**The Quality of Natural Wine.**

Udo Hirsch, May 2024

It is still not clear why people first tried to make wine from wild grapes instead of producing useful foodstuffs, and to this day hardly any attempts have been made to answer this question conclusively. Perhaps other sweet fruits had already been successfully used to make alcoholic drinks. For it was only after the cultivation of the wild grape in the late 5th millennium that deities and ruling elites were served grape wine on special occasions.

This period also saw the cultivation of other wild fruits, with the result that olive oil and wine in particular quickly became sought-after commercial products in the Near East and throughout the Mediterranean region.

The first peak of wine consumption, still exclusively for the elite, is known from the Bronze Age. Detailed descriptions of the production of wine and its use as well as corresponding excavation finds prove the increasing importance of grape wine. Terms such as mountain wine, beer wine, thick wine, sweet wine, sour wine, clear wine and other designations make it clear that it is about taste, not quality, as evidenced by differentiated pricing. The sweeter the more expensive.

Crete was a trade center par excellence in the Bronze Age. From the Minoan culture on Crete and later the Mycenaean culture on the mainland, we know of an almost unbelievable number of different wine vessels, which were probably still produced for the elite due to their high-quality artistic execution.

It was not until around 1200 BC that wine was drunk in the Near East, both in temples and palaces and by high-ranking military officers, priests and royal administrators at celebrations and ceremonies.

In the Neo-Assyrian Empire, King Ashurnasirpal II celebrated the inauguration of his new palace around 800 BC. He served his guests 10,000 animal skins filled with wine for the banquet.

To make this possible, there must have been well-organized vine cultivation, careful winemaking, high-quality vessels for fermentation, storage and transport.

In the Roman Empire, wine consumption was at least 1 liter per person per day.

As a result of the expansion of the Roman Empire, wine-growing areas were established throughout the Mediterranean. The great demand led to vines being cultivated and wines being produced even in unsuitable areas/regions.

Previously, wine had been made sweeter and more durable with thickened grape juice and the addition of ash, gypsum, calcium carbonate or even seawater.

Wine was drunk diluted or spiced in various qualities.

There are a number of recipes from Mesopotamia, Egypt and Anatolia on how to make wine drinkable. Pliny, as well as other writers, reports on the large number of additives.

The ready-mixed thick wine was bottled in amphorae or wooden barrels for transportation to all regions of the empire. This is a clear indication of the difficulties of preserving and storing wine.

Each wine-growing region produced different types of wine, which were traded at rising prices as their quality increased.

The "Falerner" from Italy was the most popular wine of the 1st century, famous for its sweetness and intense flavor.

In contrast, the wines from Liguria were bitter and sour. They were mass-produced products that were sold cheaply and regulated by decree. We would certainly describe most of these ancient wines as undrinkable today.

**TODAY**

Today, 2000 years later, the whole thing does not seem particularly unfamiliar. The problem of shelf life still exists, also recognizable by the smallest possible bottle opening and the use of good corks.

Government regulations on the use of ingredients are under pressure from a lobby that still argues that chemicals are useful, nature is dangerous. Apparently, the lobby is still in the phylloxera fighting period. We learn almost daily about the many ingredients that are necessary today to make a wine in the first place from the growing countries, the wine regions and the communications of the International Organization of Vine and Wine (OIV) and others.

**Phylloxera**

After successfully combating mildew in the first half of the 19th century, the horror arrived in Europe not long afterwards in the form of an American louse and, in the following decades, determined first French and then European wine history.

In 1869, the louse reached Bordeaux where it attacked and destroyed 100,000 hectares of the 170,000 hectares in the region. By 1875 it had reached Burgundy, the Loire and Champagne.

It was only then that it was discovered that the pest was a tiny insect from America.

The French government promised a large reward for the discovery of an antidote and subsequently received hundreds of home remedies for destroying the louse, each one better than the last. A combination of urine and garlic, burning, praying and flooding showed results, but were hardly applicable on a large scale.

Finally, 2 strategies emerged to combat phylloxera. The chemists suggested the use of pesticides, while the American researchers suggested using native American vines or attempting rescue by grafting on American rootstock.

The trials with American vines yielded quite different results.

Some producers had simply planted American vines instead of their own. But the wine from these vines was undrinkable.

Some others were only partially resistant and from others the wine was only partially drinkable. Eventually, grafting European varieties onto American rootstock was seen as the only permanent solution.

For most regions, phylloxera provided the opportunity to reorganize the vineyards and a large number of "uninteresting" grape varieties were uprooted and lost.

The new vines, planted in rows and tied to wires, made it possible to modernize cultivation and opened the door to the mechanization of viticulture. After 1945, almost all native vines in other European countries were also planted on American rootstock.

In the past, viticulture was a mixed cultivation of different grape varieties with a large proportion of biodiversity. However, over time, more and more modern methods have replaced traditional knowledge, experience and equipment. The number of ingredients "necessary" today to make modern wines tasty and long-lasting has multiplied.

 EU regulations govern the wine market, the International Organization of Vine and Wine (OIV) and other organizations are responsible for policy.

If the current industrial agricultural economy, as it has existed since the 1970s, had been the right one, we would not have very large losses of biodiversity and growing problems with water quality today. Added to this are 5 diseases caused by pesticide use, as well as eroded and poisoned soils followed by deaths in vineyards and the WHO's call for more organically grown fruit and vegetables.

The rapidly developing organic movement in general, a direct response to mass production in the food and drink sector, has increasingly included wine production.

But can all vineyards be cultivated according to organic standards? For many, this is not possible; in most regions, viticulture has become so difficult that chemical aids cannot be dispensed with. It is clear that such regions are not suitable for viticulture.

The increasing problems of agriculture and the food industry with the impoverishment of the soil and the burden of artificial aids are only now being countered by attempts to breed healthy and resistant vines and thus produce healthy products.Accordingly, scientific interest has slowly shifted from the quantity of harvest results to healthy soils and biodiversity.

**Conventional viticulture**

Between 1950 and 1970, a particularly large amount of chemical fertilizers, pesticides, herbicides and insecticides were used in the important wine regions of Europe.

Thus, together with the larger wine producers, conventional viticulture based on monocultures with no room for other plants emerged in the 1970s. To this day, the priority is technology and profitability.

There are of course different cultivation methods, but in conventional cultivation heavy machinery is used and herbicides together with artificial fertilizers are used against grasses and other plants, as well as pesticides against insects.

Vine diseases and parasites are mainly and regularly controlled with pesticides as a precautionary measure. Synthetic fungicides are used to protect the sensitive vines against fungal diseases. 15% of all pesticides used in Europe are used in viticulture. Herbicides such as glyptosate Roundup from Monsanto/Bayer and other synthetic chemicals are used intensively. The negative effects on the ecosystem are not taken into account. The soil has become unimportant.

Behind this are wine factories in which the grape juice is broken down into its individual parts and then mixed with the desired flavor additives so that they taste exactly as the customer is used to. The results can then be found in the supermarket where some of the wines can be bought for less than €3.

For the complete list of the many oenological treatments, additives and techniques permitted in conventional viticulture, see EU 606/2009

**Organic viticulture (organic)**

As a reaction to mass production in the food and beverage sector and the means used there, an organic movement emerged almost simultaneously, which quickly included the wine sector. Organic viticulture emerged, which led to a reorientation of work in the vineyard.

Due to this organic movement, which has been developing ever faster since 2000, an EU organic wine regulation was adopted in 2012 (EU-606/2012). It sets out the minimum requirements for controlled organic cultivation (around 100 additives and active substances are permitted). They are supported by other organizations such as ECOVIN, Naturland, Demeter, etc. These organizations, which are responsible for inspections and certifications, usually apply even stricter criteria. The wines produced in this way are labeled with the EU logo for Ecological Viniculture.

In organic viticulture, the vineyard is viewed holistically as an ecosystem, and soil health and [biodiversity](https://glossar.wein-plus.eu/biodiversitaet) play a major role. [Only organic agents](https://glossar.wein-plus.eu/biologischer-pflanzenschutz) are permitted for plant protection (with the exception of copper); [herbicides](https://glossar.wein-plus.eu/herbizide) and synthetic ([chemical](https://glossar.wein-plus.eu/chemische-mittel)) [pesticides](https://glossar.wein-plus.eu/pestizide) are generally prohibited. [Fertilization](https://glossar.wein-plus.eu/duengung) is also largely organic.

**Delinat**  Applies the most demanding organic guidelines in Europe. The central principle of quality-oriented viticulture according to the Delinat method is based on the targeted promotion of biodiversity. The Delinat method sees the vineyard as an ecosystem whose balance is only achieved through the networking of biodiversity.

Vineyards are to be transformed into stable ecosystems with wild hedges, fruit trees and secondary crops such as vegetables, aromatic herbs and diverse greenery.

Legally binding guidelines for the designation of "organic wine" have only been in place in the EU since 2012. As early as 1983, Delinat created its own organic guidelines for winegrowing and winemaking in Europe. These have been continuously adapted to the latest findings. They go far beyond the general requirements for organic farming and are also stricter than other organic guidelines in many respects. (EU, Bio Suisse, Demeter).

In addition to a ban on synthetic chemical pesticides, the use of artificial fertilizers and genetic engineering, the Delinat guidelines were the first to require the mandatory promotion of biodiversity and severely restrict the use of copper and sulphur for disease control in the vineyard. During vinification, additives and interventions to preserve, sulphur, fining and filtering the wines are severely restricted. Animal additives are completely prohibited, so that all Delinat wines are considered vegan.

**Biodynamic viticulture**

Biodynamic viticulture goes a few steps further than organic viticulture. It is the most strictly controlled and certified type of organic viticulture. Biodynamically produced wines are labeled with a logo of the Demeter Association, which also defines the conditions of biodynamic agriculture and viticulture.

In addition to the holistic approach to the vineyard as an ecosystem, there is also a spiritual approach. Strengthening the vines and their natural environment is of paramount importance. Homeopathic (medicinal) remedies such as herbal infusions/infusions and horn silica are used together with organic herbal tonics. Only organic protective agents are allowed. If possible, no machines should be used.

Biodynamic certification by Demeter largely excludes the use of additives permitted in viticulture. These specific and strict conditions include only a minimum of accepted treatments (16 additives and adjuvants are allowed). All guidelines for conventional viticulture, organic viticulture and biodynamic viticulture are defined by law and can be certified and labeled accordingly by authorized companies. In addition to the legally defined guidelines, a large number of "private" guidelines have been drawn up and applied over the last 20 years, which aim to promote the natural cultivation of vines and the corresponding natural ageing of wine.

However, the use of the term "natural wine" on the label is prohibited under EU regulations.

Under the name **Vin Méthode Nature**

is a first private initiative to achieve an official definition.

After ten years of negotiations, the Natural Wines Union, the French Ministry of Agriculture, the Institut national de l'origine et de la qualité (INAO) and other licensing authorities agreed on a definition of production conditions last year

The method is based on the rules of organic viticulture and includes the following additional restrictions:

Use of local grapes only

Grapes harvested by hand

No additives

No pasteurization

No temperature control

No reverse osmosis

No filtering

No more than 30mg/l sulfite at bottling

Vin Methode Nature still does not say what natural wine is. The method so labeled does not inform the consumer about what was used to make the wine. The rules for organic viticulture on which the "Vin Methode Nature" is based still offer the possibility of using various artificial ingredients, including copper, of course.

Bordeaux broth (a mixture of copper sulphate and hydrated lime) has been sprayed against downy mildew since the 19th century. And although the toxicity of copper sulphate is well known, its use is still permitted by organic and biodynamic certifying organizations.

**And the many other winegrowers**

The industrial revolution in modern history was the shift from manual agricultural labor to a different way of working, dominated by industry and machine production.

At large wine producers, sometimes with areas of over 1000 hectares, the bare ground is densely planted with vines, these huge monocultures are laid out so that they can be worked with electronically monitored large machines. In the cellar, the process continues with state-of-the-art technology and chemistry, usually accompanied by a laboratory.

On the other side of viticulture, there are producers with vineyards of just a few hundred square meters, for example on the steep terraced slopes of the Moselle. They often still cultivate old vineyards in the traditional way. Manual labor on steep slopes with special soils and climatic conditions is a must. Such small businesses can neither buy large machines nor set up a laboratory for cellar work. The fact that they don't need them is almost a guarantee of high-quality wines.

These two sides of viticulture, the mass production of an alcoholic beverage from grapes and the natural cultivation of vines in accordance with organic guidelines and the corresponding natural ageing of wine, are worlds apart

But can all vineyards be cultivated according to organic guidelines? For many, this is not possible. In some regions, viticulture is so difficult that it is impossible to do without chemicals. The counter-argument is that such regions are not suitable for viticulture.

Nevertheless, many smaller winegrowers, mostly the younger generations (The Young Wild Ones), are trying to give their wines a new image by conveying their origin and tradition.

**Orange wine and amber wine**

Although white wines in various countries have always been produced over a longer maceration period of the wine on skins, seeds and stems as "Orange Wine and Amber Wine", there is no official definition for Orange Wine or Amberwine. It is not needed either, because Orange Wine is just white wine produced in the same way as red wine. Different grapes and different maceration times can colour the wine darker. This wines are called Amber Wines. The extended contact of scins, seeds and also stems may both influence the colour and the taste of the wine.

Since no extras are needed to make Orange Wine ore Amber Wine it may have been produced either conventionally, ecologically or bio-dynamically. If the wine, however, has been certified by an accredited organization, the bottle will at least show a correspondent logo and reference to organic or bio-dynamic wine growing.

**Special locations - Terroire,**

In certain regions, vines have adapted to heat and drought over centuries. Super old vines tend to be situated in sandy or schist soils (which the phylloxera pest cannot survive) or on islands or other regions protected in some way by geography. Research is now being carried out into the extent to which local vines can withstand pests, diseases and extreme weather conditions. Examples of special locations are :

Lanzarote, Spain island, viticulture on black volcanic soil, wind protection, oval stone walls, large distances between the vines, adapted to island climate, fertile, terroir wines. Francs de Pied.

Sicily, Italy Various volcanic soils around the Etna volcano. Common EU vines have been replaced by local vines. They are particularly well adapted to the local climate and various fertile soils and produce interesting terroir wines.

Santorini, Greece

Kouloura training system or basket vine training system is used on the island of Santorini. This basket shape protects against the particularly strong winds. Another system that is only used for a specific grape variety is called the "kladeftiko - ring system".

Mulone, one of Santorini's most important winegrowers, has found his way to a good wine future "Monocultures are fundamentally wrong and unfair to the ecosystem. To produce a monoculture you have to push fertilizers and chemicals to protect the vines from disease. My vineyards should be an oasis of biodiversity, with hundreds of species of wild plants, trees and fruit trees, many of them very rare. They create healthier grapes and even influence the flavors of the wines.

**Douro, Portugal**

The region is hot and dry and the vineyards produce incredibly concentrated, red wine grapes on their schist rock and clay soils. Most of the old vineyards have mixed plantings. Three to four grape varieties are common, and some have up to 10. This introduces further complexity to the viticulture.

**Cappadocia , Anatolia, Turkey**

The special situation for the cultivation of grapes (Vitis vinifera vinifera) in Cappadocia was only recognized a few years ago. In order to protect the vines in Europe and other countries from the phylloxera louse or to achieve immunity, the vines had to be grafted onto the roots of American vines. Today it is said that the wines from these vines have lost their original flavor.

However, Phylloxera could not gain a foothold everywhere. In some small areas, special climatic conditions, particular soil conditions and a high level of biodiversity prevented the pest from penetrating. Such regions remained free of Phylloxera and the vines remained original.

One such region is Cappadocia. In the north-western area of the Hasan Dag volcano, different varieties of grapevine grow at an altitude of 1200 - 1500 meters, the soil consists mainly of loose tuff sand, the annual rainfall is just under 300 mm, low temperatures in winter are minus 20 C°, summer temperatures go up to plus 40 C°. In the eastern areas of Cappadocia there are also areas with different volcanic soils, correspondingly adapted cultivation methods, healthy grape varieties and high-quality grape products from vines on their own rootstock.

**Old Vines**

Several countries or winegrowing regions have programs in place to identify, register, classify and protect old vineyards. But there is no consistent worldwide definition for what age a vine has to reach for it to become old.

The “Old Vines Conference” starts with old vines 35 years and up to prefilloxera before 1900 and older. They use different seales for wines from vines of different ages.

 Yalumba Australia has its own old vine charter: Old Vine 35 years of sage, Survivor Vine 70 years of age, Exceptional Old Vine 100 yeas of age or more, Barossa Ancestor Vine 125 years of age and older and Tri-Centenary vine or Bloody Exceptionally Old -a vine whose life has spanned tree centuries.

Thinking about the actual climate we should remember that old vines have always a well-established root system. They extend further and have a greater surface area. This means that they can draw moisture from a larger volume of soil. They can therefore deal with drier conditions better than young vines.

**Vines on their own rootstock (Francs de Pied)**

There are only a few places left in Europe with vines on their own rootstock that are healthy and give their wine a unique taste.

To preserve these rare vines, Loic Pasquet, with the support of Prince Albert II. of Monaco, Loic Pasquet founded the association "Francs de Pied" (on its own root wood or ungrafted) in 2021.

The main aim is to bring together all producers who own vineyards with indigenous grape varieties on their own rootstock. The aim is to protect and pass on centuries-old know-how and respect biodiversity. The aim is also to replant old grape varieties in a balanced ecosystem. By preserving these grape varieties, the diversity and authenticity of the wine taste can also be maintained.

A further aim is to include the know-how and traditions associated with winegrowing in UNESCO's intangible cultural heritage.

**Taste and Quality**

In 1978 the wine critic Robert Parker started a point-judging-system for wines. His judgement, however, is only based on the taste (color, smell, taste) of the wine, an overall assessment of the relevant winery is not carried out.

Since each wine taster has a specific perception how a good wine should taste, the tasting results of individual tasters are hardly ever comparable. So we are still uncertain what exactly a good wine is.

A few years ago the highest ratings went to wines that had been stored in fresh oak barrels or had been macerated with lots of oak chips. Is it really possible these days to confirm the quality of wine through assessment of color, smell and taste, let alone when there are more than twenty different and widely competitive systems.

What is for sure is the fact that number-related wine rating is an easily marketing tool. Wines with a rating of 90 points are easily sold, whereas those at 95 points are hardly affordable, which shall consequently apply to the taste-orientated synthetic laboratory wines from the Californian Ava Winery.

**AVA - The chemists**

Since 2015, three company founders have been analyzing various wines in their laboratory Ava in California, by making digital copies. With these they then created a completely new product. Since the foundation of Ava Winery synthetic wines have become better and better. The founders of Ava comment that someone who does not know that their products are fabricated in a laboratory, would never get the idea that these wines are not "normal" wines. They taste like wine, have the texture of wine, and they are pure products, not having been treated with any pesticides. To be honest, isn't the greater part of wines on today's market somehow engineered, anyway. Ava Winery produce their synthetic wines with State Approval. Two more countries are already known to be permitted to produce artificial wines and market them as wine.

**A word about sulphur**

The most important question that arises in the combination of sulphur and wine is when to add it and in what dose. Those who harvest and process perfectly healthy grapes with an optimal pH value by hand, carefully sort out rotten grapes and take maximum care when processing the grapes from harvest to the finished wine, need no or very little SO2 at all during the entire winemaking process.

Only particularly committed winegrowers still harvest by hand today, and they select the grapes on the vine and often again before pressing so that the musts and wines do not have to be sulphurized afterwards. Their grapes are very healthy thanks to appropriate cultivation on healthy soils and are so well supplied with nutrients that they begin to ferment "spontaneously" on their own and can also complete fermentation on their own without further inoculation with pure yeasts. In the process, they develop natural sulphur, which the resulting wine consumes again and thus protects itself. This is why there is no such thing as sulphur-free wine. Even completely unsulphurized wine always contains a few milligrams of naturally occurring sulphur. Many of our ambitious winemakers usually only sulphurize their wines for the first time when bottling, and then only minimally. This is the only way to create wines that can be called "natural" because they have been produced without the flavor-altering additives of modern winemaking.

**Natural wine**

The term "conventional viticulture" refers to legally defined wine production.

The term "natural wine", on the other hand, is a term without a legal definition. However, it can be represented in a graphic.

"Throw a stone into a pool and see the ripples".

Isabelle Legeron (RAW Wine) used this image a few years ago to illustrate natural wine. As the ripples show, she understands natural wine not as a fixed point, but as a movement.

The graphic of the natural wine pool comprises 10 ripples around a center.

I use this graphic to point out the quality of a natural wine to customers.

The key points for this reference are mainly the legally defined terms for conventional, organic, biodynamic and a few other non-legally defined but publicly known viticultural methods.

These are arranged according to the quantity of their ingredients from the outer edge to the central point.

The winemaker can rate his "natural wines" according to his production method and assign them to one of the ripples.

In general, it can be assumed that the fewer ingredients used in the cultivation and maturation of the wine, the more natural the "natural wine" will be.

The use of copper sulphate is marked with a red wave in the graphic due to its harmfulness. **\***

 **\***  As copper sulphate is not biologically degraded, it accumulates !

In some countries, such as Germany, copper sulphate is now banned as a pesticide because many soils have been excessively enriched with copper, which is harmful to health in higher quantities, as a result of decades of excessive use. (Note the choice of words)

Udo Hirsch, Gelveri Manufacture, April 2024