (baked ham)	302 calories
Swine (ham)	290 calories
Loaf (veal)	300 calories
Salami	168 calories
Boar	200 calories
Sausages	410 calories
Tourist salami	104 calories
Veal steak	330 calories
Horse steak	440 calories
Tartar steak	200 calories
Calf head	300 calories

Veal	94 calories
Veal sirloin	170 calories
Veal pulp	171 calories
Veal (ribs)	168 calories
Veal (fillet)	123 calories
Veal (shoulder)	171 calories
Veal thigh	171 calories
Veal (steak)	342 calories
Poultry (per 100 g)	
Snipe	115 calories
Goose	250 calories
Wild goose	126 calories
Turkey	260 calories
Pheasant	106 calories
Blackbird	120 calories
Duck	350 calories
Quail	115 calories
Pigeon	108 calories
Chicken	300 calories
Young chicken	150 calories
Vegetables (per 100 g)	
Artichoke	40 calories
Asparagus	26 calories
Aubergine	29 calories
Avocado	200 calories
Avocado (1 small piece)	25 calories
Reed beet	40 calories

Vegetable broth (1 ladle)	30 calories
Broccoli	34 calories
Carrots	38 calories
Carrots (juice)	24 calories
Celery (leave)	20 calories
Celery bulb	44 calories
Boletus (mushroom)	28 calories
Mushroom	28 calories
Chanterelles (mushroom)	28 calories
Chicory	20 calories
Cabbage	28 calories
Broccoli cabbage	34 calories
Chinese cabbage	12 calories
Brussels sprouts	54 calories
Cauliflower	30 calories
Kohlrabi	34 calories
Red cabbage	36 calories
Choucroute	27 calories
Lemon	40 calories
Lemon (juice)	32 calories
Pumpkin	30 calories
Cucumber	13 calories

Pickles	13 calories
Zucchini	30 calories
Vegetables cream(1 ladle)	30 calories
Cress	200 calories
Bulbs	20 calories
Endive	75 calories
Spinach	20 calories

Fennel	25 calories
White bean	20 calories
Dried bean	117 calories
Green bean	345 calories
Ginger	120 calories
Legumes	61 calories
Beans (not cooked)	40 calories
Beans (cooked)	330 calories
Peas	120 calories
Lettuce	40 calories
Dried vegetables	18 calories
Fresh vegetables	330 calories
Lentils	47 calories
Lentils (soup) (1 ladle)	338 calories
Mix vegetables	360 calories
Corn (conserve)	72 calories
Maid (grain)	140 calories
Cassava (bulb)	356 calories
Morels	140 calories
Beet	28 calories
Onion	35 calories
Onion (soup) (1 ladle)	46 calories
Sweet potatoes	90 calories
Leek	110 calories
Dried pees	42 calories
Peppers	330 calories
Potatoes	22 calories
Chips	90 calories
French fries	570 calories
Mashed potatoes	420 calories

Red pumpkin	95 calories
Radicchio	30 calories
Green salad	20 calories
Salsify	18 calories
Endive	77 calories
Tomatoes	25 calories
Tomatoes (sauce)	20 calories
Tomatoes (juice)	90 calories
Tomatoes (cooking juice)	16 calories
Fresh truffle	120 calories
	92 calories
Fruit (per 100 g)	
Fresh apricot	45 calories
Apricot juice	60 calories
Dried apricot	272 calories
Blueberry	25 calories
Almonds (piece)	10 calories
Almonds	634 calories
Almonds (conserve)	96 calories
Fresh pineapple	51 calories
Pineapple juice	54 calories
Banana	90 calories
Dried banana	290 calories
Nectarines	64 calories
Cherry	77 calories
Chestnut	211 calories
Tangerines	40 calories
Coconut (milk)	20 calories
Coconut (fresh)	371 calories
Coconut (dried nut)	594 calories

Quince	32 calories
Compote	100 calories
Arabic dates	306 calories
Fig	80 calories
Dried fig	270 calories
Strawberry	36 calories
Blackberry	40 calories
Blackberry (juice)	44 calories
Passion fruit	100 calories
Fruits (compote)	100 calories
Fruits (juice 100%)	48 calories
Fruits (nectarines)	70 calories
Fruit jam	100 calories
Filled fruits	380 calories
Dried fruits	300 calories
Jelly fruit	280 calories
Pomegranate	64 calories
Jujubes	63 calories
Fruits juice 100%	53 calories
Dates	51 calories
Kiwi	68 calories
Fruit mix	100 calories
Tangerines	40 calories
Mango	62 calories
Chestnut (cream)	298 calories
Chestnut (mashed)	211 calories
Baked chestnuts	305 calories
Melon	31 calories
Yellow plums	58 calories
Raspberry	57 calories

Blueberry	16 calories
Fruit nectar	70 calories
Medlar	97 calories
Hazelnut (piece)	10 calories
hazelnut	656 calories
Nuts	660 calories
Nuts (piece)	20 calories
Orange	40 calories
Orange juice	42 calories
Citron	40 calories
Citron juice	42 calories
Papaya	44 calories
Watermelon	30 calories
Peach	47 calories
Peach (juice)	52 calories
Pear	61 calories
Pear (juice)	60 calories
Apple	52 calories
Apple (juice)	47 calories
Plum	56 calories
Plum (juice)	68 calories
Dried plum	290 calories
Grape	81 calories
Grape juice	76 calories
Raisin	324 calories
Dairy products (per 100 g)	
Melted cheese	335 calories
Butter	760 calories
Butter (10 grams)	70 calories
Low fat butter	410 calories

Salted butter	760 calories
Blue cheese (gorgonzola)	410 calories
Edam cheese	330 calories
Cheese	396 calories
Sour cream	60 calories
Sour cream (1 spoon)	80 calories
Half skimmed milk	130 calories
Concentrated milk	330 calories
Panda milk	34 calories
Skimmed milk	375 calories
Skimmed powder milk	65 calories
Full-cream milk	482 calories
Full-creamed powder milk	75 calories
Margarine (10 gr.)	755 calories
Margarine	420 calories
Mozzarella	393 calories
Parmiggiano Reggiano	300 calories
Roquefort	405 calories
Yoghurt 0% (100 gr)	44 calories
Yoghurt 0% sweet	80 calories
Flavoured yoghurt	120 calories
Chocolate yoghurt	140 calories
Fruit yoghurt	100 calories
Plain yoghurt (120 gr)	55 calories
Fats (per 100 g)	
peanut (oil)	900 calories
Butter	760 calories
Butter (10 gr.)	70 calories
Low fat butter	410 calories
Salted butter	760 calories

Rape flower (oil)	900 calories
Duck's fat (1 teaspoon)	180 calories
Olive oil (1 teaspoon)	100 calories
Oil	900 calories
Margarine	755 calories
Margarine (10 gr.)	75 calories
Olive (oil)	900 calories
Soya (oil)	900 calories
Sunflower (oil)	900 calories
Cereals (per 100 g)	
Boiled pasta	90 calories
Boiled fresh pasta	84 calories
Boiled white rice	90 calories
Boiled basmati rice	90 calories
Boiled paddy	98 calories
Apple pie	300 calories
Baguette (200 gr)	510 calories
Biscuit (piece)	39 calories
Biscuit	390 calories
Gluten Biscuit	406 calories
Salted Biscuit	390 calories
Sweets	465 calories
Salted biscuits	510 calories
Cake	420 calories
Grissini	350 calories
Madeleine Biscuits (piece)	95 calories
Madeleine Biscuits	490 calories
Muffins (piece)	150 calories
White bread	255 calories
Sweet bread	267 calories

Whole-wheat bread	230 calories
Rye bread	241 calories
Toasted bread	416 calories
Sandwich (cheese)	480 calories
Sandwich (ham)	430 calories
Sandwich (salami)	530 calories
Sandwich (tuna)	450 calories
Sandwich (meat)	450 calories

Region TIRANA

No	Communes	Olives	Newly planted year 2005						Olives	Newly planted year 2006					
			Total	IN BLOCKS				Distributed		Total	IN BLOCKS				Distributed
		Plants Total	Plants	Total		From this: Grande		Plants	Plants Total	Plants	Total		From this: Grande		Total Plants
				Ha	Plants	Ha	plants				Ha	Plants	Ha	plants	
1	Baldushk	17100	500	0	0	0	0	500	17480	600					600
2	Berxull	3630	200	0	0	0	0	200	3630	50					50
3	Berzhite	14300	150	0	0	0	0	150	14360	100					100
4	Dajt	26220	50	0	0	0	0	50	26320	100					100
5	Kamez	0	0	0	0	0	0	0	0	100					100
6	Kashar	6850	320	0	0	0	0	320	8000	150					150
7	Ndroq	50000	1000	0	0	0	0	1000	50000	1500					1500
8	Paskuqan	2780	0	0	0	0	0	0	2790	0					0
9	Peze	20800	160	0	0	0	0	160	20800	100	2	100			0
10	Preze	11500	500	0	0	0	0	500	11500	140					140
11	Petrele	22000	260	0	0	0	0	260	22300	300					300
12	Farke	55500	500	0	0	0	0	500	56200	900					900
13	Shengjergj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Vaqarr	7600	800					800	7600	500	2	70			430
15	Vore	77500	2000	0.6	240			1760	77980	650					650
16	Z. Bastar	0	0	0	0	0	0	0	0	0					0
17	Z. Herr	14600	300					300	15000	100					100
18	Krrabe	950	100					100	950	0					0
	Total region	**331330**	**6840**	**0.6**	**240**	**0**	**0**	**6600**	**334910**	**5290**	**4**	**170**	**0**	**0**	**5120**

No	Communes	Olives	Newly planted year 2007						Olives	Newly planted year 2008					
			Total	IN BLOCKS				Distributed		Total	IN BLOCKS				Distributed
				Total		From this: Grande					Total		From this: Grande		
		Plants Total	Plants	Ha	Plants	Ha	plants	Plants	Plants Total	Plants	Ha	Plants	Ha	plants	Plants
1	Baldushk	17480	380	1	240	1	240	140	18000	1120	3.5	1050	5.7	1625	70
2	Berxull	4500	1000	1.5	450	1	280	550	5500	600	0.3	100	0	0	500
3	Berzhite	14390	150	0	0	0	0	150	14350	250	0.3	70	0	0	180
4	Dajt	28320	2000	1.6	800	0.6	168	1200	28820	500	0.4	115	0.4	115	385
5	Kamez	0	0	0	0	0	0	0	180	0	0	0	0	0	0
6	Kashar	8440	1000	2.6	740	2.6	740	260	8440	1780	3.3	1000	1.3	365	780
7	Ndroq	50200	200	0.4	100	0.4	100	100	50400	150	0.5	150	0.4	120	0
8	Paskuqan	2790	0	0	0	0	0	0	2900	0	0	0	0	0	0
9	Peze	20920	120	0.5	100	0	0	20	20920	100	0	0	0	0	100
10	Preze	11700	1500	2	500	1.5	430	1000	12730	1300	2	500	0.7	200	800
11	Petrele	22300	800	0	0	0	0	800	23100	900	0.5	150	1	280	750
12	Farke	55600	1600	1	1200	0	0	400	55600	300	0	0	0	0	300
13	Shengjergj	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Vaqarr	8888	450	1	400	0.4	110	50	9168	280	0.2	100	0	0	180
15	Vore	77167	570	2.9	410	2	460	160	79545	1855	2.2	710	1.9	530	1145
16	Z. Bastar	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Z. Herr	15360	500	1.2	340	1.2	340	160	16800	500	1.25	500	3.6	1022	0
18	Krrabe	945	30	0	0	0	0	30	960	50	0	0			50
	Total region	339000	10300	15.7	5280	10.7	2868	5020	347413	9685	14.45	4445	15	4257	5240

No	Communes	Olives Plants Total	Newly planted year 2009						Olives Plants Total	Newly planted year 2010					
			Total Plants	IN BLOCKS				Distributed Plants		Total Plants	IN BLOCKS				Distributed Plants
				Total		From this: Grande					Total		From this: Grande		
				Ha	Plants	Ha	plants				Ha	Plants	Ha	plants	
1	Baldushk	22000	6000	11	3450	12	3750	2550	29200	7000	23	6000	15.5	4200	1000
2	Berxull	6100	1000	3	800	3.5	1000	200	6600	900	2.4	900	2.4	900	0
3	Berzhite	13775	400	0.8	280	0.8	280	120	13955	1200	3.5	1050	2.48	750	150
4	Dajt	28620	3000	2.1	1000	2.1	1000	2000	31053	3000	4.75	1900	3.93	1700	1100
5	Kamez	180	0	0	0	0	0	0	500	100	0	0	0	0	100
6	Kashar	9000	1500	4	1200	3.6	1000	300	9150	450	1	300	0	0	150
7	Ndroq	50400	600	2.4	600	2.07	580	0	49500	500	0.91	250	0.9	250	250
8	Paskuqan	3000	500	0	0	0	0	500	3750	600	0	0	1.38	0	600
9	Peze	20520	600	2	600	1.9	570	0	21220	1000	2	600	0	500	400
10	Preze	14500	3100	6	1980	1.9	540	1120	16700	3200	5.7	2160	4.46	0	1040
11	Petrele	22650	2957	9	2867	8.4	2500	90	22450	2000	6	1800	1.7	1300	200
12	Farke	51350	900	3	800	3.47	990	100	46750	500	1.7	450	0	450	50
13	Shengjergj	0	0	0	0	0	0	0	0	0	0	0	7	0	0
14	Vaqarr	8668	500	1	300	0.4	114	200	10518	2000	7	2000	5.88	2000	0
15	Vore	85760	6220	13.2	4370	4.87	1500	1850	89810	8050	23.65	6270	0	2400	1780
16	Z. Bastar	0	0	0	0	0	0	0	0	0	0	0	7.49	0	0
17	Z. Herr	21348	3015	8.5	3015	8	2300	0	22320	3000	7	2800	0	2800	200
18	Krrabe	990	500	1.2	450	1.1	450	50	1040	50	0			0	50
	Total region	358861	30792	67.2	21712	54.11	16574	9080	374516	33550	88.61	26480	53.12	17250	7070

No	Communes	Olives	Newly planted year 2011						Olives	Newly planted year 2012					
			Total	IN BLOCKS				Distributed		Total	IN BLOCKS				Distributed
		Plants Total	Plants	Total		From this: Grande		Plants	Plants Total	Plants	Total		From this: Grande		Plants
				Ha	Plants	Ha	plants				Ha	Plants	Ha	plants	
1	Baldushk	34300	8000	20	7500	15.1	6060	500		9000	11	6700	5.2	3200	2300
2	Berxull	7150	550	0.6	200	0.5	210	350		1100	3	990	0	0	110
3	Berzhite	14900	950	2.6	950	2.12	850	0		400	1	200	0	0	200
4	Dajt	32600	1500	2	800	0.2	80	700		500	1.5	620	0	0	180
5	Kamez	900	400	0.6	200	0.6	200	200		100	0	0	0	0	100
6	Kashar	9320	700	1.3	530	1.3	530	170		710	1.6	500	1.6	500	210
7	Ndroq	50000	800	3	700	2.8	650	100		600	2.5	600	2.5	600	0
8	Paskuqan	4750	1000	1.5	600	1.17	470	400		360	0	0	0	0	360
9	Peze	23400	2200	2.2	1400	2.2	1400	800		250	0.4	100	0.2	50	150
10	Preze	17925	1900	2.2	1020	0.4	160	880		1700	2.2	880	0	0	820
11	Petrele	26900	4500	10	4000	7.7	3100	500		550	1.25	450	1.25	450	100
12	Farke	48900	2200	5.3	2100	3.3	1335	100		430	1.1	380	1.1	380	50
13	Shengjergj	0	0	0	0	0	0	0		0	0	0	0	0	0
14	Vaqarr	14000	3500	9	3000	9	3000	500		800	2.3	800	1.7	590	0
15	Vore	96710	6900	8.5	2760	1.4	580	4140		7050	6.5	2290	2.1	735	4760
16	Z. Bastar	0	0	0	0	0	0	0		0	0	0	0	0	0
17	Z. Herr	42060	19750	50	19750	45	18000	0		14000	35	14000	35	14000	0
18	Krrabe	1240	200	0.4	160	0.4	160	40		40	0	0	0	0	40
	Total region	425055	55050	119	45670	93.19	36785	9380	0	37590	69.35	28510	50.65	20505	9380