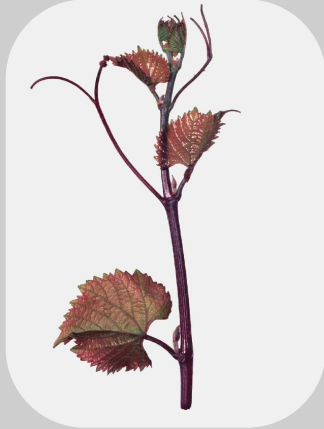


110 Richter



Genetic origin

This variety results from the crossbreeding between *Vitis berlandieri* cv. Ressaiguier n°2 and *Vitis rupestris* cv. Martin.

Name of the variety in France (and usual name)

110 R

Breeder/breeder and year obtained

Franz Richter, 1902.

Estimated surface area of the French vineyard grafted with this rootstock and main regions of use

130 000 ha . Languedoc-Roussillon, Midi-Pyrénées, Provence-Alpes-Côte d'Azur, Rhône-Alpes, Corsica.

Elements of ampelographic description

The identification is based on:

- the tip of the young shoot that is half opened, with a low density of prostrate hairs,
- the shiny and reddish young leaves,
- the shoots with a bushy and erect bearing, a ribbed contour, a circular or slightly elliptic section, a striated surface, a moderate to strong anthocyanin coloration and no erect and prostrate hairs,
- the small to medium, kidney-shaped, shiny, entire adult leaves, with a widely open U-shaped petiole sinus, a strong anthocyanin coloration of veins, medium teeth with straight sides, a slightly blistered leaf blade, gutter-folded towards the upper side of the blade, and on the lower side of the leaves, no or a very low density of erect and prostrate hairs,
- the male flowers,
- the brownish grey or brownish red woody shoots, with no erect and prostrate hairs.

Evolution of mother vine surfaces

Year	1945	1955	1965	1975	1985	1995	2005	2015
ha	16	108	254	526	376	352	522	377

Genetic profile

Microsatellite	VVS2	VVMD5	VVMD7	VVMD27	VRZAG62	VRZAG79	VVMD25	VVMD28	VVMD32
Allele 1	135	232	231	236	196	244	236	218	253
Allele 2	141	265	257	262	214	260	262	233	253

Resistance to soil pests

110 R is very highly tolerant to the root form of phylloxera, but its resistance to *Meloidogyne incognita* and *Meloidogyne arenaria* nematodes is only average. It would also be quite resistant to *Phytophthora cinnamomi*.

Aptitudes for vegetative multiplication

The length of 110 R is medium with a fairly large diameter. The growth of lateral shoot buds is fairly high and the wood production is low to moderate (30 000 to 60 000 m/ha) with sometimes a certain proportion of dry canes. Care needs to be taken to make sure that the canes are properly lignified, and then, the canes must be preserved under the right conditions. In mother plantations, 110 R is sensitive to excess humidity in the soil. This rootstock has a low to moderate cuttings rooting capacity and a moderate grafting aptitude. This root stock sometimes requires a longer stratification period and a possibly slightly more substantial hormoning.

Clonal selection in France

In France, the 15 certified 110 R clones carry the numbers 6, 7, 100, 118, 119, 139, 140, 151, 152, 163, 164, 180, 206, 237 and 756. Among those, the clones multiplied are:

- clone No. 6: 2 ha 54 ares of mother vines producing certified material, in 2017,
- clone No. 7: 17 ha 56 ares of mother vines producing certified material, in 2017,
- clone No. 118: 6 ha 17 ares of mother vines producing certified material, in 2017,
- clone No. 139: 1 ha 44 ares of mother vines producing certified material, in 2017,
- clone No. 140: 1 ha 70 ares of mother vines producing certified material, in 2017,
- clone No. 151: 115 ha 71 ares of mother vines producing certified material, in 2017,
- clone No. 152: 60 ha 32 ares of mother vines producing certified material, in 2017,
- clone No. 164: 1 ha 45 ares of mother vines producing certified material, in 2017,
- clone No. 180: 43 ha 63 ares of mother vines producing certified material, in 2017,
- clone No. 237: 92 ha 57 ares of mother vines producing certified material, in 2017,
- clone No. 756: 39 ha 31 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.

Bibliographic references

- Catalogue des variétés et clones de vigne cultivés en France. Collectif, 2007, Ed. IFV, Le Grau-du-Roi, France.
- Documentary collections of the Centre de Ressources Biologiques de la Vigne de Vassal-Montpellier, INRAE - Montpellier SupAgro, Marseillan, France.
- Cépages et vignobles de France, tome 1. P. Galet, 1988, Ed. Dehan, Montpellier, France.

Adaptation to the environment

110 R is moderately adapted to limestone and its resistance to iron chlorosis is variable depending on the grafts used. It can resist up to 17% of "active" limestone and to an IPC of 30. However the threshold is actually only 5 to 7% when Syrah is grafted onto 110 R (and to a lesser extent with Viognier). This rootstock is very well adapted to drought but is very sensitive to water excess. It is particularly adapted to dry, poor, stony, with no or very little limestone soils, such as schist soils or ancient terraces.

Interaction with the graft and production objectives

110 R confers a strong vigor. This rootstock tends to induce a good fertility and delay the growth cycle and the maturation. It can sometimes favor coulure, particularly with Ugni blanc. 110 R works very well with Cabernet-Sauvignon, Caladoc, Carignan, Grenache, Marselan, Mourvèdre, Muscat à petits grains blancs, Muscat d'Alexandrie, Tempranillo and Vermentino. On the other hand, given the risk of chlorosis, the association with Syrah must be avoided when the "active" limestone content goes over 5%, since the risk of declining is increased with this association. Cases of incomptability have also been noticed with Pinot.



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