

# Mediterranean Food: our legacy, our future



A Resource Handbook to Promote  
Intercultural Dialogue and Sustainability  
through the Mediterranean Food & Diet



**CONTRIBUTORS:** Michael Scoullos, Vicky Malotidi (MIO-ECSDE), Mohamed Reda, Ghada Ahmadein (AOYE), Safae Elhir, Mohamed Ftouhi (CMED), Melania Farnese, Romina Bicocci (FESTAMBIENTE), Nael Salman and Imad Atrash (PWLS)

**SUPERVISION:** Prof. Michael Scoullos, UNESCO Chair and Network on Sustainable Development Management and Education in the Mediterranean (University of Athens)

**SPECIAL THANKS** go to Ziyad Alawneh and Mario Alves for reviewing the work and providing comments.

**PHOTO CREDITS:** MIO-ECSDE and Freepik

**PROPOSED CITATION:** Scoullos M., Malotidi V., Farnese M., Bicocci R., Salman N., Atrash I., Elhir S., Ftouhi M., Reda M., Ahmadein G. “Mediterranean Food – Our legacy, Our Future: A resource handbook to promote intercultural dialogue and sustainability through the Mediterranean Food & Diet,” MIO-ECSDE, 2021.

**ISBN:** 978-960-6793-31-8

**DONORS:** This publication was funded by the Anna Lindh Foundation (ALF/CFP/2020/ICD/215) and the partners own contributions (AOYE, CMED, FESTAMBIENTE, MIO-ECSDE, PWLS)

**DISCLAIMER:** The views, thoughts, and opinions expressed in the text belong solely to the authors, and not necessarily to MIO-ECSDE nor the donors.



**COPYRIGHT** © 2021 by MIO-ECSDE. All rights reserved.

# contents

Foreword	5
1. Our common ground: the Mediterranean triad (and more)	9
2. The vine and its products	17
3. Olive trees across the region	23
4. The big family of cereals	27
5. Pulses: the missing fourth member?	33
6. So many fruits!	37
7. Nuts and Roots	43
8. Vegetables in the Mediterranean diet	49
9. Salt	53
10. Dairy products in the region	57
11. Hot drinks	61
12. Sweeteners	65
13. Fasting and festive food in the Mediterranean	69
14. Typical Mediterranean dishes	75
15. The Mediterranean diet and health	81
16. The environmental impact of food and sustainability challenges	85
17. Mediterranean food and diet contribution to sustainable development	95
Epilogue	103
References	107









# foreword

Reduced to essentials, the story of humankind revolves around the basic needs for survival. Civilizations that managed to survive had, in principle, good appetites. They were driven by the grumblings of the stomach, that basic impulse which helped shape cultures and societies. Cooking techniques comprise a nation's experience, the accumulated wisdom of our ancestors and a reflection of their vicissitudes. Food is therefore a tool through which we can examine and interpret a society, its culture and institutions, religious beliefs, social classes, personal and collective attitudes and identities. Considering the social context of diet and nutrition it is evident that the cultural dimension influences food preferences and habits (MIO-ECSDE, 2007).

Food production and consumption in the Mediterranean has been in a process of change, for ten thousand years and perhaps longer, but it's still possible to trace similarities between modern meals and those of our prehistoric ancestors. This signifies the strength of tradition, which is rooted in the biology and evolution of humans and surrounding biodiversity, and results in how human beings behave. It's also proof of the rich diversity of the Mediterranean region and its resources. Nowadays both the traditions and the natural resources are endangered: food production practices and technologies are changing rapidly and their future is uncertain, in response, on one hand, to environmental pressures, and on the other, to new socioeconomic conditions and trends influenced by all aspects of globalization.

It is noteworthy that Mediterranean food, as a product of interchange among biodiversity, landscapes, cultures and historic evolution of the region, wasn't affected by the tensions that existed, and still exist, among countries or subregions. It's an area where loans and back-loans are admitted with openness, or even humor, and it's included in the UNESCO List of Intangible Cultural Heritage of Humanity. Accordingly, this material seeks to make the best of the potential of Mediterranean food as a means to sustain a fertile intercultural dialogue, aspiring to stimulate interest and raise awareness among the people of the Mediterranean, and elsewhere, regarding Mediterranean food and its significant intangible culture heritage.

The **aspects of food** presented in the handbook are as follows:

- **The Mediterranean region is a unique eco-region. It's a North-South interface—a mosaic of peoples and cultures of different origins and characteristics but with a common background. Mediterranean food is an incredible living storehouse of practices, traditions and cultural heritage highlighted by the endless confluence of cultures.**
- **The potential of traditional Mediterranean food products and practices to address current challenges related to unsustainable patterns of food production and consumption, food waste and the environmental footprint of food production, processing and marketing.**
- **Current health issues linked to diet patterns as an opportunity for appreciating adoption of a healthy diet, inspired and based on the traditional Mediterranean one.**

Additionally, this material is developed in the framework of Education for Sustainable Development (ESD) that seeks to empower learners of all ages to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for the present and future generations. ESD learning content deals with critical issues, such as climate change, poverty, sustainable consumption and production, social cohesion, democracy and governance, human rights, health, gender equity, cultural diversity, environmental protection. Food is a topic that “meets” and meaningfully integrates most of the above. Additionally, the



**ESD key directions**, particularly in the **ESD for 2030** context, have been taken into account and elaborated in the development of the present handbook, namely:

- **Empower people to transform themselves and the society they live in;**
- **Enable a transition to greener economies and societies; and,**
- **Motivate people to adopt sustainable lifestyles.**

The **overall goals** are the following:

- **To raise awareness and enhance knowledge on the significance of the Mediterranean as an invaluable natural and cultural heritage based on its food products and culinary practices and diet, their historical background and related traditions.**
- **To improve “perceptions of the other” in the countries of the Mediterranean region using food to trace similarities and variances.**
- **To serve as a suitable “vehicle” for the promotion of Intercultural Dialogue and Sustainability, particularly among youth. The material can be used by educators, youth trainers, youth, as well as by the general public.**

The handbook is the outcome of a co-creation process by the Mediterranean Information Office for Environment, Culture and Sustainable Development (MIO-ECSDE) and four of its member NGOs<sup>1</sup> all highly motivated and convinced about the potential of Mediterranean food to promote the values of cultural diversity, respect and sustainability in the region. Experts and non-formal education practitioners from the North and the South of the region (Egypt, Italy, Greece, Jordan, Morocco, Palestine and Portugal) collaborated in the development process, within the **SIDUMEF** project that was supported by the Anna Lindh Foundation for the Dialogue between Cultures (November 2020- August 2021). The UNESCO Chair on Management and Education for Sustainable Development in the Mediterranean (at the University of Athens)/ Secretariat of the Mediterranean Committee on ESD (MCESD) provided the scientific support and supervision.

Prof. Michael Scoullos

---

<sup>1</sup> Arab Office for Youth and Environment (AOYE), Club Marocain pour l'environnement et le Développement (CMED), Festambiente (Legambiente), Palestine Wildlife Society (PWLS)



our common ground:  
the Mediterranean **triad** (and more)





# 1 our common ground: the Mediterranean **triad** (and more)



Despite all the changes throughout time, the typical ancient Mediterranean diet not only survives today, based on the famous triad “*Cereals and bread, Olives and oil, Grapes and wine,*” but has largely shaped the food culture of our days, throughout the world, within the overall globalization which prevails in many aspects of our modern life. Cereals, grapes and olives have been the so-called “*eternal trinity*” as referred to by the historian Fernand Braudel, who has extensively studied Mediterranean history. During the turbulent history of the region from early antiquity to our days, and despite movements of people, lifestyle changes and various influences, the Mediterranean diet is still based, to a large extent, on the same plants: cereals, olive and vine.



The **olive tree** seems to be native to the eastern Mediterranean: Fossil olive leaves have been found in the caldera of Santorini (Greece) dating to periods 50 to 60 thousand years ago. Gradually, olive oil gained a major role in Mediterranean food and life. Olive oil was at the heart of the diet, while people found various ways to prepare and store olives for eating by picking them (green or black) and conserving them in salt, in brine or in vinegar. *A cellar full of oil and wine was a sign of great prosperity in the ancient Greek “Odyssey” epic, just as it would have been elsewhere in the early Mediterranean cultures.* Oil was used not only in cooking but for many other purposes i.e., lighting, fuel, as a cosmetic. In the Maghreb, olive oil was commonly used to soothe skin irritation.



The prevailing **cereals** weren't the same everywhere. They included various types like barley, emmer, durum wheat or bread wheat, depending on climate, local tradition and preferences. Nevertheless, bread is their famous product that exists in one variety or another in every culture of the region (and beyond). Many varieties of leavened bread—from dark rye to wheat—are found in the Egyptian tradition all the way back to some 4,500 years ago. It must have resulted from a mixture of yeast with wheat or rye flour, which was left to “rise” or ferment. The ancient Egyptians may have been the first Mediterraneans who invented the practice of baking bread, although they used a more primitive species of wheat (emmer) and their flour wasn't ground as finely as it is today. They built the necessary first ovens, as depicted in ancient papyri and wall paintings.



The **vine's** origins cover a wide area including Central Asia, the southern coasts of the Black Sea and the Caspian Sea to the northeastern area of Afghanistan. According to archaeologists, viticulture was developed in a region between Georgia and Armenia, and a primitive form of wine from the fermentation of grapes was developed. *In the fourth and third millennia B.C., this “primitive” wine was thought to have a sacred character by the ancient Georgians, who used to place on the side of the deceased a small vine branch with its roots, kept in a silver purse, to be planted in the world of the dead.* Along the long journey it took for wine to reach the Mediterranean, the Middle East (specifically what are now Israel, Lebanon, Palestine and Syria) was an important area for vineyards. References to grapes and wine and related symbols are frequently mentioned in the Bible.



There is a strong case for expanding the triad to accommodate legumes, which, as the “*poor’s meat*” have traditionally played a considerable role in the diet of Mediterranean people. The most significant of these for consumption were broad beans, chickpeas, lentils and peas that supplied the nutrients that cereals lack. Although they were grown by all people in their gardens, they were also an important field crop for farmers.

## Diet and Biodiversity

Mediterranean biodiversity represents the most varied and valuable biodiversity of Europe. This biodiversity enters everyday life through its edible and medicinal part: in vegetable/fruit markets, fish markets, pharmacies, etc. The Mediterranean diet is inseparable from the biological diversity of the region, which has for centuries supported the livelihood of its people. It is perhaps most obvious when it comes to the variety of fish species of the Mediterranean Sea itself: sardines, anchovies and mackerels, crustaceans, shellfish and cephalopods, which have traditionally been used in the Mediterranean diet. The interrelationship and dependency become even more evident when turning to vegetation: vegetables, fruits, cereals, legumes, olive trees and grapes and the great variety of spices and aromatic herbs, which are still collected from nature.


As for meat and other animal (i.e., dairy) products, while now they have important part in the diet and typical dishes of the region, in the context of the agricultural economy of the past, they were relatively speaking in rather short supply, and mainly connected to religious rituals (sacrifices) and feasts. There were oxen and cows, bred mainly as work animals and not so much for their dairy products. Sheep and goats were plenty, but raised primarily for wool or hair and secondarily for cheese and skins. Pigs were used basically for provision of meat and fat by ancient Greeks and Romans. Meat from all the above was consumed during feasts where the animals were sacrificed to gods. Nomadic tribes in North Africa raised camels too.



Each of the great civilizations of the Mediterranean has had its influence on food and the variations of the Mediterranean “triad” within the time periods. Undoubtedly, many food products and recipes were created by the ancient Egyptians and Minoans (Crete/Greece) but ancient Greece was the first region in which we can document a tradition of gastronomy. Although in some parts (e.g. Sparta) food was very simple, in others we have much information documenting a strong appreciation of fine food and famous local products. The reason for this is linked to the very geography and landscapes of Greece, with its many islands, isolated valleys and specific microclimates, favoring the development of distinctive tastes and food products. In this way, the foods and wines of many ancient Greek cities earned special recognition and reputation; sometimes they had State protection similar to the modern “appellations contrôlées”. Meanwhile, some important “new” foods were reaching the Mediterranean from the Persian Empire and further east: perhaps chickens were the most important of all; others were peaches, apricots, citrons, and pistachios. While Greek colonies spread along the northern and eastern shores of the Mediterranean, the Phoenicians, from the coast of modern Lebanon and Syria, colonized and farmed much of North Africa (Sidra in Libya and Carthage near modern Tunis were some of their famous settlements). The Phoenicians seem to have introduced the olive tree in North Africa. There are no relevant documents, but their farming is known from archaeological findings and from Latin texts, because the Romans learned many of their farming skills.

The expeditions of Alexander the Great to East Persia, Afghanistan, India and the Hellenistic era revolutionized the food culture of the Mediterranean, introducing new species, spices and recipes. The Romans gradually succeeded the Hellenistic Kingdoms and further enriched the cuisine in the region.

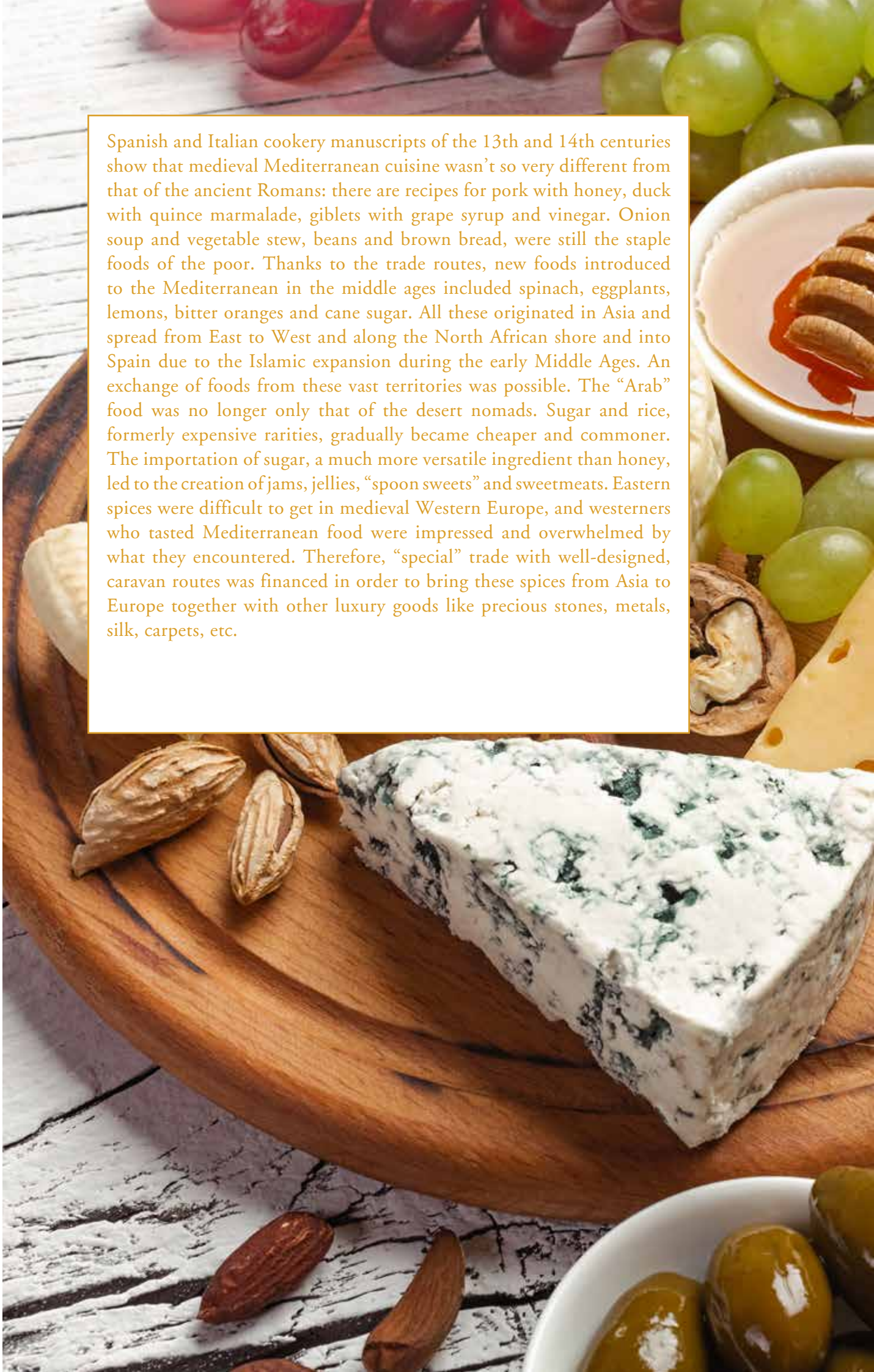





Travel and trade in the Roman Empire were intensive, as in modern times – or even more, since there were no national frontiers. However, travel was slow: it was a five-month voyage from the Straits of Gibraltar to Antioch in Syria. Only foods that were dried, pickled or salted, and only certain wines would stand up to such a journey. Meanwhile, building on what they learned, the Roman farmers developed multiple varieties of vegetables and fruits, notably apples, pears and grapes. Alongside more familiar farm animals -cattle, pigs, sheep, goats, chickens- Romans “domesticated” and systematically bred various other species from geese to snails, and introduced new ones including dormice, ducks and hares. They farmed many species of fish in inland pools and marine enclosures. They also imported many spices from far beyond the region, including pepper, cinnamon, ginger, cloves and nutmeg from southern Asia.

In the middle ages, warfare, instability and climate change had an effect on diet, while there were great periods of famine. Historians mention that in periods of starvation people shared the food, meaning wheat grains, brans and oak-galls, with their animals. The Eastern Roman (Byzantine) Empire started losing its eastern territories in the 600s and occasionally suffered shortages of olive oil. However, movements of peoples had some good effects on the diet too. The Mesopotamian desert and Mediterranean influences shaped the Islamic cuisine, while people from Western Europe who came to Syria and Palestine during the Crusades took back with them new ideas on cookery and new tastes for spices, which they learned from the Islamic culture. The great majority of people in the Mediterranean region during the middle ages were poor farmers and their diet was based on bread made of barley, vegetables and legumes, fruits, cheese and small salted fish, and water in which they added wine - to keep the water safe from microbial infection.

Spanish and Italian cookery manuscripts of the 13th and 14th centuries show that medieval Mediterranean cuisine wasn't so very different from that of the ancient Romans: there are recipes for pork with honey, duck with quince marmalade, giblets with grape syrup and vinegar. Onion soup and vegetable stew, beans and brown bread, were still the staple foods of the poor. Thanks to the trade routes, new foods introduced to the Mediterranean in the middle ages included spinach, eggplants, lemons, bitter oranges and cane sugar. All these originated in Asia and spread from East to West and along the North African shore and into Spain due to the Islamic expansion during the early Middle Ages. An exchange of foods from these vast territories was possible. The "Arab" food was no longer only that of the desert nomads. Sugar and rice, formerly expensive rarities, gradually became cheaper and commoner. The importation of sugar, a much more versatile ingredient than honey, led to the creation of jams, jellies, "spoon sweets" and sweetmeats. Eastern spices were difficult to get in medieval Western Europe, and westerners who tasted Mediterranean food were impressed and overwhelmed by what they encountered. Therefore, "special" trade with well-designed, caravan routes was financed in order to bring these spices from Asia to Europe together with other luxury goods like precious stones, metals, silk, carpets, etc.







In 1500 AD the Mediterranean diet included a vast spectrum of dishes. From extremely expensive, “exotic” ones for monarchs and refined “courts” to very simple and somewhat meager, particularly for poor country people. A peasant meal usually included a small piece of bread with onion, some olives or a bit of cheese or salted meat or fish. Fresh meat was for feast days. The traditional methods of preservation of food enabled people to have reasonably good quality of food year-round. Preservation methods included pickling of vegetables, smoking of meat and fish, and drying of pulses and sweets. Fresh fish and seafood were available in the islands and along the coasts, but it wasn’t cheap, while in some cultures they were avoided. Household ovens were rare, and many families, particularly in the Mediterranean South, baked “ash-bread” in the embers of the fireplace. However, in the Near East and the eastern end of the Mediterranean there was a more complex culinary tradition. The high cost of spices in Europe - at a period when pepper, ginger, cinnamon and nutmeg were thought of not just as ingredients but also as being essential to health - was one of the reasons that Columbus set out across the Atlantic in 1492. Instead, he found America with its chilies, spices, vanilla and chocolate, its tomatoes, haricot beans, squashes, potatoes, maize and sunflowers. All these products “revolutionized” the food of the Mediterranean and gradually within the 16th and 17th centuries, the food of all of Europe as well. Some of them, when people learned to use them fully, became widespread: tomato, black pepper, potatoes, maize and sunflower oil shaped the modern-time diet patterns and still do so today.

Despite the continuous “inputs” and “outputs,” the ancient Mediterranean staple foods continue in the present day:

- Bread
- Olive oil and olives
- Broad beans and other pulses
- Grapes (and wine)
- Milk and cheese
- Figs and dates
- Seafood of many kinds
- Lamb, kid and other meats (but less often)





the **vine**  
& its products





# 2

## the **vine** & its products

The **grapevine** flourishes under Mediterranean and continental-temperate climatic conditions. First cultivated more than 5,000 years ago, it provides a range of foodstuffs, including grapes, raisins, vinegar, vine leaves and must, and wine.





Ancient Egyptian hieroglyphics record the cultivation of purple **grapes**, and history attests to the ancient Greeks, Cypriots, Phoenicians and Romans growing purple grapes both for eating and wine production. The growing of grapes would later spread to other regions in Europe, as well as North Africa and eventually to North America. Commercially cultivated grapes can usually be classified as either table or wine grapes, based on their intended method of consumption: eaten fresh (table grapes) or used to make wine (wine grapes) and other products. Table grape cultivars tend to have large, seedless fruit with relatively thin skin, while wine grapes are smaller, usually seeded and generally thick-skinned.

**Grape juice**, a refreshing and healthy product, is enjoyed throughout the region, typically cold. Grape juice is obtained by crushing and blending grapes into a liquid. However, the processing of grapes into juice isn't a simple task. It takes expertise to get the right taste and color. The juice is usually extracted by means of a hot-press or cold-press technique, and the temperature has a significant effect on quality. The composition of a juice varies from year to year and changes during the ripening process.

Dried grapes are otherwise known as **raisins**. Green colored raisins fetch a higher price than the dark brown ones. The color depends on the drying temperature, presence of sunlight and humidity. The black raisin was well known in antiquity. The most famous raisin of classical years was produced in Rhodes island; however, the raisins of Chios island were in great demand during Byzantine years. Raisins were consumed as a snack or dessert or used in cooking by ancient Greeks. It wasn't an uncommon practice to be used in sauces, mixed with mustard seeds. In the Byzantine period, considerable quantities of raisins were eaten during periods of fasting. By the 17<sup>th</sup> century, they were also used as a spice. That's why *Agapius Landos*, a Cretan monk, advised his readers to eat tender spinach sprinkled with pepper, or cinnamon, or raisins. He also proposed that they consume capers sprinkled with vinegar, olive oil and raisins. Either in the form of *currants* (from black grapes) or *Corinthian* (pale-blond grapes), raisins are still very widespread in the region's diet, in food and sweets, particularly in the pastry making of Egypt, Palestine, Lebanon, Syria, Morocco, and Tunisia, or alone, as a healthy snack.

**Vinegar**, which has been used since antiquity, is an important vine product produced by the fermentation of the alcohol contained in wine, carried out by bacteria. It contains a significant amount of acetic acid and today is used for many purposes: as a dressing for salads, cooking ingredient for sauces, pickling and marinades or for food preservation. In human history, vinegar appears at the beginning of agriculture with the discovery of alcoholic fermentation from fruits, cereals and vegetables. Vinegar is commonly used to flavor vegetables and cook, but it is also one of the ingredients needed to preserve all kinds of vegetables, meat or fish (pickled food). Apart from culinary uses, historically, it was used as the most easily available mild acid, having a great variety of medical, domestic

(e.g. cleaning) and industrial purposes (coloring) some of which are still in use today.

**The balsamic vinegar:** A specific type of vinegar has been produced since the middle ages, with the name “balsamic” vinegar. It’s a well-known Mediterranean product, very dark, concentrated and intensely flavourful vinegar made by slowly concentrating grape must, freshly crushed grape juices including all the skins, seeds and stems, and allowing the “syrup” to ferment to alcohol first, and then, to acetic acid over a 12-year period or more. Originating from Italy it is becoming increasingly popular throughout the world. The word balsamico (from Latin balsamum, from Greek balsamon) means “balsam-like” in the sense of “restorative” or “curative.” Regarding its taste, balsamic vinegar is less acidic than the common vinegar and contains “sweet” ingredients too. For that reason, it is used to flavor many different dishes, ranging from meat and vegetables to ice cream and fruits, and is usually served once the dish is cooked. Made from the white Trebbiano grape or the red Lambrusco and aged in barrels of various woods, it has been produced in Modena and Reggio Emilia since the middle ages, being mentioned in a document dated 1046. Appreciated in the House of Este during the Renaissance, it is highly valued by modern chefs and gourmet food lovers. Some of these vinegars are more than 100 years old!

Tender **vine-leaves**, fresh or preserved in vinegar, are used in many parts of the region, particularly the eastern ones. They are mostly used for the preparation of the typical dish of “dolma,” meaning stuffed vine-leaves using as stuffing rice or minced meat with herbs, onion, currant raisins, mint, and on occasion, roasted pine nuts, etc. The recipes may vary across the subregion: Crete and Cyprus, or Jordan, Lebanon and Palestine.

**Must** is freshly crushed grape juice that contains all the skins, seeds, and stems, thus being very thick, with particulate matter. The solid portion of the must is called *pomace*. Because of its high glucose content, must is used as a sweetener, particularly in ancient times by the Greeks and then the Romans (must condensed by boiling was called *siraion*, referring to a syrup). It was often used as a souring agent and preservative, particularly in fruit dishes. Nowadays, reduced must is still used, not only in Greece and Cyprus, but in the Balkans and the Middle East, as a syrup known as *petimezi*, *pekmez* or *dibis*. In Greece and Cyprus, *petimezi* is a basic ingredient for a must-custard known as *moustalevria*, and a sweet-meal known as *soutzoukos* and *churchkhela*. “Must cookies” are also popular Greek cookies, which are based on a sweet dough made by kneading flour, olive oil, spices, and must.

**Wine**, red, white or rose, dry, sweet, sparkling, etc., is among the most famous products of the region. It’s a drink that since ancient times has been consumed throughout the Mediterranean and has contributed to its development, culture and economy. Since its inception, wine has accompanied meals and social occasions of people regardless of their socioeconomic status.

References to wine are made in all ancient legends and various important documents: from epic poems (see Iliad and Odyssey) to the ancient Jewish culture and the Bible. Similarly, the ancient Greeks worshiped God Dionysus as the patron of wine, while the Egyptians associated several gods with wine, such as Osiris and Shesmu, the “god of the wine-press.” In the Nile Delta and the Egyptian oases, wine cultivation and consumption dates back at least to the Old Kingdom of Egypt (late 3<sup>rd</sup> millennium B.C.). In Israel, *kosher* wine had been cherished at least since the time of the Old Testament. It was thanks to the Greek colonization, Phoenician trades and later on the Roman conquests, that wine culture was spread all across the Mediterranean and Black Sea coasts. In Italy, the imported wine culture was concomitant with the local Etruscan wine production. In late Roman times and later on in the middle ages, wooden barrels replaced the *amphorae* used until then as means of transport and conservation of wine. However, the wood couldn't guarantee a very long conservation time, thus the wine had to be consumed relatively quickly. The Muslim conquests of the 7<sup>th</sup> and 8<sup>th</sup> centuries gradually led to the ban of the production of all alcoholic beverages in all their territories, virtually covering the entire Mediterranean South. However, the French colonization in the 19<sup>th</sup> and early 20<sup>th</sup> centuries heralded the return of both winemaking and social drinking in these areas, until their ultimate independence. Although the bottle was already widespread from the first century B.C., it was used primarily as a midpoint to get the wine from the barrel to the cup. Corks weren't well-fitted as they were simply meant to keep bugs and dust out, and were made by various types of wood not creating an airtight seal. It was Henry Purefoy, who discovered that when the cork wasn't submerged in liquid, it shrank due to dryness and resulted in spoiled wine. To avoid the drying of the cork, the shape of the bottles had to be changed. Beginning in the 1740s, the short but stout bottle changed to an elongated bottle shape like the ones we have today.

Wine has always been a central element of banquets and feasts in many parts of the region. Today, in the regions where its consumption is permitted, it's connected with sociability. Depending on the type of grapes and the winemaking techniques employed, different kinds of wine are produced, even by combining a mixture of more than one variety. Nevertheless, there are just a few basic types: red, white, rose, sweet as well as sparkling wine. Even if they seem similar at first glance, each kind of wine has to be served at a particular temperature and in differently shaped wine glasses in order for its qualities to be accentuated and appreciated. Red wine, for example, should be served at room temperature, in a large, stemmed glass so as to allow its oxygenation, while white wine is served at colder temperatures and in narrower stemmed glasses. In many countries of the region, wine and the associated taxes are very important economically. Therefore, origin and quality designations and certifications have been established.



## IT'S HARVEST TIME!

There is a wide variety of festivities across the Mediterranean that celebrate the grape harvest. The *Haro Wine Festival*, is a Spanish summer festival held in the town of Haro in the La Rioja. It features a *Batalla de Vino* (Battle of Wine), where local people and tourists toss red wine all over each other till they are totally soaked.

In the Greek island of Santorini, the grape harvest period or *Vedema*, is greatly celebrated. They use baskets, locally known as *ambelia* or *kouloura* and the harvest is done exclusively by hand with the help of a special curved knife, the *feredini*. When the wine is ready, the barrels are traditionally opened on the 22<sup>nd</sup> of October at the feast of St. Averkios.

In Italy, every region cultivates grapevines and celebrates the grape harvest in the form of *sagre*, a traditional celebration that promotes local wines and products; these festivities are rooted in antiquity.



### Wine stories

In Italy, every wine has a completely different history behind it. For example, the origin of the Tuscan sweet wine *Vin Santo*, literally meaning the “holy wine,” is used for the Holy Communion in the Catholic Mass service. It is produced by processing and drying mainly grapes of *Malvasia* and *Trebbiano Toscano*. The name may be related to the story of a Franciscan friar, who in 1348 cured people affected by the plague with the sweet wine that was used during the Mass. The supposed curative properties gave the wine its “holy” attribute.

Another wine with a peculiar origin is the “*Pagadebit*.” It’s produced in the Italian region Emilia-Romagna through the processing of *Bombino Bianco* grapes. This cultivar is said to be extremely productive and resistant to harsh weather. For that reason, farmers made deals to repay the debts accumulated through the less profitable years by giving away their wine, assigning it the name “payment of debts.”





olive trees  
across the region





# 3

## olive trees across the region

Symbol of peace, wisdom, fertility, prosperity, luck, victory: no other fruit bearing tree in the Mediterranean land has been praised, painted, sung, as much as the **olive tree**. As a rule of thumb, the Mediterranean Basin is the “Old World” region where olive trees grow. The olive tree needs a dry season in which to develop its oil content and a cool winter in which to rest. It does not tolerate frost and is normally unsuccessful above about 800-meter heights. In the northern parts of the Mediterranean, the olive line follows the sea coast, penetrating a bit inland.





In ancient Greece it was said that the first olive tree was planted by the goddess Athena on the Rock of the Acropolis of Athens to have the city named after her in competition with the sea-god Poseidon. It grew there for many centuries, behind the *Erechtheon* temple, as a symbol of peace, progress and wealth. The Romans believed that the mythical hero Hercules brought the culture of the olive tree to Italy: they called him *Hercules Olivarius* the “olive-grower.” In Jewish and Christian tradition, the olive tree is a symbol of peace. It was an olive-branch that the dove brought to Noah as a sign that the Flood was receding. According to legend, Christ’s cross was made of olive and cedar wood. In Islam, the olive tree is central, the “world axis,” a symbol of universal being and the Prophet, who urged to: *“Eat olive oil and massage it over your bodies, since it is a holy (Mubarak) tree.”*



There is a large number of Mediterranean olive varieties both for the production of oil and table olives. Other products of the olive tree are different types of olive paste and of course olive-tree wood, which is ideal for household items and arts and crafts. The fresh cuttings of the trees are used for livestock rearing, while the “waste” from the press is mixed with other animal feed or is used as fuel.

Apart from the olive oil other oils are widely used in Maghreb and Middle East: The argan oil extracted from the argan tree is widely used in Morocco and nearby. It is indigenous in Morocco and since antiquity plays a remarkable role in economy, given that every part of the tree is used. Sesame oil was widely used in ancient Egypt and the Near East, competing with olive oil; while it is having a strong coming back in nowadays cooking.

Olive trees are indigenous to the Mediterranean. It is suggested that they were first cultivated at approximately 4,000 B.C. in the area of Palestine and spread to Syria and Asia Minor and reached ancient Egypt and Crete, and Greece in general, before or around 1,500 B.C. The Phoenicians took olives to Carthage and the Greeks took them to Italy, Sicily and southern Spain. The Romans promoted them further, particularly in southern France. Preparation and preservation of olives was also important. They pickled and conserved them in salt, brine or vinegar. There are many recipes for flavoring olives and adding to their taste. Ancient Greeks liked unripe, green olives, broken and cured in salt. They also liked them black and wrinkled. Fennel was one of the herbs that was added to the brine. The Romans apparently learned how to conserve olives from both the Greeks and the Phoenicians: they also used fennel as well as coriander, cumin, mastic and mint. According to legend, in ancient Athens the name “Moria Elaia” was given to the olive trees that were believed to have been planted by the goddess Athena. The oil produced from these sacred trees was stored by the city treasurers and was given to the athletes during the *Panathinaia* to prepare their bodies. This precious oil was awarded to the champions as well. Messengers would come to conclude peace carrying an olive branch, while the only award for the winners at the Olympic Games was a wreath made of an olive branch. Many Greek philosophers studied the medicinal properties of this sacred tree. The Hippocratic code features more than 60 olive treatments. In the middle ages, the traditional olive cultivation centers and markets were maintained, while the olive groves of the Christian monasteries accounted for a large part of the total production. The distribution of olive oil followed the ancient patterns: It was stored in special jars, loaded onto vessels and led to major urban centers or wherever there was high demand. The need for light (illumination of temples, palaces and houses), alongside other uses, kept it in popular demand with a continuous risk of olive oil production not meeting demand. In the years of the Ottoman Empire a further increase in olive oil trade occurred and with maritime transportation advancing and facilitating the sea routes from the Aegean Sea to Western Europe, not only did oil trade reinforce local economies but also boosted soap production, which in turn created dynamic manufacturing units. In oil producing regions such as Crete (Greece), consulates of European countries were gradually established. By the 18<sup>th</sup> century, oil exports supplied the European markets not only with an edible product but also with the raw material for the production of soap. The Venetians encouraged the further systematic expansion of olive cultivation and olive oil production through the lands they looted.

In the Greek tradition, when a child is born an olive tree is planted. The olive tree and the child will grow up together. The tree will be there for the coming generations to remind us the continuity and the evolution of life.





the big family  
of **cereals**

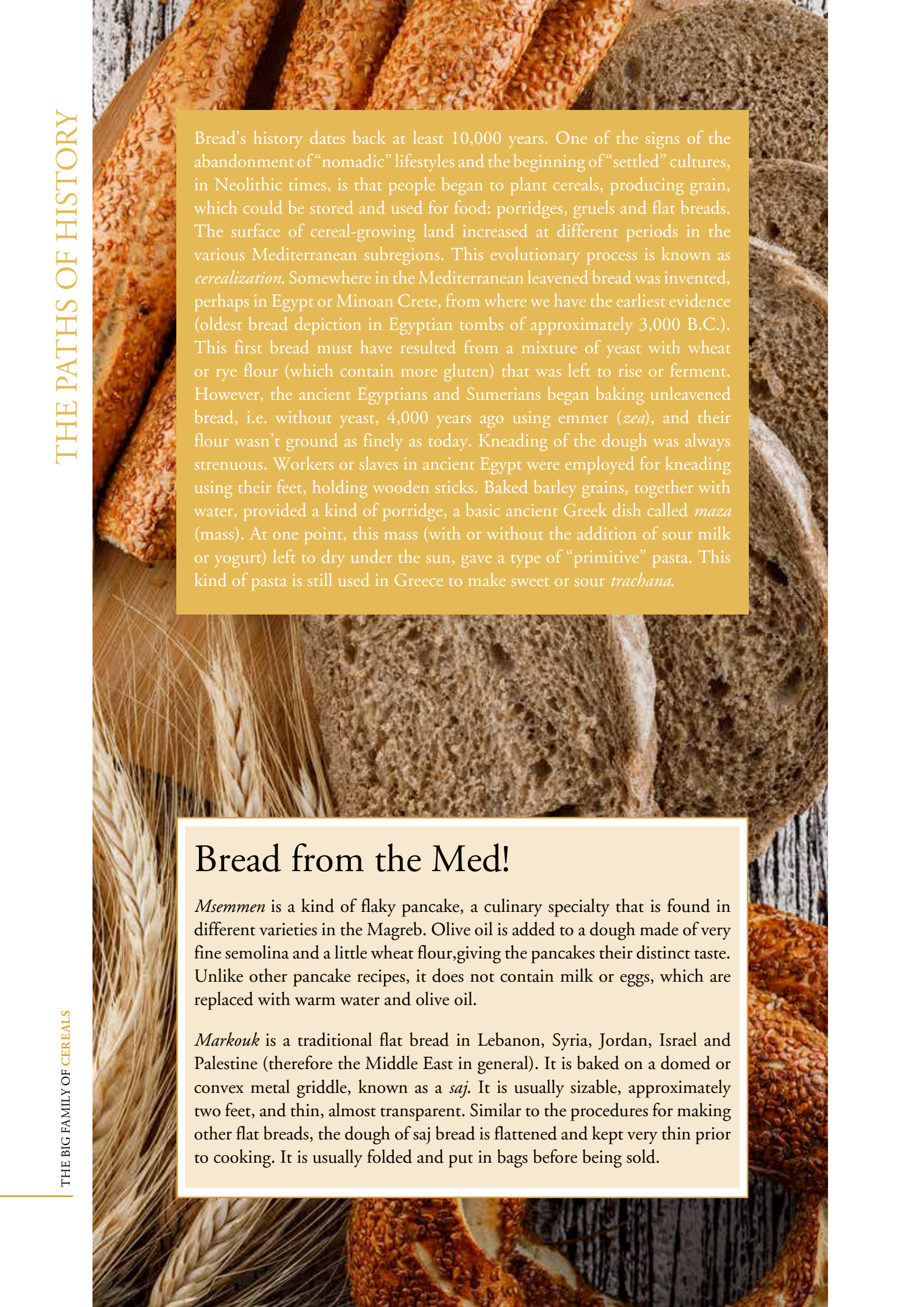


# 4

## the big family of cereals

**Cereals** have played a key role in the Mediterranean diet and agricultural economy since antiquity. Cereals, meaning the gifts of the Roman goddess Ceres (also known as *Demetra* in ancient Greece), were cultivated and used in different ways across the region and throughout time. Cereals include barley, rye, emmer, oat, durum wheat. They all vary depending on the available resources and conditions, such as soil, climate and water, as well as on local traditions and dietary preferences and trends. The most popular product of cereals is, of course, bread, which comes in very many varieties. Bread was the basic food. Olives or olive oil with vinegar, onions, pulses, cheese, fish and meat were considered complementary elements that added variety and taste to bread.





Bread's history dates back at least 10,000 years. One of the signs of the abandonment of “nomadic” lifestyles and the beginning of “settled” cultures, in Neolithic times, is that people began to plant cereals, producing grain, which could be stored and used for food: porridges, gruels and flat breads. The surface of cereal-growing land increased at different periods in the various Mediterranean subregions. This evolutionary process is known as *cerealization*. Somewhere in the Mediterranean leavened bread was invented, perhaps in Egypt or Minoan Crete, from where we have the earliest evidence (oldest bread depiction in Egyptian tombs of approximately 3,000 B.C.). This first bread must have resulted from a mixture of yeast with wheat or rye flour (which contain more gluten) that was left to rise or ferment. However, the ancient Egyptians and Sumerians began baking unleavened bread, i.e. without yeast, 4,000 years ago using emmer (*zea*), and their flour wasn't ground as finely as today. Kneading of the dough was always strenuous. Workers or slaves in ancient Egypt were employed for kneading using their feet, holding wooden sticks. Baked barley grains, together with water, provided a kind of porridge, a basic ancient Greek dish called *maza* (mass). At one point, this mass (with or without the addition of sour milk or yogurt) left to dry under the sun, gave a type of “primitive” pasta. This kind of pasta is still used in Greece to make sweet or sour *trachana*.

## Bread from the Med!

*Msemmen* is a kind of flaky pancake, a culinary specialty that is found in different varieties in the Magreb. Olive oil is added to a dough made of very fine semolina and a little wheat flour, giving the pancakes their distinct taste. Unlike other pancake recipes, it does not contain milk or eggs, which are replaced with warm water and olive oil.

*Markouk* is a traditional flat bread in Lebanon, Syria, Jordan, Israel and Palestine (therefore the Middle East in general). It is baked on a domed or convex metal griddle, known as a *saj*. It is usually sizable, approximately two feet, and thin, almost transparent. Similar to the procedures for making other flat breads, the dough of *saj* bread is flattened and kept very thin prior to cooking. It is usually folded and put in bags before being sold.



There is a large variety of types and forms of cereal food products:

**Bread** is the major traditional food, produced with many different recipes and modes and very many combinations of flour types and other ingredients. Bread may be leavened by different processes, ranging from using yeast –naturally occurring microbes– to artificial aeration methods during preparation or baking. However, some types of bread still in use in the Mediterranean region are unleavened, either because of preference/tradition or for religious reasons.

**Rusks** are twice-baked pieces of wheat, barley, etc., breads, or various other types of “crispy” breads, hardtack, galettes, etc. Most of them have been used since antiquity or the middle ages.

**Flour** consists of ground-and-sifted grains, for baking (bread), pastry, cookies, pastries and culinary preparations.s;

**Semolina** consists of coarse-milled flour for use in couscous and pasta dishes, pastries, etc.

**Cereal flakes** come from oats, corn and rice.

**Pasta** and **pizza** are enjoyed regionally and internationally.



## PASTA, A MODERN DISH WITH AN ANCIENT STORY

In Greece, *lagana*, as used today, is a special type of flat bread consumed at the beginning of the fasting period before Easter. In the second century, *Athenaeus of Naucratis* provided a recipe for *lagana* that described sheets of dough made of wheat flour and the juice of crushed lettuce, then flavored with spices and deep-fried in oil. A cookbook from the early fifth century describes a dish called *lagana* that consisted of layers of dough with meat stuffing, a possible ancestor of modern-day lasagna. However, the method of cooking these sheets of dough is much closer to today's flaky pastry sweets or puff pastry, which are the basic supports of pies but still very common in the eastern Mediterranean. Those early methods of cooking sheets of dough do not correspond to our modern definition of either fresh or dry pasta products.

The first concrete information concerning pasta products in Italy, as we understand them today, dates from the 13<sup>th</sup> -14<sup>th</sup> centuries. However, historians have searched also in the more distant past. Traces of pasta have been found in ancient Greece. In Greek mythology, it is believed that the god Hephaestus invented a device that made strings of dough. This seems to be the earliest reference to a pasta maker. Later on, in Judaism, the Talmud mentions *itrium*, a kind of boiled dough common in Palestine during the 3<sup>rd</sup> -5<sup>th</sup> century. A dictionary compiled by the 9<sup>th</sup> century Arab physician and lexicographer Isho bar Ali, defines *itriyya*, the Arabic cognate, as string-like shapes made of semolina and dried before cooking. *Itriyya* gives rise to *trie* in Italian, signifying long strips such as the present-day tagliatelle. Perhaps the Arabs had the string-like *itriyya* for long journeys. This probably occurred in the 5<sup>th</sup> century. So, if the above are correct, the Isho bar Ali information can be considered as the first written record of dry pasta.

North Africa provides the origin of another type of a food similar to pasta, known as *couscous*, which has been eaten for centuries. From the 14<sup>th</sup> and 15<sup>th</sup> centuries, different types of dried pastas became popular throughout the Mediterranean and beyond, for its safe and easy storage and their adaptability to local culinary habits.





An important aspect is that a large part of cereal production is used in livestock breeding. For instance, in Morocco this corresponds to about 56%!



The intangible cultural aspect of the cereal family is of huge importance in the region (and beyond) given that cereals and bread have a unique place in the culture of the Mediterranean people. Bread is closely linked with typical manifestations and social feasts in many Mediterranean people's traditions: A rich variety of traditional breads are made throughout the region for weddings, funerals, local feasts and other important moments in people's lives. Stalks are used in a number of cases for decoration to symbolize fertility and happiness. Cereal grains –usually emmer or barley– were part of religious ceremonial and festivities across the region. Unleavened breads are usually flatbreads and hold special religious significance to adherents of Judaism (*matzah*), Christianity and Islam. The Christian culture gives bread, both leavened (Orthodox church) and unleavened (Roman Catholic church), the highest symbolic meaning. The *Eucharist* (Communion) is at one level a meal of bread and wine, but at a deeper level it involves the spiritual consumption of the flesh and blood of Christ.

## Ancient pastries surviving today

*Melipikta* were pastries made of coarse wheat flour (*semolina*), olive oil and honey in Ancient Greece and later on, in Byzantine as well as Arab and Ottoman culinary practices. They are widely consumed today, particularly during major feasts.





pulses: the missing  
fourth member?





# 5 pulses: the missing fourth member?

Several experts have made a strong case for expanding the Mediterranean “triad” to accommodate **pulses**, as in the so-called *poor’s meat*. Since the days of antiquity, they have traditionally played a considerable role in the diet of Mediterranean people, providing a major part of the needed protein intake.



Legumes are among the first plants cultivated in the Mediterranean area. The first crops seem to have been cultivated in the eastern Mediterranean, where pea, lentil, chickpeas and vetch (the latter used as animal feed) were introduced for the first time. It has been suggested that flat beans have become part of the eastern Mediterranean diet in around 6,000 B.C. or even earlier. They were deposited with the dead in ancient Egypt. Their cultivation started to spread widely in the second millennium B.C. Since that period large-seeded broad beans appear in deposits in the Aegean as well as in Iberia. In Homer's *Iliad* (8<sup>th</sup> century B.C.) there is mention of beans and chickpeas. Most kinds were, and are still, commonly eaten both fresh and dried. Some of the most commonly consumed today across the region are beans, fava beans, lentils and chickpeas. *Phaseolus*—a genus that has provided the most widely consumed edible species of beans—was introduced to the Mediterranean diet after the return of Columbus from his second voyage to America in 1493.

Legume plants are also important because of their ability to capture the nitrogen from the atmosphere through the action of special bacteria that live in nodules on their roots. This nitrogen goes into the production of protein. When the legume plant dies, the nitrogen which is released to the soil builds up its fertility, thus helping other plants grow. Historically, before the use of chemical fertilizers, this green fertilization was pretty important and common as a practice for the nutrient-poor Mediterranean soils. Legume plant cultivation is still applied also as a cover crop to prevent erosion because they can overwinter and through nitrogen fixation provide poor soils with the adequate fertilization that allows other plants to grow and stabilize the soil.



## The beans that saved the world!

According to the writer and semiologist Umberto Eco:

*“Without legumes Europe wouldn't have overcome the 'dark' Middle Ages.”*

During the Middle Ages people of Europe faced death every day: barbarian invasions, famine and diseases. Something changed between the eleventh and thirteenth centuries: The system of three-year rotational cultivation of legumes started systematically, making soil more fertile; the political reforms of Charlemagne favored the farmers; and the plow became widespread in Europe. Such measures, according to Eco, promoted legume yields, and in turn, the consumption of pulses strengthened the peasants' health.



## SMALL GRAINS WITH A BIG HISTORY

**Lentils** have been part of the human diet since Neolithic times, being one of the first crops domesticated in the Near East. Archeological evidence shows that they were eaten 9,500 to 13,000 years ago. Lentils are very popular in most Mediterranean countries, being mentioned in the Bible and the Koran.

Domesticated **chickpeas** have been found in the Aceramic levels of Jericho as well as in Anatolia and in Neolithic pottery at Hacilar (Turkey). They were found in the late Neolithic period (approximately 3,500 B.C.) in Greece. In southern France, Mesolithic layers in a cave at *L'Abeurador* have yielded wild chickpeas carbon dated to 6,790 B.C. Hummus, a very popular dish in the Middle East and North Africa, is generally a purée made of chickpeas, sesame, lemon, etc. On the first Friday after the birth of the first son, Jewish families prepare *nahit arbis*, consisting of chickpeas cooked and dusted with sugar or coated in honey.

**Peas**, and mostly their dry seed plants growing wild in the Mediterranean basin, constant selection since the Neolithic dawn of agriculture improved their yield. Theophrastus, early in the third century B.C., mentions peas among the pulses that are sown late in the winter because of their tenderness.

**Split peas** (*fava* in Greek) have been cultivated on the island of Santorini for approximately 3,500 years. It's commonly used to make a kind of puréed pudding, which is very popular today, served with onion, fresh or caramelized. It was also commonly prepared in Medieval times.

**Lupins** were popular among the Romans, who cultivated the plants throughout the Roman Empire. Later on, *lupini* beans became very popular in the Arab world: in North Africa and the Middle East. The tradition of eating well salted cooked lupins is still alive. You can buy some pre-cooked lupins in nearly all open-air markets of the subregion.

### Legumes numerous dishes

In Egypt, *ful mudammas*, a dish based on a purée of broad beans, is considered as the national dish and is eaten on several occasions. The technique of preparing legumes in the form of purée is very common and helps their digestion. Chickpeas are very common in Turkey and Spain as well as in southern Italy. In Spain, *cocido*, a dish made with meat, chickpeas and vegetables, is a traditional dish. Prepared with chickpea flour and olive oil, *panisse* and *socca*, are two traditional dishes in Provence. Legumes are commonly eaten with herbs and spices, which are ingredients of falafels and pancakes prepared in many Mediterranean countries. In Egypt, it is typical to eat them on New Year's Eve because they are thought to be auspicious.



so many  
fruits!





# 6

## so many fruits!

The traditional Mediterranean diet is largely based on consumption of plant-based products, such as greens and **fruits** that can be eaten either cooked or raw. It's also noteworthy that some sweet “dry” fruits such as plums, apricots, etc., are frequently included in dishes containing meat, poultry, etc. Actually, the Mediterranean basin has long been a site of temperate fruit production. Grapes, figs, dates, and so many other fruits have been cultivated in the region since early times. We briefly present the historical background of the fruits that are present in the regional cuisines and diet.



## Apple

Common around the Mediterranean already since 3,000 B.C. -pictures of apples have been found in caves used by prehistoric people; mentioned in the Bible and Greek mythology. The Romans spread their cultivation to Europe. It has been a symbol of good and evil superstitions, in religion, in tradition and culture more than any other fruit. To the Pythagoreans the apple was symbolic of the mystical or the supernatural.

## Apricots

Introduced by the Romans in 60-70 B.C., apricots have a 5,000-year history. Starting in northeastern China, they eventually became a staple in the Mediterranean diet. They can be eaten fresh or dried.

## Bananas

Apart from Asia and Africa, bananas may have been present in isolated locations in some parts of the Middle East. By the tenth century, the fruit appears in texts from Palestine and Egypt. Today the tree is cultivated on a few Mediterranean islands.

## Berries

A seasonal staple food for early gatherers for thousands of years. The myrtle tree is native across the northern Mediterranean region (particularly in the islands of Sardinia and Corsica). In the Mediterranean, myrtle was symbolic of love and immortality. It was very popular in Roman gardening.

## Carob

Native to the Mediterranean and southwestern Asia, its cultivation began before written history. The beans and kernels are useful for a variety of purposes including food, fodder and as a source of industrial products such as gums, sugar, syrup, etc. The beans have amazingly homogeneous size, no matter if cultivation conditions differ. They were used for weighing gold, providing the relevant unit, the carat.

## Cherry

Their cultivation was brought to Rome by *Lucius Licinius Lucullus* in 72 B.C. from northeastern Anatolia, also known as the Pontus region. Sour cherries were selected from wild species from around the Caspian and Black Sea, and were already known to the Greeks in 300 B.C. They were extremely popular with the Persians and the Romans.

## Citrus

Native to Southeast Asia, the citrus fruit and tree has been important in Mediterranean countries since the time of the Roman Empire. It is present in the gardens of palaces and monasteries but also in the courtyards and orchards of the poorest families.



## Dates

Dates are among the most important traditional crops throughout the Middle East and North Africa. They have been a staple food of the Middle East (and the Indus Valley) for thousands of years and have been cultivated from Mesopotamia to Egypt. The ancient Hebrews made the fruit into wine, vinegar, bread and cakes. In Ancient Rome the palm fronds were used in triumphal processions to symbolize victory. The date palm was a popular garden plant in Roman gardens. In later times, traders spread dates around Southwest Asia, North Africa and Spain. The date palm has a particular “presence” and reference in the three major religions of the region: Islam, Judaism and Christianity. There are numerous ways in which dates are processed and consumed: raw; pitted and stuffed with fillings; glazed with glucose syrup; chopped as the key ingredient in a range of sweets, cakes and dishes; producing date syrup or “honey,” vinegar, juice, etc. Even their seeds (soaked and ground up) are used for animal feed, while date oil is suitable for use in cosmetics and dermatological applications.

## Fig

Indigenous to the Mediterranean, figs have been around since early antiquity. The Egyptians buried entire basketfuls with the dead. The ancient Greeks called them “*the most useful of all the fruits*”, and in Athens certain fig trees were considered sacred, while, according to the law, the export of dried figs was forbidden. People who provided evidence to the judges about those breaking the law were called *sykofantes*, from the Greek words *syko* (fig) and *phantas* (those who reveal things).

## Lemon

Most probably introduced to Ancient Rome no later than the first century (most likely from China or India). But they weren’t widely cultivated. Their wide use in Mediterranean cuisines is largely due to the Arabs in the period between the years 1,000 and 1,150 A.D. They’ve long been thought to contribute to good health.



**Loquat** Native to central-eastern China, the loquat was planted in the 18<sup>th</sup> century as an ornamental plant and for its fruit, being found extensively in many parts of the region. Loquats are consumed as fresh fruit, in jams, jellies, syrups and pies.

**Mandarins** The mandarin (*Citrus reticulata*, *Rutaceae*) comprises the largest and most varied group of edible citrus. Native to China and Southeast Asia, it was introduced to the Mediterranean and Europe as late as the 19<sup>th</sup> century. The mandarin has a wide range of adaptability and is grown under desert, semi-tropical and subtropical Mediterranean climatic conditions.

**Melon** One of the earliest crops along with wheat, barley, grapes and dates. Native to Iran and Asia Minor, they're depicted in ancient Egyptian tomb paintings of 2,500 B.C.

**Oranges** Bitter oranges, as introduced to Italy by the Crusaders in the 11<sup>th</sup> century, were grown widely in the south. However, sweet oranges were brought to the region in the late 15<sup>th</sup> and early 16<sup>th</sup> centuries by Portuguese merchants. Their name – *portogal*, in Greek and Arabic – is directly connected to their origin.

**Peaches** Arriving in Italy from Persia in the first century, peaches soon became a popular fruit throughout the Roman Empire in their yellow and white varieties as well as *nectarines*.

**Pears** It appears in prehistorical evidence somewhere in Eastern Europe and Asia. Its cultivation was widespread in Greece (highly prized by gods and heroes), while the Romans were the ones to spread it throughout the Mediterranean and Europe. In the fourteenth century, the Spanish conquistadors brought them to America. According to peasant Italian tradition, at the end of a meal eating pears with cheese slices is a must.





## Plums

May have been one of the first fruits domesticated by humans. Their remains have been found in Neolithic age sites along with olives, grapes and figs. Alexander the Great spread plums throughout the Mediterranean, and orchards were planted in Rome as early as 65 B.C. Some varieties may have come to the region during the third millennium from Central Europe or Western Asia.

## Pomegranate

Native to Persia, the pomegranate is one of the oldest known edible fruits. Since its arrival in the region, the tree has been extensively cultivated in many parts. It was a symbol of life and fertility, and alongside apples, they were used symbolically in weddings. In the funerary context however, they were food for the dead, suggesting that there was life beyond the grave. Pomegranates were associated with Persephone, the queen/goddess of the underworld. Nowadays, throughout Greece, *kollyva* (boiled whole wheat, with pomegranate seeds, raisins and currants, white almonds, sesame and spices), are prepared and served after the funeral. An ancient tradition surviving and accepted in Christianity.

## Quince

Native to Caucasus and Iran, were introduced to the Middle East; considered sacred by the Greeks (associated with the goddess of love and beauty Aphrodite) and used in a wealth of recipes by the Romans. The ancient Greeks did not distinguish apples and quinces. Thus, many references of quinces are translated as “apples”. This is evident in Greek, Roman and Slavic traditions and myths.

## Strawberries

Their presence in the region (wild strawberries) goes back some millennia, according to archaeological finds. Roman naturalists distinguish between the ground strawberry and the tree strawberry.

## Watermelon

Originating from Africa, domesticated seeds dating to 4,000 B.C. were found in southern Libya. Nevertheless, watermelons like some of those we eat today weren't developed until Roman times.







**nuts  
and roots**





# 7

## nuts and roots

**Nuts** are key ingredients of a rich variety of typical Mediterranean dishes as we will explore in Chapter 14. In fact, they've been staple foods for cultures of the region for thousands of years. Let's take a closer look.



**Walnuts** One of the oldest food trees known to humans, dating back to 7,000 B.C. The Romans called them "Jupiter's royal acorn." Early history indicates that they came from Ancient Persia, where they were reserved for royalty. Thus, the walnut is often known as the Persian walnut. Walnuts were traded along the Silk Road route by caravans.

**Almonds** One of the world's oldest cultivated crops. The Mesopotamians used almond oil as a body moisturizer, perfume and hair conditioner. Almonds have been found in Minoan palaces (ancient Crete) and were a favorite dessert of the Greeks. Together with pistachios, they're mentioned in the Bible.

**Chestnuts** Originated in Asia Minor where they have been a staple food for millennia, largely replacing cereals where these wouldn't grow well, or at all, mainly in mountainous Mediterranean areas. Alexander the Great and the Romans planted chestnut trees in many places, even in parts of Europe, during their campaigns.

**Hazelnuts** The Romans cultivated hazelnuts, including in northern provinces, outside the Mediterranean (e.g. in Britain), but there is no evidence that they spread specific cultivars.

**Pine nuts** Have been eaten in the Mediterranean and beyond (Europe and Asia) since the Paleolithic period. They are very popular also among Arabs and frequently added to meat, fish, salads and vegetable dishes or baked into bread.

**Acorns** In ancient years in the Mediterranean, but also throughout the world, lower classes would eat acorns, particularly in times of famine. Actually, in ancient Iberia and elsewhere they were a staple food. Collected at the end of summer and autumn and dried, they were soaked in water to remove bitter tannins and were then ground to produce a type of semolina for use in various dishes.

**Pistachios** One of the indigenous species of the Mediterranean, particularly in the Middle East and some Greek Islands. Pliny the Elder, in his Natural History, states that pistachio seeds were a common food as early as 6,750 B.C., and of course they're mentioned in the Bible. The fabled hanging gardens of Babylon were said to have included pistachio trees in or around 700 B.C.





Since ancient times, **roots** have been widely used in traditional Mediterranean culture, for food and drink production, medicines, cosmetics, energy (particularly in battle and for endurance during running), insect repellents and even rust prevention.

**Beets** (*Beta vulgaris*): The earliest record of beets can be traced back to ancient Thebes (Egypt). While it remains unknown whether beets were part of the Egyptian diet, it's believed that beet consumption originated along the Mediterranean coast. They were originally cultivated not for their bulbous roots but for their leafy green tops. Beet greens were so well liked that ancient Romans and Greeks developed methods for the summer cultivation of beets. The first account of the root being consumed can be traced back to the early 1,500s, either in Italy or Germany. Beets are eaten in several ways –including raw, boiled, canned, steamed, roasted and pickled– while in some cases they're simply used to add color. In fact, it was recently found that beets are rich in A, B and C vitamins as well as anti-oxidants, which have a strong effect on cholesterol and blood sugar. These components also help rid the liver of toxins, according to a relevant article on faulty liver filtration published in the New England Journal of Medicine. So, the traditional “indigenous” knowledge proved to be correct.

**Beets** were used to create a form of sugar too. In 1747, Andreas Sigismund Marggraf, a chemist in Berlin, discovered a way to create sucrose from the humble beet. Moreover, the roots and leaves of beets have a history of medicinal uses. The Romans used beets as a treatment for a number of ailments, including constipation and fevers, and in the middle ages they were used for illnesses related to digestion and the blood. Even today beets are thought to have multiple health benefits.

The **carrot** (*Daucus carota*), take its name from the French word *carotte*, which in turn comes from the Latin *carota*. It's widely used in Mediterranean cuisines roasted, boiled, grilled or raw in salads. It has been known since ancient times and is believed to have originated in Persia, spreading gradually into the Mediterranean area. Temple drawings from Egypt in 2,000 B.C. show what could be construed as a "carrot" shaped plant, which some Egyptologists believe could be a purple carrot. By the way, carrots come in various colors. By the 13<sup>th</sup> century, carrots were being grown in fields, orchards and gardens in several parts of the Middle East and Europe -most probably introduced via Spain by the Moors between the 8<sup>th</sup>-10<sup>th</sup> century.

The **potato** is a new-comer in the Mediterranean diet. It seems that the first potato to reach Europe arrived in Spain and must have come from Peru and transshipped through Cartagena in Columbia in the mid-16th century. The Potato became a dominant food within the diet of the people in the region with many uses in cooking: fried in oil (as "French fries") roasted or stuffed or grilled and accompanying a large number of dishes. The choices are numerous.

Archaeobotanists have discovered plant DNA in Greek-made pills found in a shipwrecked merchant trading vessel dated to 130 B.C. Using the **GenBank** genetic database they found out that the pills appeared to contain carrot, parsley, radish, chestnut, celery, wild onion, etc. It is believed that this drug was used to treat intestinal disorders among the ship's crew.

**Onions** (*allium cepa*) originated in Egypt. Ancient Egyptians believed that onions symbolized the many-layered universe. They swore oaths on onions like a modern-time Bible. Ancient Greeks believed that onions provided strength to soldiers, hence they were frequently fed to the troops of Alexander the Great. Onion soup and vegetable stew, beans and brown bread, were the staple foods of the poor from the Roman times until the middle ages. Onion is a key ingredient in various Mediterranean cuisines, as is garlic. Modern research indicates its important health benefits too.

**Garlic's** origins trace back to Siberia. In ancient cultures it had different uses in food and medicine, as well as in traditions as a key element e.g. a charm against bad luck or evil eye. It was widely consumed by the ancient Egyptians, Greeks and Romans. The Romans regarded it as a food for the lower classes. Roman legions wore it on their bodies to ward off colds. It's a key ingredient of Mediterranean cuisines together with onion, but used in cosmetics as well. Besides, it has a significant usage in medicine due to its contribution in enhancing the immune system.



**Radishes** (*Raphanus sativus*) occur in different colors and sizes. They were cultivated by the ancient Egyptians at least 4,000 years ago, since they are depicted in Pyramids according to the Greek historian Herodotus (484 - 424 B.C.), while the ancient Greeks so valued the radish that they offered little golden artifacts in the shape of radishes to the god Apollo.

**Fennel** has a history as old as the Mediterranean civilizations. The ancient Egyptians, Greeks and Romans all preferred it: in the midsummer ancient festival of Adonia, fennel was among those seeds planted during the rituals. Its Greek name, “marathon” means “grow thin,” reflecting the belief in its ability to suppress appetite. The town of Marathon, in Greece, means “place of fennel” where the Athenians won the Persians in the famous battle of 490 B.C. that ended the first Persian invasion in Greece and Europe. The winners used woven fennel stalks as a symbol of victory. The bulbs can be eaten raw or cooked in various ways and dishes, while the stems are used in salads, soups and other cookings.

**Turnips** (*Brassica rapa*): People have been cultivating turnips for thousands of years, but from the beginning, turnips weren't a widely popular crop. In fact, in the days of the Roman Empire, Romans saved turnip roots to throw at people they didn't like. Historical evidence shows that the turnip root was primarily consumed by poor country people in Ancient Greece and Rome as well as Egypt. Turnip roots are cooked and eaten as a vegetable, while their greens can be boiled, steamed, and stir-fried. In Turkey, particularly in the area near Adana, turnips are used to make *şalgam*, a juice made together with purple carrots and spices, served cold. Turnip roots and leaves also serve as fodder for livestock.

**Ginger** is a herb that reached the Mediterranean region with Arab traders more than 2,000 years ago. Brought from India to the Near East, it was sold to both Greeks and Romans. Records show that ancient Rome taxed the imported ginger when it came ashore at Alexandria. When the Roman Empire fell, ginger and its uses were lost to most of Europe. It wasn't until the 11<sup>th</sup> century that Europe rediscovered ginger. The spice has a slightly biting taste and is used, usually dried and ground, to flavor breads, sauces, curry dishes, confections, pickles, and ginger ale. The peeled rhizomes may be preserved by being boiling in syrup.

**Turmeric**: The story of the trade route from Asia to the Mediterranean world is thought to begin in the first century. Now, research reveals that people in the Mediterranean ate foods that grew in South Asia—like sesame, soybean, turmeric and banana—at least since the second millennium B.C. Since then, turmeric has attracted quite a lot of interest for its natural healing properties, and has been used in medicines apart from its use in cooking. Likewise, the vibrant yellow natural coloring of turmeric has also been used to dye thread and cloth for centuries.





**vegetables**  
in the Mediterranean diet





# 8 vegetables in the Mediterranean diet

**Vegetables** and greens are important not only in diet and cuisines but also in agricultural production and the agro-economy of the countries of the region, together with olives, cereals and rice and fresh fruit (including grapes and dates). Actually, vegetables (including some roots, e.g. onions and potatoes) were the most widely grown crops in North Africa and the Middle East over the period of 2000 to 2006.



## Cabbage

One of the world's most widely consumed vegetable, and of the first to be cultivated. Native to the Mediterranean, it was mentioned to be eaten by Achilles in the Iliad (8<sup>th</sup> century B.C.).

## Lettuce

Cultivated in ancient Egypt for the production of oil and for its edible leaves. Many images in wall paintings in tombs depict its use in religious rituals. Its cultivation passed to the Greeks and then to the Romans.

## Cucumber

Originated in India, it has been cultivated for at least 3,000 years, and it spread to ancient Greece and Rome. It's described in the Gilgamesh poem as food consumed in ancient Ur.

## Eggplant

Also called aubergine, cultivated in Asia since prehistory. There are numerous Arabic names for it, while the lack of an ancient Greek or Roman one, indicate its introduction to the Mediterranean area almost certainly by the Arabs.

## Spinach

Originated in ancient Persia, the Saracens introduced spinach to Sicily in 827 A.D. In 1533, Catherine de' Medici, queen of France fancied spinach so much that she insisted having it served at every meal; dishes made with spinach are known as "florentine," reflecting Catherine's birth in Florence.

## Asparagus

Different types of asparagus were used as a vegetable and for medicinal purposes by the ancient Egyptians. In ancient times, it was also known in Syria and in Spain. Greeks and Romans ate it fresh when in season, and dried the vegetable for use in cooking during winter.





## Chicory

Belonging to the genus *cichorium*, chicory that includes many species of wild and cultivated plants with different tastes (bitter, sweet, etc.). They are very popular throughout the region, already mentioned in a papyrus of 4000 B.C., in ancient Egypt where they used to add the seeds and eat them with meat. Mentioned in the Bible as “bitter greens” chicory was consumed by the Jewish people, while Galen called it “friend of the liver.”

## Mushroom

In ancient Egypt, mushrooms—apart from being regarded as a healthy food—were considered special and “mysterious” (giving them a divine dimension) and were often used in rituals. The ancient Greeks appreciated mushrooms, studied them, and possibly used fungi as a medicament and to “enhance” spirituality. By the Roman times, fungi were popular throughout the Mediterranean, in many cases as luxury food favored by most Emperors.

## Pumpkin

Native to America, it was appreciated by the Europeans and then spread to the Mediterranean using the seeds brought by Christopher Columbus.

## Courgette

From Central and South America, where it has been eaten for thousands of years, it was brought to the Mediterranean by Christopher Columbus approximately 500 years ago. The modern variety was developed in Italy, where it is called *zucchini*, meaning a small squash.

## Pepper

Cultivated in Central and South America from very early times. Columbus brought them to Europe and they were quickly adopted and cultivated in the Mediterranean. Despite sharing the same name, our table pepper (black and white) and the sweet and hot peppers we grow in the region are not related.





salt







# salt

**Salt** was used by humans in their food long before history began to be recorded, but was also used as “currency.” The methods used to gather salt from salt pans are shown in Egyptian artworks of 1450 B.C. Shallow, intermittently isolated lagoons and natural cavities and basins in rocky shores provided natural salt pans discovered very early in history by humans. Despite progress, even today, salt production throughout the Mediterranean region is based on solar evaporation in places where ancient salt pans used to exist. These areas provide valuable habitats for specific halophilic flora and fauna, particularly birds. Fish, meat, boiled eggs, vegetables and other foodstuff were traditionally preserved by using a lot of salt. Salt absorbs water and contributes to dehydrate and preserve the foodstuff for long periods of time. In some cases, foodstuff may be either emerged in brine and then dried or just kept in brine (olives) or in a mixture of brine and vinegar (pickled).

## SALT IN LANGUAGE AND CULTURE

The fact is that throughout history, salt has been such an important element of life that it has been the subject of many stories, myths, folk tales and fairy tales. Some cultures attribute magical powers to salt. Salt so infuses our culture that there are innumerable quotes and proverbs drawing on salt. The word for “salt” in Arabic (milh), in French (sel) and in Albanian (kripë) also means wit, humor, intelligence because these qualities add flavor to conversation just as salt adds flavor to the diet. The words salad, sauce and sausage –found in many languages– begin with sa- or sal- because salt was an essential ingredient when these foods were prepared. Sausages were made with salted meat; sauces were flavored with salt; salads were served with a dressing that included salt. The word “salt” is very similar in many Mediterranean languages. It’s an important vocabulary item, and it helps to show the relationships among these languages. Romanian sare, Italian sale, French sel, Portuguese and Spanish sal all come from the Latin word sal. This Latin word, the modern Greek ales, the Croatian so and Bulgarian sol, all derive from a word in the prehistoric Indo-European language, spoken about five thousand years ago (the word was probably sali). The initial “s” has disappeared in Greek, and the “i” has disappeared in Croatian, but all the words still have a resemblance. Meanwhile, across the Mediterranean, Arabic milh and Hebrew melach are also related: they both come from a word in the prehistoric Semitic language. Offering bread and salt to visitors, in many cultures is traditional. Salt has played a vital part in religious ritual in many cultures. There are more than 30 references to salt in the Bible and the Talmud contains insights into salt’s cultural significance in Jewish society.





Salting throughout the Mediterranean allowed the preservation and better fish trade already from the days of antiquity. Ancient Greeks liked salted and pickled tuna, but they also invented another way of using fish, usually small ones. They produced a fish sauce, called *garos* in Greek, which was made in the Greek colonies along the Black Sea and the Greek and Carthaginian settlements at the far western end of the Mediterranean in southern Spain. Later, it became popular among Romans. During the Roman period, fermented and salted fish products were prepared in large quantities and extensively transported and traded throughout the Empire, particularly for urban consumers. The preparation was complex but a basic part of the process included the fermentation of the salted fish under the sun for several weeks. This “sauce” is no longer common in the Mediterranean region, but a similar one is used in Southeast Asia.

Salt extraction has been established since ancient times as an important economic activity of Mediterranean coastal cities. Since then, hundreds of salt pans (*salinas*) have operated in the Mediterranean coastal line. The majority of them are usually coastal and man-made. Salt-making techniques came to a standstill with the method of successive evaporation basins. The basics of this technique remain the same until today. Many varieties of salt-making adapted to the particularities of the local conditions i.e. geology, climate, etc., resulting in a great diversity of devices. Apart from the natural landscape, a saline landscape embraces also the specific architectural and technical achievements, including devices, equipment, tools, etc. Salt pans are among the most important non-polluting processing activities. Their importance was more pronounced in the past when salt was a vital commodity at least for food preservation. At that time, those who controlled salt production and trade also had political power. Salt pans are important wetland sites as well, given the presence of uncommon salinity tolerant species, unicellular organisms, some of them interfering with the quality of salt (*Aphanotheca*, *Dunaliella salina*, *Halobacterium*) and of interesting halophilous flora, aquatic and terrestrial, the latter pollinated by a specialized wasp fauna. There are also diverse salinity tolerant aquatic invertebrates and a few fish, in general. Additionally, a considerably high diversity of water birds use them for breeding—often in large colonies—or as wintering and refueling sites during their transcontinental stopovers. However, nowadays, salt pans face many pressures and threats given the conversion from low intensity to mechanized and intense salt production. Worse is the transformation to high-salinity brining salt pans of almost non-biological value. Many salt pans have been abandoned or converted to other uses, such as aquaculture farms, industrial, urban or tourist zones, etc., due to great demand. All these have great impacts on their role as cultural landscapes and places where sustainable salt production and biodiversity coexist.



dairy products  
in the region





# 10

## dairy products in the region

**Milk** has been used by humans since the beginning of recorded time to provide both fresh and storable nutritious foods. In some Mediterranean countries almost half the milk produced is consumed as fresh, pasteurized, whole, low-fat or skim milk. However, most milk is transformed into more solid dairy products such as butter, cheese, yogurt, dried milk, sour milk, and of course, ice cream for local consumption and commerce. Initially, the mammals bred for their milk in the region were sheep and goats, as well as cows and buffalos, while camels were introduced by the Arabs.



The cheese variety of the region is remarkable, including many common white, soft or hard (mostly light yellow) types as well as many unique products certified with “controlled place of origin.” In fact, it is not uncommon to find, even today, in almost every region, island or valley its own traditional cheese. The list is endless as is also the list of various traditions and specific occasions of consuming some of them or dishes/snacks based on the cheeses. The following are among the best-known types:

**Chaloumi** originates from Cyprus and is widely popular throughout the Middle Eastern countries: Syria, Lebanon, Jordan, Palestine and Greece. It’s also produced in Alexandria of Egypt in small private dairies. It’s semi-hard to elastic, has no obvious skin/rind, the texture is dense, with no holes and it is easily sliced. It can be consumed raw, but it is usually grilled, fried or grated over hot dishes. Recently, Cyprus gained for *chaloumi* the recognition of being a national product with protected designation of origin.

**Domiat** or **Damietta** cheese is a popular soft, white, pickled cheese variety, and is named after the city and governorate of Damietta (*Dumyàt*) in the north of Egypt. It’s also known as white cheese (*Gebnah balida*) and as soft cheese (*Gebnah tariyah*). Domiat cheese is made and consumed not only in Damietta but throughout Egypt and the Arab world. It closely resembles Greek *feta* cheese, and it is believed that Domiat cheese originated in Egypt in the third century B.C.

**Feta** is a Greek cheese traditionally made from sheep and/or goat milk. Some “variations” in other countries use cow milk. Feta is stored in different kinds of vessels: wooden barrels, tin containers, or animal skins, resulting in taste differentiations and different names. This cheese is ideal for crumbling over salads and soups or for stuffing in burgers, or mixing into dips.

**Provolone** cheese is a cheese variety of the *pasta filata* family, with origins in southern Italy, probably in Sicily. Provolone cheese and its variations are very popular throughout the Mediterranean.





**Goat milk cheeses** are many and vary from hard to soft, are popularly matured, have very strong taste and smell or soft and mild. The most famous goat cheeses are produced in islands (Corsica, Sardinia, Crete, the Cyclades, etc.). A popular tangy cheese, also known as *chevre*, is made entirely from goat milk—while for some variations, a mix of goat and cow milk is used. *Chevre* cheeses can vary in texture from semi-firm to very soft and spreadable, making them ideal for spreading on toast, using in dips, or crumbling on salads.

**Mish** is a traditional Egyptian cheese which is a pickled, ripened, skim milk cheese.

**Medaffarah** or **Majduala** cheese is a soft, unripened cheese variety of the *pasta filata* family. It's traditionally homemade cheese in the Middle Eastern countries such as Syria, Lebanon, Jordan and Palestine. It is also manufactured in Alexandria in Egypt in small private dairies. *Medaffarah* cheese is considered to belong to the same cheese family as *Mozzarella* cheese.

**Mozzarella** is a traditional southern Italian cheese made from Italian buffalo milk by the *pasta filata* method. Fresh mozzarella is generally white but when seasoned it turns to a light yellow. Due to its high moisture content, it is traditionally served the day after it is made but can be kept in brine for up to a week or longer when sold in vacuum-sealed packages. Mozzarella is used for most types of pizza and several pasta dishes. There is evidence dating back to the 12<sup>th</sup> century that the Monastery of Saint Lorenzo, in Capua, Campania, offered pilgrims a piece of bread with “*mozza*”.

**Brocciu** is a traditional, fresh, Corsican white cheese that resembles ricotta. It's produced from a combination of ewe milk and whey, giving it some of the characteristics of whey cheese. *Brocciu* is one of the island's most representative food products.





hot  
drinks





# 11

## hot drinks

While the aromatic herb in antiquity were bestowed symbolic meanings, in the Middle Ages, after the fall of the Roman Empire, most of the knowledge about them was forgotten. They were preserved mainly in some botanical gardens of monasteries and in remote mountainous communities. It was only during the Renaissance that interest in herbs and their properties was rekindled; an interest that continues in our days.



So-called “**mountain tea**”, is made from a single variety of the “*siderites*” plant and is perhaps the most common caffeine-free herbal tea, among several existing in the region. It’s known since ancient times, is endemic to Mediterranean mountainous areas, and is listed among the 400 species of aromatics and herbs mentioned by Hippocrates, along with oregano, lavender, crocus, sage, thyme, laurel, coriander, fennel, anise, mint, rosemary, chamomile, dittany, cedar, etc., many of which provide different types of herbal teas throughout the region. Its name in Greek (*siderites*) is probably due to its use to heal wounds from iron (*sideron*) spears or to the fact that its flower is spear-shaped. *Dioscorides* recorded it among the 600 species of herbs known to him, as did Theophrastus a little earlier, in 347 B.C. Mountain tea is an aromatic plant (herb) with proven therapeutic or medicinal properties. The art of proper tea-drinking has influenced cultures of many regions, including of the Mediterranean. Black and green tea originated in China but is consumed and enjoyed all around the world and particularly in the Middle East and North Africa where it is an everyday necessity and served nearly with every meal. In Egypt, tea is known as “*shai*”, and it is considered to be the nation’s superlative beverage. Maybe the most popular tea is mint tea, where fresh mint is added. Drinking mint tea is an important ritual of the day, served with dry fruits, cakes and almond pastry. There are many more tea varieties across the region, black, green, even mixed with other aromatic plants.

**Sahlab**, a winter drink made from the starch of the ground bulb of an orchid, mixed with milk, sugar, and rosewater, then garnished with chopped pistachios and cinnamon, appeared after the Ottoman dominance in the region.

**Coffee** is an indigenous plant of Ethiopia, Sudan and Somalia, from where it was exported. Its name most probably comes from the ancient Arabic reference to “dark color” or the area of Kaffa, a medieval Kingdom of Ethiopia, from the where the plant was exported to Arabia. The most popular coffee in the Middle East and North Africa, as well as in Greece and Cyprus, is the so-called “*Turkish coffee*” made in a small pot designed specifically for this purpose. Depending on the sugar content, stirring and time of boiling, a number of “subtle” varieties can be prepared. The coffee granules gradually settle at the bottom of the cup after it is poured. The other world-famous Mediterranean coffee is Italian coffee. First, introduced in 1570 to the Venetian Republic, it found in Naples one of its ultimate expressions: the popular “espresso”, often made in its signature coffee pot, the *cuccumella*. Unlike a moka pot, it doesn’t use the pressure of steam to force the water through the coffee but instead relies on gravity.

**Tamarind** is a red-tinged drink with a unique delicious taste that tends to be slightly black. In the Middle East, people buy it a lot during Ramadan to quench their extreme thirst.

**Licorice** or **Irqsous** is a popular Palestinian drink known for its unique medicinal benefits. It comes from filtering *licorice*, which is placed in a clean gauze through which water is poured after fermentation with sodium bicarbonate (cooking carbonate) for several hours in a warm, sunny place. Licorice is obtained from a perennial tree plant that grows in Syria, Egypt and Asia Minor as well as in parts of Central Asia and Europe.



The history of coffee dates from the mid-9<sup>th</sup> century and perhaps even earlier. There are many legends about its discovery, most of which were recorded in written texts much later. Some of the oldest involve either the Moroccan Sufi mystic Abu-Al-Itassan Al Shedhili or his disciple Omar. The former, observing on one of his visits to Ethiopia the strange behavior of birds feeding on coffee seeds, started using them himself, probably both as an “energizer” and an “appetite suppressant.” The latter, Omar, exiled from Mecca to a desert cave, chewed coffee seeds to feed his hunger. But finding them very bitter, he roasted them, discovering that they became too hard to chew. Then, trying to soften them, he boiled them and, in this way, a fragrant brown liquid was produced. After drinking it he was revived and managed to survive for several days. As the story of the “miracle drink” reached Mecca, Omar was called back and was made a saint. Coffee was primarily consumed in the Islamic world linked to religious practices, e.g. helping people to stay awake and pray during Ramadan. The Rom-based Maronite Faustus Nairon gives in a book of 1671 another legend about a 9<sup>th</sup> century Ethiopian goat-herder, who noticed the energizing effect that red coffee berries had when his flock nibbled on them. He chewed them himself and brought them to a nearby monastery. A monk threw them into the fire from where an enticing aroma wafted causing other monks to come and investigate. The rest ‘is history’. Moving from legends to history, there is firm evidence that coffee drinking and/or knowledge about the tree dates back to the early centuries of the Sufi monasteries of Yemen, spreading soon to Mecca and Medina. By the 16<sup>th</sup> century it had reached the rest of the Middle East, Turkey and Northern Africa, and beyond the Mediterranean to India and Persia. Then, within the 16<sup>th</sup> century it spread to Greece, the Balkans, Italy and the rest of Europe despite the bans imposed in the 15<sup>th</sup> century, or later, by religious leaders in Mecca and Cairo as well as by the Ottoman Empire, the orthodox Church and later, by the Catholic Church. Influential leaders such as Sultan Suheim I, Emperor Menelik of Ethiopia and even Pope Clement VIII permitted the consumption of coffee and even gave it a “blessing” to disassociate it from being considered as part of the Muslim faith.

Currently there is a trend, particularly among young entrepreneurs and coffee shop owners, to explore the wealth of traditional hot (herbal) drinks across the Mediterranean and Europe, and re-visit older recipes, enriching them with new elements and twists.





## sweeteners





# 12

## sweeteners

**Honey** was the major sweetener of ancient times. Humans apparently began harvesting honey at least 8,000 years ago, as evidenced by the cave of Spider painting in Valencia in Spain. So, far, the oldest remains of honey have been found outside the Mediterranean, specifically in Georgia. Apart from using it as a sweetener, ancient Egyptians and other Middle Eastern peoples used honey for embalming the dead.



Beeswax was also used widely. The beehive practice of the ancient Egyptians has influenced the entire Mediterranean region. Beehives were made of baked mud, or sometimes of fired clay. Some of the original shapes still survive in sub-Saharan Africa and elsewhere. Hives used to be cylindrical with a hole at the front end for the bees to fly in and out of. A detachable section at the back was used for the harvesting of the honeycomb. These hives were stacked horizontally. Ancient pictorial records show the beekeeper taking honey from the open section at the back of the hive, while the assistant drives the bees to the front with puffs of smoke. This is why honey gathered with traditional methods may have a slightly smoky flavor.

Today the Mediterranean is considered to be an area of excellence for beekeeping, with a very wide a variety of mono-floral and multifloral honeys such as for mono-floral: thyme, citrus, chestnuts, jujube, acacia, tangerine, eucalyptus, honeydew; and garrigue, as the most famous for multifloral.

**Carob honey:** In Cyprus, carob syrup is known as “Cyprus’s black gold” and is widely exported. In Malta, a syrup is produced out of carob pods and is a traditional medicine for coughs and a sore throat. Carob syrup is also widely used in Crete/Greece as a natural sweetener and in some cases is added to breads, biscuits, etc. Carob is the basis for a popular Palestinian drink that is light, mostly drunk cool or with ice during the summer season and on occasions such as Ramadan, when people drink it during but also after dinner so, in other words, *iftar*. Many traditions are linked to it, distinguishing it from many other drinks. Sellers of carob syrup roam the streets of many cities in Palestine, wearing traditional clothes specific to this profession, which consist of: a burgundy *tarbush* (hat), an eye-catching *shirwal* (pants) and a veil as a belt. The “carob jar” is copper, weighing more than forty kilograms, on which the seller hangs some roses.





A medieval luxury product was the so-called rose-petal sugar, a syrup made from a special variety of roses and sugar. Various thick sugar syrups containing all kinds of fruits and eventually flowers or small vegetables, olives, etc., are still produced throughout the Aegean, in Cyprus and beyond.

**Fruit sweeteners** were produced from various fruits such as figs and grapes/raisins as well as the reduced, mostly boiled, juice of grapes. Condensed and boiled must is used for a large variety of sweets.

**Sugarcane** is native to tropical South and Southeast Asia and has been produced in India since early antiquity. Originally, people chewed raw sugarcane to extract its sweetness. Sugar remained relatively unimportant until the Indians discovered methods of turning sugarcane juice into granulated crystals, that were easier to store and transport. Alexander the Great and his troops saw people in the Indian subcontinent growing sugarcane and making granulated, salt-like sweet powder. On their return journey, the Macedonian soldiers carried the “*honey bearing reeds*” home with them. Sugarcane remained a little-known to Europe Mediterranean crop for more than a millennium. At a given moment sugar became a rare commodity, and traders of sugar became wealthy. The Crusaders’ campaigns in the Holy Land stimulated their “appetite” for the “sweet salt” produced in various parts of the eastern Mediterranean, including on some islands. Early in the 12<sup>th</sup> century, Venice acquired some villages near Tyre (Lebanon) and set up estates to produce sugar for export to Europe.







**fasting** and festive food  
in the Mediterranean





# 13 **fasting** & festive food in the Mediterranean



**Fasting** has been a regular practice for many cultures of the region for millennia. It has been promoted and practiced since antiquity by the followers of many religions but also by physicians and by individuals or groups as an expression of sorrow or as protest against what they believe are violations of social, ethical, or political principles. The act of fasting is a demonstration of self-restriction and cleansing/purification of oneself and, in some cases, an attempt to approach the divine.

All major religions present in the Mediterranean region practice fasting: Christianity, Islam, and Judaism. Fasting can last for just a few days to several weeks. Interestingly, even within the same religion, different denominations or sects may fast differently or at different times. For example, within Christianity, the Coptic Christians fast for different durations for a total of up to 210 days throughout the year. They actually have eight main fasts and each one lasts for a different duration and restricts the diet in a unique way.

In Orthodox Christianity, the main formal lent periods are three per year: 40 days before Christmas (25 December), 40 days before Easter and 14 days before Our Lady's Dormition (15 August).

In Catholic Christianity, after the Second Vatican Council (1962-1965) the lent periods changed to address modern lifestyles: only two days of strict abstinence on "Good Friday" and "Ash Wednesday". In addition, they abstain from meat on Wednesday and Friday throughout the year and on several scattered days. On all these days, monks and very religious people do not eat meat, dairy products, fish, not even olive oil and do not drink wine. Of course, very few people follow such austere fasting.

Within Islam, during the holy month of Ramadan, Muslims abstain from all food and drink from dawn to sunset for 30 days.

*Yom Kippur* is considered the holiest day of the year in the Jewish faith and during its observance, people do not eat or drink anything for 25 hours.

There isn't a set amount of time that people tend to fast. Generally, the rule is six days per year, but the range can be from 3 to 21 days or more, depending on the particular religious group.



## The "mercy" tables

"Mercy" tables refer to the Egyptian charitable tradition whereby charities, mosques, reputable companies, and the wealthy donate home-made food to the city's poor and homeless. They include bread, beans, cookies, pasta, rice, chicken, meat, rabbit, soups, fruits and juices, and salads. Some take place during religious occasions like Ramadan.



The practice of fasting developed independently among different religions and cultures, as something that was deeply, intrinsically beneficial to the human body and spirit. In ancient Egyptian (a hieroglyphic language) the word for fasting was “sau” meaning to abstain or hold back, while the Pharaohs, who carried out most of the rituals, acknowledged fasting as affection for the gods. Most fasting was connected with the goddess Isis. Fasting has been used therapeutically since at least the fifth century B.C., when the Greek physician Hippocrates recommended abstinence from food or drink for patients who exhibited certain symptoms of illness. It’s also recorded that Pythagoras, the great mathematician and philosopher (580-500 B.C.), systematically “starved” for 40 days, believing that in this way his mental perception and creativity was increased; a notion that today’s scientists support. The ancient Spartans, and later the Roman warriors, fasted before wars to stimulate their immune system and to prepare themselves spiritually for the difficulties that were to follow. Pythagoras and his disciples abstained from certain foods in order to have a clear mind. Plato, the great Greek philosopher (427 - 347 B.C.) and disciple of Socrates, divided medicine into “true” and “false”. His “true” medicine included fasting, fresh air and the sun. However, it was Hippocrates (460 - 357 B.C), the father of modern medicine, who took fasting and food out of the realm of philosophy and placed them within medical process and practice: *“The addition of food should be much rarer, since it is often useful to completely take it away if the patient can withstand it, until the force of the disease reaches its maturity. If the body is ill, the more you feed it the more it will be harmed. When a patient is fed too richly, the disease is fed as well... Excess is against nature.”*

Fasting is mentioned in the Bible, i.e. the 40-day fasts of the prophets Moses and Elijah as well as that of Jesus. There are indications of a 40-day fast of Apostle Paul, who preached the keeping of Passover. Fasting is also mentioned in the Koran. Philip Paracelsus, the founder of toxicology and one of three fathers of modern Western medicine (along with Hippocrates and Galen) claimed: *“Fasting is the greatest remedy; the physician within.”*

Mediterranean dishes are not very different during fasting. Most fasting diets are still fundamentally “Neolithic”: cereals and bread, nuts and greens, fruits and herbs. Another common feature of fasting in the three major religions is that there are certain types of the population who are not required to fast: pregnant women, nursing mothers, sick people, travelers, young children and others who can be excluded from the fast.

One of the Pillars of Islam is the fast during the month of **Ramadan**. During this holy month, eating or drinking from sunrise to sunset is forbidden. One can eat and drink only during the night. There are two important feast days. One is “*Eid Al-Fitr*”, which follows the long fast of Ramadan, and “*Eid Al-Adha*”, a four-day celebration when Muslims from all over the world offer a sacrifice by slaughtering a sheep, cow or goat according to Islamic custom. Called the “Festival of the Sacrifice” it commemorates Abraham’s readiness to sacrifice his son Ishmael in the name of God. Of course, the meat is eaten. While the food during Ramadan varies from country to country, there are some “favorite” foods that have become a staple across the Mediterranean region. Ramadan starts with *Suboor* (or *Subur*), which is the basic meal Muslims have before dawn. Protein-rich foods such as eggs, legumes, and almonds are among the ingredients of this meal, that is traditionally followed by the *fajr* prayer. The above are accompanied by grain foodstuff such as whole meal bread or dough products that release energy slowly. Typical Ramadan dishes include *shorba*, a lentil soup, and a large variety of dishes for *Iftar*, which is the main meal after sunset. It includes all food groups: fruits and vegetables, nuts, fish, meat and dairy. Some traditional dishes include *Mahshi* in Egypt (eggplants, peppers, tomatoes and zucchini stuffed with rice) while rice with meat is also common in many

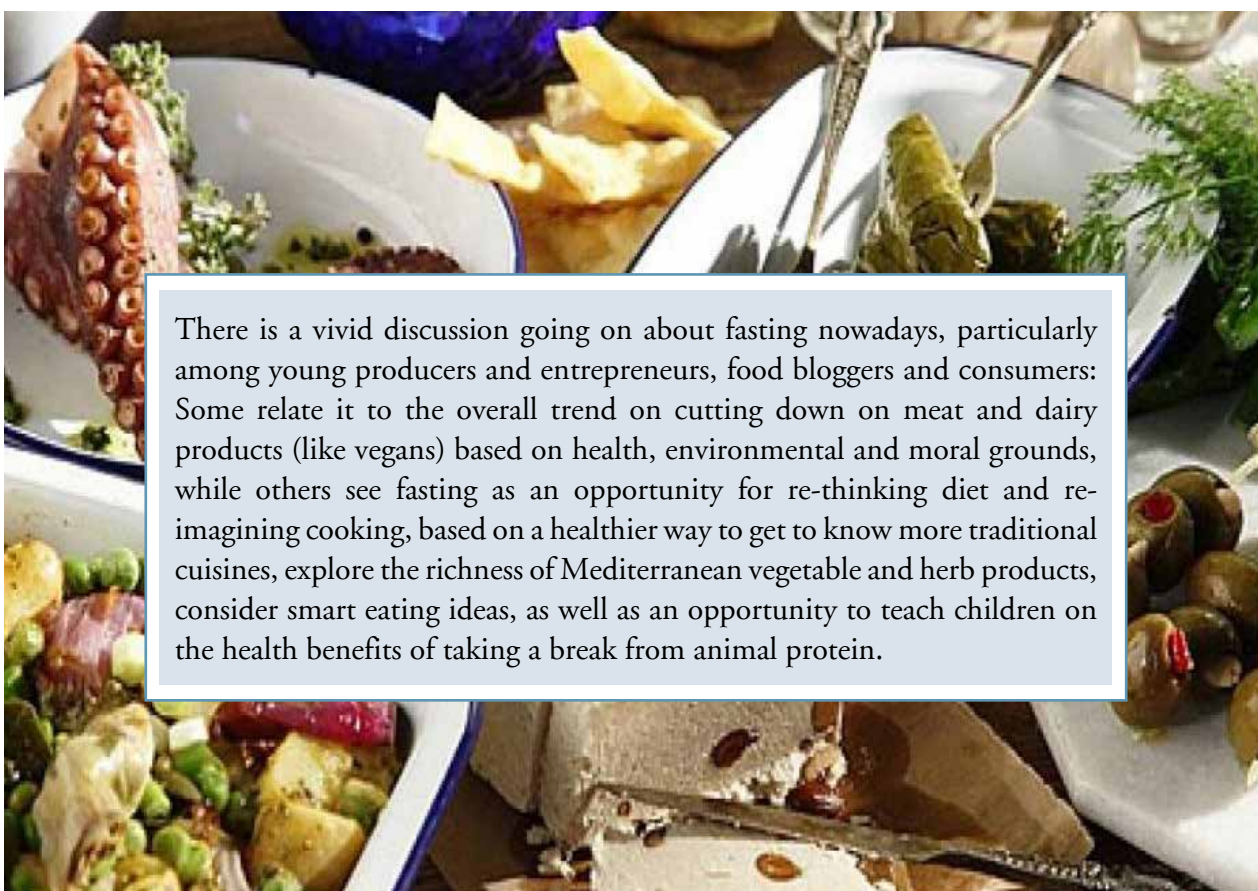




varieties. *Ful Medames* is a stew of cooked *fava* beans in Egypt served with olive oil, cumin and, optionally, chopped parsley, garlic, onion, lemon juice, chili pepper and other vegetables, herbs and spices.

The ancient Jewish custom of sacrificing lambs on the **eve of the Jewish Passover** and eating the meat of the whole roasted lamb to begin the festival, ended with the destruction of the Temple in 70 A.D. It is forbidden by a Jewish law called *Shuuben Arukh*, which was first printed in Venice in 1565. Today, traditional Passover foods include *gefilte fish* (poached fish), dumplings, *matzo ball soup*, beef brisket, chicken and potatoes and other specific dishes depending on the different traditions of the Sephardic (Mediterranean-Spanish/Portuguese), Ashkenazi, and other Jews.

In the **Orthodox Christian tradition**, the carnival period ends with “Clean Monday” that is the first day of Lent: people pack a picnic and head for the countryside, where they eat flat or *lagana* bread (originally unleavened bread), pickled vegetables, olives, *tarama* salad (made with fish eggs) and sea food (mussels, shrimp, etc. but not fish). During the 40-day Lent that in fact leads to Easter, no meat, fish or dairy products are consumed. Nevertheless, if someone thinks of the traditional Mediterranean food products and the triad, the variety of fasting dishes is impressive, with pulses, vegetables, pies (pumpkin pies, spinach pies, etc.), *tahini* dishes (sesame seed paste), vegetable stews and all their combinations. The Easter table must have dyed red hard-boiled eggs, a whole roasted lamb or goat and *magiritsa* soup with the entrails and internal organs of the animal cooked in a romaine lettuce broth with fresh herbs and finished with a zesty egg-lemon sauce.



There is a vivid discussion going on about fasting nowadays, particularly among young producers and entrepreneurs, food bloggers and consumers: Some relate it to the overall trend on cutting down on meat and dairy products (like vegans) based on health, environmental and moral grounds, while others see fasting as an opportunity for re-thinking diet and re-imagining cooking, based on a healthier way to get to know more traditional cuisines, explore the richness of Mediterranean vegetable and herb products, consider smart eating ideas, as well as an opportunity to teach children on the health benefits of taking a break from animal protein.





typical Mediterranean  
**dishes**





# 14 typical Mediterranean dishes



**Bouillabaisse:** The French word *bouillabaisse* comes from the verb *bouillir* (boil) and *abaïsser* (reduce) and means the liquor of fish as it boils and gets more concentrated. The recipe for bouillabaisse is found for the first time in a 1790 cookbook as the poor fishers' soup, for which they used the fish they couldn't sell. Nowadays, there are as many recipes of bouillabaisse as there are cooks. However, the important thing when cooking it, is to prepare a delicious broth from various fish. Some French chefs suggest mashing the cooked fish and keeping the broth prepared for some days in the refrigerator. Some orange peels or even saffron could be added in the broth and cooked for a few minutes to enrich the flavor. Olive oil is an essential ingredient. Also, potatoes and various other vegetables are eventually added in the fish broth such as: celery, onion and sometimes tomato. Finally, the soup is served together with the fish and a spicy sauce called *roille* containing garlic and red chili peppers. Similar fish soups exist in other Mediterranean cuisines e.g. *kakavia* in Greece but without the use of *roille* sauce.

**Couscous:** Couscous (in Maghrebian Arabic *t'am*, *seksu*, *kuskus*, *kusksi*) is one of the traditional foods of the Maghrebian cuisine, and in fact, a specialty coming from the Berber tradition based on durum wheat semolina (couscous) prepared with olive oil, vegetables, spices and meat (red or poultry) or fish. It is, along with *tagine*, an emblematic dish of the traditional cuisine of the Maghreb and, more broadly, of the Jewish cuisines of North Africa, the African cuisine in general, and the Mediterranean diet, cooked in a wide variety of regional and local recipes. The oldest known traces of couscous makers are found in burials from the beginning of the third century B.C., from the time of the Berber King *Massinissa* of Numidia (northern Algeria), one of the cradles of wheat cultivation. Known in France since the 16<sup>th</sup> century, it was incorporated into the French cuisine at the beginning of the 20<sup>th</sup> century. The know-how and practices related to the production and consumption of Moroccan couscous have been included in the **UNESCO Representative List of the Intangible Cultural Heritage of Humanity**. A very wide variety of couscous is listed, since each region of Morocco has one or more types of couscous that further multiplies into many variations corresponding to the different subregions, even tribes or families.

The couscous is the combination of two dishes: A dish of wheat semolina steamed in a “couscous maker” and then seasoned with fat (usually olive oil but sometimes butter) and simply salted. According to the recipes, chickpeas, peas and raisins are added. There is also a broth of vegetables such as zucchinis, onions, carrots, turnips, pumpkin, tomatoes, red squash, chards, and meats (lamb or chicken) cooked together. Traditionally, couscous is prepared with only one type of meat, as the broth and the semolina that is steamed become impregnated with its aroma. However, couscous dishes may also be purely vegetarian or cooked with fish. The role of spices is very important: saffron, ginger, ras-el-hanout, coriander are typically added.





**Falafel** is a popular Palestinian and Middle Eastern “fast food” made with a mixture of chickpeas (or fava beans), parsley and/or other fresh herbs, and spices, which are formed into small patties or balls, frequently using metal molds. Falafel is mainly of two types, either made from ground fava beans, as is the practice in Egypt, or from ground chickpeas, as is the custom in the Levant and the Sudan. However, it is also found with fava beans and chickpeas mixed together. Falafel is fried manually or semi-manually with the use of modern machines, but that approach is uncommon in Syria, Jordan, Palestine and Egypt. Falafel is now found all over the world as a popular alternative to meat for vegetarians and is a type of street food.

**Kebab** includes a variety of grilled meat dishes with their origins in Middle Eastern cuisine that are now popular around the world. Kebabs consist of cut-up or ground meat and consist mostly of mashed onion in addition to vegetables, and various other ingredients depending on the specific recipe. Although kebabs are typically cooked on a skewer over a fire, some kebab dishes are baked in a pan, an oven or prepared as a stew such as *tas kebab*. The traditional meat for kebabs is most often lamb, but regional recipes may include beef, goat, chicken, fish, etc.



**Keena Samosa** is like a *bureck*, having *pattis* or *phyllo dough* as a wrapper and stuffed with spicy lamb or minced beef meat.

**Kibbeh** is a family of dishes based on spiced ground meat, onion and grain. It is popular in the Middle East, in the Levantine cuisine. Kibbeh is made by pounding bulgur wheat together with meat into a fine paste and forming it into balls with toasted pine nuts and spices.

**Mansaf** is a traditional and very popular Bedouin Arabic dish (in the Middle East, in general) made of lamb or goat meat cooked in a sauce of fermented dried yogurt and served with rice or groats. The name of the dish comes from the term “large tray” or “large dish”. It’s mostly cooked on occasions such as holidays, weddings and in general large social gatherings. Mansaf is cooked using a lamb leg or large pieces of lamb placed on top of a *taboon* bread; a type of flat bread that is usually smothered with yellow rice. A type of thick and dried cheesecloth yogurt from goat’s milk called *jameed*, is poured on top of the lamb and rice to give it a distinct taste. The dish is also garnished with roasted pine nuts and almonds. The original Bedouin mansaf underwent significant changes in the 20<sup>th</sup> century. The dish is said to originally have been made with simple meat (camel or lamb), meat broth or ghee (clarified butter) and bread instead of rice.

**Paella:** There are many cooks who claim that paella is the most “mis-cooked” Mediterranean dish. The main reason is that the rice commonly used outside Spain has nothing to do with the Spanish *calaspara* (*meloso*) rice as it is usually parboiled American rice. Actually, paella is very similar to a typical, good quality Italian *risotto*. As is the case of risotto, it needs to be prepared and served immediately. In Valencia, it is a custom to cook paella in the garden every Sunday. Paella took its name from the dual-handle pan that is found in every Spanish household. There is however a theory that its name comes from the Arabic meaning for “food leftovers” that can be used for a new dish. Usually, the meat or fish included in the paella are half-cooked in advance, so as to use their broth to cook the rice. Typical paella does not necessarily contain sea food. The traditional recipe is made with rabbit, chicken, snails and seasonal vegetables. Paella with fish is called *caldero* and served with *alioli*, a spicy sauce containing garlic, salt and oil. Paella is served hot in the same pan used to cook it.





**Pizza:** Although foods similar to pizza have been made since the Neolithic age –records of people adding other ingredients to unleavened or leavened bread can be found throughout ancient history– pizza’s origins are rooted in Naples. The innovation that led to flat bread pizza was the use of tomato as a topping. For some time after tomatoes were brought to Europe from the Americas in the 16<sup>th</sup> century, they were believed by many Europeans to be poisonous. However, by the late century, it was common for the poor of the area around Naples to add tomato to their yeast-based flat bread. And thus began the production of pizza. Pizza bread (with tomato but no cheese) was traditionally sold in bakeries of Naples until recently. Pizza gained popularity soon becoming a tourist attraction as visitors to Naples ventured into the poorer areas of the city to try the local specialty. Later on, anchovies and olives and/or cheese were added, its production spread throughout the Mediterranean and beyond, and the variations of the toppings almost limitless.



**Qidra** is actually a pot made of copper and covered with tin. The dish is named after the vessel in which it is cooked. Red meat or lamb or goat or white meat (particularly chicken) is the key ingredient accompanied by spiced rice; the use of turmeric is a must. This dish is famous in the south of the West Bank, mainly in the Bethlehem and Hebron districts and is often prepared for feasts and large gatherings.

**Tajine** comes from the Berber word *tajin* and the ancient Greek word for pan –*téganon*– and indicates both the cooking process and the dish. The unique cooking vessel is wide and shallow topped by a conical lid in terra cotta, sometimes glazed, which originally comes from the city of Tafraout in the Moroccan anti-Atlas. The culinary preparation, originating in the Berber cuisine but also very common in the traditional cuisine of the entire Maghreb, is a kind of stew containing a mixture of meat, poultry or fish, vegetables or fruits, spices and olive oil. The preparation of the tagine, the ingredients and the spices used are different in the different parts of North Africa and are influenced also by the seasons. The tagine is traditionally eaten as a family dish, with people seated on small benches around the dish, often placed on a coffee table. Each person eats directly out of the tajine with his or her fingers while holding a piece of bread. If a distinguished guest is present, the head of the house will traditionally turn the vessel so as to offer him/her the best pickings.



the Mediterranean  
diet and **health**





# 15

## the Mediterranean diet and health



Many studies in the relationship between dietary patterns and chronic diseases have shown evidence that certain nutrition habits and regular consumption of specific foods may lead to the emergence of chronic diseases. Consequently, many studies suggest that the traditional Mediterranean dietary habits and lifestyle reduce the incidence of such diseases and improve longevity.

As discussed in the previous chapters, the Mediterranean nutritional model is characterized by high consumption of cereals, fruits, vegetables, nuts and olive oil (as the main source of fat), frequent consumption of pulses and fish, moderate consumption of meat and dairy products, as well as everyday consumption of herbs and hot drinks. Scientific research has provided strong evidence of its long-term contribution to maintaining good health, since it offers the necessary nutrients, minerals, flavonoids, antioxidants and fibers. Ancel Keys, in his “Seven Countries Study” (published in 1978), provided one of the first key research works on this matter. His observations indicated that all-cause and coronary heart disease death rates were lower in study cohorts where olive oil is the main dietary fat compared to northern Europe. Since then, the scientific community confirmed that

the Mediterranean diet has profound health effects. It has been associated with longevity, lower prevalence and incidence of chronic diseases, reduced total mortality and mortality from cardiovascular disease and cancer.

Nutritionists suggest that one should stick to the Mediterranean regime of three main meals a day in addition to a snack (a seasonal fruit, salad, nuts) to allow the body to purify itself and to strengthen the immune system. This is particularly important in the context of the COVID-19 pandemic. The immune system is strengthened by a good digestive system. It is advisable therefore to consume foods that are typical of the Mediterranean diet, in other words of plant origin, rich in vitamins, minerals and probiotics and avoid eating fried food or anything too salty, oversweet and fatty.

It is important to keep in mind that the Mediterranean diet is part of an overall lifestyle which is increasingly affected by a globalized economy, increased urbanization, shifting working-hours and stress imposed by international, regional, national and local pressures and challenges such as economic and political crises, natural disasters, and the COVID-19 pandemic.





A survey conducted on a large part of the Italian population found that during the COVID-19 lockdown 35.8% of the respondents consumed less healthy foods, while 48.6% reported weight gain. Greater adherence to the Mediterranean diet was observed in Central and Northern Italy, where the body mass index (BMI) is lower. Elderly participants reported lower adherence to the Mediterranean diet compared to those aged 18–30 years old. Moreover, according to a Spanish study, middle aged, females of a higher educational level followed the Mediterranean diet during the quarantine period more than others.

Proper dietary practices and good hygiene: washing of hands and surfaces prior to handling and preparing food and before its consumption, as well as thoroughly cleaning raw food such as vegetables, fruits, roots, etc. go hand in hand, particularly in the conditions of a pandemic. The practice of using water and vinegar for disinfecting vegetables and fruits is quite effective and has been a common practice throughout the region, since antiquity.





the environmental impact of food  
and sustainability **challenges**





# 16

## the environmental impact of food and sustainability challenges



Examination of the environmental impact of the food production, processing, packaging, marketing, distribution and consumption cycle helps us to understand the complexity of the interlinked ecological, health and socioeconomic dimensions that can be addressed only through integrated policies and multidisciplinary practices and tools.

The question is how to feed an increasing, young population of low-income people largely accumulated in big cities (socioeconomic challenge) in a nutritionally balanced healthy manner (health challenge) without destroying biodiversity (ecological challenge) or exhausting and threatening the security of basic natural resources (water-energy) and the fundamental bio-geo-chemical processes on which ecosystems and our economy rely. These issues have been at the center of our attention and concern from the very early days of our environmental work and action (see Scoullos M., 1974) but the rapidly increasing population (also in some parts of the Mediterranean) on one hand, and the changing lifestyles and consumerism on the other, coupled with the impacts of climate change, result in a critical situation that needs to be controlled immediately. That is if we do not want to be forced, by the difficult emerging conditions, to follow compulsory measures of questionable efficiency and effectiveness in the near future, in order to secure our survival.

The issue is global, but it's important to see what can be done at the regional (Mediterranean) level having as a starting point the wisdom embedded in the Mediterranean food and dietary patterns and culture.

The prevailing intensive food production and high consumption patterns in the Mediterranean, which are also increasingly based on meat and animal products, require huge quantities of water, land resources and energy, having high ecological, carbon and water *footprints* and exercising more pressure on the scarce and already vulnerable natural resources of the region. Besides, most current large-scale intensive food production practices significantly threaten the indigenous agro-species, while producing considerable water and land pollution. Let's summarize the most important challenges connected to the food production systems:

- **LAND and WATER POLLUTION** due to the excessive use of fertilizers, pesticides and agrochemicals in general, imposing great risks on biodiversity. Once released, these substances can accumulate in the soil and marine sediments, and in many organisms. These pollutants move through the food web (*bioaccumulation and biomagnification effects*) increasing their toxic effect. There is growing evidence that some types of pesticides could seriously threaten bees and other pollinators worldwide through their direct application on fields and through seed coating.
- **OVEREXPLOITATION OF NATURAL RESOURCES** –water, soil, energy- due to intensification of agricultural production. It is estimated that the agro-food systems globally consume about 30% of total end-use energy, while in the Mediterranean 70%-80% of the water is consumed by the agricultural sector.



## Honey bees at risk

Bees, if continuously exposed to small concentrations of the insecticide group of neonicotinoids, may affect their learning memory performance, feeding activity and thermoregulation, make them lose their ability to trace the position of food, while their exposure to bigger concentrations causes death. Their decline would bring disastrous effects on ecosystem balance and agricultural economy.



- **LAND DEGRADATION AND EROSION** due to the combined impact of chemical and mechanical interventions, unregulated excessive pumping of groundwater and improper crop rotation. The decrease of land quality is causing cascading effects within the ecosystem: nutrient loss, reduced carbon storage, declining biodiversity and stability. The Mediterranean region is particularly vulnerable when we talk about land degradation if we consider the landscape, climate change and urbanization, water resources fragility, overgrazing and forest fires.

## The “wasted” land

Only in the northern part of the Mediterranean (EU countries) 37 million hectares of land were classified as vulnerable due to irreversible degradation processes (2007). In the MENA region soil deterioration involves 40% to 70% of land (2019).

- **CONTRIBUTION TO GHG EMISSIONS:** It is estimated that the agro-food systems globally produce about 25% of greenhouse gases (GHG) emissions, a share expected to increase by half by 2050 (IPCC, 2019). This is occurring due to a) intensive animal farming through digestion and excretion and improper manure management: this sector alone is estimated to emit 14.5% of global GHG; b) the use of nitrogenous fertilizers in agriculture releases GHG; c) the burning of agricultural waste and residue decay; d) forest fires emitting CO<sub>2</sub> and loss of forests necessary to absorb CO<sub>2</sub>. Deforestation practices are taking place in order to ensure more crop and pasture/grazing lands, aggravating the situation; e) The transportation of food products (*food miles*). However, agriculture is not only a source of GHGs but also one of the most affected by climate change productive sectors in the Mediterranean region. Using a high-end emission scenario, it is predicted that yields of non-irrigated crops will decrease in the North (Southern Europe) by up to 50% by 2050. In the MENA region, even improved yields in crops and the livestock sectors, within the margins of available water resources, wouldn't be sufficient to compensate for rising food needs. Thus, the resulting increased agricultural imports may cause rising regional dependence on importation by 45%.

## Food miles

Imported by plane, a strawberry bought in Europe in March, consumes 24 times more energy than a locally grown strawberry bought in June! Think about your fridge or your pantry. Do you know where the products come from? Read the labels and group them per category: within 20 km; within 200 km; over 2000 km. The result might surprise you! Discover more [here](#)

- **GENETIC MANIPULATIONS** (Genetically Modified Organisms, or GMOs) and their impact on biodiversity. Changing genetic patterns could strengthen i.e., resistance to pests or improve production under higher temperatures or salinity. However, it imposes the risk of interfering with the food web and disrupting ecosystem balance. A major concern is that GMOs cause reduced genetic diversity of plants and animals in the environment and genetic diversity is directly related to biodiversity. Maintaining genetic diversity is important for the environment and agriculture because increased variability in DNA will provide a better opportunity for organisms to adapt to a changing environment. A study has proven that some rice hybrids showed lower fitness due to the introduction of the genes producing Bt toxins (Huang et al., 2019). Even more, in hybrids of “golden rice” and the “Swarna” Indian variety, the engineered genes, inserted to increase vitamin A production, were the ones that interfered with the plant’s growth (Bollinedi et al., 2017).
- **LOSSES** along the way “from field to fork”: Each year, a third of the food produced for human consumption is lost or wasted globally. In fact, it is estimated that the food wasted could feed up to two billion people. These losses may be caused by: (On farm losses) inappropriate harvesting time; unfavorable weather conditions; unsuitable harvest and handling practices applied; inadequate storage; marketing challenges; losses in processing and packaging factories due to inadequate facilities, malfunctions or mistakes.; food discarded by retailers, the leftovers of consumers, the leftovers from preparation and cooking in households, restaurants, cafes, etc. It is estimated that kitchen leftovers constitute 30% of the total household waste volume. In the Mediterranean area, it seems that food loss and waste is widespread. Apart from the socio-economic consequences, the losses along the food chain have a significant environmental impact: huge losses in water, land and energy, wasteful use of chemicals (fertilizers and pesticides), fuel used for food transportation, and more rotting food in landfills, emitting more methane (an important greenhouse gas).

## Think-Eat-Save

Are your bananas going brown before you even have time to eat them? Are you throwing out leftovers at the end of the week? Do you accidentally cook three times the amount of rice or pasta than you actually need? When our behavior leads to food waste, we’re also wasting our money and the planet’s resources. To reduce our “foodprint” we all need to take action in our homes, supermarkets and communities. Get inspired by UNEP’s campaign: [@think-eat-save](#)



- **PACKAGING OVERUSE** and **LITTERING**: Food production, along all its stages –fields, greenhouses, fish farms, processing and retailing plants, transportation and distribution systems– uses an extensive array of packaging products, of all types and forms: plastic, carton, metal and glass, rigid and flexible, huge and tiny. It is estimated that the global consumption of rigid and flexible single-use packaging will continue to grow, reaching 48.5 million tons in 2025, inadvertently polluting land and sea if not well managed.

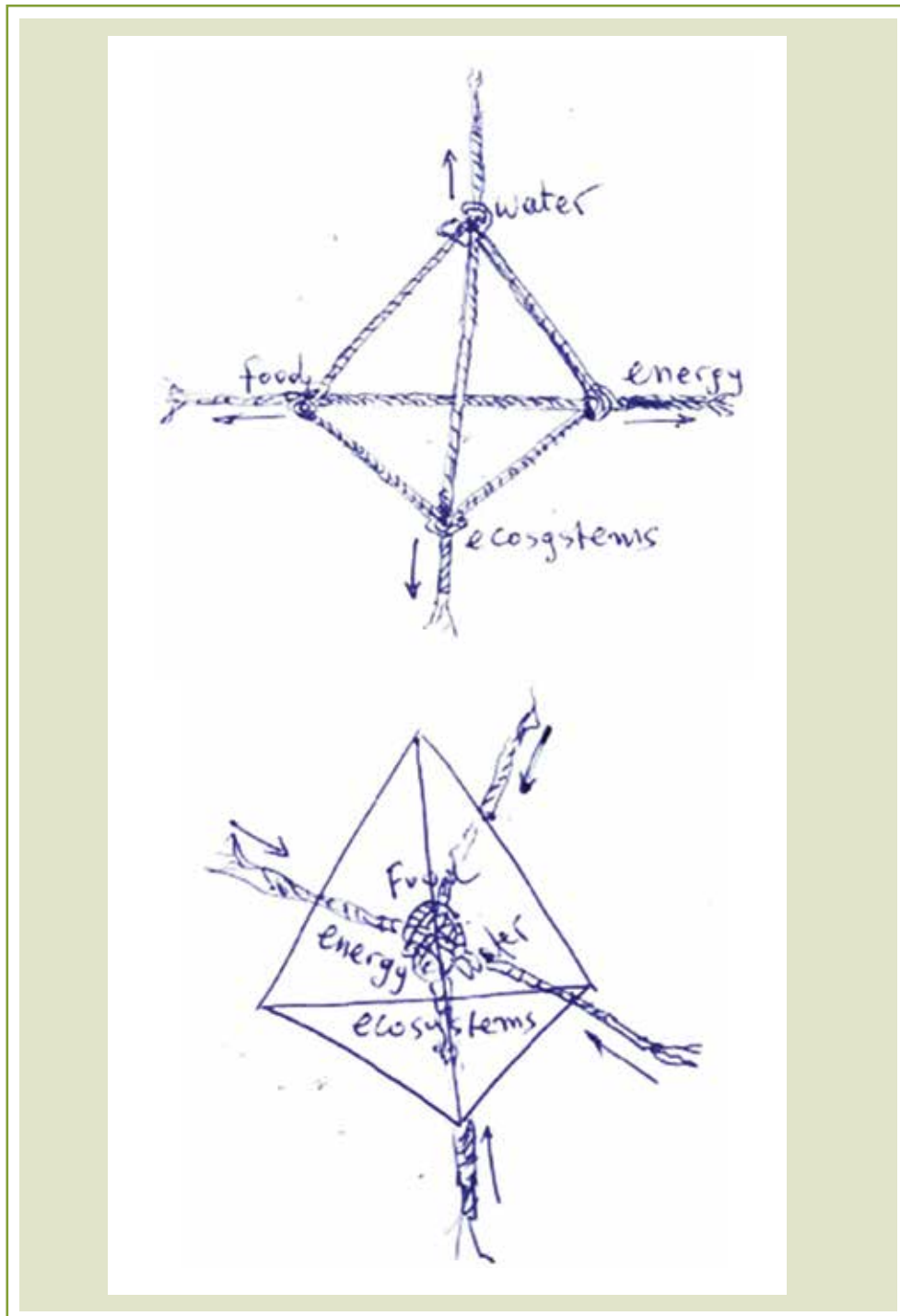
## UNEP Tide Turners

The Tide-Turners Plastic Challenge is a global Youth movement to fight plastic pollution around the world. Designed to inspire young adults to reflect upon their plastic consumption, discover solutions to reduce this consumption, and lead change in their homes, communities, institutions and offices. You can participate as an individual or group (club, class, institution, etc.). [#TideTurners](#)

## What about fisheries?

The Mediterranean Sea, with its unique geomorphology, being rich in oxygen, poor in nutrients and saltier than the oceans, is a hot spot of biodiversity sheltering a wide diversity of species. Fisheries in the Mediterranean are an important productive sector, with a significant fleet of approximately 82,000 vessels, out of which the small-scale ones account for 80% (FAO, 2016). However, there is increasing concern about the status of this marine ecosystem due to the current levels of overfishing. Many studies have discussed how unbalanced fishing in several areas is undermining the productivity of commercial stocks, putting 90% of them at risk. In this scenario, fisheries of the western part of the Mediterranean Sea show lower ecosystem sustainability than the ones historically artisanal and of small scale that we find e.g. in the Ionian Sea of Greece or fisheries still working within profitable conditions, as we can see in Tunisian waters. Fishing activities also contribute to marine litter; nets are easily lost and trigger “ghost fishing”, the involuntary entanglement of organisms such as marine turtles, mammals and fish.

Talking about integrated ways to formulate “wiser” and more effective operational policies to address the complex problems related to food at all the relevant levels, including the regional (Mediterranean) one, it is useful to present one example –the case of “WEFE,” the water-energy-food-ecosystem nexus– on which both **MIO-ECSDE** and **GWP-Med**, among others, have worked since the early years of the second decade of this century. The “nexus” approach tries to turn the nexus of pressures and challenges, exerted on each one and all of the four, by the other three, into a nexus of opportunities and mutual support, as visualized in the following two sketches (Scoullos M. 2018).





Essentially, in practical terms, the first fundamental step is changing the mentality and mechanisms of governance and policy decision-making, from being sectoral and “silo” dominated. A co-designed approach involving all four critical sectors, with negotiated operational responsibilities designated in advance of the decisions should be set up. Such an approach is totally in line with what is needed for the implementation of the SDGs and Agenda 2030 and could facilitate and promote simultaneously the shift from a linear economy to a circular economy in all aspects related to the overall food cycle.



We can, by focusing on the Mediterranean, subscribe to some simple, generic but important recommendations suggested by the UN CC E:Learn presented herewith:

- **BETTER FARMING:** Implementing organic practices and reducing the dependency on chemical substances; More diverse crops: Agriculture and fisheries must become more diverse to provide nutritious and varied food that is good for human health and supports the environment. Field rotations, use of compost, reduction of soil tillage, mitigation of soil degradation.
- **INNOVATION** in the food sector plays a fundamental role in the transition toward sustainable practices: Better yields from existing croplands (without adding new ones) in order to secure that 50% of the planet’s ecosystem remains intact; Efficient water use technologies; Use of **non-conventional water resources** (rainwater and stormwater harvesting, recycling of wastewater) in agriculture; Climate-wise agriculture, etc. Innovative technology is helping to minimize food waste: **AI drones spot ripe fruits for harvest** which otherwise would rot, apps allow for cafes and restaurants to sell meals at a reduced price instead of discarding them, food business connect with charities, etc.
- **RESPECTING ANIMAL WELFARE**, making use of alternative veterinary treatments and making manure manageable for disposal.

- **REDUCING FOOD WASTE:** There is a need to reduce food losses in production and food waste by individuals and retailers. Scaling up innovative solutions along the food supply chain can help. Food waste from households, retail stores or restaurants could be valuable sources of livestock feed. Composting is an option toward minimizing waste. Use of packaging materials that are environmentally friendly and/or recyclable are in the same line. Read more about FAO's **Campaign on Food Loss and Waste**.
- **EFFICIENT POLICY IN ACTION:** The **EU is phasing out some single-use plastics starting in 2021**. Most of them are used for food packaging and fast-food consumption purposes. This ban means no more plastic cutlery, cups, straws and coffee stirrers, while specific measures are provisioned for plastic food containers (e.g. to include a certain percent of recycled plastic or manufactured with alternative materials).

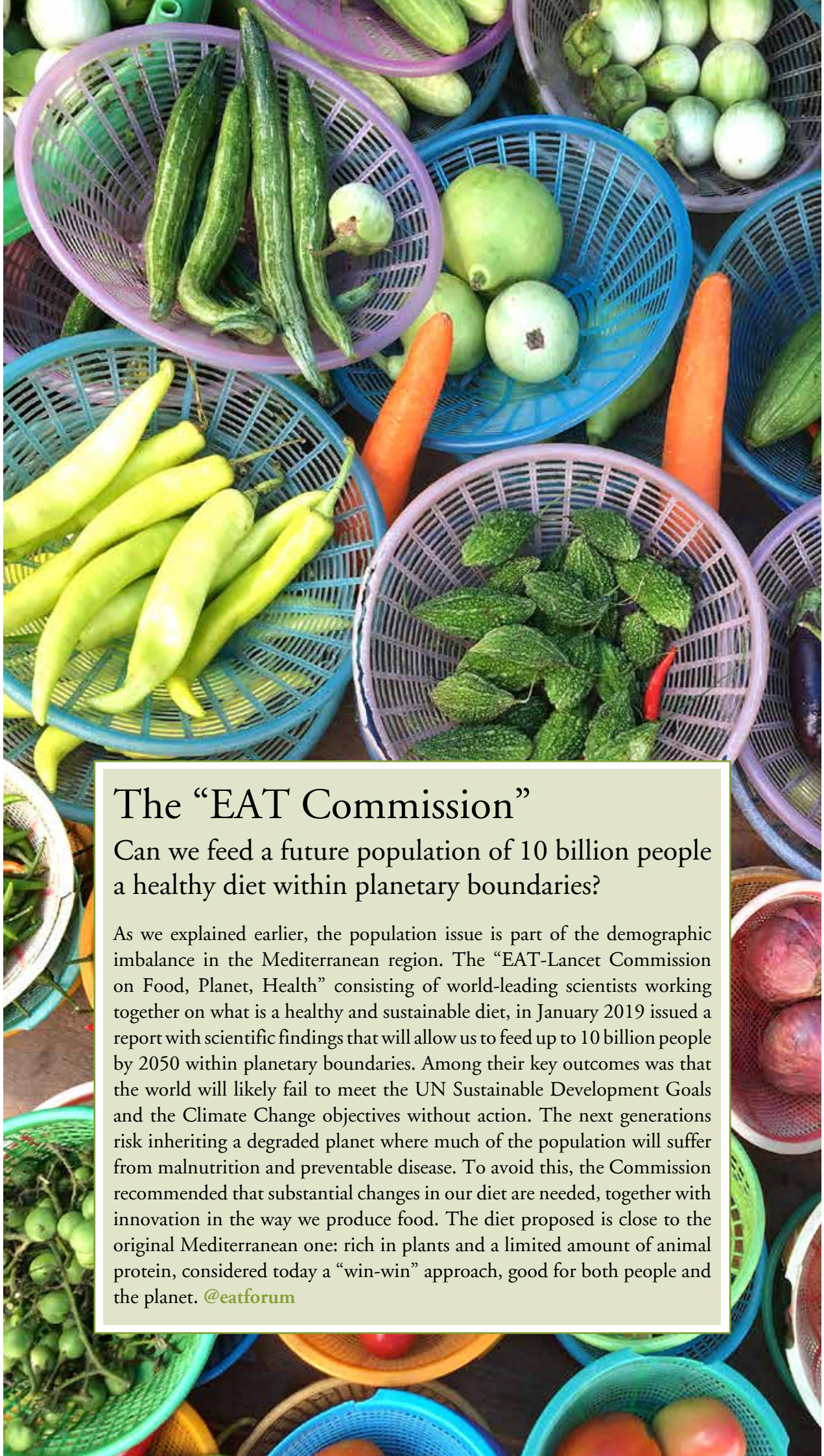
## SDG 12.3:

By 2030, halve the global per-capita food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.” SDG 12.3.1a – The Global Food Loss Index (FLI) focuses on food losses that occur from production up to (but excluding) the retail level. @SustDev

So, the facts are clear and the problem is two-fold: our food systems and lifestyle choices harm people and the planet. What is our role as consumers in transforming our food choices from being part of the problem in becoming part of the solution? This is discussed in the next section in combination with what the Mediterranean food and diet could offer toward that objective.







## The “EAT Commission”

Can we feed a future population of 10 billion people a healthy diet within planetary boundaries?

As we explained earlier, the population issue is part of the demographic imbalance in the Mediterranean region. The “EAT-Lancet Commission on Food, Planet, Health” consisting of world-leading scientists working together on what is a healthy and sustainable diet, in January 2019 issued a report with scientific findings that will allow us to feed up to 10 billion people by 2050 within planetary boundaries. Among their key outcomes was that the world will likely fail to meet the UN Sustainable Development Goals and the Climate Change objectives without action. The next generations risk inheriting a degraded planet where much of the population will suffer from malnutrition and preventable disease. To avoid this, the Commission recommended that substantial changes in our diet are needed, together with innovation in the way we produce food. The diet proposed is close to the original Mediterranean one: rich in plants and a limited amount of animal protein, considered today a “win-win” approach, good for both people and the planet. [@eatforum](#)





Mediterranean food and diet contribution  
to **sustainable** development





# 17

## Mediterranean food and diet contribution to **sustainable** development



### THE MEDITERRANEAN DIET AS AN EXAMPLE OF A SUSTAINABLE DIET

The drifting away from the traditional Mediterranean diet, to follow less healthy ones connected to rapidly changing lifestyles, has become a common trend during the last decades throughout the region. Driving forces of such change are globalization, urbanization and consumerism. Contrary to what is expected, urbanization reduces people's leisure time. In urban areas and mega-cities, working conditions and lifestyles' tempos drastically reduced the time for cooking for many Mediterraneans, while the schooling and working time for the various members of the same family vary considerably, reducing the regularity of the meals and the opportunity for common sittings around the table. As a consequence, people now rely either on precooked refrigerated food or on food prepared outside the home such as delivered food, fast food, etc. The social changes in the region, followed

by the changes in food trends and the availability of comparatively much cheaper food than in the past (e.g. deep frozen) of all kinds, have resulted in a gradual alteration and shift from the typical Mediterranean diet, leaving behind traditional culinary practices and knowledge on how to choose ingredients and food products and prepare meals. However, for a number of reasons, it seems that this trend is again changing to a reversed direction in the region (and beyond) and actually, the COVID-19 pandemic seems to have accelerated this change. The Mediterranean diet pattern corresponds to the sustainability challenges discussed in the previous chapter, being plant-based, with quality dairy products and reduced consumption of meat, thus, demanding less soil, water and energy compared to globalized “western” dietary patterns (which are also differentiated globally). According to FAO, “Sustainable diets are diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources.” In fact, the Mediterranean diet has been acknowledged as an example of a sustainable diet to be further studied along with other cultures and in other agro-ecological zones.

## Med Diet 4.0 model

In 2015, FAO and CIHEAM in collaboration with the Forum on Mediterranean Food Cultures (FMFC) and the International Foundation of the Mediterranean Diet, developed a new methodological approach, called the “Med Diet 4.0 model” that highlighted apart from the qualities related to health, low environmental impact and sustainability its high socio-cultural recognition of food value and positive economic local return.

[@ifmeddiet](#)


Additionally, the habits and behaviors linked to the Mediterranean diet, such as: cooking skills, seasonality, biodiversity knowledge and respect, eco-friendliness and consumption of local products, regular practice of moderate physical activity, eating in moderation, and socialization during eating, are particularly sought by people today to ensure health, wellness and joy. In this line, the [Intercultural Trends Survey \(2020\)](#) of the Anna Lindh Foundation revealed that the majority of respondents still consider that the region is characterized by a “Mediterranean way of life, food and hospitality.” Commenting on the Mediterranean way of life and food, the journalist Khalid Chaouki believes that *“strong and common roots are at the base of the region, allowing us to recognize we’re alike even in diversity.”* ([@watch the launching video of the report](#))



## THE ROLE OF LOCAL PRODUCERS

Since the 1990s there has been a resurging interest in promoting local Mediterranean food systems as economically viable systems for farmers and consumers but also as “assets” for other economic sectors. In this context, **gastronomy** has been recognized and produced as an economic and cultural value, along with **agritourism** and **ecotourism**, which have significant success in many countries of the region. The latter opened a new era of opportunities for small and medium-scale producers and their associations and cooperatives in the agro-food sector, including those of women. Women and their associations actively contribute to the agricultural sector, as well as to the small-scale processing of traditional and local food products, finding entries into local, national and even, international markets. They also play an essential role in transmitting and safeguarding not only the traditional knowhow and techniques related to food but also the knowledge of indigenous herbs and plants.

Local smallholder farmers are indispensable to the agro-economy and food system — they know their land best and are key to the transition to regenerative agriculture. To make the shift toward sustainable production practices, farmers need support to address competition with large scale agricultural production. They need to learn and apply new types of “quality marketing” and pass it along to the next generation. Long-term contracts with retailers and decent prices are also extremely important. They help farmers to obtain stable profit margins and mitigate the effects of fluctuations in the market price of goods, giving them the stability to invest in sustainable and regenerative practices. Longer-term contracts also help to reduce food waste, as farmers would produce only the quantity (and quality) of food that they can sell. For consumers, this might mean that the final quality product they opt for may become slightly more expensive to accommodate the necessary additional profit of the producers.

A woman wearing a white t-shirt and a tan apron is shown in profile, looking towards the right. She is standing in a greenhouse, with rows of plants visible in the background. The lighting is bright and even.

### Women and traditional food saving practices

The role of women in the Mediterranean has been particularly crucial in expanding availability and accessibility of nutritional food on a sustainable basis. Through the preservation of abundant seasonal produce for later use during the year, they have made possible the availability of and access to diversified food using local produce: the Mouneh in the East Mediterranean, the Khazin in Egypt and the Aoula in Algeria, are examples of traditional food-saving practices that women, collectively or individually, produced to make use of food surplus that could otherwise be wasted.

## IT'S A MATTER OF TASTE, NOT OF WASTE

Our connection to food systems must change in order to better serve our health and the planet. If we want to minimize the negative environmental and social impact of food production we need to rethink the production patterns globally. Among other things, we need to understand as consumers that the value of a food product isn't always reflected in the price. We need to think about the hidden cost of the very low-price food and the value which is integrated in the good quality of a product. As consumers, customers and home cooks we can drive meaningful changes through our purchases, choices, waste management and lifestyles. Individual choices have a much greater impact than most believe. Here are some tips to become sustainable when it comes to food.



### SHOPPING:

- Plan your meals and be mindful of product's expiration dates.
- Shop Smart: plan meals, use shopping lists, avoid impulse buys and don't succumb to marketing tricks that lead you to buy more food than you need.
- Whenever possible, choose safe foods that are unpackaged.
- Bring along the re-usable items you need in your everyday life, such as shopping bags, a bottle, coffee mug and food container.
- Buy "funny fruits"; many fruits and vegetables are thrown out because either their size, shape, or color are deemed "not right". Buying these perfectly good fruit, at the farmer's market or elsewhere, utilizes food that might otherwise go to waste.
- Buy and use cheap overripe fruits if you are interested in making jams, liqueurs, "fillings" for pies, etc.
- Choose organic products.
- Buy products in season.
- Check, if you can, the food miles before buying. Choose locally produced food whenever you can.

### COOKING:

- Use water with care, not only during cooking but also when washing.
- Cook with the most energy-efficient appliances possible.



- Refrain from constantly opening and shutting the refrigerator.
- Avoid waste of ingredients: cook as much as you need. Get creative with recipes to use up anything that might go bad soon or was left over. Keep the food left over in the refrigerator for another meal.
- Try to reuse the food left over, such as by making compost or feeding domestic animals or donate through in-person donations at food banks, informal sharing with friends and family.
- Separate your waste and recycle as much as possible.
- Understanding food labeling is also helpful. “Use by” tells you the date up to which food is safe to be eaten, while “best before” indicates that the food’s quality is best prior to that date, although it is still perfectly safe to be eaten afterwards.

### IN GENERAL:

- You don’t have to give up meat and dairy products. Simply reduce the frequency and amounts or switch from beef to poultry. This can shrink your climate footprint.
- Spread the word and set an example, particularly for the younger generation.
- Enjoy nutritious Mediterranean meals with family and friends as often as you can.

### FOR RETAILERS:

- Conduct waste audits and product-loss analysis for high-waste areas.
- Work with suppliers to reduce waste.
- Offer discounts for near-expiration items.
- Redesign product displays with less excessively standardized products, promoting local ones.
- Increase “food donations corners”.

### FOR OWNERS AND MANAGERS OF RESTAURANTS, CAFETERIAS OR HOTELS:

- Choose local producers.
- “Revisit” traditional recipes.
- Limit menu choices and introduce flexible portioning.
- Conduct waste audits.
- Create staff engagement programmers that can help promote the Mediterranean low-environmental-impact diet, among other measures.
- Donate spare food to local food banks, soup kitchens and shelters.

## The Slow Food Movement

Starting in the 80s and growing bigger over the years “Slow Food” is an answer to “fast food” and advocates that everyone should have access to good, clean and fair food. In other words, food needs to be healthy, of good quality, produced without harming the environment, have accessible prices for consumers and deliver fair pay for producers. It brings together many actors in joint actions of advocacy, networking, awareness, etc. [#slowfood](#)

## The Anatomy of Action Global Youth Campaign

The “Anatomy of Action” is a 15-day social media challenge for youth around the world (led by UNEP) to show that sustainable living is feasible, “cool” and fun. The challenge introduces an action per day, starting with food. It focuses on the following three of the highest impact subdomains: “protein swaps” (reduce meat and dairy), “use all your food” (avoid waste), “grow your own” (opt for local products). By taking part in addressing these challenges, you won’t only be influencing your community to embrace a more sustainable lifestyle but you will also contribute to the development of a global movement targeting policy makers around the world.

[@AnatomyOfAction](#)





## Flexitarian restaurants

Part of the food service industry shows readiness to successfully adapt toward the global trend of less animal protein consumption. “Flexitarian” restaurants respond to the continuously fragmented demand for animal protein in a wide spectrum of ways: from developing a predominantly plant-based menu, to preparing one meat and one fish option in the daily menu; occasional addition of meat and fish or even separate menus.

[#flexitarianrestaurants](#)

## Public gardens and fields in Italy

In Italy, there is an increasing trend of creating urban gardens and fields (36,4% in only five years reaching over 1,9 million m<sup>2</sup> of municipal land) divided in small parcels for family cultivation. The benefits are multiple: redefinition of the relationship countryside-city, creating sustainable territorial models; safeguarding ecosystems services and landscape; contributing in reaching the SDGs; rediscovering traditions and use of non-commercial species; enhancing societal links and citizenship; and producing local fresh, affordable, high-quality food.









# epilogue

The Mediterranean region is a unique eco-region. It's a North-South interface—a mosaic of peoples and cultures of different origins and characteristics but with a common shared or familiar geomorphological, climatic, environmental background.

Mediterranean food encapsulates and reflects the impact of the common elements in century old traditions and practices providing an incredible living storehouse of cultural heritage highlighted by the endless confluence of cultures.

Wherever you are in the region, you sense a familiarity in the gastronomic ritual and cuisine. While the three core elements of the cuisine are: the olive, wheat, and grape, the region spans a wide variety of cultures with distinct cuisines around the Mediterranean Sea: *Egyptian, Greek, Italian, Levantine, Maghrebi, Provençal (South France), Portuguese, Spanish and Turkish*.

Nowadays, both the heritage related to the preparation of food and Mediterranean diet, and the adequate and quality natural resources, so much needed for food production are endangered. The food production and marketing practices and technologies are changing rapidly and their future is uncertain, in response, on one hand, to environmental pressures, and on the other, to new socioeconomic conditions and trends influenced by all aspects of globalization. The rapidly increasing population in parts of the region adds to the problem.

The prevailing intensive food production, high consumption patterns and habits introduced in the region, which are also increasingly based on meat and animal products rapidly change traditional nutrition and require huge quantities of water, more land resources and energy, having high ecological, carbon and water footprints and exercising considerable pressure on the already vulnerable natural resources of the region.

So, it is becoming evident that our connection to food systems must change this trend capitalizing on old and new lessons learned to better serve our health and our planet.

If we wish to minimize the environmental and social impact of food production and to formulate “wiser” and more effective policies towards this direction, we need to rethink and adapt our food systems in an integrated way, such as is the nexus approach (water-energy-food-ecosystem) that tries to turn the nexus of pressures and challenges, into a nexus of opportunities and mutual support.

Last but not least, as appropriately informed and educated citizens and consumers we have the power to drive meaningful changes through our choices, purchases, and waste management and to transform our lifestyles and societies. The individual choices, even the smallest ones, accompanied by sharing information and knowledge with family members, friends and our communities have a much greater impact than most believe.



## Final words

The Mediterranean food and diet is ....

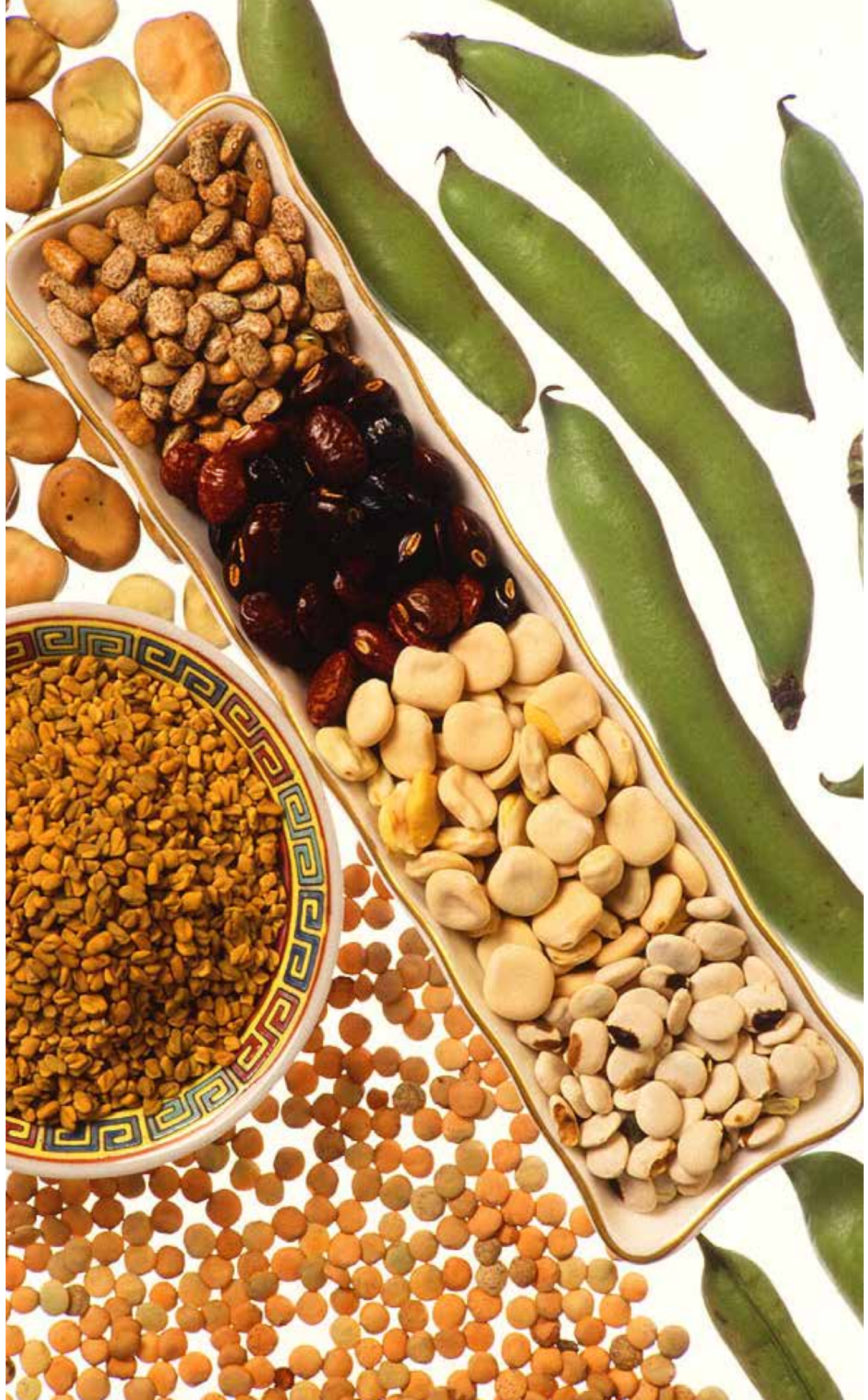
*An important cultural capital that could help our sustainable future,*

*A healthy, contemporary lifestyle that already inspires many people beyond our region providing a sustainable dietary pattern,*

*A valuable means to sustain a fertile intercultural dialogue, facilitating understanding among different people while it offers concrete opportunities to raise our awareness about sustainable choices of food purchase and consumption.*









# references



## PUBLICATIONS

Angelidi A., Kokkinos A., Katechaki E., Ros E., Mantzoros C., 2020, *Mediterranean diet as a nutritional approach for COVID-19*, <https://doi.org/10.1016/j.metabol.2020.154407>

Colloca F., Scarcella G., Libralato S., 2017. *Recent Trends and Impacts of Fisheries Exploitation on Mediterranean Stocks and Ecosystems*. *Front. Mar. Sci.* 4:244.

Costantini E., Urbano F., Bonati G., Nino P., Fais A., 2007. *Atlante Nazionale delle Aree a rischio di Desertificazione*. Consiglio per la Ricerca e la Sperimentazione in Agricoltura, Istituto sperimentale per lo studio e la difesa del suolo, Centro Nazionale di Cartografia Pedologica: Rome, Italy.

CIHEAM/FAO, 2016. *MediTerra. Zero waste in the Mediterranean. Natural resources, Food and Knowledge*. Paris: Presses de Sciences Po.

Dernini S., Berry E., *Mediterranean Diet: From a Healthy Diet to a Sustainable Dietary Pattern* *Frontiers in Nutrition* 2015; 2: 15, published online 2015 May 7. doi: 10.3389/fnut.2015.00015

Domizio P., Lencioni L., 2011. Chapter 3 - *Vin Santo*, Editor(s): Ronald S. Jackson, *Advances in Food and Nutrition Research*, Academic Press, Volume 63, 2011, Pages 41-100, ISSN 1043-4526, ISBN 9780123849274,

EEA, 2019. *Climate change adaptation in the agriculture sector in Europe*. EEA Report No 04/2019

EAT-Lancet Commission, Summary Report, EAT, 2019

- FAO, 2016. *The State of Mediterranean and Black Sea Fisheries*. Rome
- F.Hachem, R. Capone, M.Yannakoulia, S.Dernini, N.Fao, N.Hwalla, *The Mediterranean diet: a sustainable consumption pattern* in the book “MEDITERRA” 2016 (pp.243-261) CIHEAM/FAO.
- Hattab T., Lasram F. B. R., Albouy C., Romdhane M. S., Jarbou O., Halouani G., et al., 2013. *An ecosystem model of an exploited southern Mediterranean shelf region (Gulf of Gabes, Tunisia) and a comparison with other Mediterranean ecosystem model properties*. J. Mar. Syst. 128, 159–174.
- Hernández A.F., Parrón T., Tsatsakis A.M., Requena M., Alarcón R., LópezGuarnido O., 2013. *Toxic effects of pesticide mixtures at a molecular level: their relevance to human health*. Toxicology 307:136–145.
- Intergovernmental Panel on Climate Change (IPCC), 2019. *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems*. Geneva
- IPBES 2016. *The assessment report on pollinators, pollination and food production of the Intergovernmental Science-policy Platform on Biodiversity and Ecosystem Services*. S.G. Potts, V.L. Imperatriz-Fonseca & H.T. Ngo, eds. Bonn, Secretariat of the IPBES.
- Khoury, S. *Dishes for Special Occasions*, 2006.
- Mouël C., Forslund A., Marty P., Manceron S., Schmitt B., 2016. *Climate change and dependence on agricultural imports in the MENA region*. The Mediterranean region under climate change. Moatti J.P., Thiébault S. pp. 511-517.
- Meybeck A. et al. (ed.), *Development of voluntary guidelines for the sustainability of the Mediterranean diet in the Mediterranean region* Technical Workshop, 2017, CHIEAM & FAO
- Righini G., Costantini E. and Sulli L., 2002. *La banca dati delle regioni pedologiche italiane*. Bollettino della Società Italiana Scienza del Suolo. 50
- Aziz Sh., 1993, *A Taste of Palestine: Menus and Memories*. Corona Publishing Co. ISBN 978-0-931722-93-6
- Scoullou M., 1974, *Overpopulation and Hunger*, Published in “Pneumatikes Selider” (Greek edition), Athens.
- Scoullou M., Galanos D.S., 1976, *Environmental pollution impacts to diet*, Chemical Chronicles, 41(4), 37-45 (Greek edition).
- Scoullou M., Malotidi V., 2007, *Mediterranean Food: Historical, Environmental, Health & Cultural dimensions* Educational Material, MIO-ECSDE, Athens.



Scoullos M., 2018, *First Nexus Roundtable in the MENA and wider Mediterranean*, Keynote Speech, 26-28 November 2018, Beirut, Lebanon.

Trichopoulou A., Costacou T., Bamia C., Trichopoulos D., 2003, *Adherence to a Mediterranean Diet and Survival in a Greek Population* N Engl J Med 2003; 348:2599-2608, doi:10.1056/NEJMoa025039

UNESCO, 2020, *Education for Sustainable Development: A Roadmap, #ESDfor2030*, Paris.

Vasilakopoulos P., Maravelias C. D., and Tserpes G., 2014, *The alarming decline of Mediterranean fish stocks*. Curr. Biol. 24, 1643–1648.

World Bank. 2019. *Sustainable Land Management and Restoration in the Middle East and North Africa Region—Issues, Challenges, and Recommendations*. Washington, DC.

## ONLINE RESOURCES

A Beginner's Guide to Sustainable Farming by UNEP (<https://bit.ly/2ShhPQi>)

Cultural Awareness International Resources (<https://culturalawareness.com/fasting-around-the-world>)

Challenging Evolution: How GMOs Can Influence Genetic Diversity by Heather Laundry published in Harvard School Blog (<https://bit.ly/3zmpbS1>)

Encyclopædia Britannica, Inc. official webpage (<https://www.britannica.com>)

Marocain Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts online Resources (<https://bit.ly/3zkXYQB>)

Mediterranean Food & Diet Course, E-learning programme of the University of Athens (Greece) (<http://elearninguoa.org/programme/Mediterranean-Food-and-Diet>)

Sustainable Diet Course, UN CC:e-Learn, The One Climate Change Learning Partnership (<https://www.unccllearn.org>)

The Food Heritage Foundation Resources (<https://food-heritage.org/traditional-food-of-ramadan>)

The Technical Platform on the Measurement and Reduction of Food Loss and Waste of FAO (<http://www.fao.org/platform-food-loss-waste>)

The UN Sustainable Development Knowledge Platform (<https://sustainabledevelopment.un.org>)

The future of food, online article by Molly Hannon published in [fivemedia.com](https://www.fivemedia.com) (<https://bit.ly/3i7WrHs>)

