

VITICULTURE (GRAPE (*Vitis vinifera*, L.))

The **science, practice and study of grapes and/or vineyard production** is known as viticulture.

The history of viticulture is closely related to the history of wine with evidence of man cultivating wild grapes to make wine as far back as Neolithic period. The earliest domestication of **grape (*Vitis vinifera*, L.)** occurred in the area of modern day Georgia, Near East. This domestication favoured the hermaphroditic members of *Vitis vinifera* species against the barren male vines and female vines which were dependent on having a nearby male vine to pollinate them. With its ability to pollinate itself overtime, the hermaphroditic vines were able to sire offspring that was consistently hermaphroditic. Therefore, grape production became an important component of the world economy around 3000 BC and 2000 BC.

VINE CULTIVATION

The vast majority of the world's wine producing regions are found between 50⁰ and 30⁰ north and south of the equator.

Climate categorization in viticulture / Climatic Types of the Viticultural Regions

In viticulture, the climates of wine regions are categorized based on overall characteristics of the area's climate during the growing seasons. While variations in macroclimate are acknowledged, the climates of most wine / viticultural regions are categorized as being part of

- **Mediterranean climates**
- **Maritime climates**
- **Continental climates.**

Influence of climates on viticulture

Before establishing whether or not viticulture is sustainable in an area, the climate of the area goes a long way in influencing the type of grape varieties cultivable in the region and viticultural practices that will be used. Such climatic conditions include

- **Temperature**
- **Rainfall**

CULTIVATION OF GRAPES (VITIS VINIFERA)

Varieties grown: *Vitis vinifera*, is the most widely cultivated variety but susceptible to Phylloxera infestation. Thus, *V. vinifera* is grafted on *V. labrusca* which is resistant to Phylloxera infestation.

Soil requirement:

Grapevines for quality wine production generally, do best on freely draining, low-fertility soils.

VINE MANAGEMENT

Good wine starts from the vineyard. It is the grower's job to deliver a quality crop to the wine maker. The growers must match a grape variety to its site and manage its growth through the seasons.

Planting and Training vines:

Growing vines need some form of support to hold them above the ground and to maximize sunlight on their leaves. They are therefore, trained onto a wire trellis system attached to posts erected in the ground.

Pruning:

If grapes are not pruned each year, they develop many unproductive shoots and soon become a tangled mess of leaves and stems. At least 90% of the previous season's growth is removed each winter (when vines are dormant).

Harvest:

As grapes ripen, their sugar levels increase and acid levels decrease. This fruit is ready for harvest when its sugar levels are between 20% and 24%.

Insects and disease pests of vines

Phylloxera:

The main insect pest of grapes is phylloxera (*Dactulosphaira vitifoliae*), a tiny aphid that sucks sap from vine roots. Within a few years of infestation, the vine declines in plant vigour, losing leaves and producing reduced crop yield.

Mealy bugs:

These are also sap-sucking insects and they also reduce the vine plant growth vigour. Besides, they transmit **leaf-roll** viruses from vineyards to vineyards.

Other pests of grapes include **Birds** and **Rabbits** and fungal infections which include **powdery mildew** and **downy mildew**

Marketing:

Grapes are either marketed as fruits or processed into wine. Wine production is the most important use of grapes. Wine can be shelved for a longer period compared to grape fruits.