

**Tree factsheet**

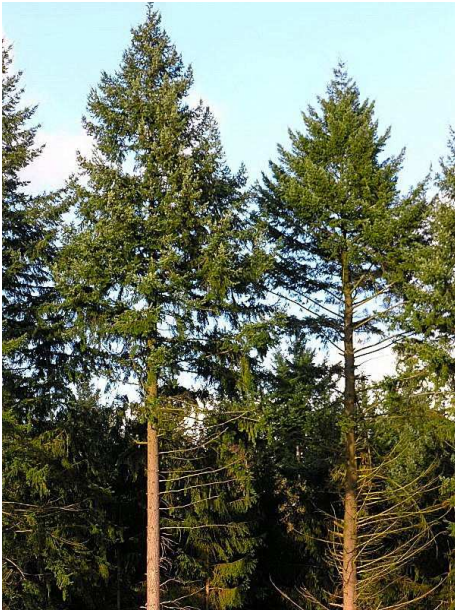
images at pages 3, 4

***Pseudotsuga menziesii* (Mirbel) Franco**

<b>taxonomy</b>	
author, year	Franco, 1950
synonym	<i>Pseudotsuga taxifolia</i> Britt., <i>Pseudotsuga douglasii</i> Carr.
Family	Pinaceae
Eng. Name	Douglas Fir, Oregon Pine
Dutch name	Douglasspar, Douglas
subspecies	-
varieties	<i>P. menziesii</i> var. <i>menziesii</i> – Coastal Douglas Fir <i>P. menziesii</i> var. <i>glauca</i> – Rocky Mountain Douglas Fir
hybrids	-
cultivars, frequently planted	-
<b>references</b>	Earle, C.J. Gymnosperm database <a href="http://www.conifers.org">www.conifers.org</a> USDA Forest Service <a href="http://www.fs.fed.us/database/feis/plants/tree/index.html">http://www.fs.fed.us/database/feis/plants/tree/index.html</a> Veen, B. 1951. Proefschrift. Herkomstenonderzoek van de Douglas in Nederland Nederlands Bosbouw tijdschrift. 1998, 60-5/6. artikelen serie Douglas Studiekringdag 1987. Kuiper, L.C. 1987. Douglas (in Dutch). in: Schmidt, P. 1987. Nederlandse boomsoorten I, Syllabus Vakgroep Bosbouw Landbouwuniversiteit Wageningen Plants for a Future Database; <a href="http://www.pfaf.org/index.html">www.pfaf.org/index.html</a>
<b>morphology</b>	
crown habit	pyramidal
max. height (m)	In the Netherlands: 48 in Europe: 70 in USA: 100
max. dbh (cm)	>400 (USA)
actual size USA	year ..., d(130) 423, h 73.8, Red Creek Fir, Port Renfrew, Vancouver Island year ..., d(130) 408, h 85.6, Tichipawa tree, Lake Quinault, Olympic National Forest, Washington year ..., d(130) 354, h 99.4, Brummit Fir, E. Fork Brummit Creek, Coos County, Oregon
actual size Europe	year 1882, d ..., h 62, Reelig Glen Wood, Moniack year 1842, d (...), h 62, Dunans Estate, Argyll year 1875, d (...) 198, h 61, Ardkinglas Woodland Garden, Loch Fyne, Cairndow, Argyll, Scotland
actual size Netherlands	year 1845, d(130) 103, h 30. Putten, Schovenhorst, Gelderland year 1860-1870, d(130) 126, h 46,7. Het Loo, Apeldoorn, Gelderland year 1860-1870, d(130) ..., h 48,0. Het Loo, Apeldoorn, Gelderland year 1880-1890, d(130) 92, h 43. Speulderbos, Gelderland
leaf length (cm)	2-3,5 single
leaf petiole (cm)	0
leaf colour upper surface	green
leaf colour under surface	grey stomata bands
leaves arrangement	alternate
flowering	April-May
flowering plant	monoecious
flower	monosexual
flower diameter (cm)	inconspicuous
pollination	wind
fruit; length	cone; 5-10 cm
fruit petiole (cm)	0,2
seed; length	samara (=winged nut); 0,4-0,5 cm

seed-wing length (cm)	1
weight 1000 seeds (g)	9,7-11,5
seeds ripen	August – September same year
seed dispersal	wind
<b>habitat</b>	
natural distribution	West North America
in N.W. Europe since	1827 England. 1844 Netherlands
natural areas The Netherlands	not indigenous
geological landscape types The Netherlands (Hoek 1997)	coversand area, ice-pushed ridges
forested areas The Netherlands	sandy soils; former heath fields
area Netherlands	18.678 ha (2002, Probos)
% of forest trees in the Netherlands	7,2 (2002, Probos)
soil type	sandy, loamy and clay soils
pH-KCl	4-7
soil fertility	medium to nutrient rich
light	half shade tolerant
● shade tolerance (0=no tolerance to 5=max. tolerance)	2.8
● drought tolerance (0=no tolerance to 5=max. tolerance)	2.6
● waterlogging tolerance (0=no tolerance to 5=max. tolerance)	1.8
plant communities in the Netherlands	Vaccinio-Piceetea (klasse der naaldbossen): -Leucobryo-Pinetum – Kussentjesmos-Dennenbos
<b>management</b>	
status USA	frequent species in forests
status Europe	infrequent exotic species in forests
status The Netherlands	frequent exotic species in forests
application	timber tree
propagation	seed
regeneration	planting; natural regeneration
optimal gap size for regeneration	1-2x tree length
first plantation Netherlands	Putten, Schovenhorst 1850
resprouting after cutting	no
growth rate (M.A.I. in m <sup>3</sup> ha <sup>-1</sup> j <sup>-1</sup> )	fast; 8-20
diseases	<i>Heterobasidion annosum</i> – fungus on roots (Wortelzwam) <i>Rhabdocline pseudotsugae</i> – fungus on leaves <i>Phomopsis pseudotsugae</i> – fungus in cambium (insnoeringsziekte) <i>Phaeolus schweinitzii</i> – fungus on root-collar and roots (Dennenvoetzwam)
insects	<i>Hylobius abietis</i> – beetle on leaves (Dennensnuitkever) <i>Gilletteella cooleyi</i> – aphid on leaves (wolluis)
<b>wood</b>	
wood	Oregon pine (Dutch: Douglas, Amerikaans grenen)
wood structures key characteristics of pores	Resin canals. Spiral thickenings
density heartwood (kg/m <sup>3</sup> )	(410-)470-540(-800) (12% moisture content)
elastic modulus (N/mm <sup>2</sup> )	11.600-13.500
durability heartwood	fungus 3-4
heartwood colour	reddish brown
sapwood colour	white
contents	resin (Dutch: hars)
products	construction timber, cladding, pulpwood, veneerwood
<b>non-timber products</b>	
young shoots	used as a flavour in cooked foods

● Ülo Niinemets and Fernando Valladares. 2006. Tolerance to shade, drought, and waterlogging of temperate Northern Hemisphere trees and shrubs. Ecological Monographs 76:521–547



Douglas fir stand in Wageningen



sapling in a large gap



Mature tree in Middachten Estate



Flower



cone



Fresh heartwood is red colored





Young bark with resin inclusions    Bark of an old tree

Oregon pine wood

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