

SEED ORCHARD

DOUGLAS FIR FRANCE 3



SPECIES

Pseudotsuga menziesii
(Mirb.) Franco

ORCHARD CODE AND NAME

PME-VG-008 FRANCE 3-VG

CATEGORY

Qualified

BREEDER

INRA (Institut National de la
Recherche Agronomique -
Orléans - France)

CHARACTERISTICS OF THE ORCHARD

- Orchard of clones (cuttings)
- Year of planting : 1989/90
- Place of planting : Calviac (Lot - France)
- Altitude of planting : 605 meters
- Surface area : 10 hectares
- Number of clones : 151
- Origin of clones : French plantations in the eastern Massif Central
- Number of effective clones * : 59
- Number of trees : 1134
- Start of production : 2010
- Method of pollination : Free

*This indicator of genetic diversity takes cognizance of the number of representatives of different clones and, where appropriate, between genetically related clones

CRITERIA AND SELECTION PROCESS

The base material consisted of a representative sample from selected French plantations. These mature plantations had already been subjected to natural selection pressure, a guarantee of good adaptation to the French climate. The 23 sampled plantations are located on the eastern edge of the Massif Central, at an altitude ranging from between 350 and 750 metres (detailed list at end of sheet).

SUMMARY

One of three seed orchards from French plantations in the eastern Massif Central. The selection was made in the Vosges, based on criteria of growth and shape, in particular the insertion angle of branches. Potentially a vigorous product with a budding period comparable to that of the Darrington orchard.



SEED GENERATION

For cultivation in France, France 3 is recommended for all areas that are appropriate for Douglas fir (mid-mountain, with good water supply). It's also recommended for Belgium (Walloon region).

CRITERIA AND SELECTION PROCESS

Seeds were collected from approximately 150 trees from these 23 plantations. This facilitated the setting up of four progeny tests. One of these tests was planted near Epinal in the Vosges. After ten years, INRA carried out a selection combining the 42 best progenies and the 151 best individual samples within these 42 progenies. The selection criteria included the vigour (total height), the lateness of bud burst, and shape (straightness of trunk, open angle insertion of branches, absence of forking and absence of growth in August).

Cuttings were taken from the 151 selected trees to establish the France 3 seed orchard in Calviac, in the Lot region.

EVALUATION

Compared to the population at the beginning of the test at Epinal (progeny of French plantations), the expected genetic gain was estimated at + 17% for the total height, that is, an expected gain of about 34% on volume.

An experimental harvest of seeds took place in 2007. This facilitated the setting up of a number of evaluation tests in 2009 and 2010 at different altitudes and under various climatic conditions, in particular in marginal conditions for the Douglas (Haute-Vienne, Creuse, Loiret, Puy de Dome, Aude Lot, Cantal, ...). The first results (spring 2010) demonstrate that France 3 has a bud burst as late as that of the Darrington orchard.

DETAILS OF THE 23 SELECTED FRENCH PLANTATIONS

PLANTATION	DEPARTMENT	LOCAL AUTHORITY	ALTITUDE (M)	LAT. NORTH	LONG. EAST
En Argaud	Saône et Loire	Matour	550	46° 18'	4° 30'
Bois Chicard	Saône et Loire	Ozolles	440	46° 20'	4° 22'
Bois des Cusses	Saône et Loire	Ozolles	445	46° 21'	4° 21'
Bois du Moulin	Saône et Loire	Verosvres	400	46° 20'	4° 24'
Bois Rond	Saône et Loire	Chatenay	525	46° 17'	4° 22'
Bruyère de Pommey	Saône et Loire	Ozolles	410	46° 21'	4° 23'
Au Charnay	Saône et Loire	Matour	560	46° 18'	4° 25'
Chassagne	Rhône	St Igny de Vers	550	46° 15'	4° 24'
Chevenatte	Rhône	St Bonnet des B.	580	46° 14'	4° 28'
Les Communes	Saône et Loire	Chatenay	470	46° 17'	4° 21'
Etang Bonnin	Saône et Loire	Ozolles	363	46° 21'	4° 21'
La Garenne	Saône et Loire	Gibles	430	46° 20'	4° 22'
Les Génévriers	Saône et Loire	Trambly			
La Gravière	Saône et Loire	St Racho	500	46° 15'	4° 22'
Marcon	Saône et Loire	Dompierre	400	46° 21'	4° 29'
Moussan	Herault	Verreries de Moussan	750	46° 26'	4° 42'
La Neiray	Rhône	Claveisolles	580	46° 17'	4° 28'
Le Perron Nord	Loire	Belleroche	720	46° 09'	4° 25'
La Perrière	Rhône	Aigueperse	490	46° 16'	4° 26'
Aux Pralles	Saône et Loire	Matour	530	46° 18'	4° 30'
En Seignerion	Saône et Loire	Trivy	350	46° 22'	4° 29'
Les Serrets	Rhône	Aigueperse	520	46° 16'	4° 24'
Villars	Saône et Loire	Montmelard	450	46° 21'	4° 24'



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