

Il vino in Calabria

Dossier

may 2022

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HISTORY

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WINE CONTAINER

Museo archeologico nazionale della Sibaritide - photo di Stephane Aït Ouarab



Origins of wine in Calabria

(XIV-VIII century BC)

The production of wine dates back to ancient times, towards the end of the Neolithic, by a fortuitous fermentation of wild grape clusters. However, at least from the fourth millennium BC several peoples of the ancient Mediterranean were able to develop viticulture.

In Greece, viticulture is believed to have been widely practiced by the *Mycenaeans* during the second millennium BC and it is very likely that through their trade contacts with the peoples who inhabited the coasts of southern Italy, the knowledge of cultivation of vines and wine production spread to some of the Italian regions. Calabria, at the time inhabited by the *Oenotri* population, was certainly one of these.

The findings made in some *Oenotrian* settlements on the Ionian coast leads to believe that around 1300 BC the processing of at least the spontaneous vines present in the Mediterranean scrub was known and that the production of wine had already begun. In Broglio di Trebisacce, a town located on a plateau a few hundred metres from the shore in the modern province of Cosenza, a large hut most certainly belonging to one of the most important characters of the community has been discovered. On the inside there was interesting evidence regarding wine making, namely several ceramic containers for the conservation of liquids, crafted in typically Mycenaean shape and decoration. The discovery in the same hut of a set of twenty-four high quality ceramic mugs of various sizes, helped in establishing that they had contained wine. It is therefore probable that wine was a luxury drink to be sipped at gatherings of local elite members, according to a similar contemporary Greek custom.

The fact that wine represented an expression of wealth and power among the *Oenotri* is also documented by the presence of richly decorated bowls in some of the most sumptuous funerary arrays that accompanied the deceased to their graves. An example is the cup with two handles (*kantharos*) present in one of the graves of the Macchiabate necropolis in Francavilla Marittima, a town in the province of Cosenza, where a member of the local aristocracy was buried with his weapons and other precious objects.

The very strong link between wine and the history of the region known today as Calabria is also testified by the chronicles of some ancient writers who stated that when the Greeks wanted to explain the origin of *Oenotria* -the territory where some of the most important colonies of Magna Græcia were founded from the eighth century BC onwards-, they would trace its name back to the Greek word *oinos* - which means wine or, similarly, the supporting pole of the vine and its branches. Even later authors, such as the Roman *Varrone*, argued that this land was thus named after a wine native to Italy. Also, in a passage by the Byzantine geographer Stephen of Byzantium it is possible to read "*Peisander* in his XIII book says that *Oenotria* (Oinotria) was thus called due to the use of wine".



WINE CONTAINER
Museo archeologico
nazionale della Sibaritide -
photo di Stephane Aït
Ouarab

Wine in the Greek era (VIII-III century BC)

When, at the end of the eighth century BC, the Greeks arrived in Calabria to occupy new territories and to establish thriving cities, the cultivation of wild or plantation vines had certainly a significant increase. For the Greek society, in fact, wine represented a highly symbolic element at the basis of the rites made to the gods during sacred ceremonies and for public banquets; moreover, it was sipped during the symposia, namely the important meetings between the aristocrats and the political representatives of the communities. At the same time, the production and commercialisation of wine was part of the economic structure of the territory and of its trade exchanges with the rest of the ancient Mediterranean.

The Greek settlers immediately exploited the mild climate and the fertile Calabrian lands to establish large wineries. For instance, we know that in *Sybaris*, one of the first colonies founded along the Ionian coast, the wealthiest of citizens owned vineyards by the sea. The Greek historian *Timaeus of Tauromenium* says that the juice extracted from pressing the grapes flowed through long pipes directly into large containers kept in the cellars of houses, where fermentation took place. Furthermore, the position of these wineries along the coast made it possible to swiftly organise the shipment of the product.

In the Greek era, the wine consumption was allowed only to upper class men who could drink it only if diluted. Just in case of illness was possible to resort to consume it pure. However, it is possible to believe not everyone obeyed this rule because in the seventh century BC *Zaleucos of Locri*, the oldest legislator of Magna Græcia, had to establish that the use of pure wine was allowed only by medical prescription.

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Wine in Late Antiquity and the Middle Ages (IV-VII century AD)

Starting from the fourth century AD the archaeological documentation gradually decreases, if compared to previous centuries. However, an important indicator of the fact that *Bruttium* wine was still produced and exported to many territories is given by the circulation, between the fourth and the end of the seventh century AD of a particular type of amphora produced in southern Italy, most likely in Calabria. A very special example is the one found in the ancient Roman colony of *Scolacium*, in the province of Catanzaro, which handle has an inscription depicting a Menorah (מנורה), the seven-branched Jewish chandelier. It is therefore probable that in the area lived a Jewish winemaker who produced *kosher* wine, i.e. according to the precepts of the Torah. Also, during this period, Senator *Magnus Aurelius Cassiodorus*, born in *Scolacium* itself at the end of the fifth century AD, praised a *Bruttian* wine, describing it as very robust, very clear, mellow, and fragrant to the smell, which went by the name of *Palmiziano*, because of the smell of palm it left in the mouth.

TERRITORY

Calabria is a wonderfully complex mosaic of landscapes: rugged mountain ranges, woods furrowed by rivers, valleys and rolling hills, cliffs and luminous coasts, ancient villages. In these scenarios, wines with a unique history, temperament, and peculiar taste are born.

Author Matteo Gallelo



TERRITORI DEL VINO CALABRESE

in senso orario > Savuto, Pollino, Colline del Crati

Museo archeologico nazionale della Sibaritide - foto di Stephane Aït Ouarab



TERRITORI DEL VINO CALABRESE
Cirò Marina, località Fego

GENERAL GEOGRAPHY

Calabria has a population of 1.8 million inhabitants, with a density of circa 130 inhabitants per square kilometre. It stretches for about three hundred kilometres from the Rangone canal -northernmost point of the region on the boundary with the province of Matera-, to Palizzi, the southernmost point, on the Ionian Sea shore. It limits to the west with the Tyrrhenian Sea and to the east with the Ionian Sea. Cosenza, Crotona, Catanzaro (the regional capital), Reggio Calabria and Vibo Valentia are the five provinces within which there are sub-regions that enhance the magnificent territorial, historical and cultural diversity of Calabria.

Pollino

It is the mountainous massif at the extreme north of Calabria, in the province of Cosenza, but geographically it also encompasses the southern area of Basilicata's provinces of Potenza and Matera. Listed among the great mountain groups of the Apennine range, it is characterized by numerous moraine deposits and is home to the largest National Park in Italy, which is also a UNESCO World Heritage Site.

Sila

This vast plateau of the Calabrian Apennines crosses the provinces of Cosenza, Crotona, and Catanzaro, and is divided from north to south into Sila Greca, Sila Grande, and Sila Piccola, i.e. Greek, Big and Small Sila.

"Sila" derives from the Roman era denomination *Silva Brutia*, which means jungle or forest of the Bruttians, the ancient Italic people who inhabited these lands. In these mountains are located the springs of the main regional waterways, namely the Crati and the Neto rivers. Many of Calabria's lake basins are also located here.

Valle dell'Esaro (Esaro Valley)

An important link between the Ionian and the Tyrrhenian coasts of Calabria. This valley covers over six hundred square kilometres and is named after the homonymous river. Due to its wide and fertile layout and its position between the Pollino and Sila mountains, it has always been a favourable area for anthropic development.

Sibaritide (*Sybaris* area)

The plain of Sibari is the largest flatland in Calabria, important for agricultural and tourism. It is wedged on the Ionian side, between the mountains of the Pollino and those of the Sila ranges, and takes its name after *Sybaris*, the Magna Græcia city located

Crotone

It is a large and diverse territory, corresponding almost entirely to the namesake province. This area overlooks the Ionian Sea while having the Sila mountains on its back. It includes the Marquisate, a flatland of great agricultural capacity, the Cirotono, and the Isola di Capo Rizzuto areas. Its scenery is delineated on the coast by vestiges of Magna Græcia, and by medieval villages in the hinterland.

Lametino

This geographical area, named after the city of Lamezia Terme, leans over the Gulf of Saint Euphemia and embraces almost entirely the Lametina alluvial flatlands, the third largest in Calabria, located at the centre of the Tyrrhenian coast. The area stretches along the western end of the Catanzaro isthmus, the narrowest strip of land in Italy, separating the Tyrrhenian and Ionian Seas.

Locride

Located between the eastern side of the Aspromonte and the Ionian Sea, the territory consists of eighty kilometres of coastline called "*Riviera dei Gelsomini*" (The Jasmine Shoreline) and several valleys such as that of Stilaro, Torbido, and Bonamico. It is an area of particularly rich historical importance due to findings dating back to the Magna Græcia era. The area, in fact, is named after *Locri Epizefiri*, the last of the Greek colonies, founded in the seventh century BC.

Vibonese

It stretches along the Tyrrhenian coast called "*degli Dei*" (of the Gods), and includes the entire province of Vibo Valentia. From the pre-Hellenic to the Norman dominations, this area has always been disputed due to its physical characteristics: enclosed between the gulfs of Saint Euphemia to the north and Gioia Tauro to the south, there are mountains and hills of a particular agricultural value.

Reggino

It is the southernmost area of the Italian peninsula, with a shoreline of about 220 km that goes from Rosarno on the Tyrrhenian Sea to Punta Stilo on the Ionian Sea. This territory is entirely conditioned by the orographic characteristics of the Aspromonte massif. The only flatlands in the area are those of Gioia Tauro. On the western side is the Strait of Messina, the stretch of sea of circa 3.5 km that separates Reggio Calabria from the Sicilian city, meeting point of the Tyrrhenian and Ionian seas.

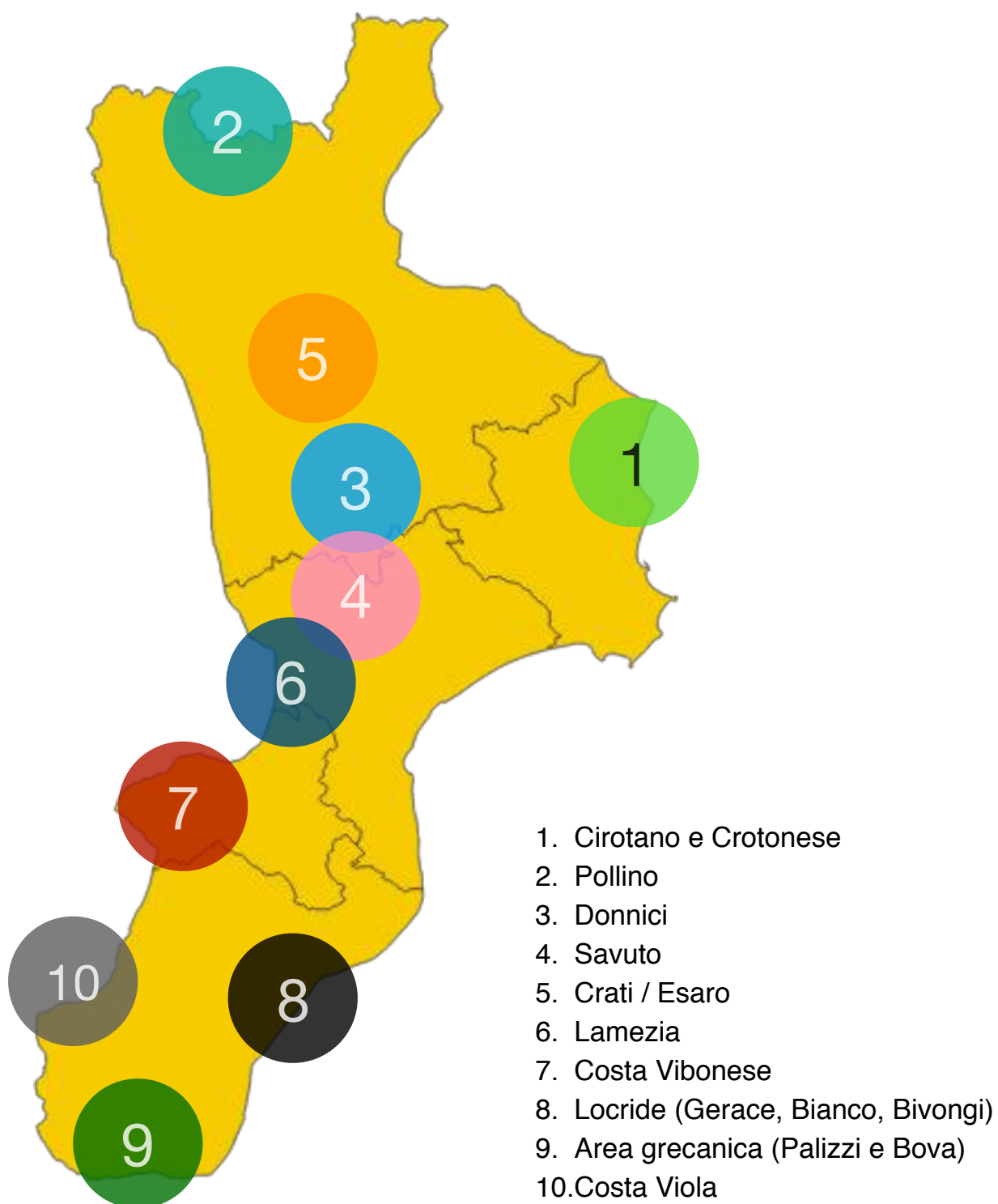
As it may be deduced from these brief reports, Calabria is an extremely complex territory. About half of it is dominated by hills (50.8%), just over a third is mountainous (34.6%), while the flatlands represent 14.6% and are concentrated by the coastal strip. Calabria -one of the regions typified by the most ancient rocks- is characterised by the presence of the Calabrian-Peloritani Arc, a fragment of the Alpine range - and not of the Apennines - made up of metamorphic tectonic units. The Arc is to all intents and purposes a piece of Europe, which, detached from the Sardinian-Corsican block in the Miocene, migrated to its current position. The subsoil is very rich in mineral resources and the geological variety is impressive, in fact it is one of the most interesting and studied cases in the Mediterranean.

In Calabria there are some lakes, mostly artificial and rather small, and several rivers, many of which are seasonal. The most important watercourses are the Crati (the third in the South in terms of average discharge) and the Neto. Both spring from the Sila, and flow into the Ionian Sea while a series of tributaries merge in along their course, particularly upstream.

The climate of the region is affected by morphological heterogeneity: the coastal area is decidedly mild, Mediterranean, while the inner lands are characterised by lower temperatures, with recurrent snowfalls in winter, and significant temperature variations in summer.

Despite its latitudes and its Mediterranean context, Calabria is on the whole a region with moderate rains, particularly along the Tyrrhenian coast. In fact, on that side atmospheric events bring an average annual rainfall that varies between 700 and 1,000 millimetres. Along the Apennines, precipitation generally ranges between 1,400 mm and 1,800 mm of rain per year. Along the Ionian coast, particularly in the areas of Reggio and in the flatlands of Sibari, rainfall stops at around 500 millimetres per annum.

Wine territories



The deep bond established over the centuries between the native vines and the heterogeneous geopedological characteristics of the region makes the wines an effective testimony of the many terroirs that Calabria offers. This is complemented with the commitment of farmers, winegrowers, and producers who, through scientific research on grapes, territory, and winemaking techniques, enhance a unique ampelographic heritage.

Calabria today has about 350 wine varieties, twelve thousand hectares of vineyards and an annual production of 400 thousand hectolitres, of which 70% are red wine and 30% white. The main production areas are concentrated in the provinces of Crotone, Cosenza, Catanzaro, and Reggio Calabria, in which nine PDO (Protected Designation of Origin, DOP in Italian) and nine PGI (Protected Geographical Indication, IGP in Italian) certifications are found.

Cirotano

It is the area located in the north-eastern part of the province of Crotone and includes the PDOs Cirò, established in 1968, Melissa, and Sant'Anna di Isola Capo Rizzuto. These three denominations stretch along the Ionian coast and part of the inland hills and mountains, up to Pre-Sila areas. It is a wide coastal strip, about eighty kilometres long, that go from Le Castella to Crucoli. Quite variable from an orographic point of view. In general, the vineyards near the sea are more fertile while the slopes inland can be stressed by water scarcity. The hills of Cirò and Melissa, in particular, have diversified exposures, soil compositions and water availability and this variety determines important changes on the character of the wines. The most common grapes in this area are *Gaglioppo* -Cirò is the territory of choice for the main and most common red grape of Calabria-, and *Greco Bianco*, with small amounts of *Magliocco*, *Greco Nero*, and *Mantonico*.

Pollino

Divided between the provinces of Cosenza, Potenza, and Matera, the Pollino is certainly one of the most important massifs of the entire Apennines: Serra del Dolcedorme, at 2,267 m.a.s.l., is the eighth highest peak in the range. The limestone rocks here are vulnerable to erosion and karst phenomena, in fact the massif is dotted with caves, sinkholes, and canyons carved out by streams. The geological structure of the area is quite diverse and, therefore, the vineyards extend over soils of different origins, calcareous, clayey, and marly. The Pollino latitude renders the area cold and rainy in winter, and hot and dry in summer. The vineyards extend mainly between 300 and 500 metres above sea level.

The Pollino sub-area is part of the *Terre di Cosenza PDO* and partly includes the territory of the municipalities of Castrovillari, San Basile, Saracena, Cassano allo Jonio, Civita, and Frascineto. It is worth noting the great biodiversity of the area, also from the ampelographic point of view. Among the red vines, the main is *Magliocco Dolce* also known as *Lacrima* in this area, and among the white grape varieties, the *Guarnaccia* stands out for its peculiar finesse and flavour characteristics.

Donnici

The toponym derives from Latin *Campi Dominici*, i.e. "land of the lord", meaning lands directly administered by the Roman governor. Donnici is located about ten kilometres south of the city of Cosenza and is divided into two hamlets, Inferiore and Superiore which at around 500 m.a.s.l., loom over the Crati valley.

This territory extends on the Apennine ridge, squeezed between the Tyrrhenian mountains to the west and the Sila plateau to the east. The climate can be defined as temperate Mediterranean, the winter season is cold, generally rainy, and the summer is hot and dry. This area is characterised by the presence of woods, scrubland and wide slopes planted with vineyards and olive trees.

The Donnici sub-area is part of the *Terre di Cosenza PDO* and includes the municipalities of Aprigliano, Cellara, Cosenza, Dipignano, Figline Vegliaturo, Mangone, Paterno Calabro, Pedace, Piane Crati, and Pietrafitta. Donnici is a typical area for *Magliocco Dolce*, and *Greco Nero*. Among the white varieties *Mantonico*, and *Pecorello* stand out.

Esaro

This sub-area of the *Terre di Cosenza PDO* takes its name from the homonymous river that runs through the valley between the south of the Pollino Range and the Tyrrhenian range. Going for forty-seven kilometres, it springs from the most unpolluted and wild areas of the Calabrian Apennines, between Mount Petricelle and Mount La Caccia, at over 1700 m.a.s.l., and merges downstream into the Coscile River.

This territory is large and diverse, the hilly areas -particularly prone to viticulture and olive growing- alternate with valleys that have always been suited to cultivation and where traces of human settlements from the early stages of Prehistory are not rare.

This sub-area includes a large territory which includes, inter alia, the municipalities of Altomonte, Lungro, Malvito, Roggiano Gravina, San Marco Argentano, Sant'Agata d'Esaro, Spezzano Albanese, Tarsia, and Terranova. There are numerous towns of arbëreshë origin. The climate is typically Mediterranean, with hot summers and cold, wet winters. This area holds a large portion of *Magliocco* and *Gaglioppo* vineyards but has the peculiarity of hosting a historic black grape variety, the *Guarnaccino*, which can also be found in Basilicata. The white varieties include *Malvasia Bianca*, *Mantonico*, and *Pecorello*.

Savuto

The Savuto is the only river born in Sila that empties into the Tyrrhenian Sea. Its spring is located in the municipality of Aprigliano, at an altitude of 1360 m.a.s.l.. It runs for forty-eight kilometres traversing twenty western Pre-Sila municipalities, ancient villages that preserve testimonies of the countless peoples that have settled them, from the ancient Greeks to the Normans. Its mouth is near Nocera Terinese, province of Catanzaro, on the Tyrrhenian shore.

The configuration of the territory presents varied geological features, in fact there are soils rich in sand, gravel, clay, or limestone. The vineyards are cultivated even at an altitude of over 500 m.a.s.l., on terraces supported with stone walls that slope down towards the river with a considerable incline. The climate is particularly variable, depending on the specific area: the green and wooded hilly areas are cooler, the coastal ones more temperate.

The municipalities of Rogliano, Santo Stefano di Rogliano, Marzi, Belsito, Grimaldi, Altilia, Aiello Calabro, Cleto, Serra Aiello, Pedivigliano, Malito, Amantea, Scigliano, and Carpanzano belong to the PDO established in 1975. In Savuto you can find sapling-trained vines of varieties such as *Magliocco Dolce* -known locally as *Arvino*- *Greco Nero*, *Greco Bianco*, and *Mantonico*.

Locride (Bianco, Bivongi)

Under this name it is possible to integrate a large area of the province of Reggio Calabria, between the Aspromonte and the Ionian “Coast of the Jasmines” (“*Costa dei Gelsomini*” in Italian). It is a varied territory rich in antique cultures. Its development closely coincides with that of the Mediterranean culture, as evidenced by great Greek artifact finds, Roman palaces, Byzantine monasteries, Norman, and medieval buildings, that allow us to reconstruct an articulated and significant history. It is also possible to observe numerous millstones and fermentation tanks that substantiate ancient wine-making activity, and to examine the countless varieties recognised but not yet registered. Among the most important wine-growing areas it is worth mentioning those of Bivongi. and Bianco. The first, PDO since 1996, is located on the eastern side of the Serre range, in the lower valley of the Stilaro stream, close to the municipalities of Bivongi, Caulonia, Monasterace, Riace, and Stilo in the province of Reggio Calabria, and in the municipality of Guardavalle, in province of Catanzaro. These places have a choice for grape varieties such as *Greco Nero*, *Gaglioppo* and *Bianco Guardavalle*.

The Bianchese area stretches along a strip of the lower Ionian coast. The morphological structure of the soils is characterized by the typical limestone and white clays that favour, in particular, varieties such as *Mantonico* and *Greco di Bianco* (*Malvasia delle Lipari*) from which among the best sweet wines of the Mediterranean are produced.

Grecanic Area (Palizzi, and Bovesia)

Bovesia, also known as the Greek-speaking area, is located around the mountains of Bova, on the southern Ionian side of the Aspromonte. Due to its impervious conformation, it has represented a cultural stronghold, a real treasure trove of centuries-old customs and linguistic traditions. The area extends along the valley of the great Amendolea river and includes Bova, Condofuri, Galliciano, Roccaforte del Greco, and Roghudi; inland villages at least fifteen kilometres from the coast. Viticulture is practiced here at altitudes above 700 m.a.s.l., and is conducted by true custodians of sapling vines of multiple cultivars, from *Nerello* to *Guardavalle*, to *Insolia*. These are also vines common in Palizzi, the southernmost municipality of the Italian peninsula. This latter town has kept undamaged the picturesque charm of ancient villages, consisting of alleys and steps that connect the different areas of the historic centre. The vineyards, where the most important PGI of the Grecanic area is born -Palizzi Rosso-, develops in terraces facing the Ionian Sea. The production area extends to the municipalities of Bova, Bova Marina, Brancaleone, Condofuri, and Staiti.

Western Aspromonte (Pellaro, and Costa Viola -The Purple Coast-)

The Aspromonte (from the Greek term "rough", or "white") is the last mountain massif of the Calabrian Apennines characterized by a varied geological composition: the main block of the massif is made of archaic rocks (gneiss), but towards its periphery there are sandstone, limestone, marl, and clays. The terraced structure on several levels is particularly emphasised on the western side, facing the Strait of Messina, descending steeply towards the sea, rendering the coastal strip rather narrow. The flora is exuberant, ranging from Mediterranean scrub to chestnut and beech woods, the latter a UNESCO heritage site. On the western side of the Aspromonte, south of the city of Reggio Calabria, is Pellaro, which gives its name to the famous geographical indication established in 1995. Already twenty years earlier, Mario Soldati praised it on *Vino al vino*. It is an open, sunny, and breezy hilly area, place of choice for many grape varieties, including *Nocera*, *Castiglione*, *Nerello*, and *Calabrese (Nero d'Avola)*.

The Costa Viola extends for about thirty-five kilometres, from the Strait of Messina to Palmi, passing through Scilla, and Bagnara. Its evocative name can be traced back to the description that *Plato* made of it after being struck by the various shades that the Tyrrhenian Sea and the Aspromonte mountains take on as the sun sets down into the sea. The coast, squeezed between the sea and the mountains, is dominated by tall and jagged coastlines. Characteristic element are the famous *armacìe*, secular dry-stone walls that support the terraced vineyards in which it is possible to find particular varieties such as *Prunesta* and *Malvasia Nera*, cultivated with duress due to the steep slope.

Lamezia

The history of Lamezia Terme must include the history of Nicastro, Sambiase, and Sant'Eufemia, areas inhabited since the Italic and Magna Græcia eras, as evidenced by the many archaeological discoveries. There are also countless documents that testify a flourishing medieval period. In 1968, the municipalities of Nicastro, Sambiase, and Sant'Eufemia in province of Catanzaro became a single municipality: Lamezia Terme. Positioned on the homonymous alluvial plain, it is located in the centre of the Tyrrhenian coast, in front of the Gulf of Sant'Eufemia. Lamezia has a deep-rooted tradition - the PDO was established in 1978 - and, after Cirò, is the second most planted area in Calabria. The climate is mild on the coast, cooler inland, especially when it is beaten by frequent and harsh winds.

This denomination includes ten municipalities, all in the province of Catanzaro: Curinga, Falerna, Feroleto Antico, Gizzeria, Francavilla Angitola, Maida, Pianopoli, Lamezia Terme, and San Pietro a Maida.

The vineyards are grown both in the plains, on deep and fertile soils, and on the slopes of clayey and granite hills. The most representative red vines are *Gaglioppo*, *Magliocco* and *Marsigliana Nera*; *Greco* and *Mantonico* among the whites.

GEOLOGY

(This document was drawn up with the advice of Dr. Paone, from the Agropedology Service of ARSAC -Calabria Regional Agency for Agriculture Development-)

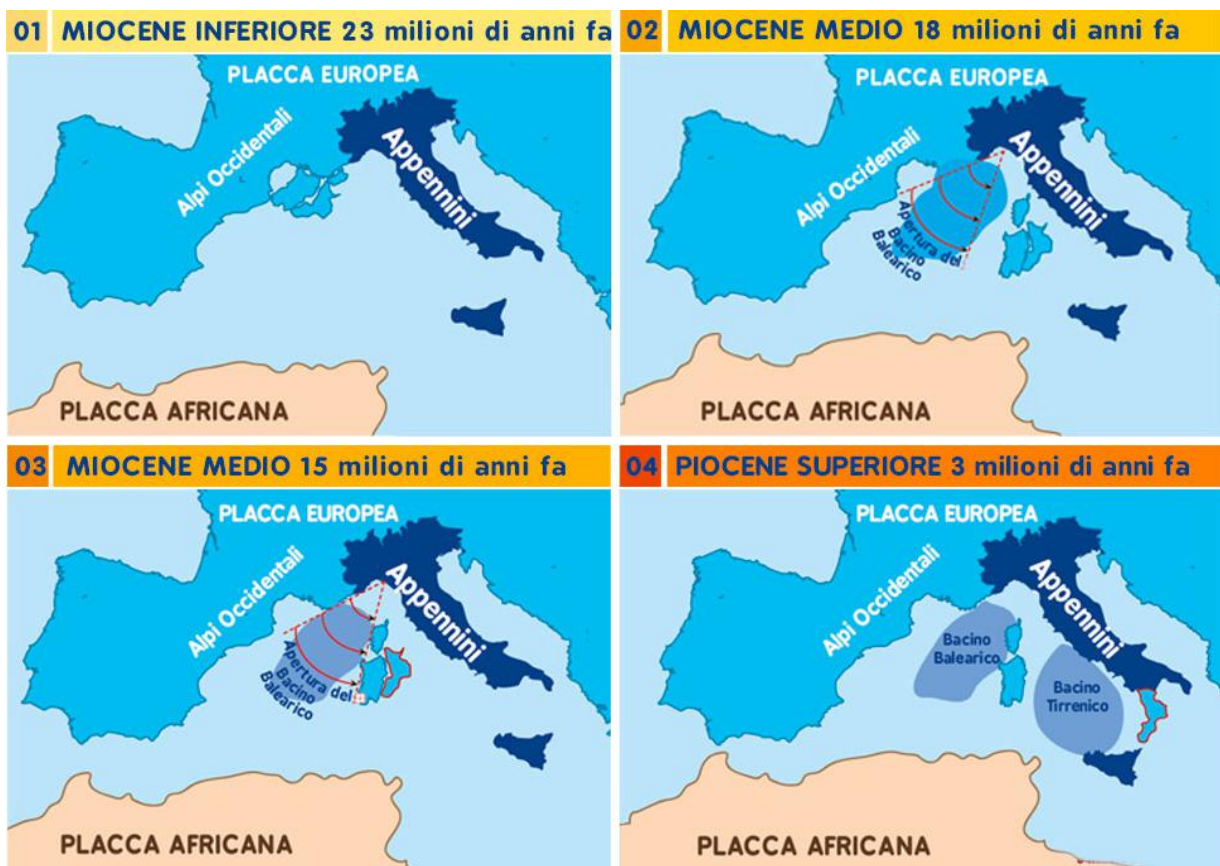
From a geological point of view, Calabria is one of the Italian regions where most ancient rocks emerge. It is characterized by the presence of *melanges* (multicoloured clays with a rough appearance and blue-orange-red hues), which come from the accretionary prism.

The soils of Calabria

If twenty-three million years ago we had bathed in the beaches of Diamante, Soverato or Scilla, we would have had nearby the beaches of Montecarlo, Portofino or Porto Cervo and could have reached them in less than half an hour. In fact, in that geological era (called Miocene) Calabria was united with the coasts of Liguria and was nestled in the Alps.

An important geological event upset the Mediterranean: Africa began to approach Europe, and Calabria, crushed by the enormous Africa-Europe grip, was crushed and, like squeezed from a toothpaste tube, was uprooted from the Alps and transported for hundreds and hundreds of kilometres to its current location.

This event meant that Calabria became a region with extraordinarily different landscapes concentrated in a single space: few kilometres separate the peaks of Pollino, Sila, Serre and Aspromonte ranges, to hills and then to beaches that quickly pass from the transparent waters of Tropea, Soverato, or Capo Bruzzano, to the dark and wild waters of the Costa Viola.



Calabria holds 10% of the entire coastal extension of Italy (715.7 km), and has the largest and most exclusive variety of beaches formed by different rocks, such as the granite rocks of the province of Reggio, of the Tyrrhenian Vibonese, and of the Ionian Catanzaro.

These rocks are also present to a lesser extent in some island of the Mediterranean sea, such as Sardinia. The Calabrian coast is, in fact, practically made up of rocks from every geological era, from the metamorphic ones dating back to the most ancient eras, to the dunes of contemporary formation. Most of the Calabrian rocks are of the crystalline type and few are the mountains that are akin both in morphology and geological constitution, i.e. made up of limestone rocks, to the Apennine Mountain range, especially to the nearest one, the part of the Pollino on the Basilicata side.

The Tyrrhenian coast mountain ranges, western Sila, the coastal range, the western Serre, and part of the Aspromonte are made up of rocks from the gneiss group (crystalline rocks). These rocks probably date back to the Palaeozoic age, and are older than the calcareous rocks of the mountains of the Pollino range, and of the rocks that mainly make up the remaining Aspromonte (metamorphosed rocks: micas cists and phyllites), which in fact date back to the Mesozoic or Secondary Period.

The rocks of the Ionian coast are of a different nature; magmatic rocks, such as granite and quartz, located in the Sila plateau, in the Aspromonte massif, but also to the west in the Monte Poro mountain group.

Sedimentary rocks, such as clays and sands, belong to the Cenozoic or Tertiary Period and were deposited in the sea due to erosion and to an uplift of the mainland. At the end of the Cenozoic period this uplift ceased, to resume during the Quaternary Period, following a temporary downward movement. The upward motion of the earth continues today and is the cause of the high altitudes present in the Calabrian territory, and of the vast sandy beaches, brought more and more into the open year after year.



Soil

Crotonese

Cirò 1

Morphology: Alluvial plain
Substrate: Alluvial sediments
Soil Texture: Medium
Ratio: Subalkaline
Total Limestone: Slightly Calcareous

Cirò 2

Morphology: Hilly reliefs
Substrate: Miocene marly clays
Soil Texture: Clayey silty loam
Ratio: Alkaline
Total Limestone: Very calcareous

Cirò 3

Morphology: Terraced surfaces
Substrate: Quaternary conglomerates and sands
Soil Texture: Clayey sandy loam
Ratio: Subacid
Total Limestone: Absent

Melissa

Morphology: Hilly reliefs
Substrate: Pliocene clays
Soil Texture: Clayey silty
Ratio: Alkaline
Total Limestone: Very calcareous

Savuto

Savuto 1

Morphology: Alluvial plain
Substrate: Alluvial sediments
Soil Texture: Sandy clay loam
Ratio: Neutral
Total Limestone: Slightly calcareous

Savuto 2

Morphology: Hilly reliefs
Substrate: Sandstones
Soil Texture: Sandy Clay loam
Ratio: Alkaline
Total Limestone: Moderately Calcareous

Savuto 3

Morphology: Hilly reliefs
Substrate: Miocene marly clays
Soil Texture: Clay loam
Ratio: Alkaline
Total Limestone: Calcareous

Savuto 4

Morphology: Hilly reliefs
Substrate: Granite
Soil Texture: Sandy Clay loam
Ratio: Acid
Total limestone: absent

Crati / EsaroCrati / Esaro 1

Morphology: Hilly reliefs
Substrate: Pliocene clays
Soil Texture: Silty clay loam
Ratio: Alkaline
Total Limestone: Very calcareous

Crati / Esaro 2

Morphology: Terraced surfaces
Substrate: Quaternary conglomerates and sands
Soil Texture: Silty clay
Ratio: Neutral
Total Limestone: Absent

LameziaLamezia 1

Morphology: Alluvial plain
Substrate: Alluvial sediments
Soil Texture: Silty clay loam
Ratio: Alkaline
Total Limestone: Slightly calcareous

Lamezia 2

Morphology: Conoid
Substrate: Conglomerates and sands
Soil Texture: Silty clay
Ratio: Acid
Total Limestone: Absent

LocrideLocride (Greco di Bianco)

Morphology: Hilly reliefs
Substrate: Pliocene silty clays
Soil Texture: Silty clay
Ratio: Alkaline
Total Limestone: Very calcareous

Locride (Greco di Bianco) 2

Morphology: Valley bottom
Substrate: Alluvial colluvium sediments
Soil Texture: Silty clay loam
Ratio: Alkaline
Total Limestone: Very calcareous

Costa viboneseCosta Vibonese (Pizzo)

Morphology: Hilly reliefs
Substrate: Granite
Soil Texture: gravel
Ratio: Acid
Total limestone: Absent

Costa Vibonese (Nicotera)

Morphology: Hilly reliefs
Substrate: Granite
Soil Texture: silty loam
Ratio: sub-acid
Total limestone: Absent

VINES

Calabria is one of the most important regions in the world as per the quantity and variety of historically cultivated vines. An extraordinary ampelographic heritage, formed in almost three millennia thanks to its Mediterranean position. Certainly, Calabria was a land of passage and of staying, a real gateway from the East. It is well established that the Greek settlements, in particular, have been the melting pot for a large number of varieties which in Calabria have crossed, settled, and consolidated. In each area it is possible to come across dozens of grapes, clones, biotypes, spread only locally and perhaps known with dialectal names, propagated over time through massal selections. The list of all the varieties surveyed and described is long and yet, still being drafted.

The most representative bottles of Calabria, with rare exceptions, are produced with typical grapes: these are wines with a unique character, not attributable to standardised models, which arouse more and more interest among operators and enthusiasts.

Author Matteo Gallelo

Designer Giuseppe Caprano.



Gaglioppo

One of the most cultivated native grapes in Calabria, it is the main red grape variety in the Cirò area, but present everywhere in the region, though more widely on the Ionian side. Variety with medium-late ripening, from the third decade of September to the first decade of October.

In the vines

Medium and long bunch, conical in shape with pointed tip and often sparser. It generally has a well-developed and sometimes long pedunculated shoulder. It can be loose to medium-compact.

Medium-small grape, elliptical, quite thick skin, very pruinose, black-blue or black-violet colour; pulp of a medium consistency.

Viticulture

Little expanded growing systems (sapling, palmette or espalier with horizontal spurred cordon). Rustic vine, resistant to frost and soil salinity, it has reduced resistance to drought. Its tolerance towards parasitic diseases, in particular mildew and powdery mildew is quite inconsistent.

Wine

Red and rosé table wines and great reds for aging are produced. The tannin content of the skin is a gift to be managed carefully so that the wine can be harmonious



Magliocco dolce

Late ripening vine, in the first-second decades of October; widespread mainly in the province of Cosenza and also in that of Catanzaro. Currently, it is mixed with other local varieties in the vineyards of the provinces of Crotone and Catanzaro, in Cosenza it is mainly cultivated in purity.

In the vines

Medium or medium-small sized bunch, it is quite long, conical in shape, usually compact.

Medium and short ellipsoidal grape; very thick, pruinose, blue-black skin. The pulp has a poor consistency, with a pleasant flavour.

Viticulture

Limited expansion farming methods such as the sapling. It adapts well to drought and hot climates; a rustic vine that does not present particular sensitivities.

Wine

Ruby, fresh, soft, with good alcohol content, it may be medium aged.

Greco nero

It is the name used to define varieties that differ in their area of diffusion, mainly in the provinces of Catanzaro, Reggio Calabria, and Crotona. The grapes ripen around mid-September.

In the vines

Medium or large bunch, conical, short, sometimes with a short, medium-compact shoulder.

Medium or small grape, obovoid, with pruinose skin, thin but consistent, black in colour, often with bluish reflections due to the presence of pruina.

Viticulture

Low expansion growing methods, such as the sapling.

Wine

Ruby, with pleasantly fruity aromas, subtle tannins, and a full, pleasant flavour.





Magliocco canino

Grown mainly on the Tyrrhenian side, in the Savuto area, in Lamezia, and in the Vibonese area. It has also been found in the surroundings of Scilla, where it takes the name of *Nocera*. It is a late ripening vine, in the first-second decades of October.

In the vines

Bunch of medium or medium-large size, rather long, of a conical shape made up with very developed shoulders, sparse.

Medium-small and ellipsoidal grape; the skin is very thick, pruinose, blue-black in colour, the pulp has little consistency.

Viticulture

Very adaptable, as long as the soils are not too dry, it is adaptable to different forms of farming. It does not show particular sensitivity to adversity and plant diseases, except for a reduced resistance to drought.

Wine

Garnet red colour with violet reflections, with a good alcohol content, significant acidity, and medium structure.

Nerello

Grown mainly in the Reggio area, it takes on numerous connotations (for example *Carbonaru*, *Paesano*, *Nostrale*). In some places in Calabria is indicated with the name of *Nerello*, *Sangiovese*. Vine with medium ripening, in the second decade of September.

In the vines

Medium-large cluster, medium elongated, conical in shape with several drooping shoulders and pointed, loose or compact ends.

Medium sized, short ellipsoidal berry; skin of medium thickness, well pruinose, colour from blue to dark red violet. The pulp has poor consistency.

Viticulture

Particularly present in hilly or low mountain areas; it is found in old sapling-growing vineyards, in the new plants the espalier is used. Very sensitive to drought, mildew and, in some conditions, botrytis.



Mantonico

It is grown mainly in Locride, along the Ionian coast, especially around Bianco, and Casignana. It is a noble, ancient vine with a late ripening (first decade of October).

In the vines

Medium-sized, medium-length, conical-shaped, compact cluster, often with numerous short and gathered shoulders.

Medium or medium-small grape, long ellipsoidal. The peel is of medium thickness, very resistant, pruinose and yellow green in colour, pulp with poor consistency.

Viticulture

Excellent resistance to winter cold and summer drought, it prefers dry and well exposed soils; medium tolerance to mildew and powdery mildew. Its vigour is medium-high, suitable for short pruning growing systems.

Wine

Deep yellow colour, with a certain finesse and slightly tannic; accentuated acidity, fruity and with excellent aging potential. The grapes adapt very well to drying on the vine; or in the sun or in air-conditioned rooms after harvesting.





Greco bianco

One of the most popular autochthonous white Calabrian grapes. It is mainly cultivated along the Ionian coast, in the Cirotono, in the Locride and in the Bivongese areas. Ripens in the last decade of September.

In the vines

Medium-large and long bunch, loose, conical in shape, green in colour with pinkish hues on the dorsal part exposed to the sun.

Medium, ellipsoidal, and short grape, very thick skin, yellow in colour, from greenish to yellow straw tending to amber, pulp of medium consistency.

Viticulture

Limited expanded farming forms (sapling or espalier), good tolerance to climatic adversities, drought, and the main plant diseases.

Wine

Fair alcohol content and total acidity; the flavour is fresh, slightly tannic, with a moderate and pleasant bitter aftertaste.



Greco di Bianco

It corresponds to the *Malvasia di Lipari*, in the Messina area and in the Aeolian islands and to the *Malvasia di Sardegna*, in the areas of Cagliari and Bosa. In the Bianchese area it ripens in the last decade of August.

In the vines

Large, long, loose bunch, with an elongated conical shape; it has from one to three undeveloped shoulders.

Medium-small and ellipsoidal grape. The peel is of medium thickness, firm, not very waxy, of a yellow straw colour, pulp of weak consistency, with aromatic hints.

Viticulture

Little expanded growing methods, medium tolerance to climatic adversities. Very sensitive to cold and drought, it is susceptible to oidium and moths.

Wine

The grapes are used almost exclusively for the production of sweet wines. They adapt very well to be wilted on the plant, in the sun on racks, or in air-conditioned rooms.

Guarnaccia bianca

It is found irregularly in the province of Cosenza, especially in the surroundings of Saracena. Vine with medium ripening, in the last decade of September.

In the vines

Bunch of medium length, sometimes elongated, conical in shape, with rounded ends.

Small grape, from spheroidal to short ellipsoidal, very thick skin, greenish grey or yellowish grey; pulp with a poor consistency, pleasant flavour.

Viticulture

Medium-high vigour. Productivity is also limited due to the generally small size of the bunches. Used for pure vinification and for the production of *Moscato di Saracena*.

Wine

Elegant and delicate in aromas, fine and soft to the taste.





Pecorello

Grown mainly in the province of Cosenza, in particular in the Donnici PDO area. It is a medium-ripening vine, in the first or second decade of September.

In the vines

Clusters of medium-large size, long, conical in shape, sometimes with a rounded tip, it has numerous, well developed, and slightly spread apart shoulders. Neither loose nor compact.

Medium-small grape, short ellipsoidal. The peel is very thick, pruinose, yellowish green, amber yellow if well exposed. The pulp is firm, sweet and pleasant.

Viticulture

It adapts to poorly expanded growing systems (small tree or simple horizontal spurred cordon). It has a good tolerance to climatic adversities, and the main plant diseases, but is very sensitive to drought and salinity of the soils.

Wine

Discreet in perfumes; robust, savoury, and fruity to the taste.

Zibibbo

This is the *Moscato di Alessandria*. It has been present in the Mediterranean area since ancient times, widespread throughout Calabria, in particular in the Pizzo area. Ripens in the first decade of September.

In the vines

Large bunch, slightly elongated, conical-pyramidal in shape, shouldered and tending to sparse.

Large and quasi-round or ovoid grape. The peel is thick, consistent, not very waxy, and green to amber in colour. The pulp is hard, consistent, with a clear and pleasant muscat flavour.

Viticulture

The *zibibbo* has a great vigour thus it requires short pruning; it is quite sensitive to cryptogams and prefers dry climates. It is resistant to drought.

The grapes are used to obtain both dry and sweet *Passito* wines, or consumed as table grapes.

Wine

The wine obtained from fresh grapes is sapid, acidic, graceful while the wine produced from wilted clusters is full-bodied, with an amber colour, ample and aromatic bouquet, velvety and with a sweet taste.



Moscatello di Saracena



It is the *Moscato Bianco*. In Calabria, in Saracena, where it is still present irregularly, it is called *Moscato* or *Moscatello*. It is also widespread in Locride with the name of «*Zibibbeddu*» (small *Zibibbo*). Ripens in the second-third decade of August.

In the vines

When ripe, the bunch is medium sized; its shape is rather elongated, cylindrical, or conical; and compact. The peduncle is medium-short and quite robust, green in colour.

Medium-large and spheroidal grape. The skin is quite thick, very waxy, and yellow green to amber in colour. The pulp is soft, with a distinct muscat flavour, fine and pleasant.

Viticulture

Moscatello di Saracena is very sensitive to botrytis and prefers dry and windy climates.

The grapes are used to obtain sweet *Passito* wines or, due to its aroma, consumed as a table grape.

Wine

The wine obtained from dried grapes is full-bodied, with a golden colour, an intense and aromatic fragrance, and a sweet taste.



SAPLING

The sapling, one of the oldest forms of vine growing, is widespread throughout the Mediterranean basin, especially in poor and dry soils, but also in some areas of continental Europe. It is reported on various sources that farming with a dry stake from the vine was invented by the *Oenotri* (from the Greek *oinotron*, meaning the pole supporting the vine), an ancient Italic people widespread in Calabria, southern Campania, and Basilicata. Another possibility is that in the south, the Greek descendants of *Oenotro* - an ancient character from Greek mythology - perfected the pre-existing technique of sapling with dry pole. Its distinctive features concern the qualitative potential of the grapes as long as they come from low-yielding vines, limited extension, and the need to work them manually. In fact, this form of pruning does not allow for mechanisation of good part of the operations and, therefore, is suitable for growing the most inaccessible and difficult to work vineyards.

The name derives from the shape that the plant takes, similar to a small tree with a short trunk, from which a variable number of branches spring off; there are several variations. The sapling does not particularly develop height and volume at the crown, it prefers being planted in a rather dense manner. The classic style consists of a distance of 1 meter between the plants and 1 meter between the rows. With this density it is possible to have 10,000 plants per hectare and, due to its dimension, the land can be managed by hand. However, by spacing the rows it is possible to create the transition to small equipment: the sapling, in fact, can be mechanised if a planting density of 5,000-7,000 plants per hectare is adopted.

photo from "*Alberello con palo secco*" by Massimo Tigani Sava

AMPELOGRAPHY

The dissemination of vine cultivars in Europe explained through gene flow. The central role of Calabria.

by Prof. Francesco Sunseri, from the Mediterranean University of Reggio Calabria

Focus on some key varieties of the Calabrian viticultural heritage

by Dr. Manna Crespan, CREA-Viticulture and Oenology of Conegliano (TV).

The dissemination of vine cultivars in Europe explained through gene flow. The central role of Calabria.

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Introduction

The vine (*Vitis vinifera* L. subsp. *Sativa*) is one of the first domesticated and most cultivated crops in the world, with a great impact on the agri-food economy of many areas, highly appreciated for its fresh product and especially for its wines. Europe is the largest producer (mainly Italy, Spain, and France), followed by Asia and America. Currently, grape production in the world reaches nearly 78 million tons.

Historical and archaeological evidence traces the domestication of the vine to the Neolithic (circa 8500-4000 BC), when the peoples began to collect and propagate forms of *Vitis* to improve the production of fruit and wine. Domestication took place in the area between the Caucasus and Mesopotamia (Georgia, Iran, Turkey), starting from wild populations of *Vitis vinifera* subsp. *sylvestris*, considered the ancestor of the cultivated form, subsp. *sativa*. From the main and most ancient sites of domestication, the cultivated vine spread westward to neighbouring regions (Egypt, and Lower Mesopotamia), reaching the Mediterranean basin along with the development of human populations and culture. The Romans, during the period of their vast empire, spread the cultivation of the vine to the temperate zones of Europe, following the main trade routes along the great rivers Rhine, Rhone and Danube; finally, Islam played a decisive role in the spread of table grapes in North Africa, Spain, and the Middle East.

Italy, and in particular Calabria, seem to have played a key role in the spread of grapevine and viticulture practices from Greece to central and western Europe, thanks to its strategic position on the Mediterranean Sea. In the eighth century BC, the settlement of Greek colonies in southern Italy was the main engine for the expansion and development of viticulture there. At first, the colonizers plausibly introduced vines from their places of origin. However, it is conceivable that they also cultivated local populations crossed with Greek varieties.

In Europe, a long period -up to the present time- of significant successes for viticulture has been due to the selection of new and valuable cultivars. To date, the *Vitis* International Variety Catalogue, and the National Vine Variety Catalogue list, respectively, 13,000 and 800 Eurasian grape varieties. The genetic diversity and population structure of the cultivated varieties has been extensively assessed through highly polymorphic microsatellite markers (Simple Sequence Repeat, SSR).

Recently, thanks to high-throughput sequencing, three genotyping chip arrays have been developed, comprising 9, 18 and 37 thousand SNP (Single Nucleotide Polymorphism) loci. These new highly performing molecular tools have become invaluable together with SSRs in providing new information on the genetic diversity of the vine, population structure, pedigree analysis, and gene flow, at a greater cost-effectiveness than SSRs. Although many efforts have already been made to analyse the genetic variability of the vine, many questions remain unresolved. What is the history of the spread of the Italian populations and of the other Eurasian populations? What was the role of the Caucasian germplasm in shaping the populations of cultivated grapevines around the world? Does the genetic variability of the vine adapt to the migration routes around the Mediterranean basin?

To answer these questions, about one thousand cultivars (384 belonging to the historical Italian germplasm, and 654 from other Mediterranean countries) were used to clarify the complex relationships between populations. Using about 18,000 SNPs, we have deepened our knowledge on viticultural genetic diversity and above all we have confirmed the ways of spreading vines from the Caucasus to the Iberian Peninsula, identifying migratory events through the evaluation of different scenarios.

Results

The genetic variability of the Italian germplasm

The cluster analysis highlighted two main groups: one mainly includes genotypes from southern Italy, and the other from central and northern Italy, with the exception of a few genotypes that are grouped in the other group (Figure 1).

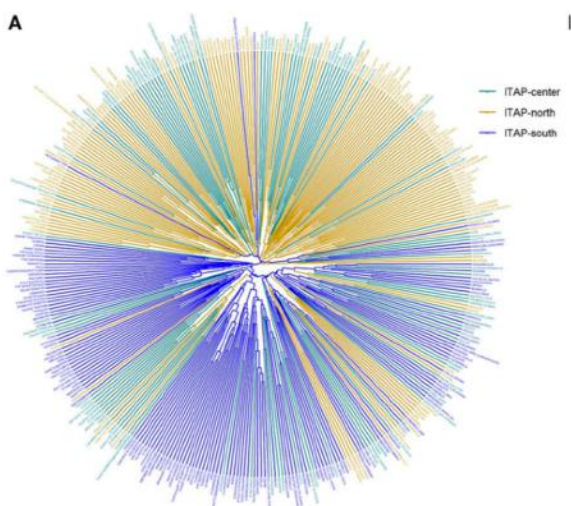


Figure 1. Cluster analysis on the basis of SNP markers of the Italian grapevine germplasm.

Principal Coordinate Analysis (PCA) confirmed the genetic relationships within the Italian germplasm, dividing the ITAP-north and ITAP-south genotypes into two groups, with the ITAP-centre samples split between them (Figure 2).

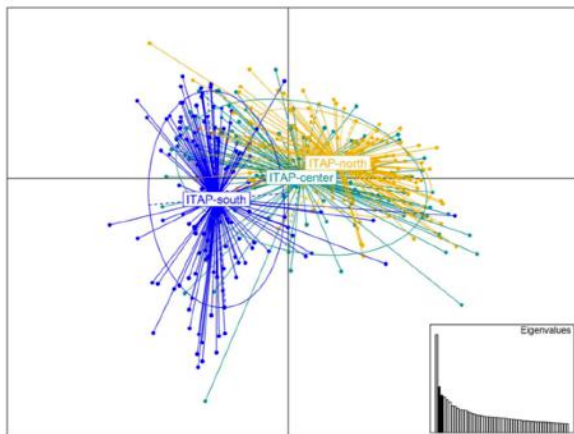


Figure 2. Multivariate Principal Coordinate Analysis (PCA)

The genetic structure of the populations defined a red cluster from northern Italy, and two other clusters (blue and green) that included varieties from central and southern Italy, respectively (Figure 3).

Almost all Italian varieties are assigned to a specific genetic and geographical group: 141 to northern Italy, 136 to southern Italy and the remaining to central regions. Although the best structure model has been fixed in three groups (colours red, green, and blue), the results of the various genetic analyses tend to show the varieties of northern and central Italy very close, while separating those of southern Italy, which show a genetic structure in its own right.

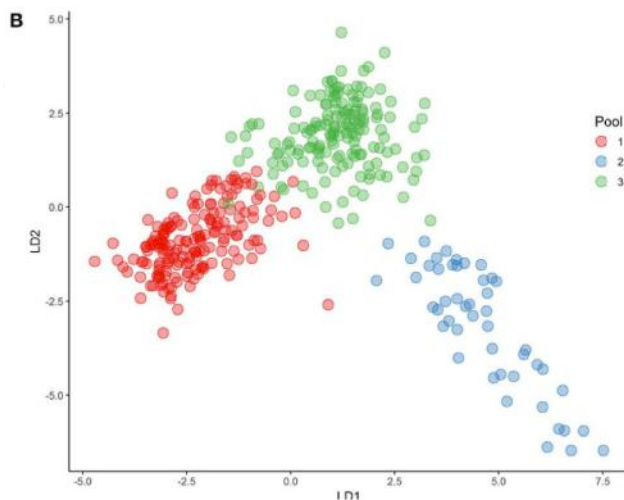


Figure 3. Analysis of the genetic structure of Italian vine cultivars.

Genetic relationships between populations of Eurasian populations.

The cluster analysis distinguished the genotypes of the Iberian Peninsula (IBER), northern and central Italy (ITAP-central-north) and central-western Europe (WCEUR) in three clusters (Figure 4).

The samples from southern Italy (ITAP-south), the Balkans (BALK) and the Caucasus - Middle East - Eastern Europe (EMCA-MFEAS-RUUK) were grouped in a large, assorted cluster.

A greater number of varieties from southern Italy (ITAP-south) appear more closely linked to those of Balkan origins (BALK) than those from Eastern Europe (EMCA-MFEAS-RUUK). Another significant cluster puts together genotypes from the Caucasus - Middle East - Eastern Europe (EMCA-MFEAS-RUUK) and southern Italy (ITAP-south), in the upper part of the dendrogram, as a bridge between the Iberian populations (IBER) and of Central Europe (WCEUR).

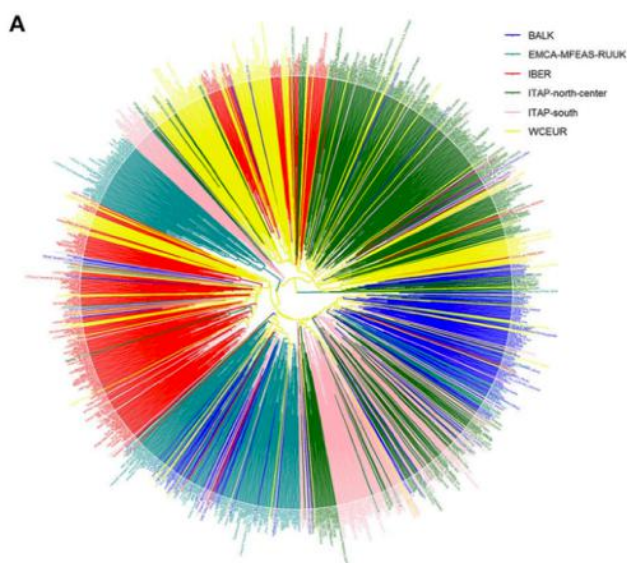


Figure 4 Cluster analysis based on SNP markers of Eurasian (including Italian) grapevine germplasm

The evaluation of gene flow through the estimation of possible migratory events

To evaluate the complex "demographic" history of the vine, a migration map of ancestral populations based on gene flow was drawn (Figure 4). The more plausible migratory tree statistically explains 98% of the variance, with branch lengths proportional to the amount of the drift from the division of the group (Figure 5).

Therefore, four migration events were statistically probable, the first in significance is a migration from ITAP-south to ITAP-north-centre, the second from EMCA-MFEAS- RUUK to IBER, the third from IBER to WCEUR and the last from ITAP-north-centre to EMCA-MFEAS-RUUK.

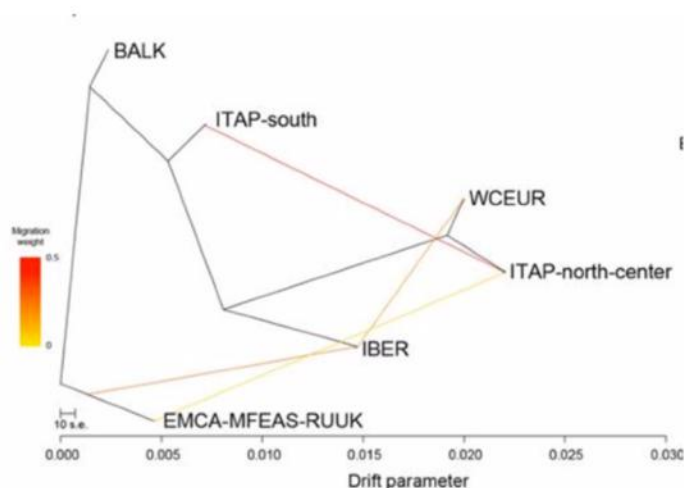


Figure 5. Possible migration events between Eurasian grapevine populations.

Topic

History of Italian cultivars and distinction from other Eurasian populations

The origin of Italian viticulture dates back to the Etruscans (around VIII century BC) and the Greeks (VII to VI centuries BC). The first domesticated the wild vine in central-northern Italy, while the Greeks introduced their varieties in the south. The differences between these areas concerned the choice of varieties and the cultivation method, but these differences between the Italian cultivars had never been emphasized with genetic analyses; moreover, the Italian germplasm was indistinguishable from that of the other European regions.

With the very recent study by Mercati et al. (2021) for the first time it was possible to distinguish the northern Italian varieties from the southern ones, which appear clearly separated into two large genetic groups. In each group we can recognize some founding cultivars of Italian viticulture such as *Garganega/Grecanico d'oro*, *Bombino Bianco* and *Visparola*, as well as *Mantonico Bianco*, and *Sangiovese*. The latter could represent "bridging varieties" that connect the populations of southern Italy with those of central-northern Italy.

Genetic structure of the Eurasian germplasm

The genetic distances between the Eurasian populations showed the highest divergence between the EMCA-MFEAS-RUUK and WCEUR populations, an expected result given the well-known gene flow from eastern to western Eurasia. Our results appear to be in agreement with the divergence already found among the vine populations in the different European cultivation regions.

The analyses on the genetic structure have shown that the Eurasian populations can be divided into 9 groups, of which 7 appear to be correlated with the main geographic belonging. In fact, all the Italian varieties are included in two groups, one group includes most of the varieties of the Iberian Peninsula, a couple of groups represent the EMCA-MFEAS-RUUK germplasm, while the other two groups include many varieties of the WCEUR population. Finally, the ninth group includes many varieties of mixed geographical origin, two main parents, *Gouais blanc/Heunisch weiss* and *Blank Blauer/Vulpea*, attributed to the WCEUR, but also a predominance of varieties of Balkan origin. The geographic belonging of the varieties of the ninth group is still questionable, and our results have suggested their potential role as "bridging cultivar".

In this sense, Greece seems to be the main bridge between the germplasm of the Near East and the Mediterranean basin (ITAP), supporting the theory that the vine was spread from the Greek coasts to the southern and then northern Italian ones. The analysis of the genetic structure indicated that the Iberian varieties include two groups, one related to the WCEUR group and the other to the varieties of North and East Africa, demonstrating the main routes of the vine and wine from the Caucasus - Middle East - Europe from the East to the Iberian Peninsula.

The gene flow of the vine from East to West.

The domestication (and cultivation) of the vine seems to be linked to winemaking, even if the question of which process preceded the other remains questionable; the central role of Greece in the history of viticulture is well known having achieved a command in grape growing and wine making, elevating both to cultural phenomena. There is no reliable information on the introduction of winemaking techniques to Greece. From Greece, the wine culture reached western Europe via southern Italy and then France and Spain. This cultural flow from East to West has also involved vine cultivars, as recently documented by genetic analysis. The results of our study (Mercati et al. 2021) also confirmed this east-west gene flow; in addition, the complex role played by the Italian germplasm was revealed, suggesting a fundamental turning point for understanding the evolution of the grapevine germplasm in Eurasia. Genetic data analysis confirmed gene flow events from EMCA-MFEAS-RUUK to BALK and then to the ITAP-South population. The novelty of the results is the clear distinction between the ITAP-south and ITAP-north-centre populations, which instead is genetically very close to the WCEUR populations.

In conclusion, it can be said that after the first experience of domestication of the vine in the Caucasus, the cultivated vine spread southwards in Anatolia and Egypt five thousand years ago, as well as in the Mediterranean basin, following the main civilizations. In this scenario, the key role of the Italian germplasm in the genetic differentiation of cultivars was confirmed. We have reconstructed a sophisticated genetic model useful for attributing to the Italian germplasm, and mainly to that of Magna Græcia, the border role between western and eastern Eurasia.

Our results, reconciling genetic and archaeological data for one of the most cultivated and fascinating crops in the world, have made a fundamental contribution to the definition of genetic relationships between the vine populations distributed in a vast geographical area from the Caucasus to the Iberian Peninsula.

Focus on some key varieties of the Calabrian viticultural heritage

by Dr. Manna Crespan, CREA-Viticulture and Oenology of Conegliano (TV).

In Calabria there is a rich heritage of viticultural biodiversity, but also a complex intertwining of homonyms and synonymies that makes it really difficult to understand the varietal identity of many grape varieties. While synonyms (i.e. different names for the same grape variety) are easily resolved, homonyms (i.e. identical names for different grape varieties) represent a far more complex problem. The problem is that these cases concern both minor vines and those important for the regional economy.

In recent decades, however, thanks to the numerous studies that have been conducted on the local viticultural germplasm, the complex skein of varietal identification in Calabria is slowly unravelling. A first summary of part of these efforts can be found in the book "Il Gaglioppo e I suoi fratelli" (Gaglioppo and his brothers) (2008), and other information in the book "Atlante dei vitigni e vini di territorio" (Atlas of vines and local wines) (2022).

From this idea it is evident the importance of using the "prime name" for the varieties, a name that helps to recognize them beyond the local particularities, past the most disparate adjectives, with the aim of teaming up towards a common goal: to enrich and consolidate the identity and image of local wine products to encourage successful marketing, because the consumer not only needs to recognize, but also to find the wine products they want to buy. And knowing the history of the vines is, also from this point of view, of great help.

Genealogical Studies

Genealogical studies, which is the reconstruction of kinship relationships between vines, have had a boom since the discovery of Cabernet Sauvignon's parents in 1997. Apart from the considerable scientific interest, these reconstructions also have a cultural and economic interest, because they contribute to the so fascinating narrative in the story of wine. In general, this type of study has allowed us to understand that there are some varieties that are recurrent parents, therefore that there are "parental" varieties of a large part of the rich Italian viticultural germplasm. For a general picture, see the reading of the work by D'Onofrio et al. 2021 (<https://doi.org/10.3389/fpls.2020.605934>).

For Calabria, like for other wine-growing areas, there are also some grape varieties of particular interest for understanding the development and evolution of the current ampelographic platform. Two varieties, in particular, have been identified as recurring parents: the *Mantonico Bianco* and the *Sangiovese*.

Mantonico Bianco and Sangiovese

Sangiovese is a renowned grape variety. Grown throughout the peninsula, it is recorded since 1590, at least; it is the main black grape variety grown in Italy and is the basis of famous wines such as Chianti, Morellino di Scansano, Vino Nobile di Montepulciano, Brunello di Montalcino. The regions where it is best known are Tuscany and Emilia Romagna, where it has been known since 1590 and 1672, respectively.

The situation of the *Mantonico Bianco* is different. In Calabria, the name "*Mantonico*" or "*Montonico*" is commonly used to indicate different varieties, with white or black berries.

Probably this tradition is linked more to wines than to vines and has caused great difficulties in disentangling the whole variety of Calabria's assortment. Confronting the study of these homonyms emerged the extraordinary role played by the *Mantonico Bianco* or "*Mantonacu Viru*", that is *True Mantonicus*. It is a minor grape variety of Calabria, registered only recently (2014) in the national register (code 494). It is cultivated for the production of varietal wines in the province of Reggio, along the Ionian coast, where it is also known as "*Mantonico di Bianco*" and is mainly located in Locride, in the countryside of Bianco, and of Casignana. *Mantonico Bianco* is traditionally used for the production of sweet Passito wines, but it is also suitable for fine table wines and sparkling wines.

The lineage of Mantonico Bianco and Sangiovese (fig. 1)

From the genealogic point of view, the *Mantonico Bianco* played an important role in the generation of both Calabrian and Sicilian viticultural germplasm. In fact, crossing with *Sangiovese* it created *Gaglioppo* and *Nerello Mascalese*, which are well-known vines, registered in the Italian Register, as well as to *Mantonicone/Occhi di Lepre*, and *Lievuso*. The *Mantonicone* was found mixed among the *Mantonico Bianco* vineyards due to some of its valuable characteristics, such as a lower acidity which helps it mitigate the excessively high values of the *Mantonico Bianco*. The *Mantonico Bianco* can boast another illustrious descendant, being the parent, with the *Garganega/Grecanico d'oro*, of *Catarratto*. *Catarratto* is the most important variety of Sicily and the fourth in order of cultivated area in Italy.

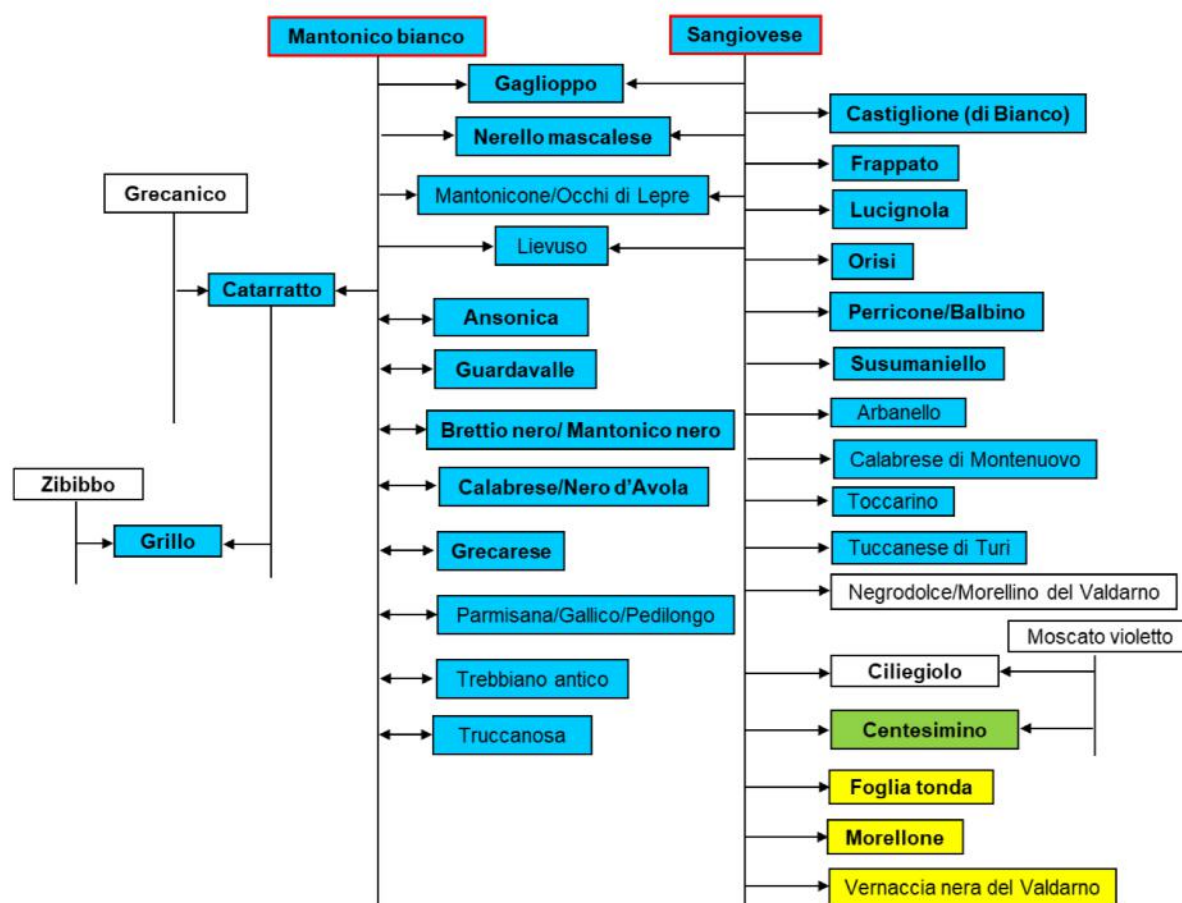


Fig. 1 - The lineage of Mantonico Bianco and Sangiovese

It is also very interesting that the *Mantonico Bianco* shows a first-degree kinship link with other Calabrian and Sicilian varieties, indicating that once its distribution range must have been more extensive than the current one: the *Ansonica/Inzolia*, the *Guardavalle*, the *Brettio Nero*, the *Grecarese*, the *Parmisana/Gallico/Pedilongo*, the ancient *Trebbiano*, the *Truccanosa*.

Similarly, *Sangiovese* also has a progeny spread over a wider area than expected, in fact, it is related in the first degree not only to minor vines from Tuscany (*Morellone*, *Vernaccia del Valdarno*, and *Foglia Tonda*) and from Emilia Romagna (il *Centesimino*), as was to be expected based on its historically better known geographical spread, but above all with well-known varieties of Calabria, Sicily, Puglia, such as *Perricone*, *Frappato*, *Susumaniello* and many minor vines, such as *Calabrese di Montenuovo*, the *Lucignola*, the *Toccarino*, the *Tuccanese di Turi*, the *Arbanello*, the *Orisi*, the *Negrodolce/Morellino del Valdarno*.

The complex and incomplete reconstruction of the Sangiovese genealogy.

The first fixed point, confirmed by numerous subsequent studies, was established in 2002, when the first-degree kinship link between Sangiovese and *Ciliegiolo* was ascertained. The following investigations tracked the missing link, which is essential to close the parent-child triad, but identifying this variety turned out to be a more difficult task than expected due to ... *an excess of candidates*! In 2007, Vouillamoz and colleagues proposed a first hypothesis: Sangiovese would be the son of *Ciliegiolo* and *Calabrese di Montenuovo*, a variety identified in Montenuovo, province of Naples, which had been imported there by the Strigari family, originally from Calabria, who arrived in Campi Flegrei in the first half of the 1800s. In the same year 2007, a large study carried out on the germplasm collection of Vassal, in France, the largest and most prestigious collection of grape varieties in the world, identified the parents of *Ciliegiolo* as: *Sangiovese* and *Moscato Violetto*. The roles of *Ciliegiolo* and *Sangiovese* were overturned and Vouillamoz's proposal was thus rejected, considering that the parents of *Moscato Violetto* have also been identified and that *Ciliegiolo* appears in the literature long after *Sangiovese* (1932 vs 1590). The French hypothesis is supported by further data added with a subsequent Italian study, in 2010, on the Conegliano germplasm collection. But the story is not over yet: in 2012 another possible trinity was identified: *Sangiovese* could be the son of *Ciliegiolo* (again!) and *Negrodolce*, an old local variety from the province of Foggia. Even more surprising was the discovery that the Apulian *Negrodolce* corresponds to the *Morellino del Valdarno* identified in Tuscany! Thus the mystery deepens, and the puzzle becomes, if possible, even more complex.

The case remained open until molecular investigations were extended, ranging from a few tens to several thousand molecular markers. The previously proposed trios, in which *Sangiovese* would be the son of *Ciliegiolo*, fell and the hypothesis that *Ciliegiolo* is the son of *Sangiovese* and *Moscato Violetto* was confirmed; The red *Centesimino/Sauvignon* from Emilia Romagna is added to the offspring of this pair of parents and a new potential parent of Sangiovese is identified, *Strinto Porcino*. The *Strinto Porcino* is a black grape variety found in Basilicata.

The unexpected synonyms of Sangiovese in Calabria, Sicily, and Puglia

Sangiovese has a series of synonyms whose existence was completely unknown: *Nerello*, in Savelli (KR), *Nerello Campotu*, in Motta San Giovanni (RC), *Puttanella*, in Mandatoriccio (CS), *Cela-Cela*, in the Palermo area, *Preventivo*, in the Messina area, *Tuccanese*, in Turi (Bari).

Another very interesting discovery was to understand that the *Corinto Nero* cultivated in the Aeolian Islands to blend with the *Malvasia di Lipari*, and also in Scalea (CS), does not correspond to the Greek parthenocarpic variety of the same name, the *Korinthiaki*, but is a somatic variant of *Sangiovese*, that is a morphological variant that has lost the ability to develop grape seeds. This characteristic, however, shows a certain instability. In fact, regularly some normal-sized berries develop in the bunch, and hold only one seed inside.

The origin of Sangiovese looks south

This mass of information recently acquired opens up a dutiful reflection on the origin of *Sangiovese*, and urges us to look to southern Italy as the possible cradle from where *Sangiovese* would later move to Tuscany, and Emilia Romagna. Let us not forget, among other things, that one of the synonyms of *Sangiovese* in Tuscany is *Calabrese*.

Furthermore, in the Etna area *Sangiovese* and *Ciliegiolo* are widely present in ancient vineyards, but without being recognized as such. In fact, they are mixed and confused with *Nerello Cappuccino*, and with various other vines whose identity is being studied.

THE GRECO DI BIANCO OR MALVASIA DI LIPARI

Stories of ships, ports and Malvasias

Monemvasia is a small Greek island (three hundred meters wide by 1 km long) connected to the Peloponnese through a raised road of a few hundred meters and characterized by a single entrance (hence the name) between the cliffs.

Another peculiarity of this island is that it gave the name to Malvasia wines. Around the fortified city a sweet and aromatic wine has been produced from their vineyards since ancient times. In the past, a wine capable of withstanding long navigation voyages was stored on ships and began its journey in the Mediterranean by calling on the most famous ports of yore. The production of wine in this area can be dated back at least to the early 1200s, as evidenced by a document of 1214, in which the Metropolitan of Ephesus reports that "in Constantinople there is the wine of Chios, Lesbos, Euboea, but there is also an abundance of Monemvasia wine ».

The Serenissima occupied Monemvasia in 1248; the flair for trade made the Venetians understand that they had in their hands another important business opportunity and thus began exporting Malvasia wine for aristocratic tables. Business was progressing well and the demand for wine, especially from northern Europe, grew exponentially until Monemvasia was conquered by the Ottoman Empire. Venice was forced to look for other wines to satisfy the requests of its wealthy customers, and organized not only the purchase and distribution of wine, but also the cultivation of vineyards. These were implanted in new territories where Venice exercised its hegemony more easily; one of such was Crete, where, apparently, the wine obtained was even better than in Monemvasia.

The Malvasias today

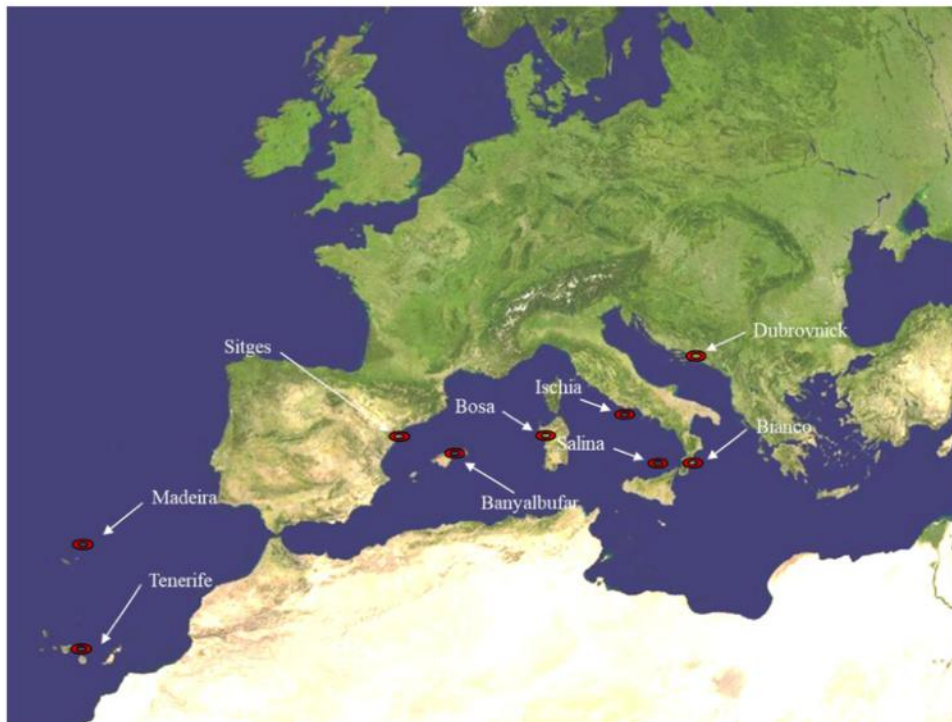
From the cultivated varieties perspective, today's Malvasias are a large group of very heterogeneous vines, characterized by white, black, or pink grapes, with aromatic or neutral scents. Malvasias represent a striking example of the transfer of the name of a successful wine to the vines used to produce it. Many of these varieties are aromatic, with a light muscat fragrance, and a little bitter. Most of them come from Italy.

Although it is not possible to establish a certain connection between the wines produced in ancient times and the grape varieties used for that purpose, the history of Monemvasia wine is intertwined with that of one grape in particular, the *Malvasia di Lipari*.

Malvasia di Lipari and its synonyms (fig. 2)

Through DNA analysis (2006) it was discovered that *Malvasia di Lipari* is present in places thousands of kilometres away from each other. In the southern tip of Dalmatia it is known as *Malvasija Dubrovačka*, that is, *Malvasia of Dubrovnik*, the ancient Ragusa; in Italy it is cultivated as *Greco di Bianco* in Locride, *Malvasia di Lipari* in the Aeolian Islands, *Malvasia di Cagliari* or *Malvasia di Sardegna* or *Malvasia di Bosa* in Sardinia; it has also been found in Ischia.

In the Balearic Islands it is cultivated as *Malvasia de Banyalbufar*; in mainland Spain it is grown in Sitges, south of Barcelona, Catalonia, where it is known as *Malvasia de Sitges*, and then, beyond the Strait of Gibraltar, in the Canary Islands, where it is simply called *Malvasia* (de Tenerife), and even in the Portuguese island of Madeira. Here it is known as *Malvasia Candida*, which is the most cultivated of the Malvasia and is considered the oldest and most authentic.



Many locations for a single variety. How can it be explained?

Carefully perusing the historiographical sources, the first document that mentions this variety dates back to 1385 and speaks of *Malvasia Dubrovačka*, that is the synonym used in Dalmatia. Until 1358 (a few years before the document cited) the Republic of Venice was the master of these territories, having occupied Ragusa at the beginning of the XIII century. It can be assumed that it was the Serenissima that encouraged the cultivation of this variety to produce Malvasia wine.

Further useful details to reconstruct the diffusion of this *Malvasia* in the Mediterranean basin come from the studies of Prof. Marcello Saija, who states that when the Venetians were driven out of Crete towards the end of 1500s, some of them landed in Salina, taking *Malvasia* vines with them. And it is from here that Malvasia then leaves for the Balearics and Ischia ... but this fascinating history is admirably reconstructed and told in Marcello Saija's book "*Malvasia delle Lipari - History of the ancient Aeolian Passito*" (2020).

Malvasia everywhere, except in Calabria!

As we have seen, this *Malvasia* has spread throughout the Mediterranean and beyond the Pillars of Hercules, following naval routes along a path from East to West, maintaining the original name of *Malvasia* in all the places where it has been established, adding the adjective of the place. The exception is the "*Greco di Bianco*", but this does not surprise us at all, because in the Calabrian tradition "Greco" is very common name, used to indicate many different varieties.

The common name "*Malvasia*" for this group of synonymous grape varieties is an interesting fact and sparks a debate on the clear link of this variety with the production of a particular and well recognizable wine, a link that has not been lost over time and places, as often happens, but which has remained intricately connected. It is in this capacity that the *Malvasia di Lipari* appears as one of the oldest known Malvasia. The efforts that have been made to identify it in the areas of presumed origin (Greece, Crete, Cyprus...) have been, alas, in vain. It is perhaps true, therefore, that this ancient vine has been lost in the territories that gave it birth, but many people have loved it and planted it in their vineyards, allowing it to survive until our days.

DENOMINATIONS, NUMBER AND PRODUCTION DATA

Collection of data in tables and graphs based on data from Istat, Ismea, Valoritalia, Agroqualità, and from the analysis of the sector blog by Marco Baccaglio, Inumeridelvino.it.

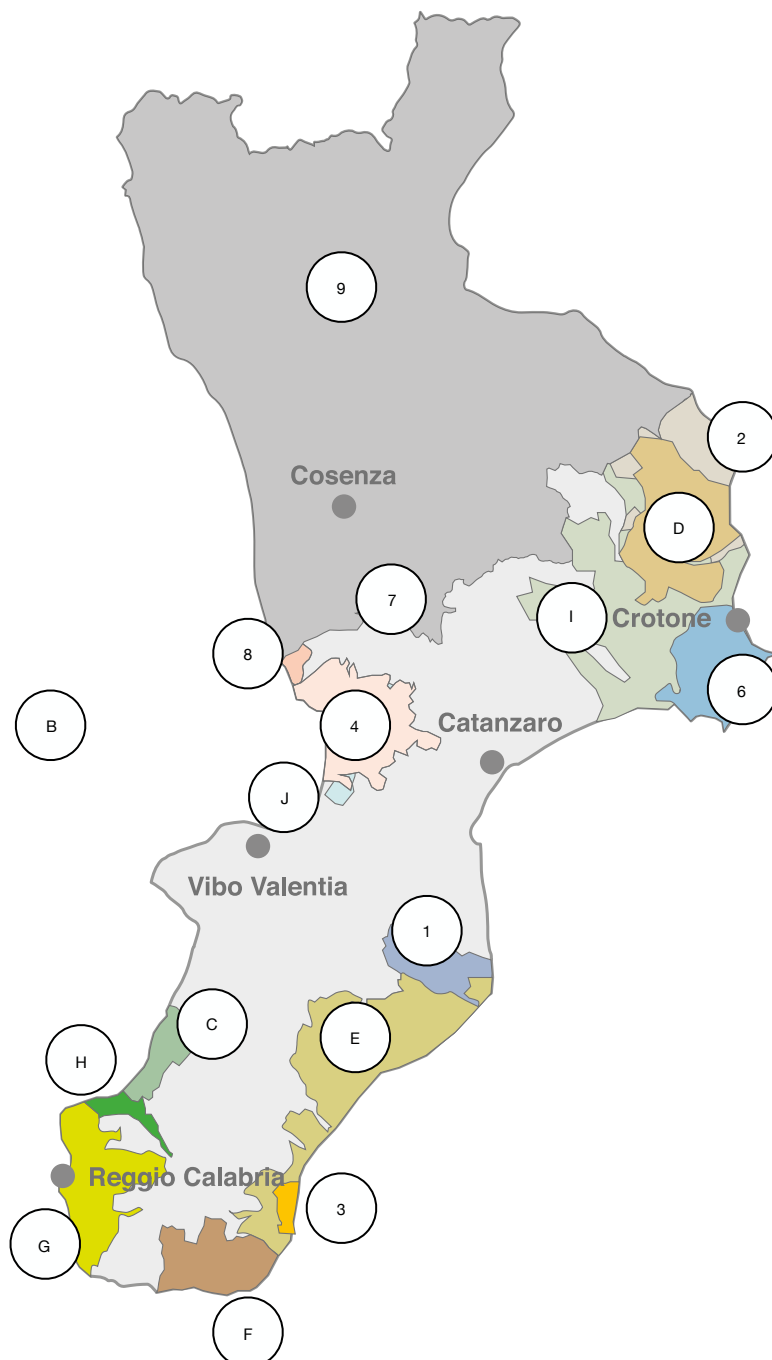
In Calabria there are nineteen denominations of the 538 Italian PDOs and PGIs.

9 are PDOs

1. Bivongi
2. Cirò
3. Greco di Bianco
4. Lamezia
5. Melissa
6. S. Anna di Isola Capo Rizzuto
7. Savuto
8. Scavigna
9. Terre di Cosenza

10 are IGP

- A. Arghillà
- B. Calabria
- C. Costa Viola
- D. Lipuda
- E. Locride
- F. Palizzi
- G. Pellaro
- H. Scilla
- I. Val di Neto
- J. Valdamato



Denominations

DOC/PODs

Summary

BIVONGI since 1996

Bivongi bianco

Greco bianco, Guardavalle e Montonico da soli o congiuntamente 30 – 50%; Malvasia bianca e Ansonica, da soli o congiuntamente 30 – 50%.

Possono concorrere altri vitigni a bacca bianca, idonei alla coltivazione nella Regione Calabria max 30%.

Bivongi rosso e rosato

Gaglioppo (e suoi sinonimi), Greco nero, da soli o congiuntamente 30 – 50%; Nocera, Calabrese, Castiglione da soli o congiuntamente 30% – 50%.

Possono concorrere altri vitigni a bacca nera, idonei alla coltivazione nella Regione Calabria max 10% e possono concorrere altri vitigni a bacca bianca, idonei alla coltivazione nella Regione Calabria max 15%.

Comuni della denominazione

L'intero territorio amministrativo dei comuni di Bivongi, Camini, Caulonia, Monasterace, Pazzano, Placanica, Riace, Stignano, Stilo in provincia di Reggio Calabria e Guardavalle in provincia di Catanzaro.

CIRÒ since 1979

Cirò bianco

Greco bianco minimo 80%.

Possono concorrere altri vitigni a bacca bianca, idonei alla coltivazione nella Regione Calabria max 20%.

Cirò rosso e rosato

Gaglioppo minimo 80%.

Possono concorrere altri vitigni a bacca nera, idonei alla coltivazione nella Regione Calabria max 20% ad esclusione delle varietà Barbera, Cabernet franc, Cabernet sauvignon, Sangiovese e Merlot, che possono concorrere fino ad un massimo del 10%.

Comuni della denominazione

Cirò e Cirò Marina e in parte i territori di Melissa e Crucoli in provincia di Crotone.

GRECO DI BIANCO since 1980

Greco bianco minimo 95%.

Possono concorrere altri vitigni a bacca bianca, idonei alla coltivazione nella Regione Calabria max 5%.

Comuni della denominazione

Bianco e, in parte, Casignana tutti nella provincia di Reggio Calabria.

LAMEZIA since 1979

Lamezia bianco

Greco bianco minimo 50%.

Possono concorrere altri vitigni a bacca bianca, idonei alla coltivazione nella Regione Calabria max 50%

Lamezia rosso, rosato e novello

Gaglioppo e Magliocco da soli o congiuntamente 35 – 45%;

Greco N. e Marsigliana da soli o congiuntamente 25 – 45%.

Possono concorrere altri vitigni a bacca nera, idonei alla coltivazione nella Regione Calabria max 40%

Lamezia “vitigno”

Vitigno minimo 85%.

Possono concorrere altri vitigni della stessa tipologia idonei alla coltivazione nella Regione Calabria max 15%

Comuni della denominazione

Curinga, Falerna, Feroletto Antico, Gizzeria, Francavilla Angitola, Maida, Pianopoli, Lamezia Terme, S. Pietro a Maida, tutti in provincia di Catanzaro

MELISSA since 1979

Melissa bianco

Greco bianco 80 – 95%;

Trebbiano toscano, Malvasia bianca, da soli o congiuntamente 5 – 20%.

Melissa rosso

Gaglioppo 75 – 95%; Greco nero, Greco bianco, Trebbiano toscano e Malvasia bianca, da soli o congiuntamente dal 5 – 25%.

Comuni della denominazione

Melissa, Belvedere Spinello, Carfizzi, San Nicola dell'Alto, Umbriatico e parte del territorio dei comuni di: Casabona, Castel Silano, Crotone, Pallagorio, Rocca di Neto, Scandale, San Mauro Marchesato, Santa Severina, Strongoli tutti in provincia di Crotone.

SANT'ANNA DI ISOLA CAPO RIZZUTO since 1979

Gaglioppo 40 – 60%;

Nocera, Nerello mascalese, Nerello cappuccio, Malvasia nera, Malvasia bianca e Greco bianco da soli o congiuntamente 40 – 60%

con una presenza massima dei vitigni a bacca bianca non superiore al 35% del totale

Comuni della denominazione

Isola Capo Rizzuto e parte dei comuni di Crotone e di Cutro

SAVUTO since 1975

Savuto bianco

Mantonico max 40%;

Chardonnay max 30%;

Greco bianco max 20%;

Malvasia bianca max 10%.

Possono concorrere altri vitigni a bacca bianca, idonei alla coltivazione per la Regione Calabria max 45%.

Savuto rosso e rosato

Gaglioppo localmente noto come Arvino max 45%; Aglianico max 45%

Greco nero, Nerello cappuccio, da soli o congiuntamente max 10%.

Possono concorrere altri vitigni a bacca nera, idonei alla coltivazione per la Regione Calabria max 45%

Comuni della denominazione

provincia di Cosenza:

Rogliano, S. Stefano di Rogliano, Marzi, Belsito, Grimaldi, Altìlia, Aiello Calabro, Cleto, Serra Aiello, Pedivigliano, Malito, Amantea, Scigliano, Carpanzano.

provincia di Catanzaro:

Motta S. Lucia, Martirano Vecchio, Martirano Lombardo, S. Mango d'Aquino, Nocera Terinese e Conflenti.

SCAVIGNA since 1994

Scavigna bianco

Traminer Aromatico max 50%;

Chardonnay max 30%;

Pinot bianco max 10%;

Riesling italico max 10%.

Possono concorrere altri vitigni a bacca bianca, idonei alla coltivazione nella Regione Calabria max 45%.

Scavigna rosso e rosato

Aglianico max 60%;

Magliocco max 20%;

Marcigliana nera max 20%.

Possono concorrere altri vitigni a bacca nera, idonei alla coltivazione nella Regione Calabria max 45%.

Comuni della denominazione

Nocera Terinese e di Falerna, in provincia di Catanzaro

TERRE DI COSENZA since 2011

Denominazione a struttura piramidale

Vigna con o senza sottozona

Terre di Cosenza Magliocco, con o senza sottozona

Terre di Cosenza, sottozone:

Condoleo, Colline del Crati, Donnici, Esaro, Pollino, San Vito di Luzzi, Verbicaro Terre di Cosenza, vitigno:

Greco bianco, Guarnaccia bianca, Malvasia bianco, Mantonico bianco, Pecorello, Chardonnay, Gaglioppo, Greco nero, Aglianico, Calabrese, Merlot, Cabernet Sauvignon, Sangiovese

Terre di Cosenza bianco, rosato, rosso, novello, spumante, passito, vendemmia tardiva

Comuni della denominazione

intero territorio amministrativo della provincia di Cosenza.

IGT/IGP

I vini a Indicazione Geografica Tipica bianchi, rossi e rosati devono essere ottenuti da uve provenienti da vigneti composti, nell'ambito aziendale, da uno o più vitigni idonei alla coltivazione nella Regione Calabria, a bacca di colore analogo ed iscritti nel Registro Nazionale delle varietà di vite per uve da vino, approvato con dm 7 maggio 2004 e successivi aggiornamenti.

ARGHILLÀ

Zona di produzione

Comprende l'intero territorio amministrativo dei Comuni di Calanna, Campo Calabro, Fiumara, Villa San Giovanni, e parte del territorio amministrativo del Comune di Reggio Calabria limitatamente alle frazioni: Archi, Arghillà di Catona, Arghillà di Salice Concessa, Arghillà di Villa San Giuseppe, Diminniti

di Sambatello, Orti, Rosali, Sambatello, San Giovanni di Sambatello, Terreti e Vito.

Tipologie

Rosso (anche nella tipologia Novello) e Rosato (anche nella tipologia Novello)

CALABRIA

Zona di produzione

Comprende l'intero territorio amministrativo delle Province di Catanzaro, Cosenza, Crotone, Reggio Calabria, Vibo Valentia nella regione Calabria.

Tipologie

Rosso (anche nella tipologia frizzante, passito, novello, vivace e spumante), Rosato (anche nella tipologia frizzante, vivace e spumante) e con specificazione di uno dei seguenti vitigni: Aglianico, Barbera, Cabernet (da Cabernet franc e/o Cabernet sauvignon), Cabernet franc, Cabernet sauvignon, Calabrese, Castiglione, Gaglioppo, Greco nero, Magliocco canino, Malvasia (Malvasia nera di Brindisi), Marsigliana nera, Merlot, Nerello cappuccio, Nerello mascalese, Nocera, Prunesta, Sangiovese. Bianco (anche nella tipologia frizzante, passito, vivace e spumante) e con specificazione di uno dei seguenti vitigni: Ansonica, Chardonnay, Greco, Guardavalle, Guarnaccia, Malvasia (da Malvasia bianca), Manzoni bianco, Montonico bianco, Moscato bianco, Pecorello, Pinot bianco, Riesling italico, Sauvignon, Semillon, Traminer aromatico, Trebbiano (da Trebbiano toscano)

COSTA VIOLA

Zona di produzione

Comprende l'intero territorio amministrativo dei Comuni Bagnara Calabra, Palmi, Scilla e Seminara in provincia di Reggio Calabria.

Tipologie

Bianco, Rosso (anche nella tipologia Novello), Rosato (anche nella tipologia Novello) o con la specificazione del nome di un vitigno.

LIPUDA

Zona di produzione

Comprende l'intero territorio amministrativo dei Comuni di Carfizzi, Casabona, Cirò, Cirò Marina, Crucoli, Melissa, Strangoli, Umbriatico, in provincia di Crotone.

Tipologie

Bianco (anche nella tipologia frizzante), Rosso (anche nella tipologia frizzante e novello) e Rosato (anche nella tipologia frizzante)

LOCRIDE

Zona di produzione

Comprende l'intero territorio amministrativo dei Comuni di Agnana, Ardore, Bianco, Bovalino, Bruzzano, Camini, Canolo, Caraffa del Bianco, Casignana, Caulonia, Ferruzzano, Gerace, Gioiosa Jonica, Grotteria, Locri, Mammola, Marina di Gioiosa Jonica, Monasterace, Placanica, Riace, Roccella Jonica, Sant'Agata del Bianco, Sant'Ilario, Siderno e Stignano in provincia di Reggio Calabria.

Tipologie

Bianco, Montonico bianco passito, Rosso (anche nella tipologia Novello) e Rosato.

PALIZZI

Zona di produzione

Comprende l'intero territorio dei Comuni di Bova, Bova Marina, Brancaleone, Condofuri, Palizzi, Staiti in provincia di Reggio Calabria.

Tipologie

Rosso (anche nella tipologia Novello) e Rosato.

PELLARO

Zona di produzione

Comprende l'intero territorio del Comune di Motta San Giovanni e parte del territorio amministrativo del Comune di Reggio Calabria limitatamente alle frazioni di Bocale, Lume di Pellaro, Macellari, Occhio di Pellaro, Oliveto, Paterriti, Pellaro, San Filippo, Valanidi in provincia di Reggio Calabria.

Tipologie

Rosso (anche nella tipologia Novello) e Rosato. Possono concorrere, da sole o congiuntamente, alla produzione dei mosti e dei vini, le uve dei vitigni a bacca bianca idonei alla coltivazione nella Regione Calabria fino a un massimo del 15%.

SCILLA

Zona di produzione

Comprende l'intero territorio del Comune di Scilla in provincia di Reggio Calabria.

Tipologie

Rosso (anche nella tipologia Novello) e Rosato.

VAL DI NETO

Zona di produzione

Comprende l'intero territorio amministrativo dei Comuni di Andali, Belcastro, Belvedere, Spinello, Botricello, Caccuri, Carfizzi, Casabona, Cerenzia, Crotone, Cutro, Mesoraca, Pallagorio, Petilia Policastro, Roccabernarda, Rocca di Neto, San Mauro Marchesato, San Nicola dell'Alto, Santa Severina, Scandale, Umbriatico e Strongoli tutti in provincia di Crotone.

Tipologie

Bianco (anche nella tipologia frizzante e passito), Rosso (anche nella tipologia frizzante, passito, novello), Rosato (anche nella tipologia frizzante) e con la specificazione del nome di un vitigno.

VALDAMATO

Zona di produzione

Comprende l'intero territorio dei comuni di Curinga, Feroletto, Gizzeria, Lamezia Terme, Maida, Pianopoli, San Pietro a Maida in provincia di Catanzaro, nella regione Calabria.

Tipologie

Bianco, Rosso, Rosato, Spumante, Spumante Rosé, Passito, Passito Rosso e Novello. L'Indicazione include anche numerose specificazioni da vitigno

Number of Calabrian wines

The total vineyard area was about 11,000 hectares in 2019, equal to 1.61% of the total Italian vineyards; the production in hectolitres is equal to 0.77% of the Italian wine production. This data come from the analysis of the collections of the PDO / IGP wine network of Ismea Mercati, the National Institute of Services for the Agricultural Food Market

From the analysis of the data, in the five-year period between 2015 and 2019 there was an increase in both production and hectares of vineyards.

About 12,000,000 bottles are produced annually in Calabria, since the last survey conducted by crossing the data of the controlling bodies of the Calabrian denominations.

The most popular wine is Calabria IGP which produced 4.5 million bottles in 2019, followed by the historic denomination of Cirò, which in 2019 recorded a production of 4.1 million bottles.

Below is a collection of data in tables and graphs based on Istat, Ismea, Valoritalia data and the sector blog of Marco Baccaglio, Inumeridelvino.it.

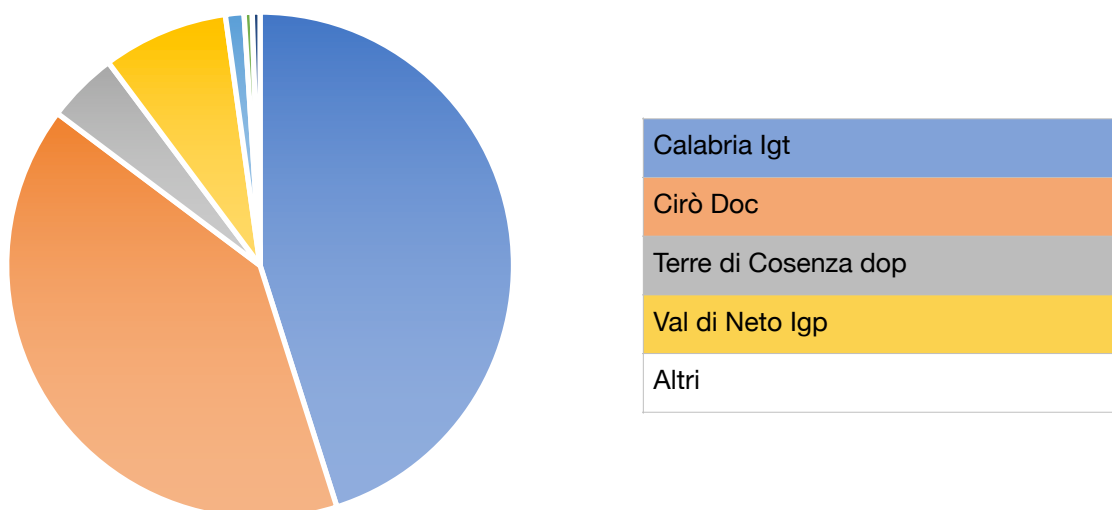
Denominazioni

ANNATE 2018 - 2019

Raccolta dei dati sulle principali denominazioni rilevamento di Valoritalia e gli altri organismi di certificazione e controllo

* Uno operatore può essere presente in una o più categorie

	Calabria Igt	Cirò Doc	Terre di Cosenza a Dop	Val di Neto Igt	Melissa Doc	Lamezia Doc	Savuto Doc
TOTALE OPERATORI*	294	202	60	5	14	6	5
<i>di cui</i>							
VITICOLTORI	241	182	52	2	10	5	5
VINIFICATORI	176	63	34	3	8	4	4
IMBOTTIGLIATORI	119	47	22	4	4	4	3
ETTOLITRI							
2018	40.283	40.066	2986	8.275	1.368	587	682
2019	54.859	71.493	3486	607	1.368	710	288
BOTTIGLIE							
2018	2.846.133	4.099.067	398199	757.333	132.533	59.733	66.667
2019	4.618.320	4.111.916	464865	821.001	121.308	52.777	50.803



Superficie vitata e quantità vino prodotto

ANNATE 2014 - 2019

Raccolta dei dati sulle superfici totali del vigneto Calabria e con i dettagli degli ettari dedicati alle singole tipologie di vini (comuni, Dop, Igp) e la produzione totale per vini e i dettagli su vino comune e vino a denominazione in ettolitri.

* Fonte > Rete vino Dop/Igp di Ismea Mercati

	2014			2015		
SUPERFICIE	Calabria	Italia	%	Calabria	Italia	%
Uva per vini comuni	8.085	177.607	4,55	8.415	147.275	5,71
Uva per vini Dop	731	341.070	0,21	1.129	334.419	0,34
Uva per vini Igp	522	123.066	0,42	776	155.941	0,50
Totali	9.338	641.743	1,46	10.320	637.635	1,62
VINO	Calabria	Italia	%	Calabria	Italia	%
Vini comuni	304.530	26.071.000	1,17	251.570	19.737.600	1,27
Vini Dop/Igp	65.860	21.894.800	0,30	61.970	22.349.900	0,28
Totali	370.390	47.965.800	0,77	313.540	42.087.500	0,74

	2016			2017		
SUPERFICIE	Calabria	Italia	%	Calabria	Italia	%
Uva per vini comuni	1.791	136.829	1,31	1.791	136.829	1,31
Uva per vini Dop	781	359.962	0,22	781	359.962	0,22
Uva per vini Igp	8.984	149.009	6,03	8.984	149.009	6,03
Totali	11.556	645.800	1,79	11.556	645.800	1,79
VINO	Calabria	Italia	%	Calabria	Italia	%
Vini comuni	340.690	27.616.600	1,23	340.690	27.616.600	1,23
Vini Dop/Igp	63.560	23.089.400	0,28	63.560	23.089.400	0,28
Totali	404.250	50.706.000	0,80	404.250	50.706.000	0,80

Superficie vitata e quantità vino prodotto

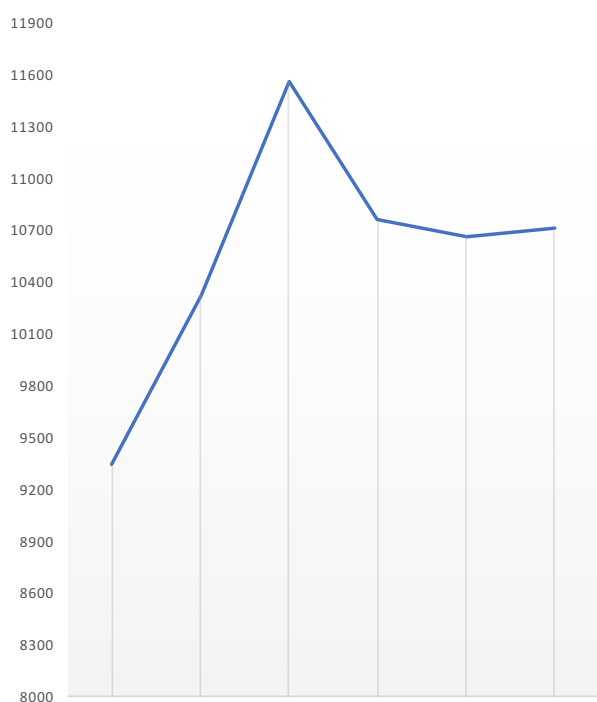
ANNATE 2014 - 2019

segue

* Fonte > Rete vino Dop/Igp di Ismea Mercati

	2018			2019		
SUPERFICIE	Calabria	Italia	%	Calabria	Italia	%
Uva per vini comuni	382	156.458	4,55	430	161.917	0,27
Uva per vini Dop	538	404.772	0,21	538	409.157	0,13
Uva per vini Igp	9.738	96.478	0,42	9.738	95.348	10,21
Totali	10.658	657.708	1,46	10.706	666.422	1,61
VINO	Calabria	Italia	%	Calabria	Italia	%
Vini comuni	308.510	18.337.000	1,68	340.970	29.143.000	1,17
Vini Dop/Igp	68.440	24.095.100	0,28	77.340	25.040.900	0,31
Totali	376.950	42.432.100	0,89	418.310	54.183.900	0,77

2014 - 2019 > Andamento superficie vitata



Andamento produzione ettolitri

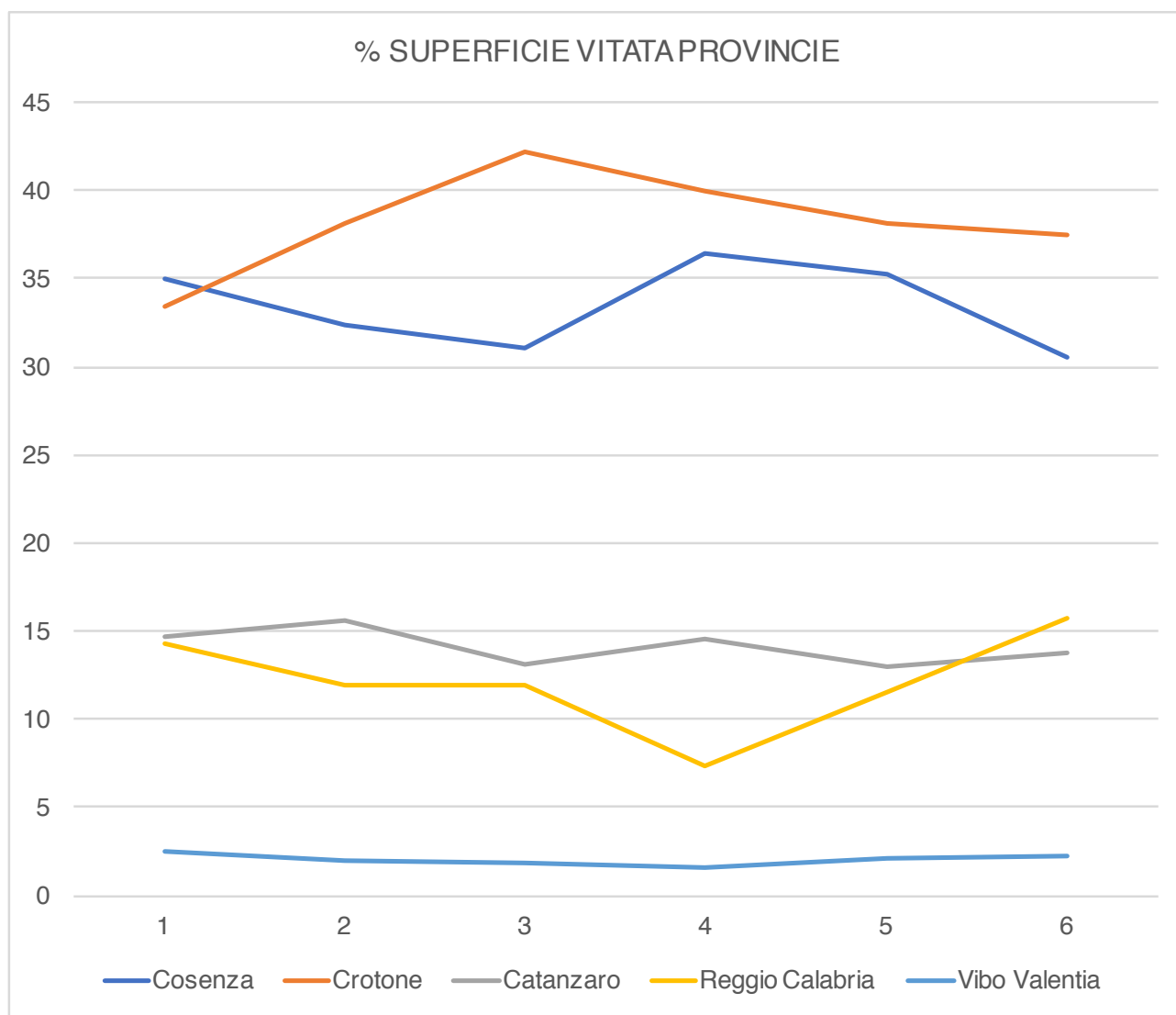


Superficie vitata e quantità vino prodotto

ANNATE 2014 - 2019

La distribuzione del vigneto Calabria per la 5 province calabresi Cosenza, Cirò, Catanzaro, Reggio Calabria, Vibo Valentia dall'analisi dei valori elaborati da Inumeridelvino.it sui dati ISTAT

* Fonte > inumeridelvino.it



Bio, the Calabrian case

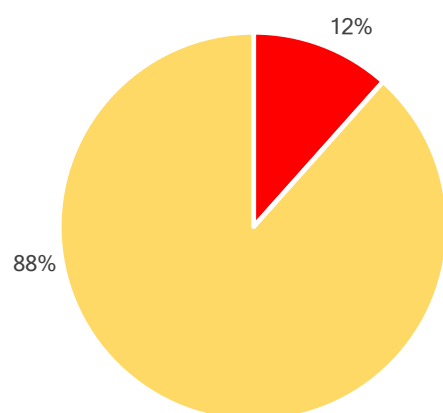
While on the one hand Calabrian viticulture represents a small share of the Italian sector, in the case of organic crops the trend is quite contrasting: even in 2018 Calabria held the national regional record for organic production companies.

This element also resounds on the wine sector, and, in fact, Calabrian organic viticulture represents 4% of the total Italian vineyard surface, as opposed to 1.46% of the general vineyard surface (Source: Rete vino DOP/IGP di Ismea Mercati).

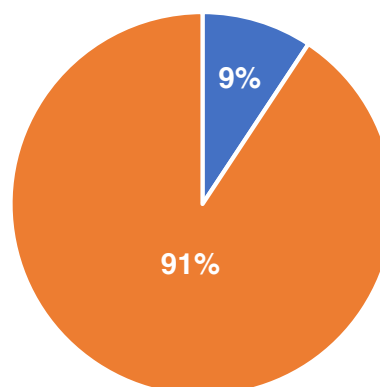
The information below refers to the year 2018, and is processed with data from the SINAB collection, the Italian National Information System on Organic Agriculture of the Ministry of Agriculture.

fonte SINAB		2018
SUPERFICIE TOTALE ITALIA VINO BIO		106.447
SUPERFICIE TOTALE CALABRIA VINO BIO		4.425
ITALIA SUPERFICIE TOTALE BIO		1.958.045
CALABRIA SUPERFICIE TOTALE BIO		200.904
OPERATORI BIOLOGICI ITALIA		79.046
OPERATORI BIOLOGICI IN CALABRIA		11.030
INCIDENZA SUPERFICIE BIOLOGICHE		36%
INCIDENZA DEL NUMERO DI OPERATORI SUL TOTALE		10%

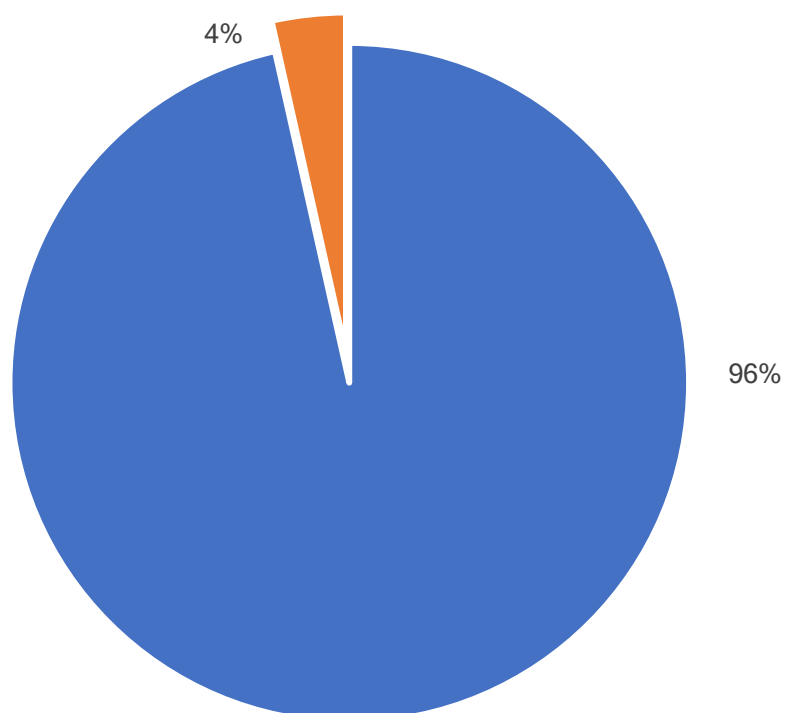
Operatori Bio ITALIA/CALABRIA 2018



Superficie Bio ITALIA/CALABRIA 2018



Wineartd surface Bio ITALY/CALABRIA 2018 (fonte SINAB)



VINTAGES

The trend of the vintages from 2010 to 2020 in the 10 production areas of Calabria, with the data concerning average temperatures and rainfall, as processed by the official surveys of the meteorological stations of the Multi-Risk Functional Centre of ARPACAL, the designated centre of the Regional Agency for the Protection of the Environment of Calabria.

We thank the officer of the ARPACAL Multi-Risk Functional Centre, Eng. Loredana Marsico, the director Ing. Eugenio Filice, and the General Director of ARPACAL, Dr. Domenico Pappaterra.

Vintage rating

Calabria Wine

2010 > **9**

2011 > **6,5**

2012 > **6,5**

2013 > **7**

2014 > **7,5**

2015 > **8,2**

2016 > **8**

2017 > **7**

2018 > **7,5**

2019 > **8,5**

2020 > **7,3**

2021 > **7,8**

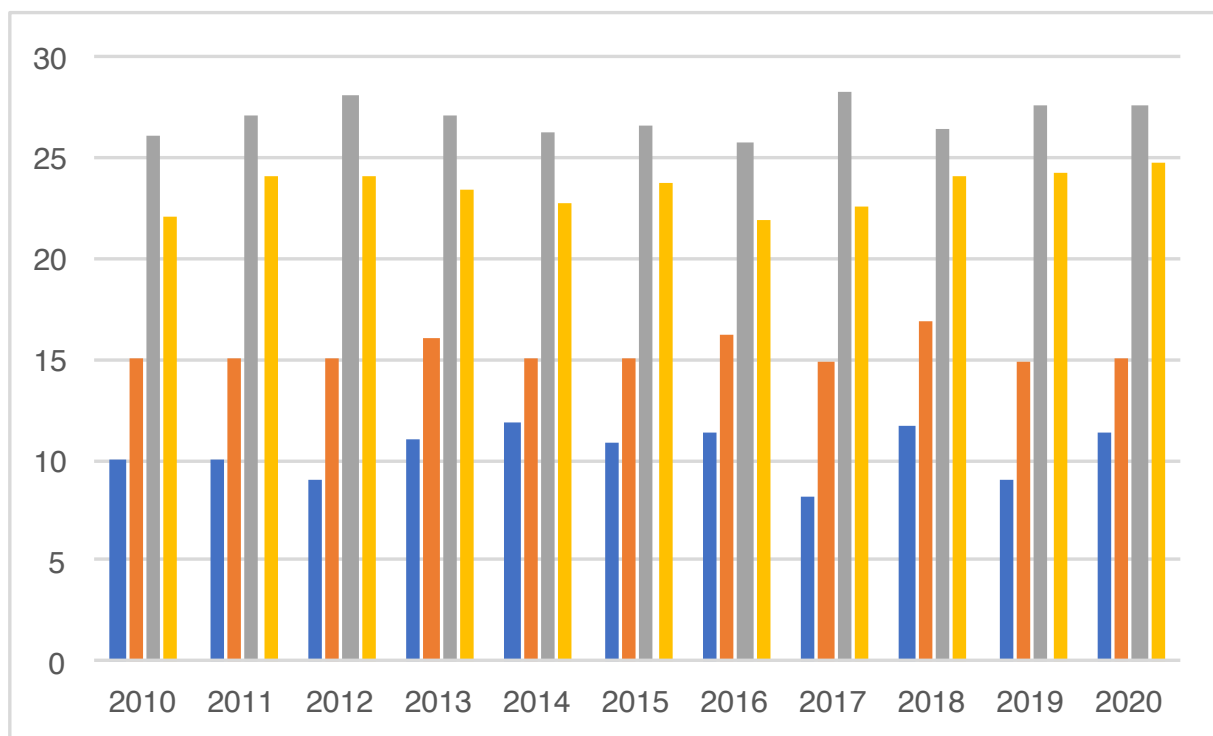
Territory

1. Cirotono e Crotonese
2. Pollino
3. Donnici
4. Savuto
5. Crati / Esaro
6. Lamezia
7. Costa Vibonese
8. Locride (Gerace, Bianco, Bivongi)
9. Area grecanica (Palizzi e Bova)
10. Costa Viola

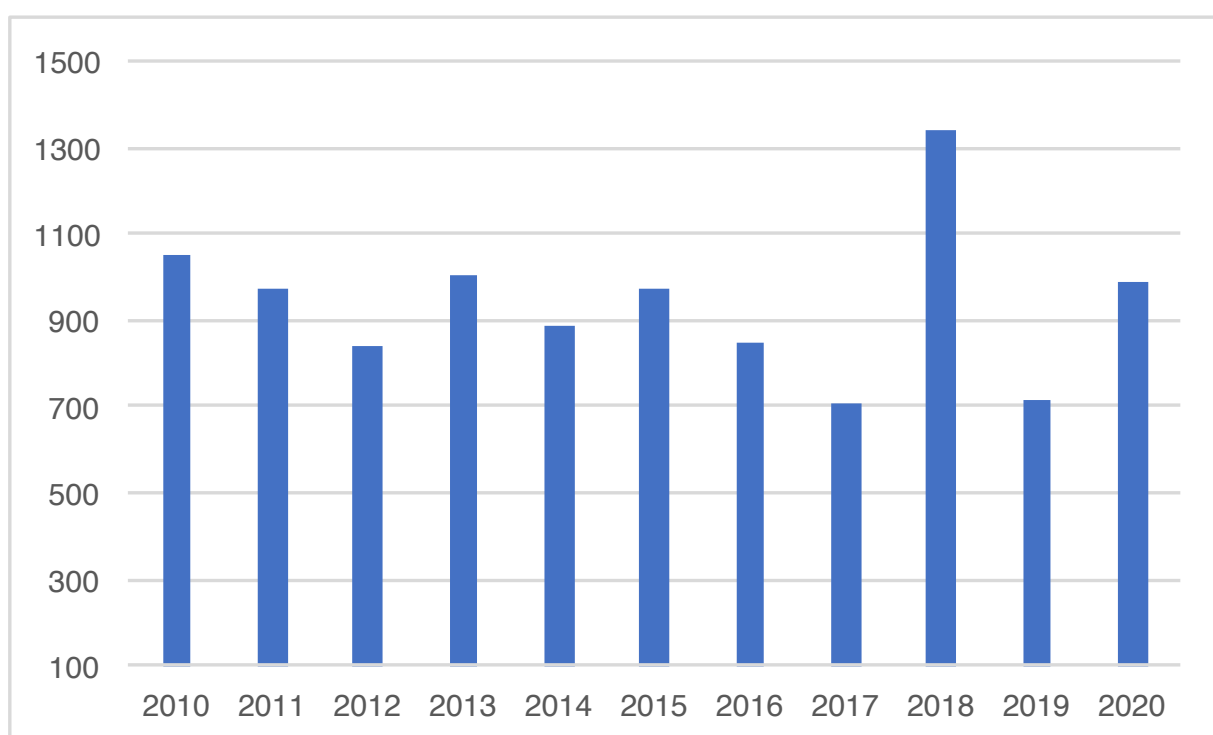
Cirotano e Crotonese

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



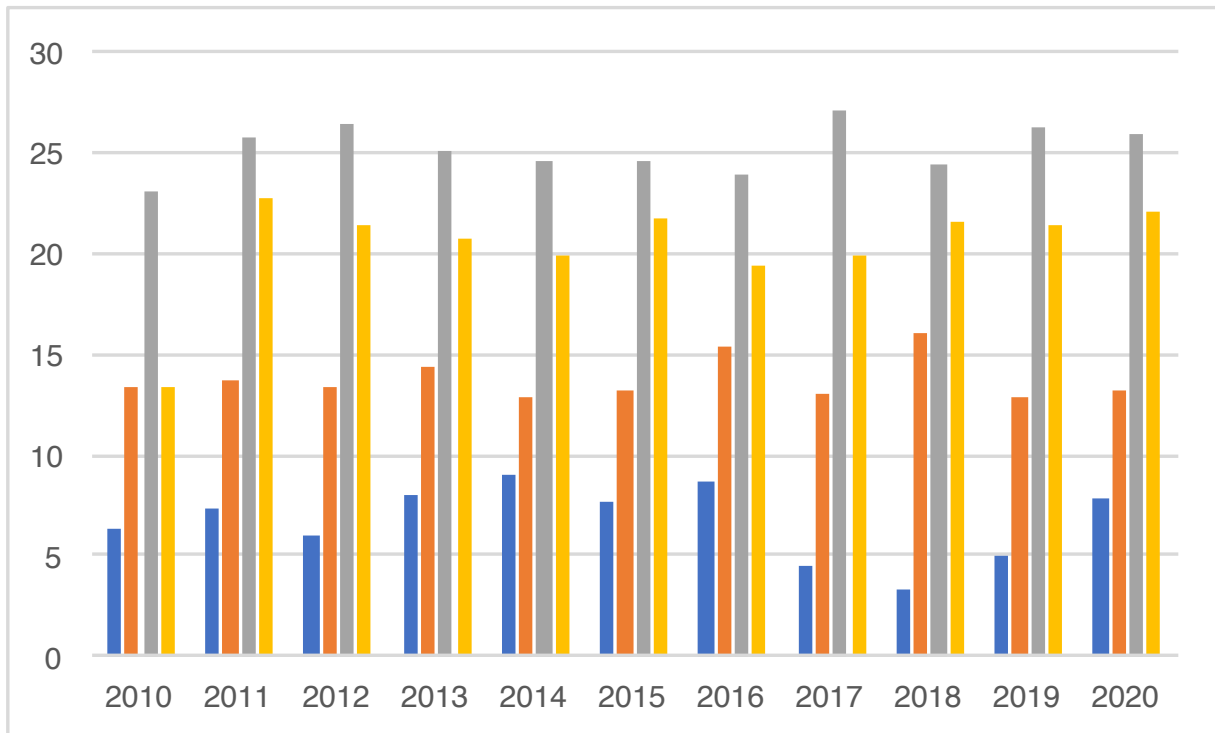
Total annual rainfall



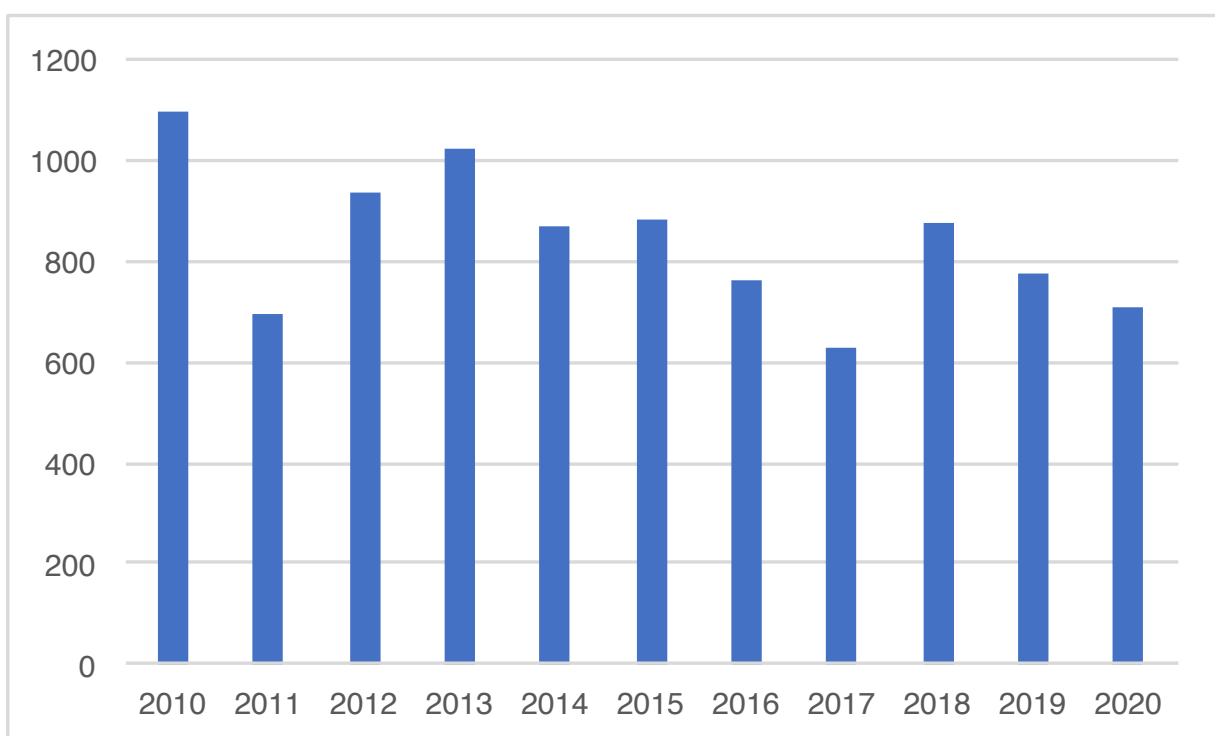
Pollino

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



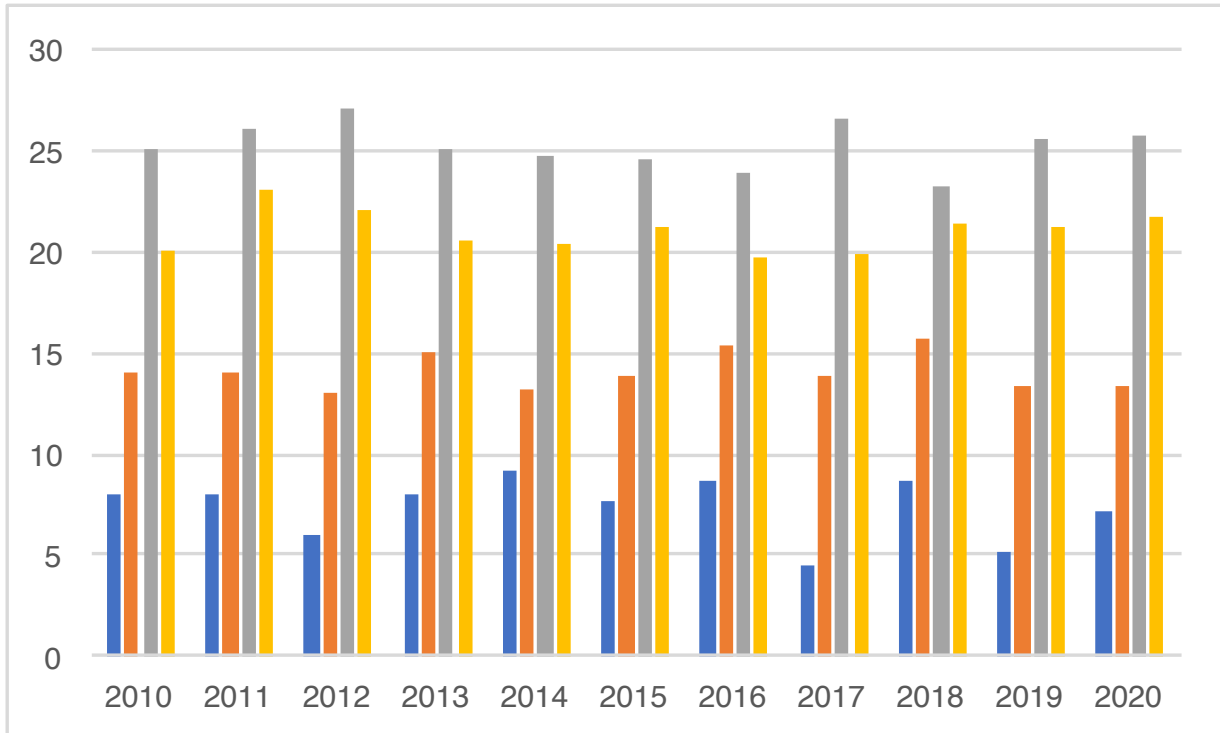
Total annual rainfall



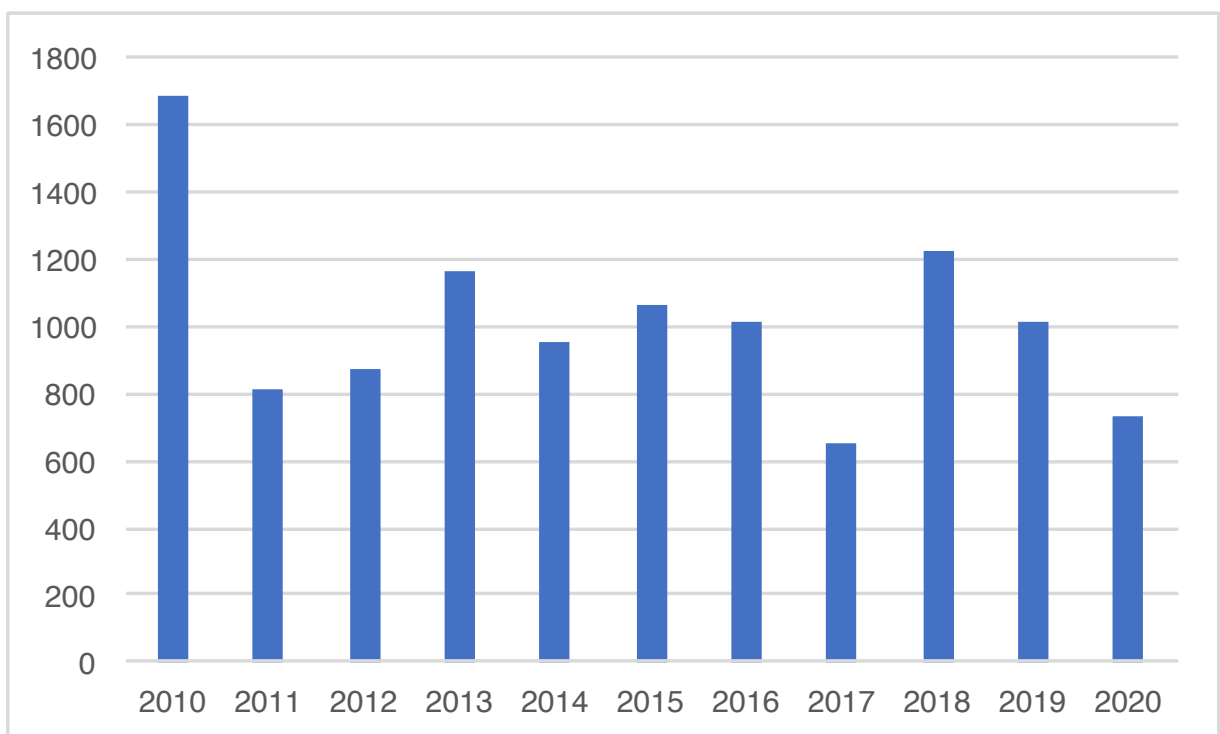
Donnici

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



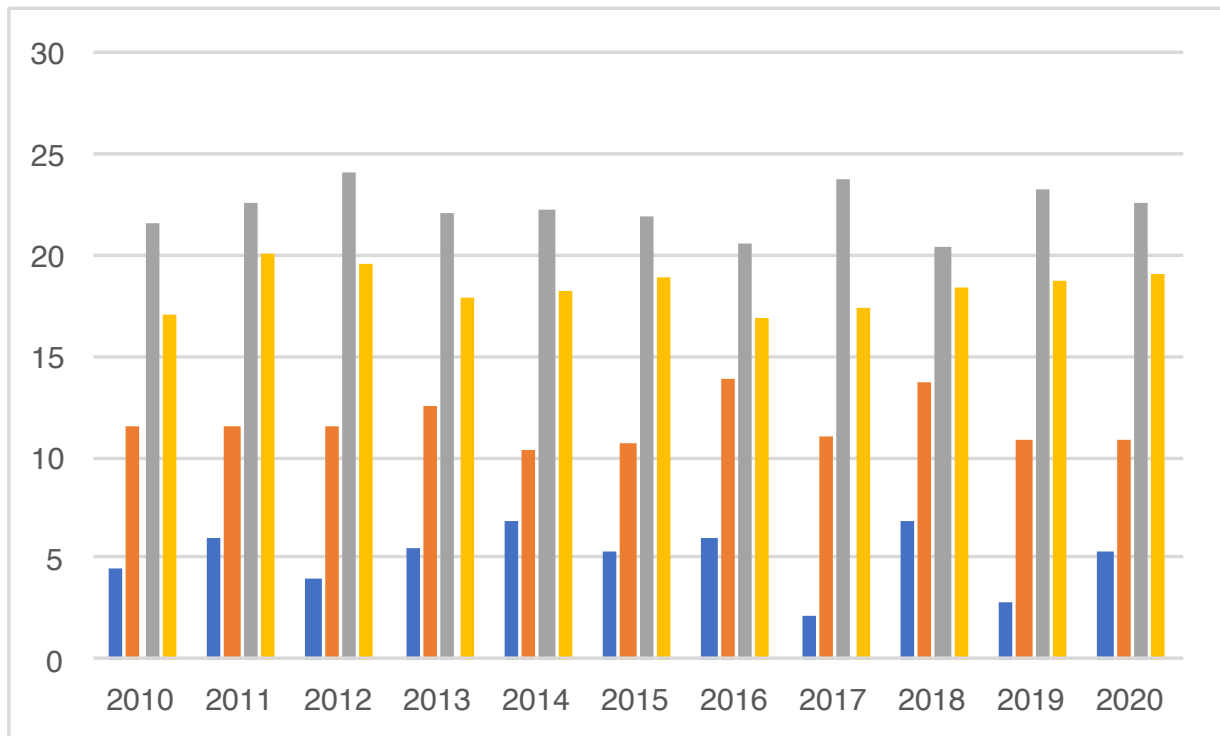
Total annual rainfall



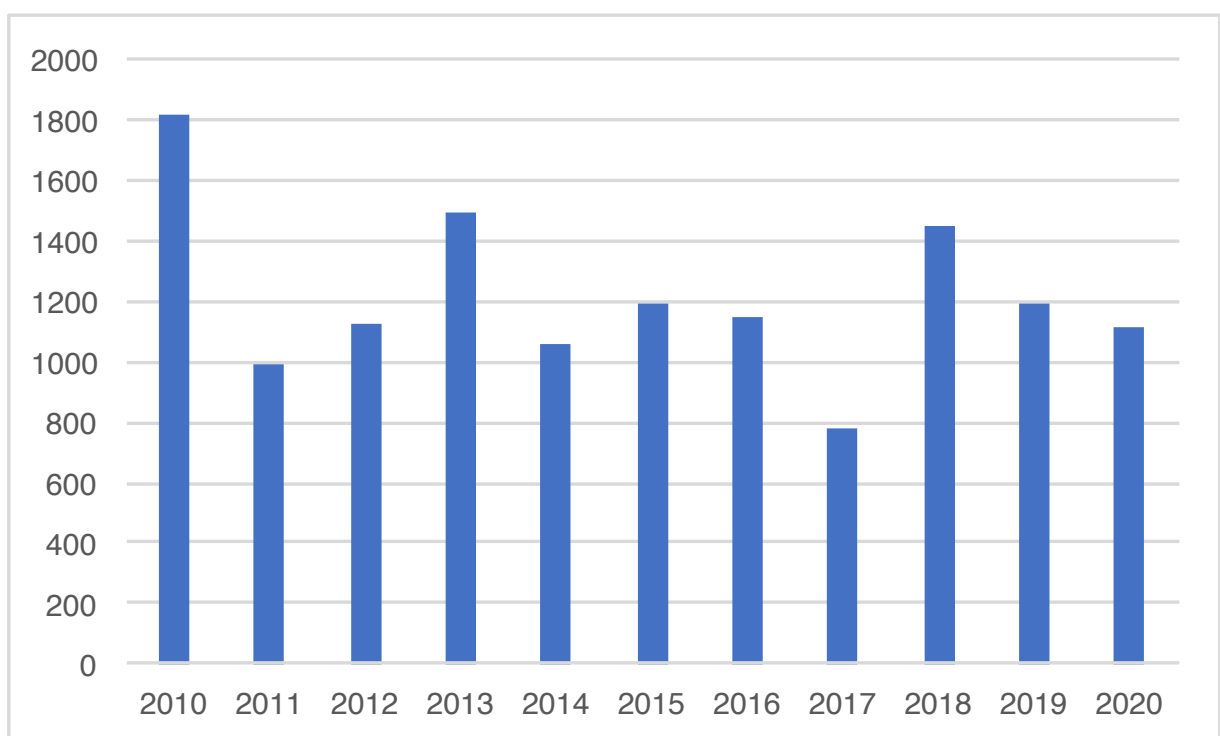
Savuto

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



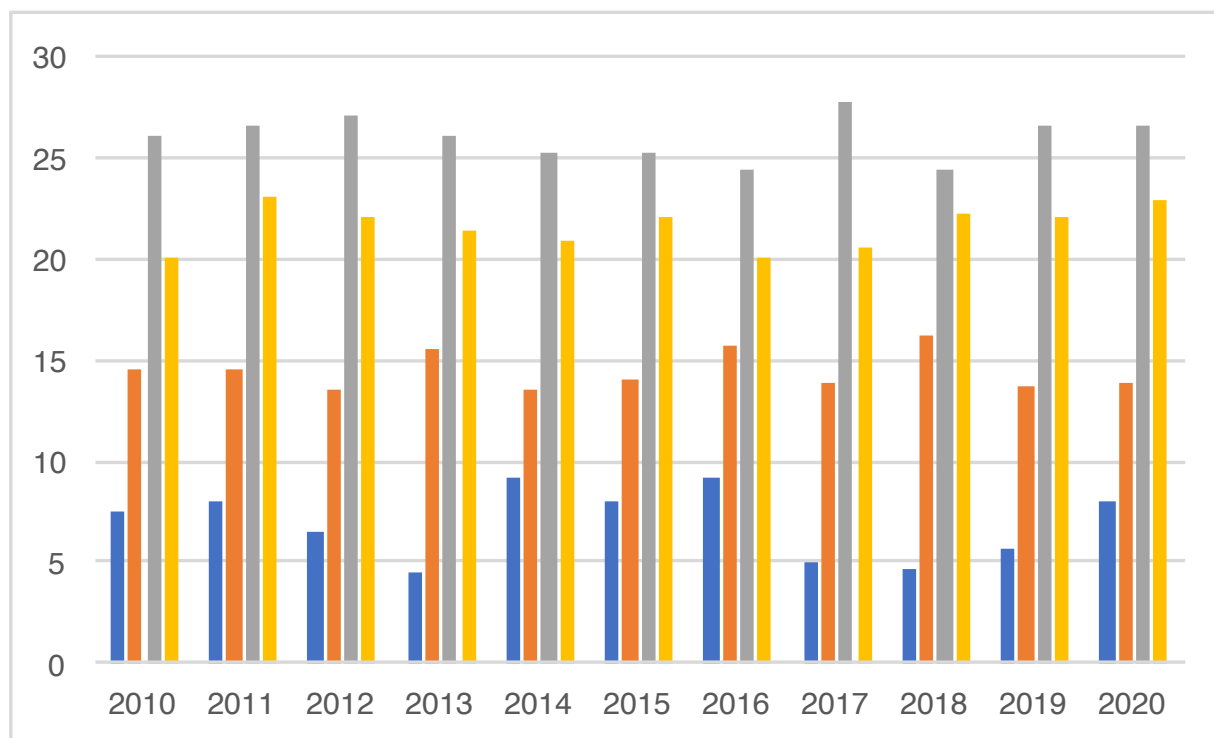
Total annual rainfall



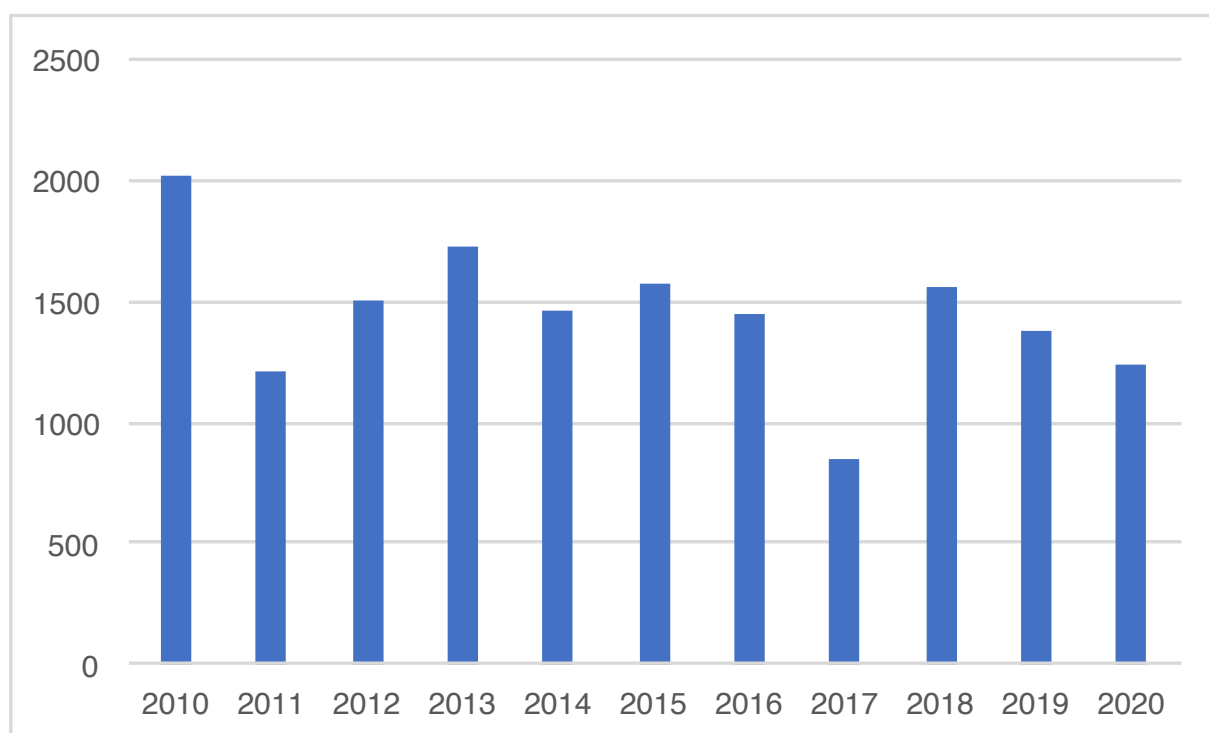
Crati / Esaro

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



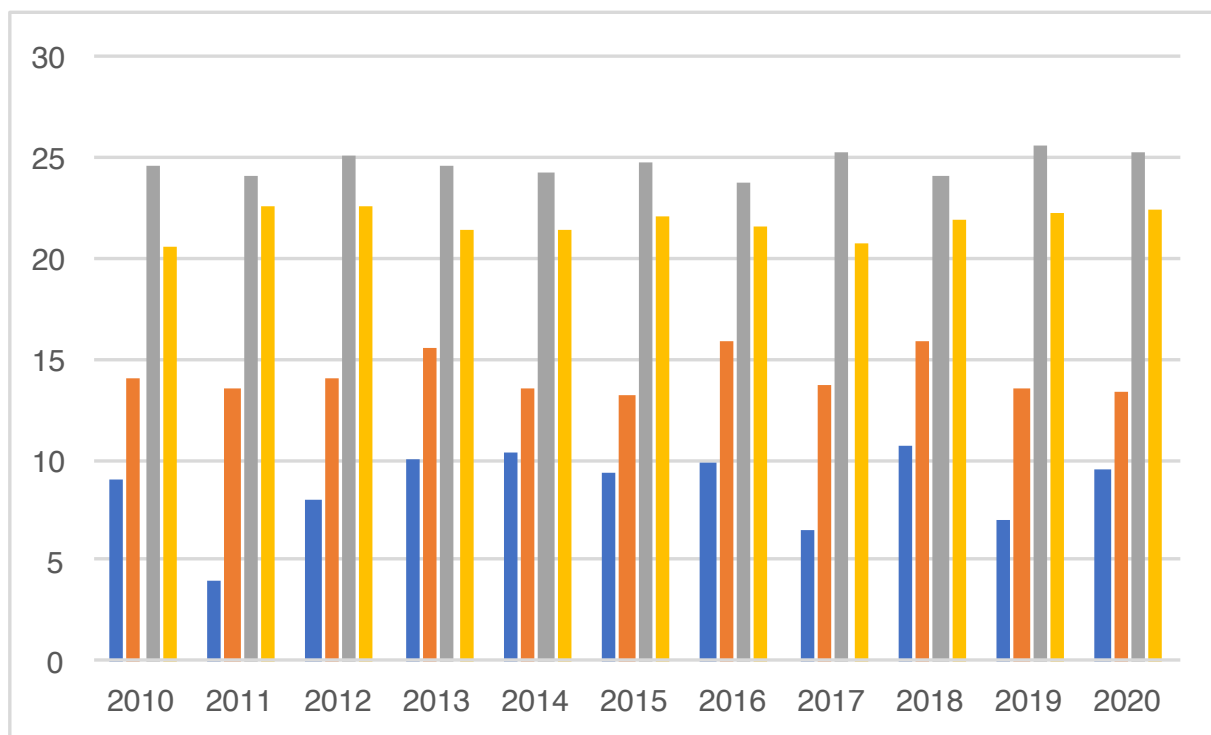
Total annual rainfall



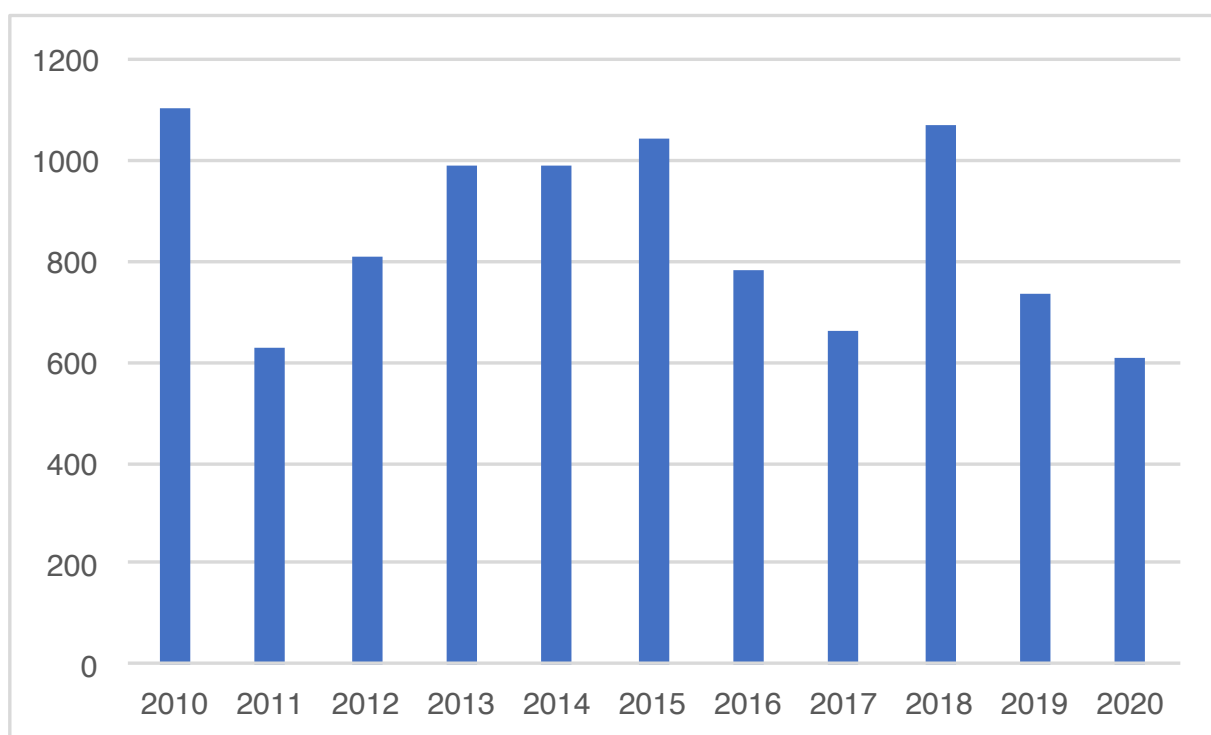
Lamezia

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



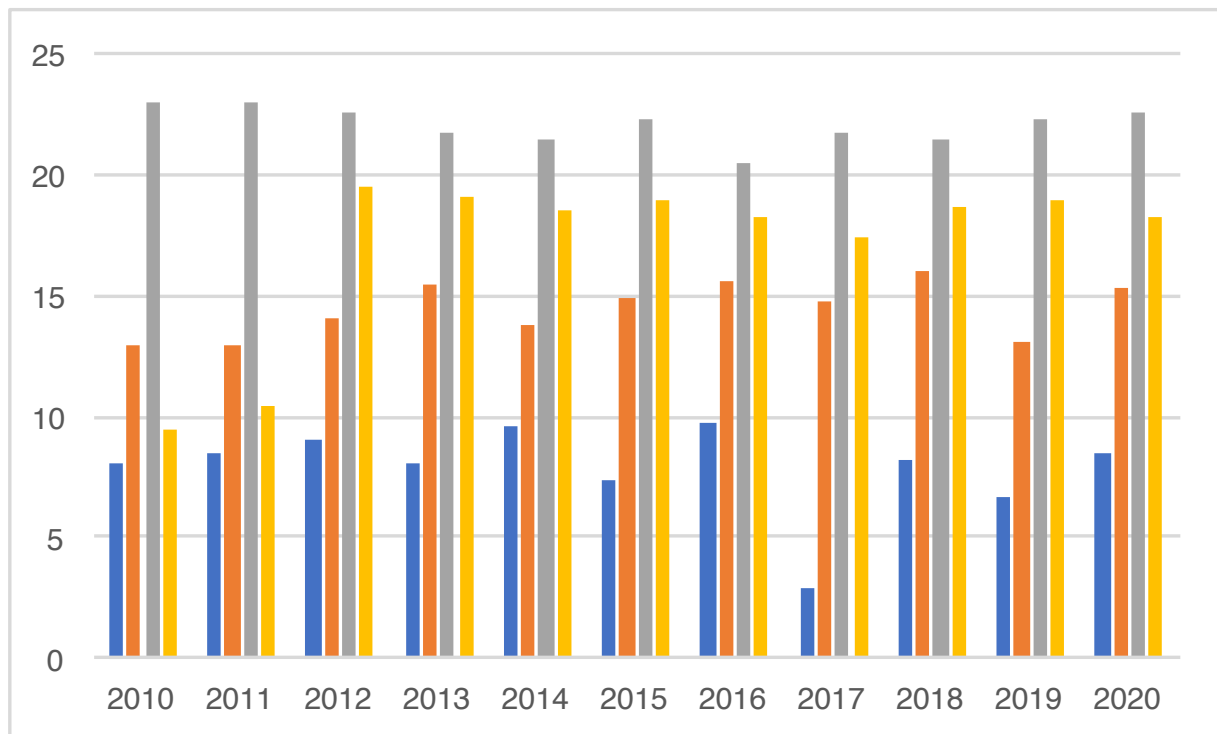
Total annual rainfall



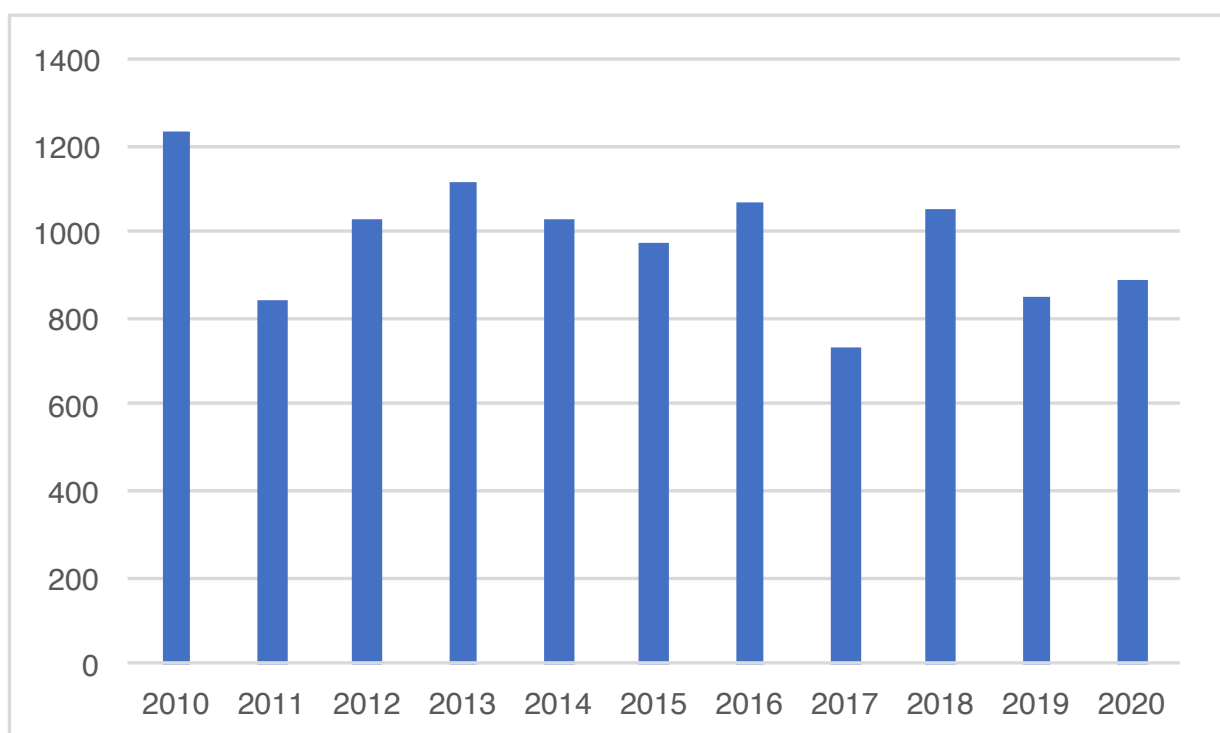
Costa Vibonese

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



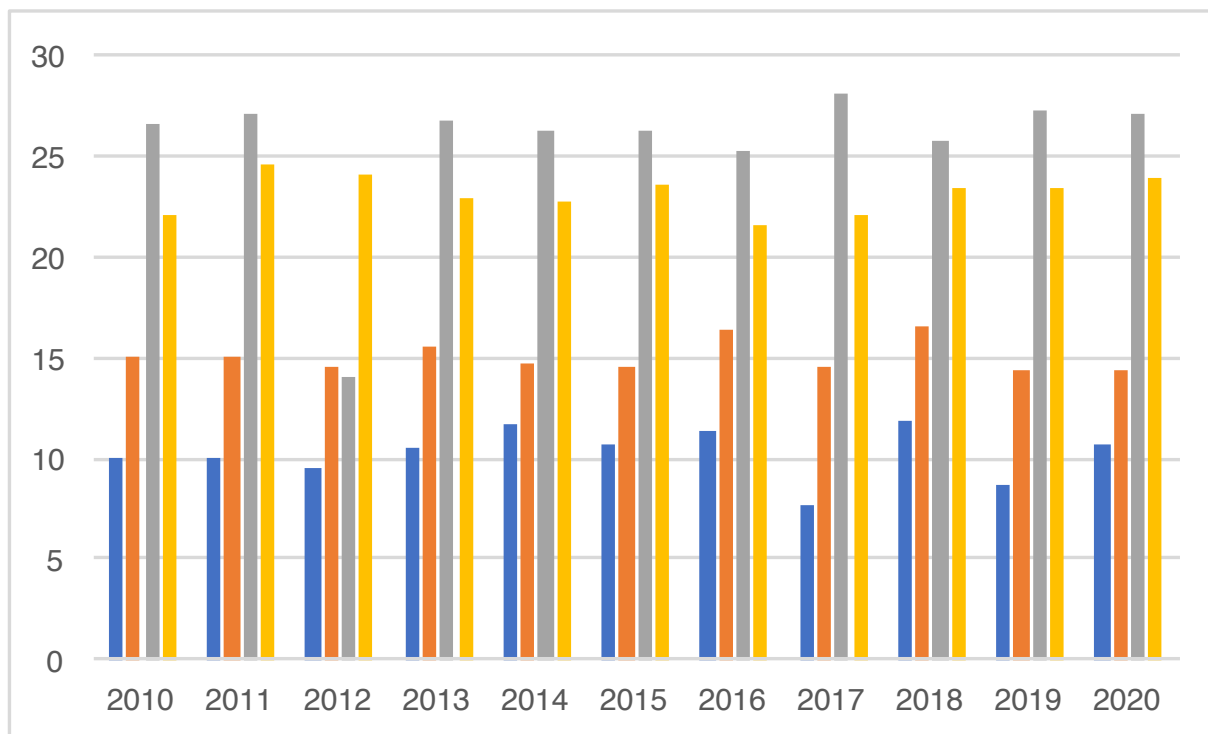
Total annual rainfall



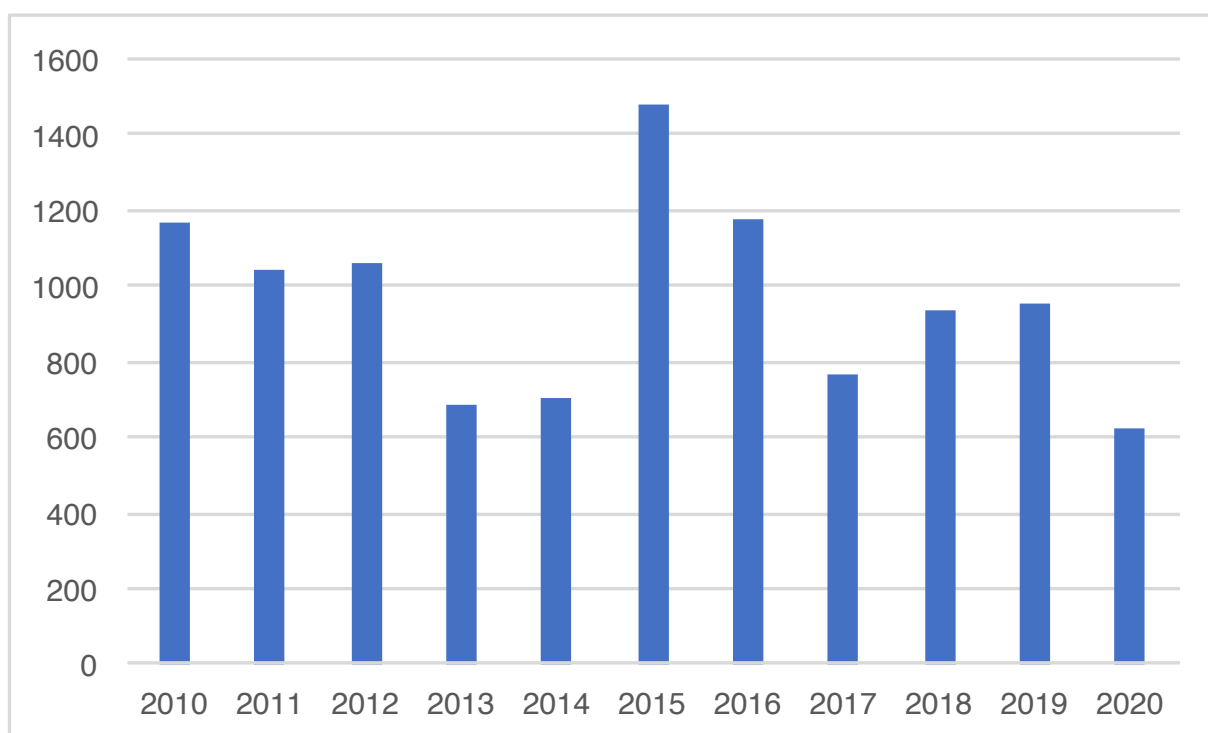
Locride (Gerace, Bianco, Bivongi)

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



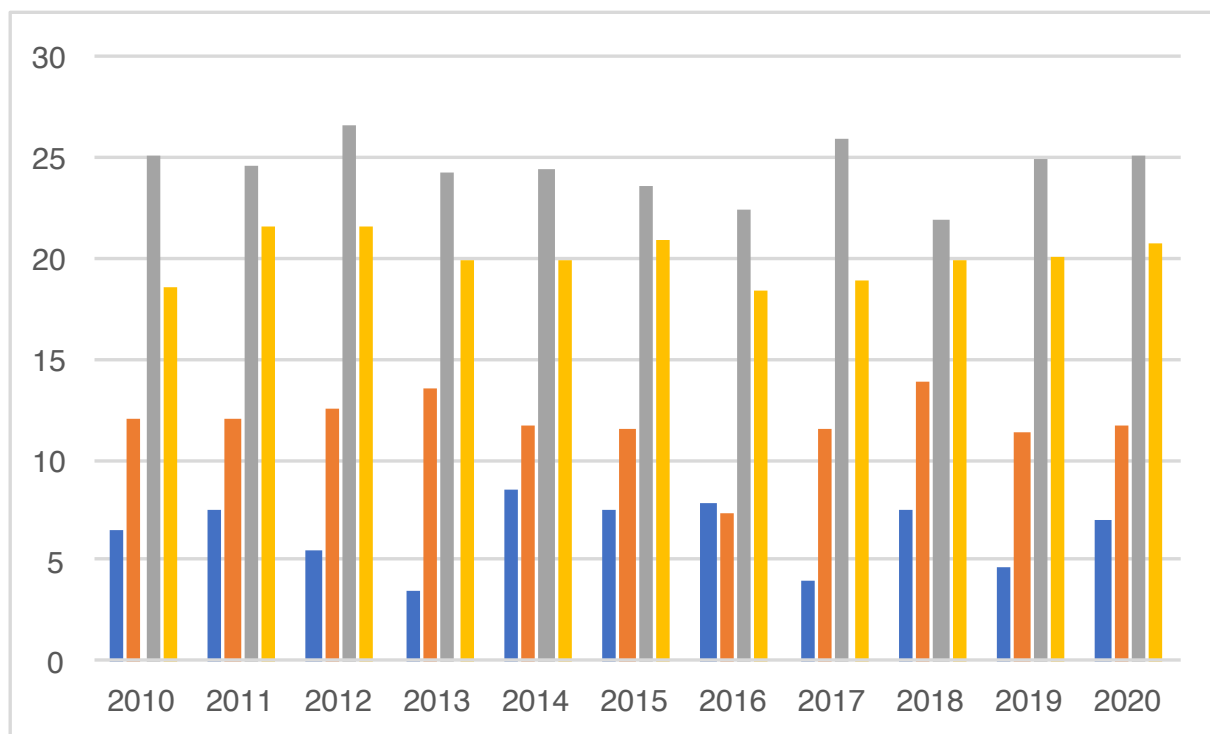
Total annual rainfall



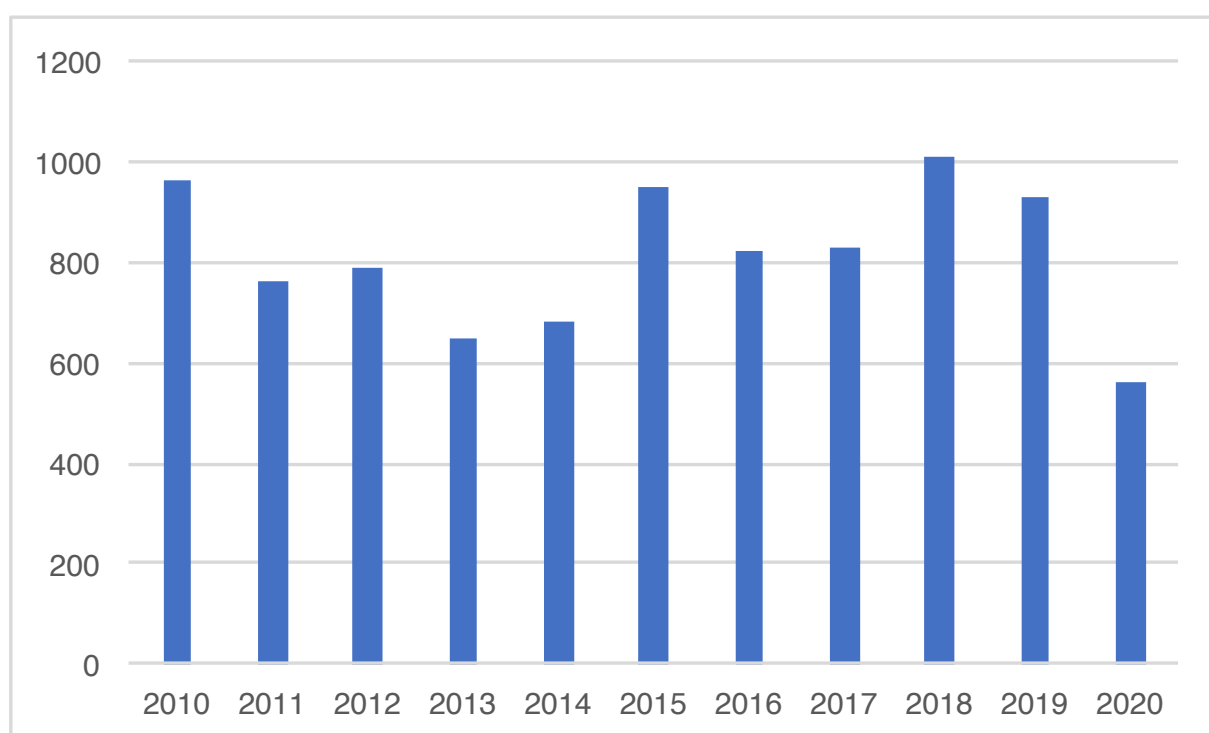
Area Grecanica (Palizzi, Bova)

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



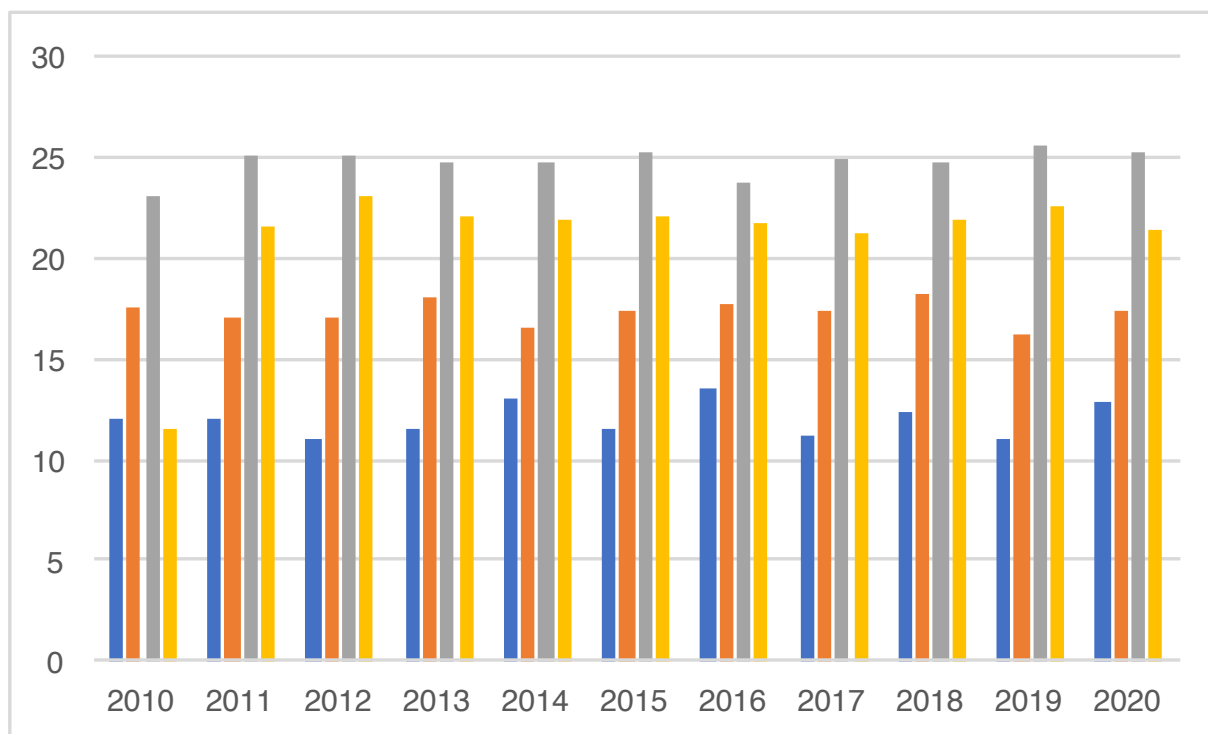
Total annual rainfall



Costa Viola

ANNATE 2010 - 2020

Average temperatures in the months of January, April, August, September



Total annual rainfall

