



333 Ecole de Montpellier



Name of variety in France (and usual designation)

333 Ecole de Montpellier (333 EM)

Breeder/selector and year of obtention

Gustave Foëx, 1883.

Genetic origin

This variety results from the crossbreeding of *Vitis vinifera* cv. Cabernet-Sauvignon and *Vitis berlandieri*.

Evolution of mother vine surfaces

	1945	1955	1965	1975	1985	1995	2005	2015
ha	2	7	15	43	18	12	8	21

Estimated surface area of French vines grafted with the rootstock, and main

4 000 ha. Champagne, Charentes.

Descriptive elements

The identification is based on:

- the tip of the young shoot that is open, with a piping anthocyanin coloration and a high density of prostate hairs,
- the reddish young leaves,
- the shoots with a very ribbed surface, a circular or slightly elliptic section and no erect and prostate hairs,
- the circular adult leaves, entire or with five lobes, with shiny blistered leaf blade, involute and twisted on the edges, a brace-shaped slightly open petiole sinus or with slightly overlapping lobes and with often limited naked petiole veins,
- the male flowers,
- the woody shoots with a very ribbed surface.

Genetic profile

Microsatellite	VVS2	VVMD5	VVMD7	VVMD27	VRZAG62	VRZAG79	VVMD25	VVMD28	VVMD32
Allel 1	137	217	231	238	194	248	238	235	239
Allel 2	147	229	239	250	220	260	250	235	257

Resistance to soil parasites

333 EM is moderately to highly tolerant to the root form of phylloxera. It is sensitive to *Meloidogyne incognita* and *Meloidogyne arenaria* nematodes.

Adaptation to the environment

333 EM is characterized by its very good adaptation to limestone soils and its resistance to chlorosis. In deed, it resists up to 60% of "total" limestone, 40% of "active" limestone and an ICP of 70. This rootstock is also well adapted to drought and to temporary water excess during the spring. On the other hand, it is sensitive to chlorides. 333 EM is well

adapted to shallow, dry and limestone soils.

Interaction with grafts and production objectives

333 EM gives a high vigor to grafts and provides fairly high yields. It can however sometimes promote coulure phenomenon. The first development of plants is fairly slow with this rootstock. Under not very fertile or limiting conditions, the varieties grafted onto 333 EM produces good quality products.

Vegetative propagation aptitudes

333 EM wood production is very low (10 000 to 30 000 m/ha) and autumn climatic conditions must be favorable in order to get a proper lignification of canes. 333 EM has a moderate cutting capacity and a good grafting aptitude, but the large cane diameter may be bothersome.

Resistance to aerial parasites

333 EM is highly tolerant to the gall form of phylloxera and moderately resistant to downy mildew. On the other hand, it is very sensitive to bud mite disease.

Clonal selection in France

In France, the 4 certified 333 EM clones carry the numbers 260, 263, 1049 and 1105. Among those, the clone 263 is multiplied on 20 ha 53 ares of mother vines producing certified material, in 2017.

Datas are extracted from: Les chiffres de la pépinière viticole, 2017, Datas and assesment of FranceAgriMer, may 2018.



Cette œuvre est mise à disposition selon les termes de la [Licence Creative Commons Attribution - Pas d'Utilisation Commerciale - Partage dans les Mêmes Conditions 4.0 International](https://creativecommons.org/licenses/by-nc-sa/4.0/)

