



VITIS<sup>®</sup>

RAUSCEDO

*una vita per la vite*

CATALOGUE





# DEEP ROOTS



## A SHARED VISION

**Vitis Rauscedo** came to life thanks to a group of nurserymen which, led by Atanasio Lovisa's enthusiasm and strong in experience acquired in years of commitment and passion in the field, shared the idea of an innovative grapevine nursery.

A meticulous work over more than thirty years, has made of Vitis Rauscedo one of the most important grapevine nursery cooperatives in the world, with an annual production of over 6 million grafted vines, destined to the viticultural areas of the Italian and foreign market.

## A LANDMARK FOR PROGRESS IN VITICULTURE SINCE 1985

On 27th August 1985, the grapevine nursery cooperative **Vitis Rauscedo** was set up, relying on the heritage of experiences passed on from one generation to the other which, in the years to come, will ensure the continuity of specialised and skilled work to the Friulian nurseries, contributing to the progress and well-being of the entire community.

The inauguration of the new headquarters in 2003 represented a milestone of the members' work after almost two decades of common commitment and the starting point for the development of important programs for the future. In the years to follow, the collaboration with valuable scholars and technicians and a continuous and steady work of research and experimentation, have allowed to constantly raise the quality of the production, the constitution of a wide range of clonal selections, as well as the realisation of the certified organic nursery.



## TEAMWORK

The sensibility and the skills handed down in the family have allowed to condense vocation and dedication in a craft with an artisan character.

Today in **Vitis Rauscedo** three generations of nurserymen, partners and established professionals collaborate and confront each other, combining every day the expertise of the past with the most up-to-date knowledge and skills of the sector.

The passion for viticulture and the ability and energy of the group contribute to the achievement of important results and to the continuation of the project that wants to make Vitis Rauscedo a cooperative of excellence.

## RAUSCEDO AND THE MAGREDI GRAVELS

Rauscedo, unquestioned capital in the world of the grapevine nursery sphere, is the town dedicated to the development of the grapevine propagation.

The pebbles, called «claps» in Friulian, are certainly the most characteristic element of the Magredi gravels, the gravels of Friuli from which this unique environment derives, its particular microclimate and consequently its flora and fauna.

*"Lande incolte di terreno ghiaioso vi attendono"  
Per Roscet (Rauscedo),  
tre miglia lungo strada arcibuona  
attraverso le vigne  
(Vojvoda di Minsk, "Note di Viaggio", 1700)*



# GRAFTED VINES BY VITIS RAUSCEDO



## GRAFTED VINES, HIGH GRAFTED VINES, POTTED GRAFTED VINES: THE TRADITIONAL PRODUCTS

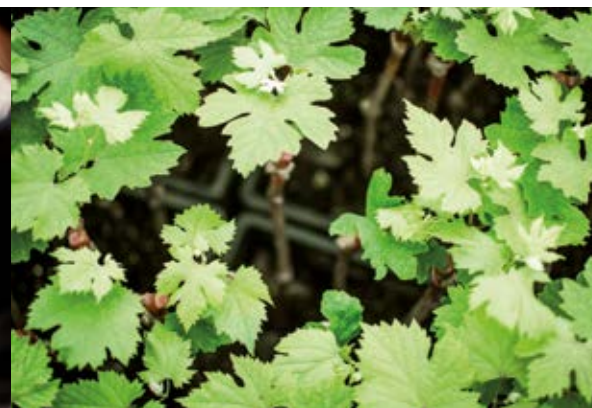
The grafted vines by **Vitis Rauscedo** are the result of a careful management of the production chain and total product traceability, from the gathering of each single scion to their plantation as dormant grafted vines in the clients' vineyards. Over the past 15 years, through a significant clonal selection program, Vitis Rauscedo has constituted more than **80 clones of native Italian and international varieties**.

Since ever, besides the exclusive materials of Vitis Rauscedo and a wide range of the best clones available on the market, scions deriving from private selections are grafted with the utmost professionalism.

To meet the needs of its customers, in addition to traditional grafted vines, Vitis Rauscedo produces high grafted vines of about 80 cm, so-called **barbatelloni**, and **potted grafted vines**.

## *The agronomic technical service*

The distinctive feature of the company is the supply of pre- and post-sales technical-agronomic services, in order to best ensure the satisfaction of viticulturists. Vitis Rauscedo counts among its customers the most important national wine producers with whom it has established a solid loyal relationship based on the quality of the plants supplied and the standard of service guaranteed.







## The handcrafted quality of knife coupling

The grafted vines **VITIS ALFA®** are grafted with the **whip and tongue technique** and represent the crown jewel of **Vitis Rauscedo's** production.

The knife coupling technique, carried out manually, allows a better welding of the grafting point thanks to the wide and close contact between the cambium of the scion and the rootstock.

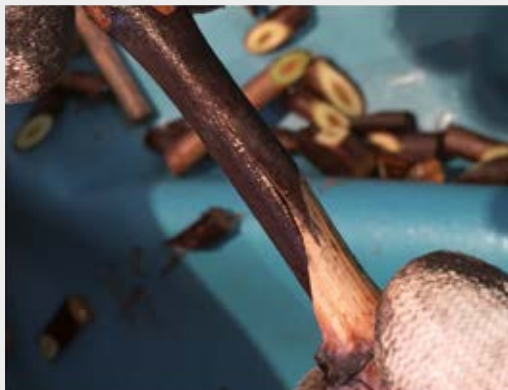
Besides the optimal quality of the wood, the crucial condition for the success of the **VITIS ALFA®** grafting technique is the homogeneity of the diameter of the scion and the rootstock.

With this manual procedure, the grafter performs about 2.000 grafts per day compared to the over 8.000 ones performed mechanically, which makes his work extremely accurate. In collaboration with several research institutes, Vitis Rauscedo annually promotes a study to evaluate in time the evolution of the different grafting methods on multiple varieties, from the nursery to the vineyard.

### Grafting with the whip and tongue technique

The creation of the so-called "tongue" is performed on both cambiums with a oblique cut, thus descending perpendicularly with the knife.

The scion and the rootstock can then be grafted by fitting the two opposite "tongues" one against the other, up to the perfect correspondence of the peripheral tissues.



## The certified organic grafted vine

Years of experimentation have allowed to develop increasingly efficient and environmentally friendly production techniques, contributing to the birth of the **certified organic grafted vine VITIS BIO®**.

An ambitious task aimed at the development of a sustainable nursery supply chain for the protection of the agricultural environment, the improvement of the technical-sanitary quality of the grafted vines and the sensible and efficient use of the productive resources. A mission that follows the strictest quality and health standards in compliance with the guidelines for organic agriculture.

### The certified organic nursery

The organic management of rootstock mother blocks is performed in order to guarantee the perfect lignification and a optimal phytosanitary quality.

Likewise, the scions are obtained from mother fields meticulously managed with organic methods. Furthermore, the development of innovative prophylaxis has allowed to exclude the use of synthetic organic sanitising means through the integration of biomedical or microbiological derivation techniques and thus allowing the respect of the biological production standards. At last, the management of the organic vine nursery is the condensation of the most efficient nourishing strategies, but above all, the protective strategies, especially against downy mildew, which is possible to contain through a timely and accurate care and an attentive dosage of the usable copper compounds.



OPERATORE CONTROLLATO  
N. V208  
ORGANISMO DI CONTROLLO  
AUTORIZZATO DAL MIPAAFT  
IT-BIO-005  
AGRICOLTURA ITALIA



## The grafted vine plant in a pot with a two-year-history

**VITIS POT®**, namely **a grafted vine grown a whole year in a large pot**, is the ideal solution for plant substitution in the vineyard thanks to the strong and significant roots which, beyond guaranteeing a good rooting in the field and reducing the competition with other vines, ensure greater resistance to drought, lower agricultural growing costs and an anticipated productivity.

The **VITIS POT®** technique is used to favour the best root development of the grafted vines grown in pots, in order to facilitate, even in difficult conditions, the rooting and the future vegetative development in the vineyard.

### The mycorrhization

When the fungi in the soil and the roots of plants join up, they give rise to mycorrhizae. These useful “radical fungi” develop a natural survival strategy that helps the plants to overcome stress and can guarantee numerous benefits: greater tolerance to drought, to high temperatures and to some toxins. During the growth of the grafted vine plant in the pot VITIS POT®, the symbiotic association between roots and mycorrhizal fungi is stimulated, favouring so the development of a rooting apparatus particularly tolerant to multiple stress factors following the planting in the vineyard.



## The grafted vine of the varieties resistant to fungal diseases

The term **PIWI** derives from the German acronym that identifies the grapevine varieties resistant to fungal diseases, obtained by crossing grapevine varieties with American vine varieties resistant to downy mildew, powdery mildew and grey mold. The first crossings were made between late 1800s and early 1900s in France with the aim of selecting varieties resistant to phylloxera, as well as fungal diseases. From 1950 the so-called “new generation” crossings were carried out, resulting much more complex, since they were the result of multiple re-crossings with European cultivars. In Italy, these new varieties are registered in the national catalogue of grapevine varieties and in some regions (Friuli Venezia Giulia, Lombardia, Trentino-Alto Adige, Veneto), cultivation is allowed for the production of varietal wines with Geographical Indication. The **VITIS PIWI** grafted vines arise from the collaboration of **Vitis Rauscedo** with the **Freiburg State Institute of Viticulture** (WBI-FR) and the German nursery **Rebschule Freytag**, for the propagation and distribution in Italy of certified plants of the German PIWI varieties, as well as for the registration and classification in Italy of new PIWI varieties. Vitis Rauscedo is also member of **PIWI International**, the association that since 1999, has been promoting the information exchange between research institutes, nurseries, wine growers and producers of PIWI wines, encouraging the diffusion of varieties resistant to fungal diseases.



### The protection strategy for VITIS PIWI grafted vines after the plantation

The PIWI varieties are not immune to downy mildew, powdery mildew and grey mold, but they tolerate the fungal infections for which they have been selected, according to the pathogen pressure and the environmental conditions. The tolerance mechanism is triggered when the pathogen hits and enters the tissue of the plant that responds by necrotizing these areas, which remain very limited and often invisible, thus preventing the sporulation of the pathogen.

Therefore, 2 to 4 preventive treatments are recommended: 1 or 2 treatments in the pre-flowering phase and 1 or 2 treatments in the post-flowering phase. Even treatments based on copper and sulphur are recommended in order to limit the development of new fungal strains and counteract the infections of other fungal pathogens (anthracnose, black rot, dead arm). It is also important to protect the PIWI varieties from the insects and parasites of the vine (moths and mealybugs), with particular regard to the vectors of the grapevine yellows.



# Bronner



## Origin

The Bronner variety belongs to the collection of the Freiburg State Institute of Viticulture. It is the result of the selection work of Norbert Becker, who crossed Merzling and "Gm 6494" in 1975. The variety was named after the pioneer grape grower and chemist Johann Philipp Bronner (1792 - 1864), native from the Baden area.

## Ampelographic features of the variety

The bunch is medium-large in size, commonly winged and averagely to very compact. The weight of the bunch is often of 280-300 grams.

## Resistance to diseases

downy mildew +++  
powdery mildew +++  
grey mould +++

## Wine features

The wine obtained from the Bronner variety belongs mostly to the neutral wines. It shows analogies with Pinot Blanc, with reminiscent aromas of pear, apricots and apple-quince and a mild acidity. Good quality is gained by high ripening and moderate yields.

## Grape growing

For this variety the ideal environmental and soil conditions resemble those of Pinot blanc. Drought locations are, however, to be avoided. For budding, flowering and ripening Bronner follows the Pinot varieties with a delay of about 7/10 days. Ripening is relatively late despite early flowering. Given the great vigour it is important to keep considerable distance between the plants within the row and choose e.g. a training form like the double guyot system with shoots turned down to have balanced vine plants. Given the weight of the grape berries and the compact structure of the bunches, it is recommended to intervene on the potential yield.

## Breeding centre

Staatliches Weinbauinstitut Freiburg



# Helios



## Origin

The Helios variety belongs also to the collections of the Freiburg State Institute of Viticulture. It too is part of the selection work conducted by Dr. Norbert Becker by crossing Merzling x (Seyve-Villard 12 481 x Müller-Thurgau) in 1973.

## Ampelographic features of the variety

The bunch is medium-large in size and averagely compact. The yield can reach up to 15 t/ha.

## Resistance to diseases

downy mildew +++  
powdery mildew ++  
grey mould ++

## Wine features

The wine produced from Helios grapes can be described as fruity and juicy with a distinct bouquet and a vivid acidity. The Helios wines are light with a fruity note reminiscent of Müller-Thurgau.

## Grape growing

The grape growing conditions required for this variety are similar to the environmental and soil conditions typical for Pinot Gris. The budding, the flowering and the closure of the bunch are simultaneous to that of Pinot Gris, whereas it anticipates the latter by a few days as far as the softening of the grape berries is concerned.

In general, Helios has no particular demand to location, environment or soil and therefore produces quality grapes even in less ideal sites.

## Breeding centre

Staatliches Weinbauinstitut Freiburg



# Johanniter



## Origin

The Johanniter variety belongs to the most popular PIWI varieties. It is the result of a combination of crossings performed in 1968 between Riesling x (Seyve-Villard 12-481 x (Ruländer x Gutedel)). This variety was dedicated to Johannes Zimmermann, in charge of the grapevine cultivation and selection at the Freiburg State Institute of Viticulture at that time. It is thanks to his work that the PIWI selections were carried out in a practical way and with great foresight.

## Ampelographic features of the variety

The bunch is medium to large in size, cylindrical shaped and compact. The grape berries are medium to large with small dark dots on the skin.

## Resistance to diseases

downy mildew ++  
powdery mildew ++  
grey mould +++

## Wine features

The wines obtained from Johanniter grapes reveal a soft acidity reminiscent of the Pinots with a full body and a medium tannic structure. Its bouquet has a mild aroma of melon, citrus fruits from the lemon family and apple-quince.

## Grape growing

The plantation of Johanniter is recommended in the ideal sites for the Pinot varieties, avoiding the risk of late frost during the early budding. In terms of plant development and appearance it resembles Riesling. Ripening occurs in the same period of Pinot Blanc.

## Breeding centre

Staatliches Weinbauinstitut Freiburg



# Muscaris



## Origin

The resistant variety Solaris and the aromatic variety Muskateller are the parents of the Muscaris variety, which was selected in 1987 by Nobert Becker at the Freiburg State Institute of Viticulture. The aim of this selection was to find a variety similar to Muskateller with an early ripening and low levels of acidity, in addition to a reduced sensitivity to botrytis thanks to straggly grape bunches.

## Ampelographic features of the variety

The bunch has a medium to large structure and depending on the position, it can be slightly compact to compact. The grape berries are medium to large in size, greenish-yellow in colour with a thick skin.

## Resistance to diseases

downy mildew +++  
powdery mildew ++  
grey mould ++

## Wine features

The Muscaris variety reveals what its name promises. The wines present an intense Muscat aroma with a note of tropical fruits. The fullness of its bouquet is balanced in the mouth with a full body and a pleasant acidity as well as a mild smoky note.

## Grape growing

The Muscaris variety grows well in average sites. A strong rootstock is highly recommended in case of poorer sites. The planting site should be chosen considering the early budding of this variety so to avoid the late frosts of May. It is resistant to winter frost. In unfavourable years, the Muscaris variety can tend to desiccation of the rachis. Ripening is similar to Müller-Thurgau.

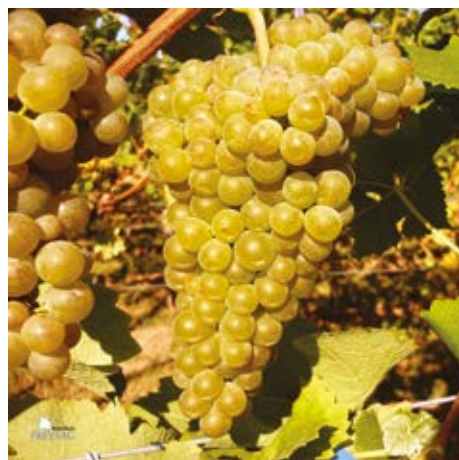
## Breeding centre

Staatliches Weinbauinstitut Freiburg





# Solaris



## Origin

The Solaris variety was selected in 1975 by Norbert Becker at the Freiburg State Institute of Viticulture. It is a combination between Merzling and "Gm 6493" with a genetic footprint from Moscato ottonel. The name recalls the remarkable ripening characteristics of this variety. An early ripening and a high sugar content are typical for this "sun catcher". Winemakers from the Baden area have dedicated a great effort to obtain also renowned dessert wines from Solaris grapes.

## Ampelographic features of the variety

The bunch is medium to large in size and not very compact.  
When ripe the grape berries are amber coloured.

## Resistance to diseases

downy mildew +++  
powdery mildew +++  
grey mould ++

## Wine features

The wine is very rich with a note of fruity and mild acidity. A marked hint of apple-quince, Mirabelle plum, almond and caramel can be obtained by varying the pressing times and the cold fermentation.

## Grape growing

It is unpretentious with regards to the environmental conditions and it has an excellent frost resistance. Solaris is very early in ripening. Harvesting in early September is not a rarity. All these aspects are to be evaluated when choosing the vineyard site. Sites in high altitudes or positioned to the north are favourable.

The typical vegetation is strong with a prostrate posture, characteristics to be taken into consideration when choosing the training and pruning system in order to ensure a good bunch drying. A large space of 2,5 m<sup>2</sup> per vine and the double guyot system with shoots turned down is also recommended so to avoid millerandage typical of this variety.

## Breeding centre

Staatliches Weinbauinstitut Freiburg



# Souvignier Gris



## Origin

Souvignier Gris belongs to the group of PIWI varieties of the Freiburg State Institute of Viticulture. The crossing between Cabernet Sauvignon and Bronner was selected by Norbert Becker in 1983.

It has been appreciated by winemakers and wine cooperatives from the Baden area to the west of Switzerland and on the Lake of Constance thanks to the generous yields and the good planting and sanitary conditions. The character of this variety allows to make both still wines and base wines for refermentation.

## Ampelographic features of the variety

The bunch is medium to large in size, not very compact and cylindrical in shape. The grape berries are medium sized and have a pink skin.

## Resistance to diseases

downy mildew +++  
powdery mildew ++  
grey mould +++

## Wine features

The wine of this variety is neutral to slightly fruity comparable to Pinot wines.

The bouquet recalls mild notes of fruit such as melon, apricot jam and apple-quince juice.

In the mouth there is a light and fruity acidity with a delicate tannicity that gives well-structured wines a persistent aftertaste.

## Grape growing

The vines show an average vigour. Low basal fertility is to be taken into consideration to establish the pruning system. Desiccation of the rachis can occur depending on the year and the soil. The ripening period is comparable to that of Pinot Blanc.

## Breeding centre

Staatliches Weinbauinstitut Freiburg



# Cabernet Cortis



## Origin

The Cabernet Cortis variety was selected by Norbert Becker at the Freiburg State Institute of Viticulture in 1982 from the crossing between Cabernet Sauvignon x Solaris. The purpose of this selection was to obtain a red variety suitable for the colder climates of the German wine regions with a range of aromas, extracts and tannic structure comparable to the classic international grape varieties.

## Ampelographic features of the variety

The bunch is long-limbed, cylindrical shaped, slightly winged and relatively sparse. The size of the grape berries resembles that of the Pinots.

## Resistance to diseases

downy mildew ++  
powdery mildew ++  
grey mould ++

## Wine features

When harvested at the peak of ripeness, Cabernet Cortis strongly resembles the intense wines obtained from Cabernet grapes.

Its high level of extracts and polyphenols are visible in its deep red colour going into tones of violet. The taste is spicy with notes of freshly ground pepper, currant jam and almost too ripe elderberries. Thanks to its tannic structure, Cabernet Cortis wine is suitable for long ageing in wooden barrels or bottles.

## Grape growing

This variety is characterised by a strong vigour and an erect posture. Ripening is reached about a week before Pinot Noir.

## Breeding centre

Staatliches Weinbauinstitut Freiburg



# Prior



## Origin

Even the Prior variety belongs to the collection of the Freiburg State Institute of Viticulture. It is the result of Norbert Becker's selection work of a crossing between (Joan Seyve 234-15 x Blauer Spätburgunder) and (Merzling x (Zarya Servera x St.Laurent)) performed in 1987.

## Ampelographic features of the variety

The bunch is medium to large in size and averagely to very compact; it is wide in structure with a short and marked tip. The flavour is reminiscent of sweet cherry. The yields can reach 14 t/ha.

## Resistance to diseases

downy mildew +++  
powdery mildew +++  
grey mould +++

## Wine features

The grapes of this variety offer wines rich in colour and tannins with a bouquet that varies from neutral to slightly fruity. In young Prior wines it is possible to scent aromas of wild berries. On the palate the wine develops a pleasant and persistent enveloping effect.

## Grape growing

Ripening is late, after Pinot Noir, hence a suitable site for the vineyard is required to guarantee a sufficient ripening period.

## Breeding centre

Staatliches Weinbauinstitut Freiburg





# THE BEST CHOICE



## THE CHOICE OF THE CLONE

The choice of the clone, in terms of phenotype and production characteristics, is a fundamental aspect in making plans for a new vineyard. Mistakes at this stage could compromise the result from a technical and economic point of view. The best choices made are rewarded with high quality products. In addition to the exclusive clones by Vitis Rauscedo, other clones approved by Italian and foreign public constitutors, are proposed, as well as mass selections produced by **Vitis Rauscedo** with origins in the most suited and historical areas for the cultivation of certain varieties.

The clones and selections propagated change year by year, based on the availability and the quality of the scions. For this reason it is recommended that winemakers, interested in specific combinations, present their requests ahead of time to the technical-commercial managers of Vitis Rauscedo, in order to plan and produce the material in the nursery season before the vineyard plantation. A summary of the literature information on the clones propagated by Vitis Rauscedo is listed in following: the indications concern the differences between the clones according to the varietal average of quality and quantity characteristics.



### Symbols

- much below average
  - slightly below average
  - in the average of the population
  - far above average
- 
- B:** short ageing
  - MB:** medium to short ageing
  - M:** medium ageing
  - ML:** medium to long ageing
  - L:** long ageing
  - UVAGG:** suitable for grape blend
  - BEV:** young wine
  - SPUM:** sparkling wine
  - AROM:** aromatic wine
  - LEGN:** suitable for barrel ageing
  - STRUTT:** structured wine
  - ACID:** fresh wine
  - FERM:** still wine
  - PASS:** raisin wine
  - AMAB:** sweet wine
  - SAP:** sapid wine

Variety	Clone	Production	Bunch size	Fertility	Sugar content	Acidity	Wine style
Albana	AL 14 T	.....	....	...	...	....	AMAB
Ansonica	Selezione Massale						
Arneis	CVT CN 15	....	...	....	....	...	STRUTT, LEGN
Arneis	CVT CN 19	....	..	...	....	..	FERM, BEV
Biancame	Selezione Massale						
Catarratto Bianco Lucido	Selezione Massale						
Chardonnay	FEDIT 12 C.S.G.	....	...	....	...	...	SPUM, FERM
Chardonnay	SMA 130	....	....	...	...	..	SPUM, FERM
Chardonnay	ENTAV-INRA® 76	...	...	...	....	..	SPUM, AROM, FERM, LEGN
Chardonnay	ENTAV-INRA® 96	....	....	...	...	...	STRUTT, SPUM, FERM
Chardonnay	ENTAV-INRA® 548	..	..	...	....	..	FERM, SPUM
Chardonnay	CRAVIT-ERSA FVG 101	..	..	..	...	...	FERM, AROM, STRUTT
Chardonnay	CRAVIT-ERSA FVG 103	..	..	...	....	...	FERM, AROM, STRUTT, LEGN
Chardonnay	CRAVIT-ERSA FVG 105	..	..	....	....	..	FERM, STRUTT, LEGN
Chardonnay	ISV 5	...	...	...	..	.....	SPUM
Cococciola	Selezione Massale						
Coda di Volpe	Selezione Massale						
Cortese	UNIMI-VITIS CORT VV 41	..	..	...	....	...	STRUTT
Cortese	UNIMI-VITIS CORT VV 49	...	...	...	...	...	FERM, BEV
Damaschino	Selezione Massale						
Erbaluce	CV TO 29	....	....	....	...	.....	FERM, AROM, BEV
Erbamat	Selezione Massale						
Falanghina	Selezione Massale						
Falanghina	VITIS 17	..	..	..	....	...	FERM, AROM, BEV
Favorita	CVT 105	....	....	....	...	....	FERM, BEV
Fiano	UNIMI-VITIS FIA VV 21	....	....	...	...	...	FERM
Fiano	UNIMI-VITIS FIA VV 29	...	...	...	....	...	STRUTT
Garganega	FEDIT 9 C.S.G.	...	....	....	....	....	AROM, PASS, STRUTT, FERM
Garganega	ISV - CV 18	...	...	...	....	...	FERM
Garganega	GARG VISP	..	...	...	....	...	FERM



Variety	Clone	Production	Bunch size	Fertility	Sugar content	Acidity	Wine style
Garganega	GARG VISP REC	..	..	..	....	...	STRUTT, PASS
Glera (Serprina)	FEDIT 8 C.S.G.	....	....	....	....	....	STRUTT, FER, SPUM, AROM
Glera (Tondo)	ISV-ESAV 10	...	...	...	...	....	ACID, FER, SPUM
Glera (Balbi)	ISV-ESAV 14	...	...	....	...	...	SPUM, FERM
Glera (Balbi)	ISV-ESAV 19	....	...	....	...	....	FERM, SPUM
Grecanico	Selezione Massale						
Grechetto (Todi)	G 5 ICA-PG	....	..	....	....	....	AROM, ACID, FERM, STRUTT
Greco	UNIMI-VITIS GRE VV31	....	....	...	...	....	FERM
Grillo	Selezione Massale						
Incrocio Bruni 54	Selezione Massale						
Maceratino	CSV-AP MC4	...	...	...	...	..	SPUM
Malvasia Bianca di Basilicata	Selezione Massale						
Malvasia Bianca di Candia	UNIMI-VITIS-MALB VV 200	....	...	....	....	...	ACID, STRUTT, BEV, UVAGG
Malvasia Bianca di Candia	UNIMI-VITIS-MALB VV 222	...	....	...	...	...	ACID, BEV, UVAGG
Malvasia Bianca Lunga = Malvasia del Chianti	FEDIT 26-CH	....	....	....	....	....	STRUTT, PASS, UVAGG
Malvasia Bianca Lunga = Malvasia del Chianti	FEDIT 27-CH	....	....	....	...	...	AROM, PASS
Malvasia Bianca Lunga = Malvasia del Chianti	MBD-F7-A2-11	....	...	....	..	..	BEV, UVAGG
Malvasia di Candia Aromatica = Piacentina	PC MACA 66	....	...	....	...	...	AROM, SPUM, AMAB
Malvasia di Candia Aromatica = Piacentina	PC MACA 68	....	....	....	....	....	FERM, BEV, AMAB
Malvasia di Sardegna	Selezione Massale						
Malvasia Istriana	ERSA FVG 121	..	..	...	....	....	STRUTT
Malvasia Rosa	Selezione Massale						
Manzoni Bianco (I.M. 6.0.13)	SMA-ISV 222	...	..	...	....	....	ACID, AROM, FERM, SPUM
Montù	CAB 14	....	...	....	...	....	FERM, BEV, ACID, STRUTT
Montonico	Selezione Massale						
Moscato Bianco	FEDIT 6 C.S.G.	...	....	...	...	....	AROM, SPUM
Moscato Bianco	CN 4	...	..	...	....	....	STRUTT, PASS, AROM
Moscato Bianco	CVT AT 57	...	...	....	....	...	STRUTT, AROM
Moscato Bianco	CN 16	...	..	...	...	....	SPUM, AROM, ACID

Variety	Clone	Production	Bunch size	Fertility	Sugar content	Acidity	Wine style
Moscato Giallo	Selezione Massale						
Moscato Ottonel	CRAVIT-ERSA FVG 130	..	...	..	....	...	SPUM, FERM, AROM, ACID
Nasco	Selezione Massale						
Nuragus	CFC 26	....	....	...	...	....	BEV
Ortrugo	PC ORT 80	.....	....	...	...	..	STRUTT, FERM, SPUM
Passerina	TCG 2 ISV	....	...	....	...	....	FERM, AROM, STRUTT, UVAGG
Pecorino	UBA-RA PE19	.....	.....	.....	...	...	SPUM, FERM
Pecorino	1 ISV	..	...	..	.....	...	FERM, BEV, AROM
Pignoletto Bolognese	CAB 5	.....	...	....	....	....	ACID, FERM
Picolit	Selezione Massale						
Pinot Bianco	CRAVIT ERSa FVG 142	....	....	....	....	...	FERM, AROM, BEV, STRUTT
Pinot Grigio	FEDIT 13 C.S.G.	...	..	...	...	...	FERM
Pinot Grigio	SMA 505	....	...	....	...	...	STRUTT, FERM
Pinot Grigio	ERSA FVG 150	...	..	....	.....	...	STRUTT
Pinot Grigio	ERSA FVG 151	...	...	..	....	...	BEV
Ribolla Gialla	Selezione Massale						
Ribolla Gialla	CRAVIT ERSa FVG 180	..	..	...	...	....	FERM, AROM, STRUTT, UVAGG
Riesling Italico	FEDIT 10 C.S.G.	...	..	...	...	...	FERM, BEV
Riesling Renano	Selezione Massale						
Riesling Renano	ISV-F 1 TOPPANI	..	..	...	...	...	FERM, AROM, STRUTT, UVAGG
Sauvignon	ISV-F 3	....	...	...	...	...	LEGN, FERM
Sauvignon	ISV-F 5	....	...	...	....	....	STRUTT, FERM, AROM
Sauvignon	ENTAV-INRA® 108	...	...	...	...	...	AROM, SAP, FERM, BEV
Sauvignon	ENTAV-INRA® 376	....	..	...	...	..	FERM
Sauvignon	CRAVIT ERSa FVG 190	..	..	...	.....	....	AROM, STRUTT
Sauvignon	CRAVIT ERSa FVG 192	...	...	....	.....	....	AROM, STRUTT, UVAGG
Sauvignon	CRAVIT ERSa FVG 193	...	...	....	....	.....	ACID, AROM, STRUTT
Sauvignon	CRAVIT ERSa FVG 195	..	..	...	.....	....	AROM, SAP, STRUTT, UVAGG
Sauvignon	CRAVIT ERSa FVG 196	....	....	...	....	...	AROM, SAP, STRUTT, UVAGG
Sauvignon	CRAVIT ERSa FVG 198	....	....	.....	.....	...	AROM, SAP, STRUTT
Tocai Friulano	FEDIT 19 C.S.G.	....	....	...	....	....	ACID, FERM
Tocai Friulano	VITIS 11	....	...	....	...	..	FERM, AROM, STRUTT, BEV



Variety	Clone	Production	Bunch size	Fertility	Sugar content	Acidity	Wine style
Tocai Friulano	VITIS 13	...	...	...	....	...	FERM, AROM, ACID, BEV
Traminer Aromatico	Selezione Massale						
Trebbiano d'Abruzzo	Selezione Massale						
Trebbiano Romagnolo	TR 3 T	....	....	...	....	....	ACID, SPUM
Trebbiano Romagnolo	RAUSCEDO 5	....	....	....	...	...	SPUM, UVAGG
Trebbiano Romagnolo	AMPELOS DGV 6	....	....	....	...	....	ACID, UVAGG
Trebbiano Spoletino	Selezione Massale						
Trebbiano Toscano (Biancame)	FEDIT 28-CH	....	...	....	....	....	ACID, PASS
Trebbiano Toscano (Biancame)	FEDIT 29-CH	....	....	....	....	....	ACID, PASS
Trebbiano Toscano	ENTAV-INRA® 384	....	....	....	...	..	BEV
Trebbiano Toscano	TREB VISP	....	....	...	...	...	FERM
Verdese	Selezione Massale						
Verdicchio Bianco	UNIMI 1- Castelli di Jesi VLVR 20	....	....	...	....	....	STRUTT, FERM, LEGN
Verdicchio Bianco	UNIMI 2 - Castelli di Jesi VLVR 30	....	....	....	....	....	AROM, ACID, SPUM, FERM
Verdicchio Bianco	UNIMI 3 - Castelli di Jesi VLVR 50	....	....	...	....	....	STRUTT, LEGN, FERM
Verdiso	ISV2	...	..	....	..	....	FERM, SPUM, ACID
Verduzzo Friulano	Selezione Massale						
Verduzzo Trevigiano	ISV5	...	....	...	..	...	FERM, ACID, BEV
Vermentino	CAP VS 3	....	...	...	....	....	ACID, BEV
Vermentino	CAP VS 12	....	...	...	....	...	STRUTT, FERM
Vermentino	VITIS 15	...	..	..	....	..	FERM, AROM, BEV, STRUTT
Vernaccia di Oristano	Selezione Massale						
Vernaccia di San Gimignano	V-P-6	....	....	....	...	...	FERM, PASS
Vernaccia di San Gimignano	U.S. FI-PI 8	....	...	....	...	...	FERM, PASS
Vioigner	ENTAV-INRA® 642	....	...	...	...	...	AROM, FERM, LEGN
Zibibbo	Selezione Massale						
Zibibbo	RS 601	..	....	...	....	...	FERM, AROM, AMAB, PASS

#### Table Grape Variety

Matilde

Perla di Csaba

Sultanina

Vittoria

Variety	Clone	Production	Bunch size	Fertility	Sugar content	Grape polyphenols content	Grape anthocyanins content	Wine style
Aglianico (Taburno)	UNIMI-VITIS-AGTB VV411	....	....	....	....	...	...	ML
Aglianico (Taurasi)	UNIMI-VITIS-AGT VV421	....	....	..	....	...	....	ML
Aglianico del Vulture	UNIMI-VITIS-AGV VV401	...	...	...	....	....	...	L
Aglianico del Vulture	UNIMI-VITIS-AGV VV404	...	...	...	....	....	...	L
Aleatico	Selezione Massale							
Alicante Bouschet	ENTAV-INRA® 804	....	....	....	...	....	....	M
Alicante Bouschet	Selezione Massale							
Ancellotta	FEDIT 18 C.S.G	....	....	...	....	...	....	MB
Barbera	AT 84	...	..	...	....	....	....	L
Barbera	RAUSCEDO 4	....	....	..	....	....	....	M
Barbera	FEDIT 3 C.S.G.	....	...	...	....	....	....	ML, L
Barbera	VITIS 9	...	...	..	....	....	....	B, MB, M, ML
Barbera	UNIMI 5	....	....	....	....	....	....	B, MB
Barbera	CVT AL 115	...	..	...	....	....	....	M, ML
Bellagna	Selezione Massale							
Brachetto	CVT 20	...	..	...	....	..	...	B
Bovale Grande	Selezione Massale							
Bovale Sardo	Selezione Massale							
Cabernet Franc	FEDIT 4 C.S.G.	....	....	....	....	....	....	ML
Cabernet Franc	ISV-F-V4		...	....	....	....	....	ML
Cabernet Franc	ENTAV-INRA® 214	..	...	...	....	....	....	L
Cabernet Franc	ENTAV-INRA® 327	..	...	...	....	....	....	L
Cabernet Sauvignon	ENTAV-INRA® 169	..	...	..	....	....	....	L
Cabernet Sauvignon	ENTAV-INRA® 685	...	...	..	....	....	....	ML
Cabernet Sauvignon	VITIS 9	....	..	...	....	....	....	M, ML
Cabernet Sauvignon	CRAVIT ERSa FVG 313	...	..	...	...	....	....	M, ML
Cagnulari	Selezione Massale							
Calabrese = Nero d'Avola	Selezione Massale							
Calabrese = Nero d'Avola	UNIMI RG 101	....	..	....	....	....	....	M, ML
Calabrese = Nero d'Avola	VITIS RG 125	....	...	....	....	....	....	MB, M



Variety	Clone	Production	Bunch size	Fertility	Sugar content	Grape polyphenols content	Grape anthocyanins content	Wine style
Canaiolo nero	FEDIT 23 - CH	....	...	...	.....	....	.....	UVAGG, ML
Canaiolo nero	FEDIT 25 - CH	.....	....	....	.....	....	.....	UVAGG, M
Canaiolo nero	NIPOZZANO 8	....	...	..	.....	.....	.....	UV, ML
Cannonao	CFC 13	...	...	.....	...	....	....	MB
Carignano	CFC 8	.....	...	.....	....	.....	.....	ML
Carmenère	Selezione Massale							
Cesanese d' Affile	Selezione Massale							
Ciliegiolo	Selezione Massale							
Colorino	UNIMI-VITIS COL VV 801	...	....	...	...	.....	....	L
Colorino	UNIMI-VITIS COL VV 810	...	....	...	...	...	...	ML
Corvina	ISV-CV 48	..	..	....	.....	....	...	ML
Corvina	CORA VISP VALP	...	...	...	...	....	....	ML
Corvina	CORA VISP AMA	..	..	...	.....	....	....	L
Corvinone	VISP 10	...	.....	...	.....	....	....	B, APP, UVAGG
Croatina	MI-CR 9	.....	....	...	....	....	.....	M
Croatina	MI-CR 10	....	.....	....	....	.....	.....	ML
Dolcetto	UNIMI VITIS DOL VV 901	...	...	...	...	.....	....	L
Dolcetto	UNIMI VITIS DOL VV 910	....	.....	...	..	..	..	B
Franconia - Selezione Bergamo	Selezione Massale							
Fortana	Selezione Massale							
Freisa	CVT 154	...	...	...	.....	....	....	B
Galioppo	Selezione Massale							
Grignolino	CVT AT 261	.....	....	....	...	...	..	B, MB
Grignolino	CVT 113	....	....	....	...	..	..	B, MB
Grignolino	CVT AT 275	....	....	....	...	...	...	B, MB
Groppello - Selezione Garda	Selezione Massale							
Lacrima nera Selezione Morro d'Alba	Selezione Massale							
Lagrein	Selezione Massale							
Lambrusco Barghi	Selezione Massale							
Lambrusco di Sorbara	CAB 2 V	...	..	...	.....	...	....	B

Variety	Clone	Production	Bunch size	Fertility	Sugar content	Grape polyphenols content	Grape anthocyanins content	Wine style
Lambrusco di Sorbara	CAB 21 G	...	...	....	....	....	....	B
Lambrusco Grasparossa	CAB 7	....	..	....	...	....	....	B
Lambrusco Maestri	CAB 6	....	....	....	....	....	....	B
Lambrusco Maestri	CAB 16	....	....	....	...	...	...	B
Lambrusco Marani	Selezione Massale							
Lambrusco Oliva	Selezione Massale							
Lambrusco Salamino	RAUSCEDO 5	...	..	....	...	...	....	B
Lambrusco Salamino	VITIS 5	....	..	...	...	....	....	B
Lambrusco Salamino	VITIS 7	....	..	...	...	....	....	B
Lambrusco Salamino	UNIMI 1	....	.	...	....	....	...	B
Lambrusco Viadenese	Selezione Massale							
Malbo Gentile = Amabile di Genova - Selezione Reggio Emilia	Selezione Massale							
Malvasia Nera	Selezione Massale							
Marzemino	UNIMI-VITIS MAR VV701	....	....	....	...	..	...	MB
Marzemino	UNIMI-VITIS MAR VV710	...	....	...	...	....	...	ML
Merera	Selezione Massale							
Merlot	FEDIT 1 C.S.G.	...	...	..	...	...	...	M
Merlot	ENTAV-INRA® 181	..	..	....	....	....	....	L
Merlot	ENTAV-INRA® 346	...	...	...	....	....	....	ML
Merlot	ENTAV-INRA® 347	..	..	...	....	....	....	L
Merlot	ENTAV-INRA® 348	..	....	..	....	....	....	ML
Merlot	ERSA FVG 350	..	..	...	....	....	....	L
Merlot	ERSA FVG 351	..	..	...	....	....	....	ML
Merlot	ERSA FVG 352	...	...	...	....	....	....	ML
Merlot	VITIS 1	...	..	...	....	....	....	ML
Merlot	VITIS 3	....	..	...	....	....	....	ML, L
Molinara	Selezione Massale							
Montepulciano	AP-MP1	....	....	..	....	....	....	ML
Montepulciano	AP-MP3	....	....	...	....	....	....	ML
Montepulciano	UNIMI-ASSAM MTP VV301	...	...	...	...	....	....	M

Variety	Clone	Production	Bunch size	Fertility	Sugar content	Grape polyphenols content	Grape anthocyanins content	Wine style
Montepulciano	UNIMI-ASSAM MTP VV312	..	...	..	....	.....	.....	L
Montepulciano	UNIMI-ASSAM MTP VV321	....	....	...	....	...	....	MB
Montepulciano	VITIS 19	....	....	..	....	.....	.....	B, MB, M, ML
Montepulciano	UNIMI 10	...	..	...	....	...	....	B
Montepulciano	UNIMI 14	...	....	...	....	.....	.....	M, ML, L
Moscato di Scanzo	Selezione Massale							
Nebbiolo (Michet)	CVT 63	..	..	...	.....	.....	.....	L
Nebbiolo (Lampia)	CVT CN 142	...	....	...	....	....	....	L
Nebbiolo	UNIMI-VITIS NEB VV1	...	....	...	.....	.....	...	L
Nebbiolo	UNIMI-VITIS NEB VV10	..	..	..	...	...	....	ML
Nebbiolo	UNIMI-VITIS NEB VV11	....	.....	....	..	..	..	MB
Nebbiolo	CVT 71	...	..	...	....	.....	...	ML, L
Nebbiolo	12	...	..	....	....	....	....	L
Nebbiolo	21	...	...	...	....	.....	....	L
Nebbiolo	34	....	....	....	....	.....	....	L
Negretto	Selezione Massale							
Negroamaro	UNIMI-VITIS-NEG VV606	..	..	..	....	....	....	ML
Negroamaro	UNIMI-VITIS-NEG VV688	..	..	..	...	...	...	B
Nerello Mascalese	Selezione Massale							
Nerello Mascalese	RS 121	....	.....	....	....	...	....	MB, M
Olivella Nera	Selezione Massale							
Oseleta	Selezione Massale							
Pascale di Cagliari	CAP VS 1	....	....	...	....	...	.....	UVAGG
Pascale di Cagliari	CAP VS 15	....	....	...	...	...	.....	UVAGG
Perricone	Selezione Massale							
Petit Verdot	ENTAV-INRA® 400	....	...	....	....	....	.....	ML
Piedirosso	Selezione Massale							
Pignolo	Selezione Massale							
Pinot Nero	SMA 201	..	..	...	....	.....	.....	L
Pinot Nero	MIRA-01-3004	..	..	....	....	....	....	ML



Variety	Clone	Production	Bunch size	Fertility	Sugar content	Grape polyphenols content	Grape anthocyanins content	Wine style
Pinot Nero	MIRA-95-3047	...	..	.....	....	....	....	ML
Pinot Nero	MI-MIRA 98-3140	..	.	....	.....	.....	.....	L
Pinot Nero	20-13 GM	...	...	....	...	....	..	MB, SPUM
Pinot Nero	ENTAV-INRA® 292	.....	....	....	..	....	..	MB, SPUM
Pinot Nero	ENTAV-INRA® 386	....	...	....	..	...	..	MB, SPUM
Pinot Nero	ENTAV-INRA® 777	.	..	...	.....	....	...	L
Pinot Nero	SMA 191	...	....	..	..	...	..	MB, SPUM
Primitivo	UBA 55/A	.....	....	....	...	..	...	MB
Primitivo	UBA 47/A	...	...	...	...	....	.....	L
Primitivo	UBA 47/B	....	..	....	....	....	....	ML
Primitivo	UNIMI-VITIS-PRI VV501	..	..	...	.....	....	.....	L
Prugnolo Gentile	BRUSCELLO	...	..	....	.....	...	....	ML
Raboso Piave	FEDIT 11 C.S.G.	....	....	....	....	....	.....	ML
Raboso Veronese	FEDIT 2 C.S.G.	....	....	...	...	....	....	MB
Rebo	Selezione Massale							
Refosco dal Peduncolo Rosso	ISV-F4 TOPPANI	...	...	....	....	....	....	ML
Refosco dal Peduncolo Rosso	ERSA FVG 400	..	..	..	.....	.....	.....	ML
Refosco dal Peduncolo Rosso	ERSA FVG 401	..	..	..	.....	.....	.....	ML
Rondinella	ROND VISP	..	..	...	....	...	....	ML
Rondinella	ISV-CV 76	...	..	...	....	....	...	UVAGG, MB
Ruchè	CVT 10	.....	....	.....	...	...	...	MB
Ruchè	CVT 1	....	...	.....	...	...	...	MB, M
Sagrantino	Selezione Massale							
Sangiovese (Toscana)	FEDIT 20-CH	....	....	....	.....	....	.....	L
Sangiovese (Toscana)	FEDIT 21-CH	....	....	....	....	....	....	ML
Sangiovese (Toscana)	FEDIT 22-CH	....	....	....	....	....	....	ML
Sangiovese (Montalcino)	B-BS-11	...	...	....	....	....	...	L
Sangiovese (Lamole)	SS-F9-A5-48	....	...	....	.....	....	.....	ML
Sangiovese	C. FUTURO 1	..	..	..	....	....	....	ML
Sangiovese (Lamole)	CCL 2000/3	...	..	.....	....	.....	.....	L

Variety	Clone	Production	Bunch size	Fertility	Sugar content	Grape polyphenols content	Grape anthocyanins content	Wine style
Sangiovese	CCL 2000/7	....	..	...	....	.....	.....	L
Sangiovese (Romagnolo)	FEDIT 2 ESAVE	...	..	....	...	....	....	M
Sangiovese	UNIMI-VITIS SANG VV 101	..	..	...	.....	.....	.....	L
Sangiovese	UNIMI-VITIS SANG VV 110	...	...	...	...	...	...	M
Sangiovese	SG VITIS 1	..	..	...	...	....	...	L
Sangiovese	SG VITIS 3	..	..	...	...	....	...	L
Schioppettino	Selezione Massale							
Syrah	ENTAV-INRA® 174	...	...	....	...	.....	.....	ML
Syrah	ENTAV-INRA® 470	..	...	..	....	.....	.....	M
Syrah	ENTAV-INRA® 747	...	...	...	....	....	....	ML
Susumaniello	Selezione Massale							
Tempranillo	U.S. FI-PI. 4Np	...	...	....	.....	.....	....	L
Teroldego	Selezione Massale							
Termarina	Selezione Massale							
Terrano	ERSA FVG 440	..	..	...	...	....	....	ML, UVAGG
Tintilia	Selezione Massale							
Tocai rosso	FEDIT 14 C.S.G.	...	...	...	...	...	...	MB
Uva di Troia	Selezione Massale							
Uva Rara	CVT 10	....	...	...	...	....	..	MB
Vernaccia Nera	Selezione Massale							
Vespolina	CVT 27	...	..	...	...	....	..	MB

#### Table Grape Variety

Cardinal

Crimson

## THE CHOICE OF THE ROOTSTOCK

The knowledge of the rootstock characteristics is the key for the good coming out of a vineyard. There are no certain rules on which to base the rootstock selection, but each case has to be evaluated individually, given that the choice is not only linked to the pedo-climatic characteristics, but it also depends on the grape variety, the planting density and the type of end product one wishes to achieve.

The main rootstocks used in viticulture basically derive from three North American native species: *Vitis riparia*, *Vitis berlandieri* and *Vitis rupestris*. *Vitis riparia* is characterised by low vigour, which allows to anticipate budding and ripening; it well adapts itself to fresh soils, but it is not very resistant to the presence of limestone. *Vitis rupestris* is characterised by a root system that tends to deepen with medium resistance to limestone; it has a good grafting affinity, but it is sensitive to drought. Finally, *Vitis berlandieri* has the advantage of good resistance to limestone and drought, but it is difficult to grow as such, given the poor aptitude to rooting. These three American species have been suitably crossed to create hybrids that best fit the needs of European viticulture. The most successful hybridizations can be gathered in three large groups:

1. *Vitis riparia* x *Vitis rupestris*
2. *Vitis berlandieri* x *Vitis riparia*
3. *Vitis berlandieri* x *Vitis rupestris*



The recombination of each group brings out the characteristics of the pure species from which it derives. Subsequently, each hybrid comes up with features studied over time that can be summarised in the table enclosed.

The **first group** is composed of several different rootstocks of moderate vigour, suitable for soils of modest fertility that allow to obtain good quality grapes. Due to the poor drought resistance, these rootstocks are not suitable for southern regions, but since they tend to induce an anticipated ripening, they are recommended for northern terroirs. The **second group** is composed of a series of rootstocks characterised by good grafting affinity, better resistance to drought and active limestone and a higher vigour compared to the previous ones. The **third group** is composed of rootstocks characterised by high vigour, good resistance to limestone, drought and soil compactness but with difficulty in rooting.

More recently, to overcome problems such as the poor resistance to high concentrations of active limestone, researchers began studying new hybridizations, including crossings of American cultivars with *Vitis vinifera* as e.g. FERCAL, 41 B and 333EM by using Chasselas and *Vitis berlandieri*. Other examples are the crossings between *Vitis vinifera* and *Vitis rupestris* giving origin to GOLIA that is characterised by a high vigour or to 171-6 that was selected by crossing *Vitis rufotomentosa* and *Vitis vinifera* and that is characterised by its resistance to *Xiphinema index* nematodes, vectors of the fanleaf virus.





Rootstock	Origin	Limestone		Vigour	Humidity	Drought	Salinity (clorides x.000)		Soil compactness	Soil acidity	Soil exhaustion	Deficiency		Phylloxera	Agrobacterium	Nematodes		Root system	Armillaria %
		tot%	act%									Mg	K			Xiphinema	Meloidogyne		
RIPARIA GLOIRE de M.	riparia	14	6	L	H	S			S			M	S	H				shallow	79(S)
420 A	berlandieri x riparia	30	20	M-L	S	M	S		M-S	M-S	S	M-S	M	H				semi-deep	
161-49	berlandieri x riparia		25	M-L	S	M-S	M		M	M	S		M	H	M-S		M-S	semi-deep	
KOBER 125AA	berlandieri x riparia		20	H	M-S	S	S		M		M	M		H	M-H		M	semi-shallow	
KOBER 5BB	berlandieri x riparia	30	20	H	M	M-S	S		M	M		M	M	H	M-H		M	semi-deep	
RSB 1	berlandieri x riparia	37	10																
SO4	berlandieri x riparia	30	17	M-H	M	M-S	0,4		M		H	S	M	H	M-S		H	semi-shallow	
TELEKI 5 C	berlandieri x riparia		15	M	M	S								H	M-S		M	semi-shallow	73(S)
157.11	berlandieri x riparia		22	M	M	M	M		M				M					semi-deep	
34 E.M.	berlandieri x riparia		20	M-H															
101.14	riparia x rupestris		9	L	M-H	M-S			S	M		M	S	H	M-H		M-H	shallow	
3309 COUDERC	riparia x rupestris		11	M-L	H	S	0,4		M			M	S	H	M-H	S	S	shallow	85(S)
SCHWARZMANN	riparia x rupestris		10		M-H	S								H	M-S		0:07		
GRAVESAC	161.49 x 3309									H++	H++						H		
44.53	riparia x 144 M		10	M-L		M			M	S		S	H	M-H		M	S		
RUPESTRIS du LOT	rupestris	23	14	H	MS	M	0,5		H			H	S	H				deep	
RUP. St. GEORGE	rupestris					M								H		S		deep	M
775 PAULSEN	berlandieri x rupestris		17	M	S	M-H	S		M			M	M	H	H		H	deep	
779 PAULSEN	berlandieri x rupestris		20	M-H	M	H++	0,9		H			M	M	H				deep	
1103 PAULSEN	berlandieri x rupestris		18	H	S	H++	1		H			H	M-S	H	M-S		M	deep	
99 RICHTER	berlandieri x rupestris	30	17	H	S	M			H	S	S		S	M-H	S	S	M/M-H	deep	
110 RICHTER	berlandieri x rupestris		17	M-H	M	H++	M		H	M	S	M	H	H	M-S		M-S	deep	M
140 RUGGERI	berlandieri x rupestris		40	H++	S	H++	M		M	M		M	S	H	S		S	deep	
41 B	Chasselas x berlandieri		40	M	S	M-H			H		S	S	M	M-H				deep	
GOLIA	vinifera x rupestris		20	H	M	S			H				M					semi-shallow	
FERCAL	333 E.M. x BC1	53	40			M-H					H	S	M	H			H		
16-13 C	solonis x Othello	S					S							S		H	M		
Vitis vinifera			20-40				1,5											deep	

**Resistance level:** S = Sensitive; L = Low; M = Medium; H = High

# TECHNICAL GUIDELINES

for the best vineyard plantation



## CHOICE FACTORS ON THE LONG TERM

The choice of the site and the characteristics of the vineyard, in terms of genetics, propagation materials and density of plantation are fundamental steps in the design of a vineyard. Errors in this phase would jeopardise the result both from a technical and economic point of view. Quality products are the reward if the best choices are made.

The environmental vocation is an essential factor in wine production.

Ascertaining the soil profile and therefore the chemical and physical characteristics, allows to establish the most suitable choice in terms of rootstock, guaranteeing the adjustment of the variety to the chosen site.

So, the chemical and physical analysis of the soil becomes crucial and is to be carried out well before planting the vineyard.

## THE SOIL PREPARATION

- It would be preferable to avoid continuous planting and growing where possible, in order to give time to the soil to “metabolise” toxins and parasites contained therein. In case of an immediate vineyard replantation, it is necessary to extract as many roots as possible from the old vineyard.
- The preparation of the soil must be done well ahead of time with the soil at its best processing conditions. Clay soils are to be prepared in the summertime prior to the spring plantation.
- In case of soil preparation with a significant movement of earth, it is important to avoid the soil horizon disruption. The surface layers of the soil must already have microbiological activity.
- Elimination of areas with water stagnation by applying drainage systems.
- A deep soil preparation with a ripper instead of deep ploughing device is preferable; the ploughing should be superficial.
- The final soil preparation should be performed avoiding the formation of tillage pans, therefore avoiding the use of rotary cutters.
- The soil must be loose and grainy and not cloddy to avoid the presence of air sacks around the roots.



## CONSERVATION OF GRAFTED VINES

Until the moment of plantation, the grafted vines must be stored in complete inactivity. Should the plantation be postponed for whatever reason this may be, it is recommended to keep the grafted vines in closed boxes in a cold store at a temperature of +4°C.

## PLANTING THE VINEYARD

The vineyard plantation should be done between the end of winter and the beginning of spring. Performing the plantation in this season one benefits from the spring rains that compact the soil around the rooting apparatus and ensure hydration of the hypogeal parts. Furthermore, the moderate temperatures in this season limit dehydration of the grafted vines, favouring their budding.

- It is good practice to ensure the roots' rehydration for 24/36 hours before the plantation of the grafted vines.
- Planting methods with long roots are preferable (with the shovel or some specific planting machine): they favour a faster and healthier vegetative growth.
- For the fork planting method, it is imperative to shorten the roots to a few centimetres from the point of origin to prevent them from turning upwards during planting.
- The roots must be cut at 10-12 cm from the point of origin of the stem.
- Planting operations should be performed in soil at its best processing conditions, thus avoiding soil that is too wet or performing immediate irrigation when the soil is too dry.
- Should the plantation be done by machine, it is important to verify the closure of the furrows made by the plough. If they remain open, it is important for the grafted vines to be earthed up to make sure that the roots and the soil merge.
- The planting depth must guarantee that the grafting point is above the soil by 5-6 cm.

## LATE PLANTING OF GRAFTED VINES

The late plantation (from around 15<sup>th</sup> May onwards) is not recommended as the spring is coming to an end and with it the mild temperatures and the rainfalls useful for a rapid root development. Be aware that in the annual cycle of the vine has two peaks of radical development: spring and autumn. The late plantation slows down significantly the grafted vine by shortening the cycle and exposing it in inconvenient moments both to water crisis and to strong downy mildew attacks of the late summer, reducing the levels of lignification and consequently the endurance to winter rigours. With attentive care and sagacity, however, good rooting and development can be achieved if the plantation is made by mid-June.

Attached please find the indications on how to operate correctly to obtain satisfactory results.



## PLANTING OF POTTED GRAFTED VINES

The so called "cartonaggio" technique, better known as potted production, involves the supply of a grafted vine plant that is obtained and planted by the customer in the same period and year of its grafting and is characterised by a recently established root system, grown in a soil and peat pot – suitable for this development –, a rootstock and a scion welded through a newly established callus. One or more shoots come out of the scion guaranteeing the physiological development of the vine. The plant, despite its youthfulness, is characterised by a completely normal development in root absorption, transport of sap and the emission of new shoots, however this is delicate material that requires careful and expert care on behalf of the buyer. The potted grafted vines are supplied by **Vitis Rauscedo** as vertical plants in peat pots placed in plastic boxes. Attached please find the indications on how to operate correctly to obtain satisfactory results.

## POST-PLANTING RULES

- It is good practice to check on budding. The grafted vines coming from a nursery, hence a protected environment, can easily be affected by mite attacks or thrips when planted in the open field. It is important to monitor the shoot development and in the presence of parasites it is necessary to perform an acaricidal and / or insecticidal treatment.
- For the first year after planting it is essential to keep the soil clean from weeds.
- During the first year it is necessary to carry out insecticidal treatments against the vectors of grapevine yellows in areas where such diseases and vectors are present.
- Downy mildew control and treatments must be done until the end of September to ensure the best level of lignification.
- Usually, no fertilization is necessary for the first growing season. However, if nitrogen fertilization will be performed, it must be done after budding with a vegetation that has reached at least 20 cm in height and at a minimum distance of 20 cm from each grafted vine.
- The use of vine shelters can be useful to safeguard the young vine from animals and weeds. These protections should be removed if the season is abnormally torrid.



# A RESEARCH IN EVOLUTION

## INNOVATION PROJECT VITISBIO®

The need to face significant phytosanitary problems in a legislative context that is progressively changing in favour of a low environmental impact agriculture, provides the opportunity for the development of eco-friendly nursery strategies, based above all on the sanitary quality of the production and on the durability of the environmental and economic system in the long term.

As part of the Rural Development Plan 2014-2020 of the region Friuli Venezia Giulia, **Vitis Rauscedo**, in partnership with the **CREA - Research Centre for Viticulture and Enology of Conegliano**, the **University of Florence** and the **Consortium of Collio Wines**, has establish an Innovation Project for the development of a sustainable and organic grapevine nursery supply chain with an efficient control of the emerging grapevine diseases.

The Innovation Project studies and evaluates:

- the control of the grapevine trunk pathogens with respect to the rootstock cultivation methods;
- the control of the grapevine trunk pathogens with respect to the disinfection methods for propagation material;
- the control of the grapevine trunk pathogens with respect to the grafting methods;
- the association between graft disaffinity and the presence of viruses in the propagation material;
- the development of conservative mass selection protocols;
- the economic and environmental balance resulting from the introduction of the innovative tested methods.



## UNIQUE GRAFTED VINES

The grafted vines by **Vitis Rauscedo** originate from high quality clonal and mass selection material, as a result of a long and significant selection work, aimed also at preserving a certain genetic variability to guarantee a greater adaptability of the vines in terms of environment and to protect the quality of the authentic Italian product. The uniqueness of the grafted vines by Vitis Rauscedo stands out also thanks to the **careful and thorough post-harvesting selection phase** by making available only the best grafted vines, checked one by one, healthy and strong, with a well-formed root system and a perfectly welded callus.



## HEALTHY GRAFTED VINES

The best sanitary quality standard is the result of an accurate management of the propagation materials. The fields of rootstock mother plants have been planted in a dry environment, characterised by limited rainfalls in winter and low humidity, while the fields of scion mother plants are situated in the areas typical of the grape variety and with winemakers, who appreciate them. The mother plants of each clone homologated by **Vitis Rauscedo** are kept in the company's screen house, protected from any biotic or abiotic adversity. The grafted vines are cultivated in ideal pedoclimatic conditions, that is a **suited environment** characterised by a good annual rainfall, distributed throughout the year, and by a gravel soil rich in water. In this environment, the grafted vine develops an excellent root system and diseases are not emphasised, and the callus that forms between scion and rootstock does not become dehydrated and is perfectly welded.



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# CARETAKERS OF THE EARTH

For **Vitis Rauscedo**, a fundamental aspect of the future vision of the nursery activity is the reduction of the environmental and economic impact of its activity, along with the qualitative improvement of the production. The path taken goes towards the development strategy of a supply chain that **respects the agro-ecological system** through the reduction of conventional agricultural practices and the increase in the added value of the final product.

This vision developed and matured within the company is in line with the policies of National and European institutions, in view of the new agro-climatic challenges that will increasingly condition the future.

Strong in the knowledge that the preservation of soil fertility, the efficient use of water and energy resources and the environmental protection are distinctive factors of the nursery activity, Vitis Rauscedo has invested in research to maximise the technical and sanitary quality of its grafted vines and the sustainability of its supply chain with the certainty that this significant work provides a solid basis for forging and preserving the **nursery activity of the future**.



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