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HOLISTIC APPROACH OF HIGH QUALITY OLIVE OIL, HOW TO BE DIFFERENT

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1. INTRODUCTION

The olive had always an important part in my life, from a plant that coincidentally was where my family happened to move, it became part of my business and changed my way of thinking.

With my thesis I want to show why this titan of a tree had so much impact on not only me but also on the whole Mediterranean. The old history of the olive will be discovered and the present situation will be described of Italy and especially of Tuscany, as it is the region where my hometown of Massarosa (Province of Lucca) is situated. The information provided will be coming from old historical books as well as more recent sources. The medical aspects of the past will be described too. To see if these practises are still remembered today I have conducted a small number of interviews with mostly elderly people of Massarosa. I chose not to include the modern scientific discoveries as the subject would have been too extensive, furthermore in regards to the nutritional value I believe that it is general knowledge that olive oil is healthy.

In chapter four the role of olive oil in the cuisine of Roman, Medieval and Modern times will be explored. This will be done to show the relevance olive oil had throughout history. Additionally the results of a questioner that I have sent to a number of Michelin star chefs will illustrate the possible tendencies of fat consumption in Europe.

After this overall impression of the olive tree and its oil, I present my company "Il Casone 1729". The ins and outs will be detailed as well as how quality is considered within the company. I hope the readers will understand what it means to produce high quality oil this way. It is also important that the consumer is informed about the difficulties of the olive oil market therefore a chapter will be dedicated to the most dominant problems.

Because of these difficulties it is necessary for a high quality olive oil producer to have new ideas and have a distinct concept for his company. In my case our new concept is the luxury type agriturismo. What it is that makes it so special will be described in detail as well as the whole working ethics of Il Casone 1729. In addition, since this new concept does not help in case of bad harvests, a new product will be presented, that was the direct result of the research for the thesis, olive leave tea.

Finally I will share my thoughts on the future of olive oil production. I would like to leave the reader with the desire of wanting to know, what it exactly is that he is buying.

1.1 Aim of the thesis

It is very important that the consumer understands why a "real" high quality oil is expensive. For my company it is vital to connect with our customers on a very personal level and we put great efforts to do so. I hope this thesis will help me make this easier and act as a bridge for those that do not know us yet. For that purpose this thesis will be available on the internet site of Il Casone, as an oversized brochure so the speak.

For anybody else reading that may have an olive oil production himself, or might be thinking to open one, this thesis should not be considered as a guide to be followed. It rather should act as a source for inspiration and new ideas, it should make you realize that in order to compete in this ruthless market it is not possible do the same things everybody else is doing. To have a holistic approach means thinking about every aspect connected to the product and then incorporate those into it. No olive tree is the same, from the place where it was planted to the variety it was named by, each tree holds the history and culture of its environment. The moment in which a producer realises this and manages to convey it to the customer, is the moment he will be different.

2. THE CULTURAL HISTORY OF THE OLIVE TREE

The olive tree not only characterizes the whole Mediterranean region, but also shapes its landscape like no other plant. The ancient populations valued it as a gift from the gods. Its oil was used as an offering, was a source of light and warmth, nutriment, medicine and cosmetic at the same time.

"No other tree is so closely connected with the development of the Mediterranean and European culture, religion and democracy, medicine, international trade, sport, art, literature." (Dutli, 2013)

Numerous myths and legends show that the olive tree is not just a common crop and a simple olive oil supplier. An example is the well-known story of the dispute between Athena and Poseidon over the reign of Attica. The victor would be the one who created something eternal and useful for the inhabitants of the region. Athena won by planting a young olive tree which Zeus considered to be more beneficial than Poseidon's salt water spring. A temple was built on the Acropolis to honour Athena, and the city that was founded under it was named after her, Athens. The image of her wearing an olive wreath was depicted on the front side of the *Tetradrachm*, the first European coin, about 500 BC. On the backside of the coin there was an image of an owl and an olive branch which today is still present on the Greek Euro.

Fig. 1 Tetradrachm (Wikipedia)

Fig. 2 Greek Euro (Wikipedia)

The olive tree was always considered holy in Greece and its oil was always viewed to be the "nectar of the gods". The state itself monitored the plantation, harvest and care of the olives. As early as 594 BC *Solon*, one of "The Seven Sages of Greece", dictated the laws on how the olive trees had to be cultivated and cared (Weniger, 1919). "The olive tree was simply the root of the Athenian politics, he who would lay his hands on it, would face the repression of state" (Dutli, 2013). During the ancient Olympic Games the winners were crowned with an olive wreath, named *Kotinos*. Thereafter the olive was a symbol of non-violent victory.

For the three major Mediterranean religions, Christianity, Judaism and Islam the olive tree has the meaning of vitality, fertility and peace and stands for hope and wisdom equally. For example, the *Jewish Menorah* (Fig.) stood between two olive trees whose fruits supplied the lamps with oil. Also for Islam the oil of the olive tree was holy for its light giving properties. For instance, the 24th *Surah of the Quran* is named "*El Nur*", The Light. "It is lit from a blessed tree, an olive tree…" as it is written in the 35th section of the *Surah*. And finally in the Bible the olive tree or its oil is mentioned 250 times. In the Old Testament the olive branch that the dove brought back to Noah's arch symbolizes a new beginning and God's reconciliation with man. "Let there be light!" is one of the most important phrases of the biblical Creator. On the altars of Catholic churches burns the eternal light fed even today by olive oil. Furthermore olive oil was necessary for all religious ritual anointing.

Fig. 3 Seven- branched Menorah from the Cervera Bible in Lisbon (Weekly Torah Commentary)

There are many theories on how the olive tree spread through the Mediterranean countries, from where it originated, or since when people started to press oil from its fruits. It is a fact that on the Aegean islands 50,000 – 60,000 years old fossilised olive leaves were found. In settlements dating back to the Upper *Paleolithic* era (35,000 – 8,000 BC) olive seeds were excavated. In the end of 2014 excavations near the province of Galilee (Israel) attracted a lot of attention. Archaeologists found 8,000 years old shards of containers with remains of olive oil in the excavation site of *Ein Zippori*. This means that olive oil consumption was already present during the Bronze Age (Times of Israel Staff, 2014).

Fig. 4 One of the clay pots reconstructed from shards found at the site near Ein Zippori at the Lower Galilee. (The times of Israel)

3. OLIVES AND OLIVE OIL AS MEDICINE IN THE PAST

Olive oil has proved its culinary universality remarkably since a long time in the countries of the Mediterranean landscape. Some authors coined it even as "concentrate of southern life" (März, 2015) and rightly refer also to the healthy aspects and fitness potential of regular consumption. Since health and fitness today also are attractive selling points it is surprising that the polyphenol rich extra virgin olive oil is not listed as one of the many "super-foods". It seems that a better communication is necessary, especially of the positive effects on the body, both by mass media and nutrition experts.

The ancient medicine knew olive oil as a remedy, it was also used as body and beauty care. Known are also the anointment of powerful rulers, even the word "Christ" bares the meaning of "the Anointed".

Pliny the Elder was one of the first in Rome to study next to wine also the olive intensively. According to his teachings the olive leaves, for example, had purifying, healing and astringent properties. Cooked and mixed with honey they would have healed wounds faster. The oil, as Pliny tells, could be used as mouthwash to relieve toothache, mixed with wine to relieve inflammation in the mouth and throat area, warmed up with rue to remedy colic. From the Roman scholar comes also the suggestion to cure hair loss with young olive sprouts cooked with honey, an ancient shampoo so to speak (Pliny the Elder, Wittstein, 1981/82).

These usages are confirmed by the article *"L'uso dell'olio d'oliva nella medicina del mondo antico"* (use of olive oil in the ancient world) written by Mazzini Innocenzo (2000) and published in the medical history journal. He distinguishes between uses of only the olive oil and olive oil combined with other elements as well as cases where the oil is either normal or particular (rose olive oil for example). The oil alone was applied to different body parts to relive pain and to calm the body. It was also used against fever to cool

down the body and as instillation into the ear for various pains. Combining oil was more widespread among the populace. Oil mixed with wine had anti-inflammatory effects (same as Pliny), mixed with vinegar it was used to heal wounds and to relax the skin; it was eaten with bread in case of vomiting or digestive problems. It was also commonly used in plasters together with either minerals or grains to relive pain or inflammation, to make "the bad go away" in pour man's terms. The particular oils can be divided into natural (only the oil) and artificial (mixed with ingredients). The two most used oils, to the point that forgeries were made of them, were "*oleum vetus*" and "*oleum rosaceum*". The "old oil" was used for instillation into the ear as a detergent, to heal wounds, or for digestion when applied with a plaster. The "rose oil" was used to accelerate birth or as a cooling agent in case of fever, to heal pustules or mixed with vinegar to heal headache.

Even if a lot of these usages in the light of modern healing methods proved to be ineffective, they do confirm that many attempts have been made to use the healing properties of the olive in many diverse ways since the early ages. It also is interesting to note how forgeries are nothing new in case of olive oil, which only confirms its importance around the ages.

Also Hildegard von Bingen (1098 – 1179) recommends the external usage of olive oil (massages, baths) and noticed that olive oil had stimulating effects on the skin and could help for relaxation. Hildgard von Bingen, often called "the first German natural doctor", was a Benedictine abbess and laid the foundation of her own healing methods with her works "Physica" and "Causa et curae" (Pawlik, 1997). Her writings were part of the most important works of the clerical medicine. She realized the connection between nutrition and physical as well as mental well-being. Following this principle illness doesn't occur coincidentally but may occur also as consequence of an unhealthy diet and bad eating habits. In food, healing properties are hidden that can assist the health of man optimally. Her views about a healthy diet have many similarities with today's discoveries of modern nutrition science.

The knowledge that was propagated by the clerical medicine at the beginning of the last millennium that derived from the ancient teachings, continued to be used for a very long time.

In order to see if these methods still are known or even used today in the area of Massarosa, me and a fellow student of the university (Remi Lee) made a small research by interviewing local folk about the medical uses of olive oil and if the olive leaves were used in any way. Mostly more elder people were interviewed, in total thirteen. Because of the small number and the fact that not many remembered much I will refrain from doing an in depth table with all findings and focus more on the usages mentioned more times.

Definitely the most common answer was to use the oil against pains in the ears (otitis), eight people used the oil by warming it and either pouring it directly into the ear or by wetting a piece of cotton with it and inserting it into the ear (instillation). Covering the hair with olive oil was also well known, eight people had personal experience with it or knew someone who had. Another real medical use was against bronchitis, seven described how they would take a piece of paper and soak it in olive oil and then put it on top of the chest, either pure oil or mixed with semolina. The oil was also helpful for fevers or colds by swallowing a spoonful of olive oil. Five people also used to make or at least heard about making soap out of olive oil, even tough they believed that the soap had beneficial effects on the skin it came mostly into practise after the war because people didn't have anything else. It is interesting to see that to heal otitis and bronchitis the same methods were used as in ancient Rome as described by Mazzini Innocenzo.

Regarding the olive leaves very little was said, only on two occasions the leaves were mentioned. In one they were rubbed against the teeth in case of toothache and only one used them for infusions against high blood pressure.

At this point I want to mention that we have questioned a lot more people than thirteen. Most under 60 years of age didn't remember enough to hold an interview but more importantly none of them ever heard about using the leaves in any way. So even though two out of thirteen may seem relevant, it is still save to say that using the leaves for medical or alimentary purposes is not part of the traditions of Massarosa.

Generally the younger generations know next to nothing about traditional olive oil usages and even for the ones that now are in the nineties recall what their grandparents used to do and not sooner. On the other hand we asked what olive oil meant for the people and all had positive and even nostalgic thoughts and a great appreciation too.

"L'olio di oliva significa tutto, senza olio non fai niente." (Bianchi Nila, born in 1923).

Olive oil means everything, without oil you don't do anything.

Fig. 5 Interview with Nila Bianchi, age 93

4.1 In the Roman cuisine

Surprisingly, there is more documentation about agriculture and gardening aspects than the culinary and medicinal value of the olive. In total, four important agricultural treatises are known, in which, amongst other things, the olive plays an important role. The first was released by Cato Censorius (234 – 149 BC) and was named "*De agricultura*" (about agriculture), later translations called it "*De re rustica*" (about rural matters). The other three treatises had the same title, edited by Varro (116 – 27 BC), Columella (mid first century AD) and Palladius (4th century AD) Palladius' book remained popular for a long time because he included advice for every month creating a sort of year round calendar. Next to this works the "*Historia naturalis*" of Pliny the Elder (23 – 79 AD) also contained important knowledge about agriculture and horticulture in ancient Rome, as well as chapters about botany and some medicinal themes.

We can thank the old Rome not only, for example, for the fundamentals of today's legislation and bureaucracy, but also, next to further aspects, the art of gardening. While the gardens of the Roman republic (150 – 27 BC) were mostly for edible plants, during the Roman Empire they developed (27 BC – 350 AD) to be luxurious gardens that were closely connected to the Roman estates. The nobles and emperors had many different estates for different purposes. Those far away from the cities were used mainly for food and vegetable productions, while those close to the cities had other functions (J. Paul Getty Trust, 2004). In the Getty publications are also listed 128 trees as well as spice and ornamental plants. These include a multitude of different varieties, with them also the olive. Next to the aesthetic and culinary purposes, that these plants fulfilled, also the mythological aspect attributed to them played an important role in the creation of gardens. In the "*Historia naturalis"* it is confirmed that different trees were always dedicated to a single deity: for example, the laurel tree to Apollo, the myrtle to Venus (Aphrodite in Greece) and the olive to Minerva (Athena in Greece, goddess of wisdom

and sponsor of arts, trade, and strategy) (Pliny the Elder, Wittstein, 1981/82). It is remarkable that in these treatises the olive was described more as a tree for shade and less for oil, even though the sources describe how wasteful the Romans used olive oil.

The most important source for the culinary meaning of the olive oil in ancient Rome is "*De re coquinaria*" (about the art of cooking), attributed to Marcus Gavius Apicius from whom little is known. He was born about 25 BC and must have written his cooking book during the reign of Emperor Tiberius. A series of authors of the first century AD describes him as a gourmet and inventor of extravagant dishes. His suggestions on food preparation influenced the Roman cooking. In these olive oil (*olea*) was, together with *garum* (a sort of fish sauce), *amutum* (a sort of starch), *caroenum, defrutum* and *sapa* (sweeteners made out of the reduction of fruits) as well as different spices and herbs, one of the most important ingredients for most of the dishes. Apicius makes comments on where to get good quality oil, which for him at the time came from Dalmatia (present day - Croatia), and also gives advice on how to preserve the green colour of the oil and how to make sauces out of it. The following are some examples:

1. Sauce for grey partridge, hazel grouse or turtle dove (*in perdice et attagena et in turture*): Take pepper, lovage, mint, rue seeds, *liquamen*, wine and oil. Heat this.

2. Patina (*Patina cotidiana*): Mash salad with pepper, *liquamen, caroenum*, water and oil together. Cook this puree and bind it with eggs. Season it with pepper and serve it.

3. Artichokes (*carduos*): Mash together in the mortar rue, mint, coriander and fennel, all fresh. Season it with pepper, lovage, honey, *liquamen* and oil.

It is interesting to note that in most of his recipes olive oil was used raw and only rarely to roast, sauté or fry with. It is also questionable how much of the aroma of the oil could be perceived in the dishes, as many strong spices dominated the Roman cuisine. The most popular where, at least in the higher classes: lovage, followed by pepper, savory, mint, oregano, fennel seeds, coriander, caraway, cumin, celery seeds as well as the indispensable *silphium*, a plant whose powder had a strong smell and was brought to Rome from the Cyrenian regions. Nevertheless, for two main reasons it may be more accurate to describe the Roman cuisine as being a very olive oil rich one:

On the one hand the Romans used a vast amount of olive oil, according to many documents, on the other hand the Romans were the first to establish a quality ranking for olive oil.

1. *Oleum ex albis ulivis*: the most precious oil pressed out of mostly green olives

2. *Oleum viride*: an oil pressed from mostly almost ripe violet olives

3. *Oleum maturum*: an oil pressed from completely ripe olives, so darker violet ones

4. *Oleum caducum*: low quality oil pressed from olives that already had fallen down

5. *Oleum cibarium*: the lowest quality oil pressed from damaged and rotten olives, consumed by slaves

4.2 In the Medieval Age kitchen

The diet in the Middle Ages in Europe, in other words between the beginning of the 5th century and the end of the 15th century, was marked by a long lasting change. The reason for that were on the one hand the warming of the climate in the time period between the Early and the High Middle Ages, on the other hand the technological advances of harvest-, mills- and pressing-techniques, the general development of infrastructure as well as the increase of long-distance trade.

Both the eating habits and food varieties changed. Even though the crushed grains of various cereals were in all social classes the bases of nutrition during the whole medieval times, meat grew more and more important. This tendency however had strong territorial variations, which had their roots equally in Greek-Roman cultures and Germanic-Celtic ones. These two cultures had strong differences regarding planting methods, economical standing and the perception of value.

In the regions of Greek-Roman descent an agriculture developed where wheat, barley, wine and olives were the most important products. Sheep and goats were the most used farm animals, hunting was less significant. The diet was mainly vegetarian and was merely complemented by meat and cheese.

The Celtic and Germanic people also grew barley and oats, but a big part of their food was derived from fishing and hunting. Horses, cattle and above all pigs were held free-roaming in the woods. Meet, milk and cheese dominated accordingly in the diet.

During the high medieval times the olive cultivation in the territory of present-day Italy was mainly influenced by Christian orders. Most of all the Order of Saint Benedict and the Cistercians sought to preserve and expand the olive yards. The rules of Saint Benedict of Nursia, for example, promoted a

"Christian Republic" on the bases of work and prayer. With the help of these rules, Benedict and his followers convinced farmers to turn to productive varieties to save themselves from hunger and poverty instead of leaving the lands they cultivated for centuries. At the same time the Benedictine monasteries were founded, for instance in Camaldoli, Vallombrosa, Montecassino, Montefrano di Macerata and in Monteoliveto in the province of Siena. They created fields, terraced the lands and planted olive trees. The monks of the order taught the farmers how to make the land arable and how to become independent farmers.

The Cistercians acted similarly. They spent a lot of time focusing on agriculture and learning how to live in harmony with nature. This order as well cultivated olives were it seemed possible. The monks lived in asceticism and focused on hourly prayer, physical labour and spirituality ("*ora et labora*"). They were not only great gardeners but also very knowledgeable in describing many useful plants, including the olive. For example the custom of seasoning chickpeas with olive oil derives from the Cistercians (Jennings Anne, 1999). Sources today suspect that there were never more olive groves in the Italian territory than during the time period from the year 1000 to the 15th century, the years in which the order of Saint Benedict and the Cistercians were most influential (The Cambridge World History of Food, 2006).

4.3 In the Modern Age cuisine

So called "food boarders" are drawn differently than political boarders. In this era of globalisation this is not the case anymore for many places since the last two decades, even though for a lot of countries it still holds true. France for example is divided by a "fat boarder" between north and south, in the north butter and cream dominate the kitchen, in the south oil is more frequent.

In the beginning of the modern age, which is marked by the French Revolution (1789 – 1793) these "food boarders" were even more dominant. Therefore olive oil outside its producing countries was only theoretically known and played no major role. Some authors point out that even in some olive growing countries, for example in Greece, animal fats replaced olive oil (Waverley, 1980).

During the French Revolution many nobles, who had luxurious estates and excellent kitchen, fled to foreign countries. Their cooks, who remained in France, started to open the first restaurants, mainly in the big cities. Under these circumstances three brothers whose names are not known came from the Provence and opened the restaurant "*Le Trois Frères Provençaux*" in Paris. Here they served Mediterranean specialities like "*Bouillabaisse*" and "*Brandade*", a crème made from stockfish, garlic and olive oil, which were unknown in the French capital until then. In the following years these two classical dishes of the French Mediterranean cuisine as well as olive oil became known first in Paris and than in all of France. Nevertheless, a complete victory of the olive oil was not achieved.

The opinions differ on how much the olive oil was necessary in the kitchen. On the one hand the success of olive oil can be seen by the chef Paul Bocuse, best known supporter of the "Nouvelle Cuisine", best chef of the 20th century and titled as "Chef of the century" in 1989 by Gault Millau. At the question of what product he can't work without he answered that olive oil is at the front next to peanut and walnut oil.

On the other hand different opinions can be noticed. Paul Haeberlin (1923 – 2008), once owner of the world-renowned restaurant "Auberge de l'Ill" and one of the most famous French three star chefs, expressed in 1981: "In the "Auberge de l'Ill" we prefer neutral tasting oils rather than the fruity spicy ones. The reason for that is the butter – it seems that only in places with old oil traditions a strong individual taste of olive oil is loved. For cooking we mix

butter always with neutral tasting oil (from peanuts, sun flower, maize and grape seeds). For salads the just mentioned oils can be used but here you can allow yourself to make a salad with olive oil, the best quality is a requirement." (Haeberlin, 1981).

The development took place similarly in Germany. In the 18th and the beginning of the 19th century olive oil was known but received a culinary meaning only much later. Friederike Fontane, for example, whose hand written cooking book of 1795 (translated in 1903) is preserved, regarded olive oil only the instruction of making soap with olive oil or old fats. Otherwise olive oil is not mentioned, in contrast to butter, lard or beef tallow.

Only in the mid 19th century one can find more mentions of olive oil in German recipe books. For instance, in the 1876 released "Diätetisches Koch-Buch mit besonderer Rücksicht auf den Tisch für Magenkranke" (dietary cooking book with special consideration on the table for stomach sickness) that was printed in high numbers in its time, is written: "A good cooking oil has a big value, but it is rare. The olives give the best … This very delicate oil is found only in the finest kitchens. "(Dr. Wiel, 1876).

It is interesting that in this volume for the first time in Germany, an explicit mentioning of the seemingly already in this times known and common methods of the olive oil adulteration was written: "In the market this oil is very often mixed with all sorts of cheaper oils: poppy-, rapeseed-, peanut-, sesame-, nut-oil. " (Dr. Wiel, 1876).

In another part is follows: "A lot of oil goes for example from Swabia to Italy, and makes a wedding with some olive oil and comes back as 'real' olive oil." (Dr. Wiel, 1876).

It is left to the imagination that olive oil adulteration is nothing new and that in the last 140 years only the methods became cleverer.

Also the olive oil imports of the 19th and beginning of the 20th century, show how little impact olive oil had in a culinary way in Germany. In 1893 it amounted to 2,956 tons of which 1,948, in other words two thirds came from Italy. It has to be considered that in this amount also lamp oil was included (Meyer, 1896). At the time import and consumption were similar in other European countries as well, for instance in former Austria-Hungary, in the Scandinavian countries, Netherlands, Belgium and the United Kingdom. Up until 1900 olive oil was sold there almost exclusively in pharmacies, in England it was used mainly as furniture polish.

This changed in the following half of the 20th century. Also north of the Alps consumers discovered olive oil. The in developing tourism of the 50ies and 60ies and the therefore changing eating habits had an undisputable part in it.

Nevertheless, animal fats, especially butter and recently also a lot of vegetable oil, remained dominant in the kitchen both in the homes and in the gastronomy. Olive oil became popular foremost to health-conscious consumers as a welcome addition, while in the Mediterranean it had its place on the table like bread, water and wine and there are almost no dishes that aren't cooked or refined with olive oil.

This is reinforced by looking at a comparison of consumption of some producing and non-producing countries.

Country	Olive oil consumption total in 1000 tons	Olive oil consumption per person and year in kilos	Trend
Italy	730.3	14.0	⇒
Spain	550.0	11.8	⇒
Greece	220.0	15.9	⇓
France	113.0	1.7	⇑

Portugal	87.5	4.9	⇑
United Kingdom	55.3	0.9	⇒
Germany	44.9	0.7	⇓
Austria	9.3	1.0	⇓
Switzerland	13.0	1.6	⇑

Source: Food & Agriculture organization of the United Nations (2010)

Some of the illustrated tendencies and development in the usage of olive oil can also be seen in a survey that I sent to European top-chefs, a number of other trends follow.

4.4 Survey about the usage of olive oil with the currently best European chefs

The point of my survey is to inquire about the usage of olive oil in the currently best European restaurants, the origin of these oils, their purpose and if there are used other vegetable oils as well.

The restaurants and their chefs that were contacted by e-mail were selected by consultation of the Guides Michelin and Gault-Millau as well as the list "The World's Best Restaurants" (1-100) which is presented in London on an annual basis.

I contacted all European three star restaurants, all European restaurants in the ranking "The World's Best Restaurants" as well as all European two star restaurants, that are rated highly also in other guides (Gault-Milleau, A la Carte).

The survey lists are numbered from 1 to 9 according to countries respectively country groups. The numbering of the survey lists is sorted alphabetically according to the internationally valid abbreviations for the respective

countries. The inclusion in the respective survey lists was done in order of receiving the answering e-mail.

Abbreviation	List number	country/countries
AT	1	Austria
BE + NL	2	Belgium, Netherlands
CH	3	Switzerland
DE	4	Germany
DK + SE	5	Denmark, Sweden
ES + PT	6	Spain, Portugal
FR	7	France
IT	8	Italy
UK	9	United Kingdom

Further abbreviations used:

MA	Morocco
JA	Jordan
EL	Greece

Please refer to attached survey graph.

Interpretation of the survey

In total, 35 of the European top chefs from 10 different countries answered my questions about the usage of olive oil in their kitchens, its origins and if other vegetable oils are used (period of time of the survey 01.02.2016 – 01.03.2016). Among them 11 are three-star-chefs (8 of them are in the list "The World's Best Restaurants at the same time), 21 two-star-chefs (3 of them are in the list "The World's Best Restaurants) as well as two Austrian top-chefs, with respectively

17 and 18 Gault-Milleau points of a possible 20 (the Guide Michelin is not represented in Austria except Vienna and Salzburg).

I find it remarkable that six chefs, Martin Berasategui (ES), Heston Blumenthal (UK), Jonnie Boer (NL), Massimo Bottura (IT), Heinz Reitbauer (AT) and Harald Wohlfahrt (DE), participated in my survey who are believed to be culinary trend setters and the number one (obviously unofficially) in their respective countries for years.

Oil	Mentioning (out of a possible 35)
Olive oil	34
Grape-seed oil	22
Sunflower oil	20
Hazelnut oil	16
Peanut oil	16
Walnut oil	15
Pumpkin seed oil	13
Almond oil	12
Sesame oil	12
Rapeseed oil	8
Argan oil	7
Linseed oil	7
Hemp oil	6
False flex oil	5
Palm oil	4
Safflower oil	4
Soybean oil	3
Wheat-seed oil	2
Dragon's head oil	1

While the usage of olive oil by the cooks of the Mediterranean countries Spain, France and Italy is as high as expected, it plays a less important role

especially for German and Austrian chefs as well as for the representatives of the New Nordic Cuisine. The reason for that is the noticeable regionalization, especially in these countries, when choosing produce and arranging dishes, therefore more traditional recipes are being cooked and interpreted in a contemporary way (New-Classic-Trend). This means, as, for example, the Austrian nutritionist and trend researcher Prof. Hanni Rützler thinks, that in these countries long forgotten vegetable oils like hemp oil or false flax oil as well as animal fats like butter, butter lard, pork lard and beef tallow are making their comeback (Rützler, 2015).

This New-Classic-Trend is present naturally also in the high class cuisine of the Mediterranean countries. For most Italian and Spanish chefs animal fats and also other vegetable oils only play a small role, the usage of olive oil, mostly from the native regions, dominates. It is astonishing how important the most different taste profile of olive oil is for some chefs: for example, Frank Cerrutti (Monte-Carlo) who uses oil from France and Italy, Massimo Bottura (Modena) who uses oils from Abruzzo and Tuscany or Heinz Beck (Rome) who offers to his guests the whole range of Italian olive oil.

In summary all except one of the 35 European top chefs use olive oil in their kitchen. Therefore it is the undisputed number one, followed by grape seed and sunflower oil. Even though there is a noticeable trend of in preferring to use regional products, also in oil, olive oil is still the most used vegetable oil. Still it must be said that its popularity is not the same as it was in the 70ies and 80ies.

Origin of the used olive oils:

Country	Mentioning
Italy	16
Spain	12
Greece	7
France	5
Portugal	3
Morocco	1
Jordan	1

5. Current statistics

The olive is certainly a product of the Mediterranean. More than 98 % of all cultivated olives worldwide are planted in Europe and the Near East. Around the globe there are 10,309,275 hectares of cultivated olives, Spain is in first place with 2,500,000 hectares, followed by Tunisia with 1,822,820 hectares and Italy with 1,146,863 hectares on third place (FAO statistics of 2013).

In regards to olive oil production the numbers are different, still leading in first place is Spain with 1,775,800 tons (43.5 %), in second place Italy with 461,200 tons (13.4 %), Greece is in third position with 131,900 tons (10 %), Tunisia is in fourth place with 70,000 tons which amount to only 5.8 % of the world production of 3,270,600 tons (IOC statistics of 2013).

Generally speaking olive planting is increasing all around the world especially in areas with small amounts, in Europe this tendency is slowing down, a particular case is Italy where, even though it is one of the biggest producers, the growth is stagnating if not decreasing. If this continues and if Tunisia further develops its plantations density and techniques, the day may come that Tunisian olive oil production surpasses the Greek and Italian ones.

Italy is the biggest importer with 482,000 tons (Ismea statistics 2013) and consumer with 620,000 tons (IOC statistics 2013) and the second largest exporter with 377,000 tons (Ismea statistics 2013).

Italy is also the centre of the market for olive oil, more than 1 million tons flow together there with an estimated selling price of 5 billion Euros. In almost every major markets of non producing countries Italy has most of the shares ranking everywhere from 49.5 to 72.4 % except Great Britain and Brazil.

Tuscany has produced 16,808 tons of olive oil in the year 2013. This corresponds to only 3.6 % of the total Italian production.

According to the I.Stat data of 2011 Tuscany has 96,828 total hectares of olives and 92,326 hectares of olive plantations in production and produced 117,481.9 tons of olives. In the province of Lucca the total hectares of planted olive trees amount to 2,646 and 2,641 hectares in production. In 2011 6,310 tons were harvested.

In Italy 902,075 olive farms are registered which means that the median plot of land in production per farm is 1.2 hectares.

It is quite astonishing that even though Tuscany has a relatively low percentage of the total olive oil production in Italy, it still has quite a reputation when it comes to high quality olive oil. There is a certain consensus among people that the Tuscan oils have a particular flavour that makes them similar, at the same time there are numerous different cultivars planted; this aspect will be further discussed in a later chapter.

One thing that must be said though regarding the statistics, is that first of all it is more difficult than it seems to find reliable information, different internet sites that cite the same sources (that are manly ISTAT, ISMEA, ICO or the FAO) write different numbers which makes things a bit confusing. Even more so when the numbers are a bit strange themselves, let's take Italy for example: if we only consider the year 2013 and we acknowledge the number I have cited, there is a 53,800 ton discrepancy when subtracting the consumed and exported oil from the produced and imported, and this is not even considering the over proportioned quantity of supposed extra virgin olive oil. This makes it clear that something is off and the consumers don't know that necessarily.

6. The development of olive cultivation in Tuscany

6.1 History of the Tuscan olive cultivation in Tuscany

Many travel guides and other forms of touristic literature give the impression that the landscape-shaping Tuscan olive yards have been there since "the creation of the earth". This may sound very nice but it doesn't match reality. It is historically proved that "only" since the mid 14th century Florentine merchants invested in the olive cultivation. In these times olive oil was considered to be a luxury item, so having a direct source would have brought a big profit (Nanni, 2002).

One of first smart merchants was the money-changer Lippo di Fede del Sega who on his properties along the river Arno cultivated not only vines but also olive trees. In the first half of the 14th century Lippo produced already 1,500 to 2,500 litres of olive oil which should have earned him a big profit since the price of olive oil was much higher than, for example, grains. Lippo's example was followed by the Florentine upper class that bought properties similar in size. The oil that they had bought before under difficult circumstances and for a high price in Apulia, Campania and Liguria, was primarily used not for cooking but for the soap production and for the treatment of wool.

With this cultivation of the olive tree in Tuscany (from 1330 to 1360) started a century long development that on the one hand leaded to the current landscape, on the other to the production of a series of high quality olive oils.

This development was primarily supported by the city governments such as Florence and Sienna, but also monasteries and single rich merchants aimed at promoting the cultivation and regulated the trade with olive oil. So, for example, the laws of Sienna dictated, already in 1428, that the farmers had to plant four olive trees a year because next to grains, meat and vine olive oil was one of the most important goods for the people (Bruglioni, Varanini,

2005). Even though the farmers were compensated for every tree that they planted they were not very enthusiastic about it firstly because they traditionally consumed animal fats, secondly because it meant that they had less land for grains. This changed in the 15th century with introduction of the metayage (mezzadria). With this system the harvest was shared 50/50 between farmer and landowner and so the workforce started to consume this luxury. Successively olive oil replaced the animal fats and became together with bread and vine an important aspect of the Tuscan diet.

Another important step during the increase of olive yards, especially in the Lucca region, but probably also in other Tuscan regions, is written by the professor of architecture Maria Adriana Giusti (2015) in her work "The villas of Lucca". In it the academic describes the construction of estates by the upper class of the cities, especially from Lucca, which was not only important for the history of architecture but also, by having the resources used, for the formation of an "orderly landscape". This "orderly landscape" became more and more dominant, especially in the 16th and 17th century, by having the estates follow the structures of the city with the goal to supply it with agrarian products. Giusti describes the constructions of estates and villas as "a nature ordering plan" and refers in context to this to the terraced olive yards and the construction of buildings beneficial to the production, such as an olive press (operated by oxen) and a storage for olives and oil. This was also beneficial for the commerce with olive oil since Lucca was on the so called "Merchant Street" that connected Tuscany with Switzerland and reached Germany, France, Flanders and even Russia. This process of "reorganisation" of a landscape by spreading of the olive cultivation as well as the organisation and increase of olive oil production reached its main conclusion only in the 19th century. Most olive yards, typical for the Tuscan landscape, emerged only around 400 to 500 years ago. It took the same amount of time that the once expensive luxury olive oil became the everyday culinary product it is today.

6.2 The Tuscan olive varieties

Without doubt Italy is the country with the most varieties of olives. Tuscany has a multitude as well, in the research of ARSIA (Agenzia regionale per lo sviluppo e l'innovazione nel settore agricolo-forestale) and CNR-IVALSA Trees and Timber Institute, 84 different Tuscan cultivar are listed (Cimato, Cantini, Sani 2001). The most popular types are Frantoio, Moraiolo, Leccino, Pendolino, Maurino and Rosselino.

Because of this diversity of not only the cultivar but also the terroir, it is impossible to talk about "typical Tuscan olive oil". It is more accurate to say that Tuscany has one of the more diverse types of olive oil, even though they all have similarities. This uniqueness in oils in Tuscany probably has its origins from the experimental merchants from Florence, Lucca and Siena. Good olive oil had both a high market as well as a substantial tax value, so that the producers of the 13th and 14th century had the aim to increase the quality of the oil by mixing different olive varieties. Surely also the variable yield potential of the single cultivar under different agricultural conditions (altitude, soil properties, climate) had an important role.

7. Olive cultivation and olive oil production in Il Casone 1729 s. s. Agricola

Fig. 6 Il Casone

7.1 The history of Il Casone

It's unsure when the first Il Casone building was first constructed as there is no documentation available. It is very possible that it was originated in the 14th century as a "Villa Rustica". This hypothesis is supported by the considerable size of the rectangular layout (about 20 x 12 m), the multiple floors with a loggia under the roof, the walls made out of natural and worked stone, the connecting rooms as well as the arched windows that aren't present anymore but still visible. These are the criteria by which the history of architecture describes the types of early mansions in the territory of Lucca. The professor of architecture, Maria Adriana Giusti, for example calls these buildings of the 13th and 14th century "Palazzine medievale" (little medieval palaces) emphasizes on their "dominant position relative to the agrarian surrounding countryside", their "simple structure", their "plain appearance" and their "productive character" (Giusti, 2015). The internationally renowned scientist writes: "The beginning of the villas of Lucca appeared as an early

phenomenon that reflected not only a life style, but also a special form of administration of city and territory (Giusti, 2015).

Built by rich merchants and aristocrats from Lucca, these medieval mansions were the starting point of grand land improvements and agricultural colonisation, they also served for the control and administration of the lands. Therefore it is not far fetched to say that the terrain around the main building of Il Casone was already terraced and cultivated in the 14th century. It is possible that at Il Casone olive trees were planted and olive oil was pressed around 600 years ago.

After a few changes of owners, the property came to be a farmers building. It was inhabited by different families and was first used as an oil mill as well as a deposit for olives and other produce. The year 1729 is used in the company's name because in this year the estate was restored and it is the earliest proven date regarding the building. It is not known who owned the property in those years, but around 1830 the Bourbon came to the region and bought the property. Because of the financial and influential decline of nobility, the family sold all their properties in the territory after one century. In the years that followed there were different owners, in the "Casone" different families still lived and worked the lands. This lasted till 1966, after which the land was no longer cultivated to the point that a forest grew instead of the grove.

A second restoration of the buildings took place in the early 90ies. The company was founded in 2000 after two years of cleaning and restoring of the olive grove.

Fig. 7 State of the olive grove when the works began

Fig. 8 The olive grove now

7.2 Olive yard

The total plot of land consists of 6 hectares of which 4.4 hectares are farmland. Everything in the property is farmed organically.

Olive grove	3.9 hectares
Fruit trees	0.034 hectares
Vegetables and herbs	0.066 hectares
Uncultivated space	0.4 hectares

In addition the company has its own water supply coming from a spring and two wells, both situated in the property. The name of the street leading up to the property is called "Via delle Fonti", translated "Street of the springs" so one can assume that the land has a historical connection to water sources.

The olives are arranged on terraces with a well thought out canal system. The grove is made up of 1111 olive trees, most of which are approximately 300 to 400 years old. 240 three-years-old olive trees were planted in 2005, which reached their full production capacity after they became fifteen years old. Most of the trees are of the Frantoio variety, but Maurino, Leccino and Quercetana trees are also found present. To be exact:

Frantoio	80 %
Leccino	10 %
Maurino	5 %
Quercetano	5 %

The Frantoio variety is the traditional Tuscan olive. Centuries ago when the first trees were planted people already knew that the Frantoio tree is not very good at self-pollinating. So they planted the other varieties too to increase its productivity.

Most of the trees still have their original trunks. This is quite rare in Tuscany. In 1985 there was a massive frost in the whole region with temperatures reaching even -20 degrees Celsius. 90 % of the olives were either damaged or destroyed. 17 Million trees had to be cut down to the ground, a part didn't survive because the roots were frostbitten. At the time this resulted in approximately 950 Million Mark loss for the farmers. (Der Spiegel n. 34, 1985)
The same happened in 1709, it was called "The terrible winter of 1709 in Europe". This suggests that the area around "Il Casone" is rather protected, furthermore it has to be considered that since the olive groove was abandoned and covered by a forest, the trees were safe from the cold.

The remaining hectares include: the old main building, two old outer buildings and the newly constructed pool with pool-house.

7.3 The Pruning

For high quality olive oil the year starts with one thing, pruning. It generally starts in February and occurs annually. The main purpose of pruning is to ensure the quality of the oil. First of all the olive tree needs space to have air circulate between its branches so that the olives get into contact with oxygen and light which is important for their development. Furthermore, the trees grow naturally into a bush, making manual harvesting impossible. Deciding to let the tree become a shrub may increase the yield, but the olives would fall to the ground and be overripe to the point of rottenness. Such olives would never turn into high quality oil.

There are different types of cuts that influence the growth of an olive tree. The one used by "Il Casone" is called "Vaso Policonico". An external firm helps with the cut, as it is not a simple task as one might think. Every tree has to be treated differently to ensure that the energy is distributed efficiently among the fruits.

The remains of the pruning are inserted in a grinder and used as a sort of compost for fertilization. The branches too big for the grinder are used for the fireplace. After the cuts, the trees are given a treatment that acts as a disinfectant against diseases and vegetal parasites.

7.4 The Fertilization

Fertilization happens in two different phases. From March to June the plants and soil are fed with different products. These products hold a complex mixture of minerals, trace elements, microorganisms, plant extracts and essential oils. Their aim is to strengthen the plants in their defence against microorganism, to give nutrition and stimulate growth and resistance.

The next phase happens after the harvest between December and January when the compost produced by the pruning is given to the trees. After analysing the soil if necessary a treatment with organic fertilizer is given to the earth or/and to the leaves.

Throughout the year the grass is cut 5 to 6 times and used as fertilizer. In other companies it is generally cut only 2 to 3 times because it is very time-consuming and therefore very expensive. It is cut so many times for various reasons, but there are two main ones: firstly, is that the grass has to be short to be absorbed into the ground and act as a fertilizer. Secondly, the terraces have to be well aerated and water puddles have to be prevented to form, so that diseases don't develop.

May is the month of blossoming, which must be monitored carefully. One hundred blossoms usually develop into one to three olives. In case of deficiency the tree can be treated with a product based on boron.

Fig. 9 Olive blooming

7.5 The Pest control – alternatives to synthetic chemicals

During summer it is very important to keep track of the presence of the olive fly (Bactrocera oleae). The olive fly is the most dangerous enemy of the olives,

its origin is unknown but it is certain that it did not come from Europe which means that it does not have many natural enemies.

In June monitoring devices and 4 to 6 hormone-based traps are placed all over the olive grove to observe the quantity of male and female flies. As soon as the fly is present, "Polestar400" is sprayed onto the trees as safeguard in a 20 days rhythm. "Polestar400" is a natural product based on kaolin, a porcelain clay powder. The kaolin forms a protective film over the olives, acting as a barrier against the fly and also it changes the colour of the olive, which confuses the fly. Additionally the fruit is protected against excessive heat.

Generally the product is sprayed 6 to 8 times from July to September. It is necessary to use it so often because for one thing the fruit grows and for the other it has to be applied again immediately after rain. Compared to traditional pesticide-based defence, the kaolin treatment is expensive, not only because the product itself costs much more than pesticides but also because it's very labour-intensive. Two workers need three days to spray the whole olive grove once.

Fig. 10 The sprayed olive grove

When the harvest is near, kaolin is not given anymore because it would hinder the workers. In extreme cases "Biopiren Plus", an organic poison made of natural Pyrethrin would be applied.

In addition to the organic products "Il Casone" tries to maintain an environment, in which enemies of the olive fly and other unwanted insects thrive. Two examples of these are bats and particular types of wasps called *Ichneumonidae*.

The other types of parasites like the "*coccinigliе*" (a scale insect), or the virus "occhi di pavone" (peacock eye) do not pose much of a threat. The reason for that is the effort "Il Casone" puts into strengthening the immune system of the trees itself, making it hard for disease to spread.

7. 6 The Harvesting

Fig. 11 Olive right before harvesting

Harvesting that starts at the beginning of October, which is generally one month earlier than other Tuscan producers, is concluded not later than the end of October. A team of 8 to 10 people needs about 15 working days. The team is divided into three different groups: one group is in charge of the nets, one group shakes the olives from the trees and the last one gathers the olives.

Laying the nets is not as easy as it sounds, the terraced landscape makes it a necessity to have qualified workers. The nets are spread out under about 10 trees. While these trees are harvested the next 10 trees are prepared.

The shakers use so-called "manine". These "little hands" weigh 6 to 8 kilos depending on the size, and are powered by a compressor attached to a tractor. Strong men are needed for this type of work.

Fig. 12 Strong man at work

Fig. 13 Olive gatherers

The gatherers put the olives into aerated containers which than are transported to the olive mill, this happens in the same day.

Approximately 800 kg of olives are gathered in one day which corresponds to about 100 l of extra virgin olive oil.

7.7 The Pressing

Il Casone has developed a business relationship with a very modern oil mill which guarantees the immediate processing. Today the individual steps - washing, crushing, mixing, separating the oil through decanting/centrifugation and filtering - are performed by steel machines. A computer monitors the whole process to make sure the temperature never exceeds 28 °C. Additionally there is an agreement between Il Casone and the oil mill that prior to every pressing process the mill is stopped and given a thorough cleaning. This guarantees that no remains of the predecessor's oil will be mixed with Il Casone's oil and also that the temperature is lowered by several degrees. During the whole pressing procedure one of the Il Casone's workers is present. When the oil is ready he immediately takes it back to the company's cellar.

Fig. 14 The so called "ape" with which the olives are transported to the oil mill

Fig. 15 The oil mill of Massarosa

7.8 Storage and bottling

Before being bottled, the oil is poured into steel containers of 300 l and stored at a temperature between 13 and 15 °C, under vacuum, in a nitrogen-based environment and in total darkness. Since the oil should reach the customer in perfect condition the oil is exclusively bottled when ordered.

Fig. 16 The cellar of Il Casone

The oil is packaged in an elegant, UV-resistant, dark glass olive oil bottle called "Siviglia" available in 0.50 l and 0.25 l. The herb-spiced olive oils are offered in bottles of 0.25 l and 0.1 l. The bottle is closed with a natural, top-quality Sardinian cork stopper. It is then sealed with molten wax. The corks come from Calangianus (Sardinia), where the only school for cork processing is located, the company that we found nurtures its trees lovingly to produce the finest wood. Additional stoppers for closing the bottles after they have been opened are provided. Each bottle is sold in a cardboard box.

A special gift edition is also available. The black luxury box includes a special handmade 0.75 l ceramic bottle with a handmade stopper made out of olive wood .

Fig. 17 Standard bottle

Fig. 18 Gift edition

7.9 Yields of the harvest

In the following table is a summarization of all production yields since the company was founded. It has to be noted that for the year 2014 there was no harvest not for the lack of olives but because we couldn't guarantee the high quality.

Year	Yield (kg)	Yield (lt)	Yield per tree (kg)	Yield per tree (lt)	Yield (%)
2000 1.)	916	150	1.04	0.135	15
2001	2440	400	2,57	0,36	15
2002	10380	1700	10.92	1.53	15
2003 2.)	0	0	0	0	0
2004	12998	2000	11.7	1.8	14.09
2005	6801	1117	6,12	1	15
2006	12387	2228	10.3	1.8	16.5
2007	2018	352	1.8	0.3	16
2008	12200	1685	10	1.4	12.6
2009	5137	606	4.3	0.5	10.8
2010	8822	937.5	7.35	0.78	9.7
2011	7134	872.5	6	0.72	11.2
2012	11921	1458	8.8	1.08	11.2
2013	11402	988	8.5	0.75	7.9
2014 2.)					
2015	8658	1000,25	6.4	0.74	10.58

1.) First harvest after three years of so-called recovery time
2.) No harvest due to adverse weather conditions

7.10 Quality aspects

To understand Il Casone's efforts in making the best possible quality olive oil, one must first know the EU regulations regarding this product:

THE EUROPEAN UNION REGULATION

The EU regulation in force since 2001/2002 states as follows:

Native olive oil is obtained from the fruit of the olive tree, using solely mechanical or other physical means, in conditions which do not alter the oil in any way. It has not undergone any treatment other than washing, decanting, centrifuging and filtering, and includes extra virgin olive oil, virgin olive oil and lampante virgin oil. The designation and classification of oil is based on chemical analyses and tasting. Starting from a very long list of possible defects, the International Olive Oil Council (IOOC) has ruled that only three expressions may be used to define the sensorial properties of oil: **fruity - bitter - pungent.**

1. Native olive oils

Extra virgin olive oil
To make extra virgin olive oil, the olives picked from the tree must be flawless and at an optimum stage of ripening. They must be processed in a state-of-the-art mill within a few hours to avoid oxidation and fermentation.

- Free acidity, expressed as oleic acid, must not exceed 0.8 grams per 100 grams; peroxides max. 20 meq02/kg.

Virgin olive oil
Virgin olive oil is obtained from olives that are not entirely healthy or fresh, or that are processed in old-fashioned mills.

- Free acidity must not exceed 2.0 grams per 100 grams; peroxides max. 20 meq02/kg.

Lampante virgin olive oil
Lampante virgin oil is obtained from the pressing of rotten olives, gathered from the ground when fermentation has already set in. After being refined, it can be blended with virgin oil and marketed as "virgin oil produced from refined olive oil and virgin olive oil".

- Free acidity exceeds 2.0 grams per 100 grams; no indication is given about peroxides.

2.Refined olive oil
Olive oil obtained from virgin olive oil by refining methods. Free acidity must not exceed 0.3 grams per 100 grams.

3.Olive oil
Olive oil obtained from a blend of refined olive oil and virgin olive oil other than lampante oil. Free acidity must not exceed 1 gram per 100 grams.

4. Crude olive-pomace oil

Oil obtained by treating olive pomace with solvents or other physical treatments.

5. Refined olive-pomace oil

Oil obtained from crude olive-pomace oil by refining methods. Acidity must not exceed 0.3 grams per 100 grams.

6. Olive-pomace oil

Oil obtained by mixing refined olive-pomace oil and virgin olive oil other than lampante oil. Free acidity must not exceed 1 gram per 100 grams.

Next to the chemical analysis, also a tasting panel is officially recognised. When looking at the number of produced extra virgin olive oil and then at the number of sold oil, it becomes clear that something is not working.

It seems that the chemical analysis has some deficiencies in determining what is and what is not extra virgin olive oil. It was therefore established that tasting panel would have the same importance as the chemical analysis, but has it really been an improvement? It is best described by Andreas März:

"After 25 years of its existence it has to be diagnosed that the Panel as an official inspection instrument is a failure. Even though single tasting committees may do an acceptable work, the vast majority is untrustworthy and sheer incompetent and make it all useless. The sad proof for this is that the intentions of the legislator, didn't succeed to be implemented, namely to complement the insufficiency of chemical analysis with the help of sensory ones: The in the market available extra virgin olive oils didn't get better one bit in the last 25 years! They continue to stink illegally under everybody's noses." (März, 2015).

And it is true, wherever you look you will find oil sold as extra virgin at impossibly cheap prices (this will be specified more in depth in the following chapter) and horrible tastes. Even though the controls seem to be very serious and professional, the results leave the consumer confused: "The current

market regulation for olive oil is unsatisfying for consumers and fatal for olive farmers. It is scandalous, that at the question of the consumer, 'how do I recognize a good quality olive oil?' the official answer 'extra virgin' is a lie in at least nine out of ten bottles." (März, 2015).

It may be for this reason that the PDO (protected designation of origin) were created. The PDO regulations differ for every region. In our case it's the Lucca PDO, furthermore a PGI exists with other regulations. The PDO has certain quality standards, in the following table a number of quality standards are written, the differences that are more noticeable in Il Casone's case are highlighted in red. Why are there differences? Simply because the existing standards are not high enough.

	EXTRA VIRGIN IL CASONE	**LUCCA PDO**	**TUSCAN PGI**	**EXTRA VIRGIN EU**
Acidity	max 0.5 %	max 0.5 %	max 0.6 %	max 0.8 %
Peroxides	max 12 mq/kg	max 12 meq/kg	max 16 meq/kg	max 20 meq/kg
Alky esters	max 75 mg/kg for the sum of FAME and FAEE max 150 mg/kg for the sum of FAME and FAEE, if the ratio of FAEE/FAME is below 1.5			
Polyphenol	min 100 mg/kg	min 100 mg/kg	min 60mg/kg	Not Required
Interval betw.. harvest and pressing	max 10 hours	max 48 hours	/	/

End of harvest	max 30th October	max 31st December	/	/
Harvest method	Olives picked up October only from the tree, not using the fallen ones	Olives picked up only from the tree, not using the fallen ones	/	/
Filtration	compulsory	optional	optional	optional
Flavour	Intense fruity-green, sensations of bitterness and pungent	Fruity	Fruity	Fruity
Storage	Under atmospherics nitrogen at 13 – 15 °C	Not established	Not established	Not established
Bottling	On Demand	Not established	Not established	Not established
Farming methods: pruning	Annual pruning, manual; organic treatments	At least biennial	/	/
Maximum Yield per tree	max 20 kg/tree	Max 20 kg/tree	/	/
Maximum yield per hectare	max 7000 kg/ha	max 7000 kg/ha	/	/
Maximum oil yield	max 19 %	max 19 %	/	/
Crush time	max 50 minutes	max 50 minutes	/	/
Crush Temperature	min 13°c/max 28° c	13°c/max 28°c	/	/

The table starts off with 3 criteria derived from the chemical analysis. Il Casone uses the same standards as the Lucca PDO for two main reasons. Firstly, it would be pretentious to establish different standards than the ones studied by professional chemists. Secondly and more importantly, what differs in the end is only a bunch of numbers which do not mean much to the consumers. Regardless, I still want to point out that Il Casone's olive oil has a much lower acidity and a number of peroxides as well as a much higher polyphenol count than the required values.

It is therefore more important for us to communicate quality standards that are more understandable, starting with the interval between harvest and pressing. A fast processing is the basis for a good quality, as soon as it is detached from the tree the olive starts to oxidize. It was for this reason that we chose an oil mill that was both close and up to technical standards. To guarantee that everything is in order, an Il Casone employee controls the whole process.

The period of harvest also influences the quality of the oil, the longer it is postponed the higher the yield will be but at the same time antioxidants and other positive molecules will be used and the acidity, peroxides and alky esters will increase and the number of polyphenols will decrease. Harvesting too soon would result in having too low of a yield and the unripe olives would have too much sugar. Considering these facts and the microclimate of the olive groove we have decided that October is the right period for harvest.

Unfiltered olive oil contains small amounts of water bound to substances, like enzymes, sugar, microorganisms and so on, that can lower the quality of oil quickly, making storage impossible.

Under EU regulations extra virgin olive oil has to contain noticeable amount of fruity notes. In addition further positive attributes have been determined:

green, mature, bitter, pungent. Il Casone expects to find the same fruity-green, bitter and pungent notes of the olive in its oil.

Storage is an important aspect for quality control but is not established in any regulations. There are three things that can damage olive oil: high temperature, light and oxygen. For this reasons Il Casone uses stainless steel barrels situated in an underground cellar, by doing this we ensure that the oil will not come into contact with light or higher temperatures. As for the oxygen, the barrels are filled with nitrogen, an inert gas that prevents the entrants of oxygen into the barrel.

One of the more expensive quality enhancers is the number of times the olive trees are pruned and the grass is cut. Only the PDO expects at least a biannual pruning. Il Casone is one of the rare companies to do its manual pruning yearly. Additionally, all faming methods applied are organic. I deliberately talk about organic during the quality aspects because I believe that, not only for me, but also for many consumers, it increases the value of the product. It is important to consider that in our case we use as little poisonous substances as possible, by doing so we create a natural environment where all kinds of animals and plants flourish.

As for the last five aspects of the table the same can be said as for the first four. These are numbers that have their importance and are all respected by Il Casone but do not convey much information to the customer.

To the question why we do not have a PDO certificate, although we fulfil all requisites, the answer is quiet simple. The PDO regulations would force us to use a specific oil mill close to Lucca (1 ½ hours further away from us than the one in Massarosa), that could not guarantee our special requests and would store our olives for more than 24 hours before pressing, which is unacceptable for us.

8. Problems in the olive oil production

8.1 Forgeries

"An extra virgin olive oil that corresponds to the legal regulations, is always a masterpiece of artisanal skill under optimal agricultural and technological circumstances. The bottles of the big producers don't contain masterworks, but rather oils that get pressed from farmers and cooperatives of the Mediterranean, for a price that make economical survival impossible. Quality? That is not important, only price, margin and marketing." (März, 2016).

It is save to say that before alcohol, honey, spices, butter and diverse meat products olive oil is the most falsified food worldwide. Expensive oils are replaced by cheap ones and the cheap by oils not meant for consumption. Attempts to prevent the scams, have either been not very successful, as they are very hard to prove, or missed the point.

A test by the German company "Stiftung Warentest" showed how extra virgin or other quality labels and even a high price can be misleading. Stiftung Warentest is a company that makes tests on every type of product without relying on advertisements and are therefore partially funded by the state. They are probably the most known and relied upon testing firm in Europe. For every product a point system is used to determine the quality of the item tested; it then receives one of the following 5 rankings:

- 1.0-1.5: "sehr gut" (very good)
- 1.6-2.5: "gut" (good)
- 2.6-3.5: "befriedigend" (satisfactory)
- 3.6-4.5: "ausreichend" (sufficient)
- 4.6-5.5: "mangelhaft" (insufficient)

Out of the 26 tested European olive oils, all extra virgin, thirteen were "insufficient", three "sufficient", nine "satisfactory" and only one was "good".

In five olive oils traces of mineral oil were found, high enough that only for that the oil would have received the worst ranking; the testers also found plasticizers, pesticides and solvents in the 26 oils. After an analysis five oils did not have the same origin as the one sighted on the label. Not one had the correct labelling as dictated by EU regulations. Seven of the oils had serious sensory deficiencies, extra virgin olive oil can not have any (Stiftung Warentest 02/2016).

It's best summarized by the chief in editor Anita Stocker (2016): "It seems that for the producers regulations have little meaning. None of the 26 tested olive oils is labelled without mistakes. Not even the sighted places of origin can be trusted. Some of the supposed top oils taste moldy and rancid. Every second contains considerable amounts of harmful substances. The conclusion: Consequent controls by the authorities are overdue. Strict rules alone aren't enough to protect consumers."

Even the United States of America came to the same conclusion. On behalf of the U.S. parliament, the USITC (United States International Trade Commission) released an almost 300 page long report about the worldwide olive oil market in August 2013. Their conclusions are that the quality standards are too low or not even enforced: "Current international standards for extra virgin olive oil allow a wide range of oil qualities to be marketed as extra virgin. In addition, the standards are widely unenforced. Broad and unforced standards lead to adulterated and mislabeled products, weakening the competitiveness of high-quality producers, such as those in the United States, who try to differentiate their product based on quality."

They comment also on the difficulties for U.S. consumers:" Olive oil marketers aim to differentiate their products by brand and level of quality, but price remains one of the most important factors in U.S. consumer purchasing decisions. This is due, in part, to a lack of consumer awareness of quality differences. U.S. consumers are generally unfamiliar with the range of olive oil grades and uses."

This is meaningful because the United States are the biggest market for sales, almost one billion Dollars are involved of which Italy has a market share of 55.4 % (Faostat, 2012).

Forgeries can come in different ways. It may happen that wrong information are cited on the label, for example the place of origin (Italian oils are usually more expensive), it is also common to lie abut organic productions and so on. It becomes nasty when the sold extra virgin olive oils do not even contain olive oil. In the 1980ies it was common to sell extra virgin oil containing hazelnut oil, this practice stopped as the controlling methods advanced, the problem is that forgeries became more advanced too. The regulations may even be convenient for counterfeiters too, up till now there are not any minimal requirements for oleic acid in olive oil (70 - 80%). Having this as a tool would help with uncovering oils that are fake. Specialists nowadays take low quality olive oil deodorize it and then mix it with some extra virgin. It is very hard to be profitable with only producing olive oil, what is though is to buy and sell olive oil. Therefore the big olive oil companies benefit greatly from laxer regulations and lobby hard for them to stay so.

Lobbyism is something very common in Italy and all around the world. In case of Italy it may be understandable that the government may support influential Italian companies to improve its economy. A fact that not many people may know is that almost all big names are not owned by Italians anymore. This begs the question, why is this still continuing then? Italy can afford to put some

distance between the lobbyists of the olive oil brands and prioritize the producers instead.

The impact that the forgeries have on the market can be visualized easily by the following illustration taken from the Merum dossier 05. On the left are the actual productions and on the right how much is being sold.

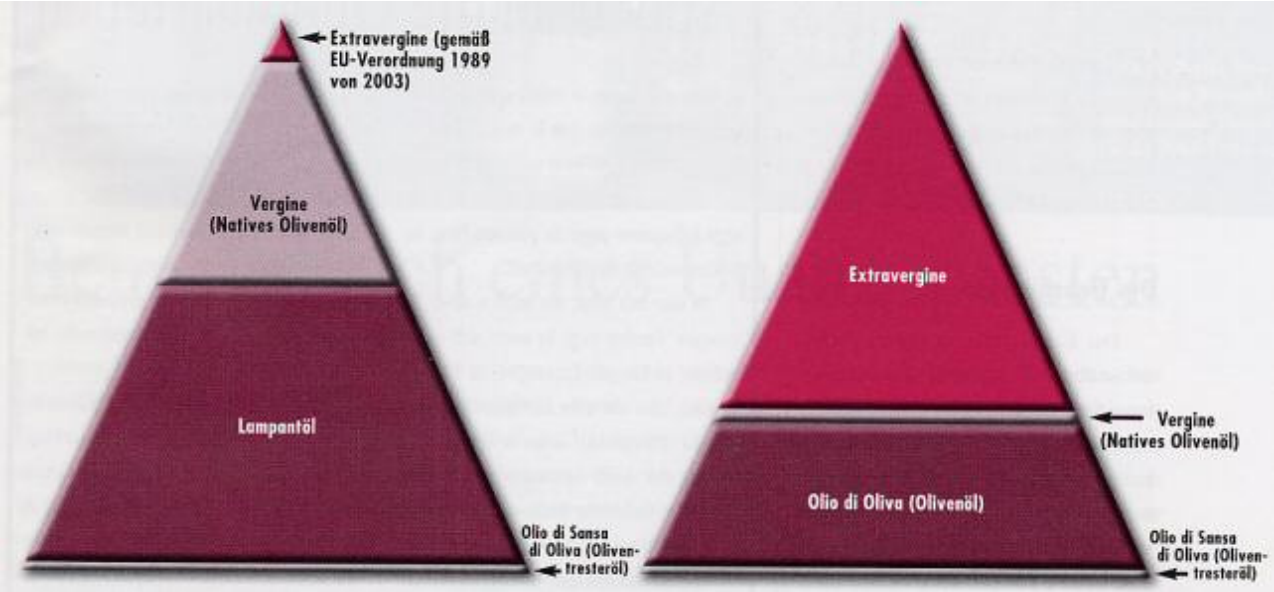

Fig. 19 (Merum dossier 2005)

Still is has to be said that more recent research exists in order to find scams. From a research published on the Joint Research Centre (JRC) of the European Commission new methods are presented of detecting mislabeled provenance of virgin olive oils at the regional or national level. The idea is to create a fingerprint of olive oil and its unsaponifiable fraction and to compare it with other oils using pattern recognition (Alonso-Salces et al., 2015).

Other researchers even go a step further and not only want to find, but also predict possible forgeries. Computer software is being developed that has the aim to analyze the flow of goods, to track outbreaks of tree sickness and to observe climate change, to prognosticate from that which scams will be the most profitable.

8.2 Production costs and revenues

According to a research published by the "Regione Toscana" (Cresti, Gucci, Zorini, Polidori, Vieri, 2004) the production costs and revenues were the following:

1. For traditional farms with employees located in the internal hill side, with a density of 250 trees per hectare and low production level (250 l of olive oil per hectare, equivalent to 7 kg of olives per tree), harvested manually with the help of pneumatic combs; the revenue amounted to 9.04 Euro and costs of 12.49 Euro per kg of olive oil. With high production level (500 l of olive oil per hectare, equivalent to 11 – 13 kg of olives per tree) and same revenue of 9.04 Euro the costs amounted to 8,98 Euro per kg of olive oil.
2. For specialized companies with employees located on the costal hill side, with a density of 400 plants per hectares and low production level (650 to 800 l of olive oil per hectare, equivalent to 13 to 15 kg of olives per tree), with mechanized single harvest; the revenue amounted to 9.04 Euro and costs of 7.77 Euro per kg of olive oil. With high production level (900 to 1050 l of olive oil per hectare, equivalent to 18 to 20 kg of olives per tree) the revenue amounted to 8.99 and costs of 6.41 Euro per kg of olive oil.

In the same pages (70 – 75) they refer also to the working hours needed per hectare. In traditional farms it ranges from 250 to 300 hours per hectare but it often exceeds 400 hours, while for well mechanized companies it can be as low as 100 hours per hectare. When calculating the cost per tree using the given hourly salary of 10.59 Euro and 300 hours workload, the results are 12.708 Euro per tree. If one tree gives one litre of olive oil (0.92 kg) how can it be that a kg of oil has a total cost of 12.49 Euro? All these oddities make cited costs very unreliable. In this particular case some other things have to be considered too as things are not the same as in 2004: salaries changed in the

years, the yield of 1 l per tree is very optimistic and rarely happens with today's climate, the workload has increased as more treatments have to be applied and no mentions of quality are in the document. In addition to all this the calculations don't consider marketing, packaging, administration, taxes, own and family contribution and unexpected problems such as lost of harvest.

Around the net one can find varying production costs. To make another comparison, Merum puts production costs in the north and the centre of Italy at 12 to 25 Euro. This data seems to be more reasonable in regards to the situation in Tuscany today.

Nevertheless, even if the data differs substantially between different sources, most have the consensus that small traditional producers cannot cover their production costs with today's selling prices. According to Ismea and EU Commission the world market selling prices per litre of olive oil in the years from 2012 to 2015 ranged between 2.36 and 6.04 Euro for extra virgin olive oil, 1.88 and 3.93 for virgin olive oil and 1.45 and 2.77 for lampante olive oil. I want to point out the absurdity between the selling prices of extra virgin and lampante oil. For example, if we only consider the year 2013 it is ludicrous to think that the difference between an inedible oil (2.32 Euro) and an oil of the best possible quality (3.16 Euro), is 0.84 Euro. To reiterate a lampante oil is not classified for consumption and cannot be sold as such. To sell it, it has to be rectified and than mixed with an unspecified amount of extra or virgin olive oil, and can only be sold with the label "olive oil".

The situation is even more dramatic considering the graph in the previous chapter (page 52). According to the data provided by Unaprol and Iri-Infoscan (2014) the statistics in supermarkets are the following:

Category	Amount in million of litres	Share in %	Turnover in million Euro	Median selling price (Euro/litre)
Extra Virgin	154.3	85.2	634	4.11
100 % Italiano	21.7	12.0	111	5.12
PDO	2.8	1.5	31	11.00
Organic	2.2	1.2	18	8.13
Total	181.0	100.0	794	4.39

The consumer has to be aware that by buying very cheap oils he is not only the victim but also the offender. As long as high quality producers do not receive reasonable prices more and more olive yards will be left abandoned and the market will be flooded even more with low quality olive oils.

8.3 Climate change

An old Tuscan saying goes as follows: "Il proprietario di campagna trema sei mesi dal freddo e sei dalla paura." Which translated means: "A farmer in a countryside shivers six months because of the cold and six for fear." For the Tuscan farmers, also olive growers, this saying has only historical meaning. The last cold winter is only remembered by the elderly. Since more than a decade too warm winters and warm but very humid summers define the climate in Tuscany. Strange and often unpredictable weather conditions (hail, strong rain) are not the exception anymore, but become more and more the norm. All these phenomena are the apparent consequence of global climate change.

How this unpredictability can be detrimental for olive oil production can be seen in the year 2014 in which the olive fly destroyed a vast amount of the harvest all over Italy. With high summer heat and low humidity the spread of

the olive fly is reduced, but in 2014 the frequent rains made it the perfect conditions for the fly to flourish. Next to the strong if not total lost of harvest, the fly together with the high humidity caused the propagation of *Pseudomonas savastanoi* (a bacterium which causes the olive knot disease).

By comparing the harvest of the years 2013 and 2014 one can understand the gravity.

Italian olive oil production in tons

Region	**2013**	**2014**	**Deviation in %**
Abruzzo	18 592. 4	4 143.0	- 77.7
Apulia	184 826.0	134 757.0	- 27.1
Basilicata	6 197.0	2 485.0	- 59.9
Calabria	103 205.0	25 241.0	-75.5
Campania	38 026.0	5101.0	-86.6
Emilia Romagna	687.2	642.0	- 6.6
Friuli	33.3	50.0	50.2
Lazio	19 395.0	5 655.0	-70.8
Liguria	5 727.8	1 9920	-65.2
Lombardy	772.2	221.0	-71.4
Marche	3 340.0	1 763.0	-47.2
Molise	5 720.0	1 463.0	-74.4
Piedmont	18.1	4.0	-77.9
Sardinia	4 520.0	7 442.0	64.6
Sicily	49 281.0	22 620.0	-54.1
Trentino-S. Tirol	275.0	200.0	-27.3
Tuscany	16 808.0	6 197.0	-63.1
Umbria	5 730.0	1 074.0	-81.3
Veneto	547.0	957.0	75
Total	463 701.0	222 007.0	-52.1

Source: Ismea (with data from Istat and Agea)

Even though some producers aim on using stronger and stronger dosages of chemical pesticides, while others prefer an organic approach, and even if science will find new ways to combat the olive fly, dark years like the one in 2014 are not impossible to rule out. If the climate continues to change like it has in the recent years, the harm-full insects will grow exponentially.

In order to halt the progressive change in our ecosystem we have to change the way we operate drastically. The point of no return will be reached only when the Greenland ice has completely melted and when the sea level has risen to up to seven meters. Then the island groups of the Caribbean will disappear like Bangladesh, Florida and the costal region of the Versilia.

It is important to make this a global issue as it effects all of us; the small producers as well have to think about a way they can prepare for eventuell bad years and find solutions that are beneficial for themselves. High quality producers need to do more, have other options, think outside the box; they have to be different.

8.4 Too many small producers and the new threat *Xylella*

As I have said before the statistics are questionable at best and very hard to find, therefore I will focus for now only on Tuscany and the province of Lucca. According to the work of the authors Cimato, Cantini and Sani (2011) in Tuscany there are about 70,000 companies that cultivate 93,000 hectares of olive grove with 14,000,000 trees. This means that every company has on average 1.32 hectares with 200 plants. In relation to the Lucchesia the numbers are 2,641 hectares with 7,000 companies which would mean 0.38 hectares on average. As the authors put it 75 % of all registered producers of the province of Lucca have less than 2 hectares. But they also note that all over the Tuscany there are still various companies that have 10 to 50 hectares of olive yard. This makes it clear that there is a huge portion of small producers

who do not come close to having enough productivity to be economically sustainable. These producers, who work their lands themselves or with the help or their family, do not have access to a direct market because they lack the time and means necessary to form a customer base. This forces them to sell their oil to the oil mill for very low prices. The revenue often does not cover their costs, leaving them without income. It is only natural that the consequence that follows is the ever increasing number of abandoned olive yards.

The future seems even more worrisome when reading about the recent news about the so-called *Xylella*. The *Xylella fastidiosa* is one of the most dangerous plant pests in the world and four subspecies are known currently. In October 2013 the subtype *Xylella fastidiosa pauca* was found infecting olive trees in the region of Apulia. Since at first it was only present in Central America it is likely that it was shipped into Europe with an infected plant. It is spread by the insect *Philaenus spumarius* or "Meadow Froghopper". While it stings the tree to drink its juices, it excretes a foam that acts as a vector for the bacterium, spreading it into the tree. The insect itself does not produce the bacterium, it can only be spread from an infected plant to a healthy one. The young saplings of the olive trees are infected first and cause the tree to dry out from top to bottom.

Fig. 20 Infected olive trees in Salento, Southern Italy

The olive groves of the whole province of Lecce are currently infected, it has also spread to the province of Brindisi in Torchiarolo and Oria, which was in 2015 still the most northern part where the infection occurred. The reaction at first was very frantic and the authorities, not only local but also from EU, issued the order of radically removing and burning the infected trees. This caused a lot of protest since in many cases centuries-old trees are in danger, through a legal intervention many of the removals were put on halt. In September 2015 a new plan of action was established, in which targeted clearings, buffer and containment zones were assigned.

The bacterium could spread so easily in Lecce because of the traditional mass production of olive oil since quality is not the most important factor. Many of the steps like pruning, cutting grass are not or rarely done. Together with this semi-abandoned condition for many decades the high pesticide and herbicide usage left both the trees and the soil in a weakened state. Although the bacterium has been somewhat contained and the insect has been reduced by cutting the grass and ploughing it back into the earth, there still is no cure for the infection. This poses a real threat to the European agriculture.

9. Thoughts on possible solutions

The problems are many and it has become very hard to be economically successful, by only producing high quality oil. Extra virgin is by definition the best possible quality and it is a very rare product. For the earlier mentioned reasons it is considered by now a common commodity with prices so cheap that not even the production costs of serious producers are covered in most cases. As long as these conditions persist new sources of income must be found and new ideas of how to be different must be explored. In the following chapters I will explain how I implement this way of thinking within my company as well as make examples of what other colleagues do. For any other producer who might be reading this, the purpose of the following suggestions are not to show that only my way of working is good, but perhaps to offer some inspiration and to start thinking of new ideas.

9.1 Luxury agriturismo

In 2006 it was already clear that Il Casone needed more than the olive oil production to remain economically sustainable. We came up with the idea to start working as an agriturismo. This in itself is nothing new, agriturismo or rural tourism is very popular in Tuscany and has been for a long time. According to the statistics provided by the Regione Toscana, 4,398 companies with 60,266 sleeping places were registered in Tuscany in 2015. In the province of Lucca there were 198 companies with 2,050 sleeping places. An agriturismo always has the image of being a very simple structure with mostly low prices but without any modern commodities and comfort. In our case, we immediately though about doing something different, unique even. Someone who is willing to pay a high price for olive oil has also high expectations for the place in which he stays during his holidays. We therefore concentrated our efforts

and started off with only one suite with two sleeping places, which has increased since then to 3 suites for a total of 8 sleeping places.

We offer a kind of luxury nobody really associates with this type of tourism and call it, for the lack of a better word, luxury agriturismo. The customer can experience the tranquillity of the landscape without renouncing the comfort of modern life. Therefore all suites contain amenities such as: a satellite full-screen TV, a private bar, a blu-ray player, an iPod with station, an iPad and a wireless internet access as well. All the suites have an interior décor were the modern mixes with the old structure, creating a lovely contrast. Furthermore all guests have access to the outside pool area and have towels, water mattresses and all sorts of toys or fitness equipment at their disposal.

Fig. 22 Suite at Il Casone

Fig. 21 Pool Il Casone

Even if one can stay pretty secluded, it is also possible to have different activities because of the convenient positioning of the structure. From the seaside of the historical Versilia to the beautiful cities of Pietrasanta, Lucca, Pisa and Florence, we made an intensive search of what the area around us has to offer, to give our customers a worthwhile experience. We also provide a concierge service and can make suggestions for restaurants or beach clubs and organize massages or private cooking schools, just to give a few examples. The guests can enjoy luxury at their own pace, there are no dress codes and everybody is treated in a familiar way. It is customary for us to invite the guest for dinner the first evening, firstly, because for those arriving for the first time it might be difficult to make plans, and secondly, we immediately make a friendly connection with the people that way. On that note, it is also possible to have lunch or dinner, but it has to be announced during breakfast, as all ingredients are bought fresh from local producers.

We take special care of the buildings and the surroundings. Every room and also the outsides are decorated with art pieces since this area is well known for its artists. This makes a very special ambience suitable for exclusive occasions like weddings, birthdays, meetings and press events.

This type of rural tourism is unique not only for Italy but also for other countries. In one of the events the Ishikawa Prefecture government (Japan) accompanied by a group of their local producers came to visit us during a trip around Italy to get inspirations for their own region. Ishikawa is a very green place with a very strong agricultural sector. They care a lot about local artisanal high quality products, but know rural tourism only in its simplest form. After the meeting with us they were very impressed and acknowledged our kind of agriturismo and started making plan to realize this model in their country. The meeting was a "win-win" situation for both parts, they gained valuable inside and we gained a valuable partner.

Fig. 23 Meeting with Ishikawa delegation

9.2 Customer information

Regarding both the olive oil production and agriturismo, we try to communicate with the customer on a very personal level. The guests are always invited to dinner, as I said before, and we try to be as transparent with our production procedure as we can be. I hope I made it clear up to this point that the olive oil market is very confusing, especially for consumers, there are still many things people do not know even after years and years of talking about olive oil, so it has to be clearly explained that an olive oil of great quality needs a certain price. If requested we take the guests to the olive grove and then to the cellar or to the oil mill during harvest. In the rooms we always have gifts on arrival, list all personal preferences of our costumers and interact with them not only on a professional but also on a very human level. This can be a great strength, but in our case it is also a necessity. By doing all these things we create a regular clientele, which we rely upon and are able to sell directly to them, bypassing wholesalers, retailers and tourism agencies.

People who buy high quality products do not want just a good oil or a nice car, they want to have an experience. By connecting to them personally

they will feel involved and as part of the history and of making the product, the pleasure they perceive derives from the transparency and care we give them. With this approach we gain more customers attracted by word of mouth, additionally we receive attention from journalists, who, after coming to visit us, see our uniqueness. In this way many articles were published about Il Casone 1729 s. s. agricola.

Fig. 24 Garcon

Fig. 25 Instants

Fig. 26 American Express Selects

The actual main goal of this thesis for me personally, is to have a tool at my disposal to present my company more efficiently. By having this work available on our internet site possible customers will have it easier to form an opinion and journalists will have a reference. The sole existence of this thesis approved by a university will improve the customer proximity greatly.

9.3 Alternative usage of the olive tree

Speaking of the difficulties and especially climatic conditions the olive oil production has to face today, the before mentioned methods might not be enough, I believe therefore it is important to think about alternative ways of using the olive tree.

From the interviews that were mentioned in chapter three it can be seen that using olive leaves is not part of the tradition here in Massarosa. After a search trough the internet I have noticed that in all of Italy there are not used a lot, the few who sell them rarely mention the origin of the leaves and do not include if they derive from an organic production or not. Out of all the places in the world Japan was the one who recognized the potential of the olive leaves. The island of Shōdoshima is famous in Japan for its olive trees, not using the fruits for olive oil but the leaves for all sorts of products: especially tea but also for chocolate, drops, lemonade, energising drinks, noodles and others.

The olive leave extract has a strong antioxidant, antibacterial, antiviral, antimicrobial (fungicide) and antiparasitic effect. An important compound is the *oleuropein,* also present in the fruit, but especially concentrated in the leaves. Next to the inflammatory and immune system strengthening properties it has a calming and purifying effect. The *oleuropein* is able to bind free radicals and hinders them to have negative effects on the body cells. The chlorophyll as well stimulates the formation of red blood cells and cell respiration.

For this reasons I decided to start selling the leaves of my olives for tea. I want to point out how important it is to know if the leaves were treated with pesticides for long intervals. There has not been any study yet to analyze how many remains are left in the leaves when using them for consumption.

Fig. 27 Packaging olive leaves

Fig. 28 Dried olive leaves for tea

During my research I found an ancient recipe for making a sort of bitter out of olive leaves. Some attempts were made and now we use the liqueur for our own use. Still the possibility can be considered to introduce it into our list of products for sale.

Another interesting way is to use the leaves for the leather production. A German firm called BioTec GmbH found out that extracts from the olive leaves compounds can be used for tanning leather. They sell it under the brand name of wet-green and say on their webpage:

"We at **wet-green®** have developed a purely ecological leather tanning agent and an associated tanning process. This new discovery has allowed us to produce leather to the very finest standard of quality using renewable raw materials – setting a whole new standard in terms of sustainability. ... our **wet-green®** OBE tanning agent is prepared in a similar way to a natural tea extract.This extract is produced using only a by-product of the olive cultivation industry – the leaves.... and the best thing: the **wet-green®** tanning process permits the manufacture of biologically degradable premium leather with optimum skin compatibility – on an industrial scale."

Setting aside the commercial tone of the quote, it is important nonetheless that using by-products is something that is gaining in popularity.

9.4 Possible business structures

With olive oil production alone it is very hard to keep productivity and be economically sustainable. It only becomes profitable by trading, this is also the case with high quality. I had the opportunity to conduct an interview with Andreas März who is often citied in this thesis. He has been running the magazine Merum since 1994, focusing only on Italian wine and olive oil. He puts great efforts into educating the consumer and to preserve olive groves. He came to Italy in 1979 and owns an organic olive oil production in Lamporecchio (Pistoia) as well. As he explains it is only possible to start thinking about economical gains with at least 3,000 trees - remember Il Casone 1729 with its four hectares has 1351 trees, which is still more than the majority of the Tuscan farmers have.

If we consider a company that has enough production and even has managed to build a consumer base large enough to sell all the oil, still one problem remains. Due to the variable nature of olive oil yields and especially for the unpredictability of the climate, it may happen that the producer will not be able to satisfy demand. The only possible solution is to pre-emptively buy additional oil from trusted farmers who work under the same principals.

To work in this way partners from all over the country are needed because in cases of smaller harvest neighbouring producers will face most likely the same problems. It should be taken in consideration that in this way it will not be possible to produce a PDO oil and transparency will be lost as the consumer won't be able to know from which regions the oil comes from exactly.

10. THOUGHTS ON THE FUTURE OF THE OLIVE OIL YARDS AND THE OLIVES

It is out of question that in the coming years olive oil will still be produced and consumed (provided that there will still be a peaceful world). If the consumption that currently amounts to three million tons a year will continue to increase substantially can not be answered conclusively. A moderate short term increment can still be assumed. This is especially because the nutritional value of olive oil is successively recognized and published in the USA. This in turn could have, with high probability, the consequence that the current per capita consumption in the USA of 1.0 l a year will increase relatively much, it is possible that it will even double. I can see a similar development also in Japan (current per capita consumption 0.4 l annually). In both countries olive oil could relatively quickly become one of the so called super-foods, like coconut water or the newest trend in the USA birch water.

So, the question is not if olive oil will continue to be used and produced, but in which way it will be made and which conclusions will derive from that. On the one hand there are intensive olive plantations with automated irrigation, with common practise of pesticides and synthetic fertilisers as well as mechanical processing and harvest. All this is neither sustainable nor resource and environment friendly, but it is profitable and the oil obtained in this way can also be reasonable. Although, the more oil enters the market that comes from such productions, the more important it is that the consumer questions the way it was made. On the other hand there are the olive oil producers that derive their oil from small, not suited for mechanisation, steep or terraced hills. They are the best bet when it comes to an ecologically sustainable way of working the olive yards, even more so, when it is done organically. Considering that small productions also have to work by hand, all my research as well as my own experience at Il Casone revealed that this type of

olive oil production is currently in deficit. The revenue that comes from this oil rarely covers productions costs.

The problem lies within the fact that in both production methods the oil bears the same name. I have already explained that the label "extra vergine" does not make neither the sensory qualities nor the way it was produced transparent to the consumer. Transparency however is of vital importance for the decision making of the customer. Altogether it is about distinguishing the small producers with their characterful, individual and very flavourful oils clearly from the mass products. If this does not happen and if more and more of these farmers give up, the already threatened olive groves will suffer even more. In order to prevent this from happening high quality oils must not seep away in niche markets, but must be well differentiated from the mass products similarly to wine. For that it is necessary to create a strong brand for top quality oil that was produced in a sustainable way. This is something I am trying to do in small with my company. By looking at my company with a holistic approach and offering the utmost transparency and attention to the consumer I believe I will create a loyal customer base large enough to be economically sustainable.

Nevertheless for the market in general it is necessary that bigger cooperation help with this endeavour. One of these could be, for example, Slow Food which could organize an independent panel that would be awarding a Slow Food seal of approval to a number of selected small producers. Both the small growers and their lobby (e. g. Slow Food) must convince the top gastronomy so that they become again the primary place for top oils.

In addition surely also some marketing activities of small quality producer have their importance too, in order to convey to the consumer that a top oil cannot cost eight Euros per litre. Some examples of these activities are: oil seminars, participation during harvest of interested customers, fair appearances, publications, use of personal contacts in the gastronomy

market, etc. I want to say at this point that production cost-covering prices are obviously in all countries regionally different.

It is positive that the Mediterranean diet has been included in the list of UNESCO world heritage. Unfortunately this is not the case for its ingredients. In order for the same thing to happen to the olive tree a network of fifteen Mediterranean countries was founded in 18th of November 2011 in Imperia called Re.C.O.Med (Rete Città dell'Olio del Mediterraneo). Its main aim is to take action to preserve and optimize the history of olive cultivation and the production of olive oil, so that its origin and the typical qualities of local production are maintained. Their representative in Italy is the Associazione Nazionale Città dell'Olio (Italian Olive oil Towns Association). Their first concrete project is their efforts to include the olive groves of the Mediterranean into the list of UNESCO world heritage site. Although this is a very commendable goal and would increase the value of olive oil significantly it is a very lengthy and difficult process. I would therefore recommend that the reader should spread the knowledge so that the project will gain more attention.

In my thoughts about the future I do not worry much about the general olive oil market, but what will happen with the small producers that put the most efforts into maintaining the unique cultural landscape of the olive yards. To protect their market, even if it will remain always a niche, is the most urgent duty of the future.

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12. Attachments

Table of the questioned renowned chefs