

SEED ORCHARD

DOUGLAS FIR DARRINGTON



SPECIES

Pseudotsuga menziesii
(Mirb.) Franco

ORCHARD CODE AND NAME

PME-VG-001 DARRINGTON-VG

CATEGORY

Tested

BREEDER

Danish Institute for Forestry
and INRA (Institut National de
la Recherche Agronomique -
Orléans - France)

CHARACTERISTICS OF THE ORCHARD

- Orchard of clones (grafted)
- Year of planting : 1978
- Place of planting : Lavercantière (Lot - France)
- Altitude of planting : 300 meters
- Surface area : 14 hectares
- Number of clones : 70
- Origin of clones : Washington USA: Darrington provenance
- Number of effective clones * : 64
- Number of trees : 957
- Start of production : 1987
- 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

SUMMARY

Consisting uniquely of Darrington, this orchard, the result of Franco-Danish collaboration, yields a product that has excellent shape (slim branches, few in number), moderate growth, equal to natural terrain plantations, late bud burst and dense wood.



SEED GENERATION

CRITERIA AND SELECTION PROCESS

Darrington, originating in the State of Washington, has a good reputation in Europe, particularly because of its healthy growth under our climatic conditions. Three comparative plantations from different provenances were established in Denmark in 1952: these include, in particular, conservation plots of Darrington. 90% of the selection was taken from the forest of Viborg (Central Jutland), where very poor soil and high planting density caused major competition between trees.

The protocol for selection was agreed between the French and Danish research teams:

- Screening in 1973 (20 years later) of 200 specimens, whose vigour was greater than or equal to the average of the dominant trees, of good shape (straightness of trunk, slim branches and open angle of insertion) and late bud burst.
- The 200 selected trees were compared with their immediate neighbours and 120 of them were selected for their very late bud burst.
- A core was taken from the trunks of these 120 trees to measure the density of the wood and the intra-ring variation of this density. 70 trees were selected based on the quality of the wood.

The 70 selected trees were grafted, and then planted in France in Lavercantière in the Lot region, at the end of 1978. Although the material was selected in Denmark, the orchard was planted in France to achieve better fruiting.

EVALUATION

More than 50 evaluation tests of the Darrington seed orchard were planted in France and Europe. The oldest one dates from 1989. Collectively, these tests give a good overview of the potential of the product of this seed orchard.

To summarise, Darrington has a later bud burst, has good shape (slim branches, few in number), but is not particularly vigorous (at age 20, its circumference of 1.30 m is the same as that of a sample from good, natural, Washington plantations). The Darrington seed orchard was admitted definitively to the tested category for its lateness of bud burst and for its shape (straightness of trunk, branching, forking).

These latest measures help to place the Darrington bud burst in relation to other French orchards. Although late, it buds 3-8 days earlier than La Luzette and especially Washington 2 (3 tests in Haute-Vienne, Lot and Loiret).

Similarly, within the framework of a European project, 9 additional tests will facilitate the evaluation of the Darrington orchard for wider use. These tests were planted between 1998 and 2000 in Spain (in Galicia and the Basque Country), Germany (Lower Saxony), Belgium (Wallonia), the United Kingdom (South Wales and West Central England) and France (Morvan and Limousin). They compare German, Belgian, French and Dutch seed orchards with plantations from Europe or from the natural growing area (Humtulips and Darrington).

Finally, in relation to climate change, Darrington is in the process of being evaluated in numerous places in France, under various climatic conditions and at altitudes ranging from between 100 to 1400 metres.

ADVICE FOR CULTIVATION

For cultivation in France, Darrington is recommended for all areas that are appropriate for Douglas fir (mid-mountain, good water supply).

It's also recommended for Denmark, for Belgium (Walloon region) and for some German states, such as Bavaria.



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