



Speaking  
of **Wine**

# CHAPTER 1

## THE VINEYARD

# CHAPTER 1

## The Vineyard



### THE GROWING ENVIRONMENT

In simple terms, when explaining what the vineyard needs we can narrow it down to 5 very basic factors:

Heat + Sunlight + Carbon Dioxide (CO<sub>2</sub>) + Water + Nutrients

These 5 factors are common all around the world but they can vary in different areas (latitude, altitude, distance from the ocean, soil types...)

#### HEAT

If the temperature is below 10°C it will be too cold for the vines to grow. This is why the vines are dormant during the winter and begin to grow when the spring arrives.

Some varieties of grapes need more heat than others to survive. For example, Grenache wouldn't survive particularly well in northern, cooler climates because it needs more heat than Riesling to ripen its grapes.

Altitude is another factor that affects the heat. The higher the vines are planted, the cooler it is.

Planting vines on slopes facing the sun can increase the warmth the plants receive and therefore, increase the chances of grapes ripening.

Being close to rivers, lakes or the sea can be beneficial to the vineyard as well. Water heats up and cools slower than land. In the winter months, being close to water can help maintain warmer temperatures and in the summer months it can have a cooling effect on the vineyard.

#### SUNLIGHT

Sunlight is necessary for photosynthesis to occur (obviously!) but it's most important during the flowering and fruit set stages of the cycle as well as for berry ripening.

# CHAPTER 1

## The Vineyard



### WATER

Water is important for the vines to grow - no water = no grapes!

There are 2 main ways for the vineyard to get water:

1. Rainfall - usually sufficient in most grape-growing environments
2. Irrigation - not always allowed (depends on the local legislation)

If irrigation is allowed, it can be done in 1 of 3 ways:

- DRIP IRRIGATION
- SPRINKLERS
- FLOOD IRRIGATION

### NUTRIENTS

The majority of nutrients the vine gets come from the soil. The composition of the soil is important as it will dictate as to how much the roots can grow and find nutrients.

In general, the soil is made up of stones, sand and clay on one hand and on the other, humus.

Humus is the organic matter of decomposing plant and animal materials and is excellent at holding water.

Soil types are very varied and depending on where the vineyard is located there can be several different types of soil.

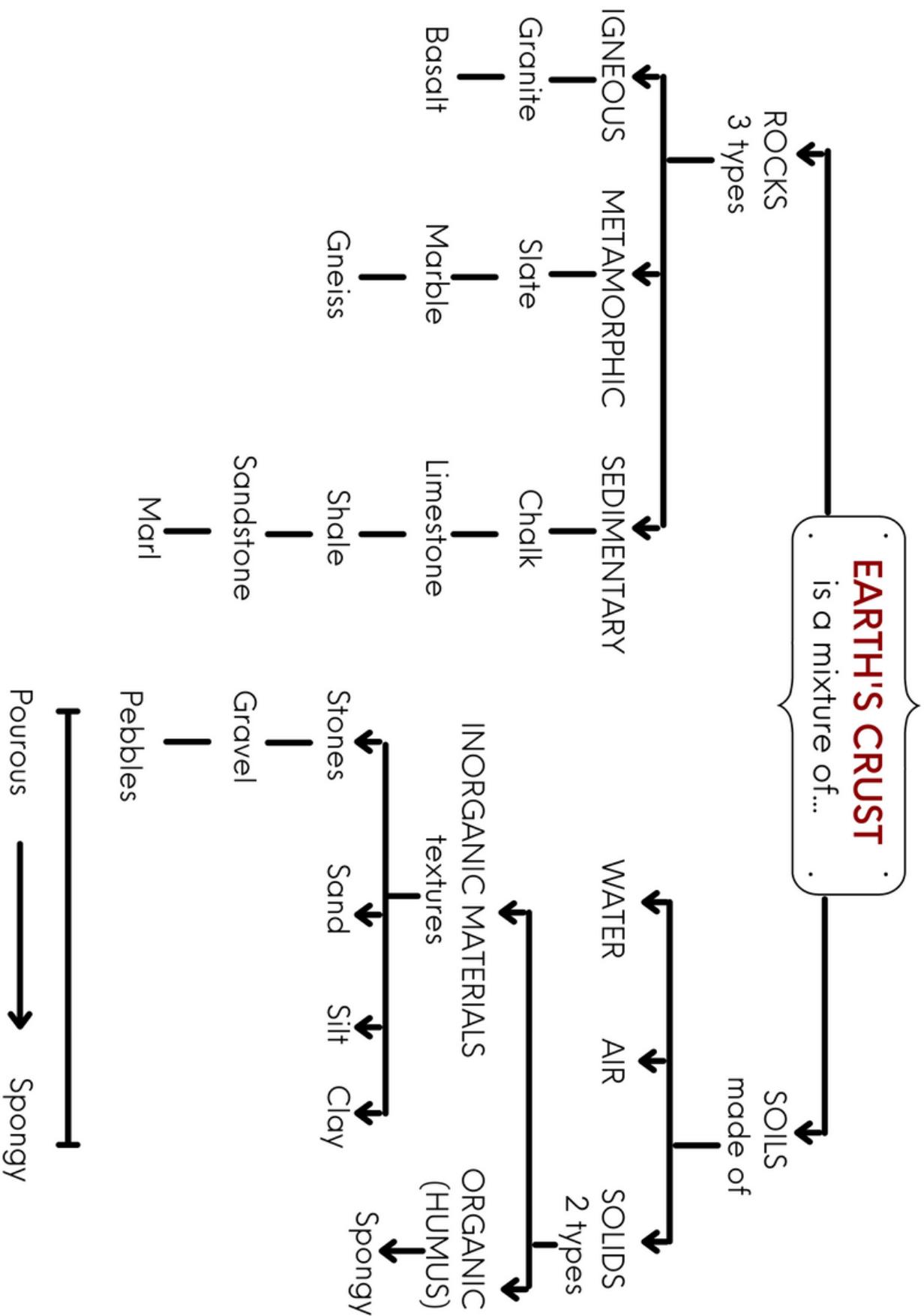
*Check out the next page for a detailed diagram of soil types!*





# CHAPTER 1

## The Vineyard



# CHAPTER 1

## The Vineyard



### CLIMATE AND WEATHER

What is the difference between climate and weather?

#### CLIMATE

Annual pattern  
Does not change from one year to the next

#### WEATHER

Annual variation  
Can change from one year to the next

The climate has a direct impact on WHAT types of grapes are grown and WHERE they are planted.

The weather has a direct impact on HOW the grapes grow and are taken care of each year.

The climate can be divided into 4 categories using the average growing season temperature as a reference:

- Cool climates: 16.5°C or below.
- Moderate climates: 16.5°C - 18.5°C
- Warm climates: 18.5°C - 21°C
- Hot climates: above 21°C

BUT (there is always a but!) we also need to look at the differences in sunlight, rainfall and diurnal range (difference between night and day temperatures). For this reason, there are 3 main climate categories:

- **Continental climate:**
  - Large difference between day and night temperatures
  - Short, sometimes very hot and dry summers with cool autumns
  - At risk for spring frost and low temperatures all year
  - Suits late-budding and early ripening grapes

# CHAPTER 1

## The Vineyard



- **Maritime climate:**
  - Cool to moderate temperatures and a low difference between the hottest and coldest months.
  - Evenly spread rainfall throughout the year
  - Heavy rains in the spring can damage flowering and fruit set
- **Mediterranean climate:**
  - Low temperature difference between the hottest and coldest months
  - Warm, dry summers
  - Low rainfall can have a positive effect on the overall health of the grapes, but it can lead to drought and the need for irrigation.

### ENVIRONMENTAL HAZARDS

Dealing with Mother Nature can be a tricky thing to do. It's not all fun and games. Whether you're explaining the best (or worst!) vintages to a customer, talking about the vineyard and the extra jobs you have to do because of the weather, you're pretty much guaranteed to be explaining one or more of these environmental hazards!

- **Winter freeze:** if the temperature is below  $-20^{\circ}\text{C}$  the vines are at risk of freezing and dying.
- **Spring frost:** can have a devastating effect on the yield if it damages the new buds and early shoots.
- **Cold temperatures** during the growing season can lead to unripe grapes at the end of the season... This means low yields and/or no wine!
- **Sunburn** can develop bitter flavours in the skins of the grapes.
- **Drought** leads to small yields and if severe and prolonged, underripe grapes. Some water stress can be good for the vines, leading to more concentrated flavours.
- **Excess of water** means that the vine will grow vigorously into the growing season leaving less sugars to ripen the grapes. Waterlogging can cause roots to become saturated and die.
- **Hail** (every farmers worst nightmare!)

# CHAPTER 1

## The Vineyard



### VINEYARD MANAGEMENT

Many vineyards are planted after careful consideration and most visitors WANT TO KNOW WHY! In this section, we will talk about WHY the vines have been planted in that specific location and how they are managed to help them produce the best quality grapes year after year.

#### SITE SELECTION

The environmental conditions mentioned before will determine where the vines can be planted (altitude, climate, etc.)

After that, the inside story of the business comes into play.

Why did the owner choose this site?

Why does the owner want to produce wine?

Will it be a small, family-run business?

Will it be a large, international company?

Will the wines be mass-produced?

Will the wines be exceptionally high in quality and low in volume?

Will they be vintage exclusive?

Then there are the grape varieties to consider. Depending on where the winery and vineyard is located, the local restrictions may apply. Yes, we are talking about the infamous Appellation in France, the Denominación de Origen in Spain, the Denominazione di Origine Controllata from Italy, Qualitätswein from Germany, etc.

If the owner/winemaker chooses to have their wines certified and made according to the local restrictions, the grape varieties planted will have to abide by the regulations too.

*What restrictions apply  
in your case?*

# CHAPTER 1

## The Vineyard



### PLANTING AND REPLANTING

Most vines are used between 30 and 50 years old. HOWEVER older vines have a certain reputation of producing higher quality and more concentrated grapes but at a lower yield. It would be entirely up to the winemaker to decide on which vines they used for their wines.

### VINE TRAINING

In general terms the vineyard can be planted in 2 different ways. Both of these ways are used for canopy management (controlling the amount of green leaves and shoots that are produced).

#### Untrellised Vines

Commonly known as "bush vines"  
Better suited to warm/hot dry, sunny regions.  
Not suitable for mechanical harvesting.

#### Trellised Vines

Can help expose grapes to extra sunlight  
Helps to improve air circulation around the grapes decreasing risk of fungal disease.  
Mechanical harvesting is possible.

The use of trellising in the vineyard is now very common practice. In the majority of new plantations, the vines will be trellised to allow for mechanisation in the vineyard.

In general, we can still find a lot of bush vines in the Old World wine regions and trellised vines in New World regions.

*What type of vines do you use in the vineyard?*

# CHAPTER 1

## The Vineyard



### PESTS AND DISEASES

All winemakers and grape-growers have a one thing in common - they both hate pests and disease! Both of these things can have a damaging effect not only on the grapes for the current year, but years to come as well.

- **Phylloxera**
  - An insect that can take on different phases - underground attacking the roots of the vine or above ground feeding on the leaves.
  - The solution is grafting American stocks onto a European vine.
- **Birds**
  - Can eat A LOT of grapes if not controlled!
  - Nets are usually placed over vines to protect them from birds
- **Mammals**
  - Can also eat a lot of grapes but smaller animals like rabbits can also eat the trunks of the vines.
  - Fencing, electric fences or wires are often used to keep these pests out.
- **Insects**
  - They love sweet grapes and leaves
  - The grape grower may choose to spray the vines with more harmful chemicals to solve the problem, but nowadays there are several more sustainable methods available.
- **Downy and powdery mildew**
  - A fungal disease that thrives in warm, humid conditions and can effect all of the green part of the plant.
  - If it effects the grapes, it can decrease the fruity flavour replacing it with bitter, mouldy ones.
- **Grey rot**
  - It's caused by Botyrtis Cinerea and thrives in damp conditions.
  - It generally attacks the grapes leaving them with no colour.
  - In some white varieties it can be positive - Noble Rot.

# CHAPTER 1

## The Vineyard



### TYPES OF AGRICULTURE

Generally speaking, we can identify 3 main types of agriculture: sustainable, organic and biodynamic.

A grape grower doesn't have to choose just one of these, some may prefer to mix all 3 depending on their own philosophy and beliefs, but also on the type of grapes and wine they want to produce.

#### o **SUSTAINABLE AGRICULTURE**

Man-made chemicals are not prohibited, but their use is restricted. The key to this type of agriculture is to study the vineyard cycle and patterns and predict any problems that may occur before they arrive. The main advantage is that fewer applications are normally needed for treating problems.

Integrated pest management is a great way of problem-solving. Some larger predators may be encouraged to live in the vineyard to help control smaller pests (spiders or snakes for example) also, allowing sheep to pasture in the vineyard helps to keep grass and weeds down and at the same time, fertilise the soils.

#### o **ORGANIC AGRICULTURE**

The vineyard in this case must have a certificate of accreditation to be able to promote the vineyard as "organic". This requires strict testing and can differ from country to country.

Chemicals are very, very restricted and the amount of applications allowed is very small.

#### o **BIODYNAMIC AGRICULTURE**

This type of agriculture adopts the same philosophy as the organic agriculture as far as chemicals go, but also incorporates cosmology. Growing practices are planned around the cycle of the planets, stars and the moon. Homeopathic remedies are used to treat certain problems.

*So what's best??  
>> Debate topic <<*

# CHAPTER 1

## The Vineyard



### VINEYARD CYCLE

As with any other living thing, the vine has a defined growing cycle. Depending on the time of the year there will be more or less to do in the vineyard – but there is always something going on!

#### **MARCH-APRIL (SPRING)**

##### **Budburst**

This is the beginning of the growing season and usually starts to happen when the daytime temperature gets above 10°C, but this can depend on the variety of the grapes.

New shoots can be killed by spring frosts.

Spraying against pests and fungal diseases begins at this point.

#### **MARCH - MAY (SPRING)**

##### **Early shoot and leaf growth**

The new shoots grow very fast – at this time of the year, water and nutrients are very important to support all of the growth.

Spraying is important and continues as necessary.

#### **MAY - JUNE (SPRING/SUMMER)**

##### **Flowering and fruit set**

The vine needs warm temperatures at this time of the year – ideal conditions would be warm, sunny and dry.

Fruit set is when the flowers start to develop into grapes. Not every flower becomes a grape – the unpollinated flowers fall off. "Coulure" is when less flowers than usual are pollinated; "Millerandage" is when grapes form without seeds and remain very small. Both of these conditions are usually a consequence of cloudy, cold and/or rainy weather conditions during the pollination period.

# CHAPTER 1

## The Vineyard



### **JULY - SEPTEMBER (SUMMER)**

#### **Veráison and Berry Ripening**

The most important time of the year for vines.... ripe berries = WINE!

Veráison is the point when the skin of the grapes begins to change colour. During the ripening stage, the grapes will grow and sugar levels rise. Colour flavour compounds and tannins accumulate too. Warm, sunny conditions are best.

Summer pruning may take place after the veráison (removing excess canopy coverage to allow better sunlight exposure to the grapes) and green harvesting (removing small proportions of green bunches of grapes).

### **SEPTEMBER - OCTOBER (SUMMER/AUTUMN)**

#### **Harvest**

Mechanical or manual?

Weather conditions should ideally be dry and warm - too much water just before the harvest can cause grapes to swell, taking on water and diluting the juice. Also, the damp conditions may increase the chance of rot and other diseases.

### **DECEMBER - MARCH (WINTER)**

#### **Winter dormancy**

With the arrival of winter, the vines begin their period of "relaxation". The green shoots become wood, the leaves fall off and the vine begins to store carbohydrates in its roots.

Winter pruning takes place.

*What time of the year do you prefer to visit vineyards?*

*What time of the year do you prefer to work in the vineyard?*

# CHAPTER 1

## The Vineyard



### GENERIC JOBS IN THE VINEYARD

There is always plenty to do in the vineyard - no matter the time of year! Grapegrowers and winemakers work together, hand in hand to ensure the best crop each year.

This is not an easy task. There are lots of things that could go wrong. Let's take a look at some of the most common jobs that take place in the vineyard throughout the year:

#### ○ PRUNING

Pruning is one of the most important jobs. It can be done several times a year (or cycle) and can also be performed in different ways.

- Spring pruning (green pruning) - helps to control the growth of the plant and reduce the amount of berries produced. This also controls to some extent the potential harvest.
- Summer pruning - this time, the bunches of grapes are removed if there is too many or they haven't ripened on time. Summer pruning is usually done a few weeks before the harvest.
- Winter pruning - the dead wood is removed, allowing the plant to go into hibernation and survival mode for the winter in preparation for the following year.

#### ○ PLOUGHING

- Ploughing means turning over the soil to allow it to breathe. It also helps rainwater to filter into the soil and not create damp, wet puddles in the vineyard (this would attract insects and create problems with fungus on the vines).
- Ploughing is a natural way of controlling earth-living insects too. By moving the soil, the insects come to the surface. In an ideal world, the birds and other mammals would eat these insects and not the grapes!
- This job can be done manually or mechanically.



# Speaking of Wine

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