

Tree factsheet

images at pages 3 and 4

***Picea abies* (Linnaeus) Karsten**

taxonomy	
author, year	Karsten 1881
synonym	<i>Picea excelsa</i> (Lam.) Link., <i>Pinus abies</i> Linnaeus
Family	Pinaceae
Eng. Name	Norway Spruce
Dutch name	Fijnspar
subspecies	
varieties	<i>P. abies</i> var <i>acuminata</i> (Beck) Dallimore & Jackson <i>P. abies</i> var <i>alpestris</i> (Bruegger) P. Schmidt (syn. <i>P. alpestris</i> Bruegger ex Stein)
hybrids	<i>P. x fennica</i> (Regel) Komarov (<i>P. abies</i> x <i>P. obovata</i>)
cultivars, frequently planted	'Columnaris'; park tree
references	Earle, C.J. Gymnosperm database. www.conifers.org OECD, 1999. Concensus document on the biology of <i>Picea abies</i> , (online document), Series on Harmonisation of Regulatory Oversight in Biotechnology, No. 12 Schmidt-Vogt, H. 1987. <i>Picea</i> . in: Schmidt, P. 1987, Nederlandse boomsoorten I, Syllabus Vakgroep Bosbouw Landbouwuniversiteit Wageningen Plants for a Future Database; www.pfaf.org/index.html
morphology	
crown habit	conic to pyramidal
max. height (m)	Europe: 40-50 The Netherlands: 35
max. dbh (cm)	100-150
actual size Europe	year ..., d(130) 320?, h 52, Central Forest Reserve, Valdai Highlands, W of Moscow, Russia year ..., d(130) 153, h 45, Bagni di Mezzo, Trentino Alto, San Pancrazi, BZ, Italy year ..., d(130) ..., h 52, Moniac Glen, Inverness, Scotland
actual size Netherlands	year 1880-1890, d(130) 81, h 32 year 1844, d(130) ..., h ..., Schovenhorst, Putten, Gelderland year 1900, h 41,9 Kroondomein, Apeldoorn, Gelderland
leaf length (cm)	1-3 single
leaf petiole (cm)	<0,1
leaf colour upper surface	green
leaf colour under surface	green
leaves arrangement	alternate
flowering	May-June
flowering plant	monoecious
flower	monosexual
flower diameter (cm)	inconspicuous
pollination	wind
fruit; length	cone; 10-15 cm or more
fruit petiole (cm)	0,2
seed; length	samara (=winged nut); 0,4-0,5 cm
seed-wing length (cm)	1
weight 1000 seeds (g)	6-9
seeds ripen	September-November same year
seed dispersal	wind

habitat	
natural distribution	N. and Mid Europe, N. Siberia
in N.W. Europe since	±1500
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	15.792 ha (2002, Probos)
% of forest trees in the Netherlands	6,7 (2002, Probos)
soil type	indifferent
pH-KCl	4-6
soil fertility	medium to nutrient rich
light	highly shade tolerant
① shade tolerance (0=no tolerance to 5=max. tolerance)	4.5
① drought tolerance (0=no tolerance to 5=max. tolerance)	1.8
① waterlogging tolerance (0=no tolerance to 5=max. tolerance)	1.2 (in some Dutch and Belgium forests growing on very wet sites)
plant communities in the Netherlands	Vaccinio-Piceetea (klasse der naaldbossen): -Leucobryo-Pinetum – Kussentjesmos-Dennenbos
management	
status Europe	frequent indigenous species in forests and urban environment
status The Netherlands	frequent exotic (naturalized) species in forests and urban environment
application	timber tree, ornamental
propagation	seed, cuttings
regeneration	planting; natural regeneration
optimal gap size for regeneration	1-2x tree length
first plantation Netherlands	
resprouting after cutting	no
growth rate (M.A.I. in $m^3ha^{-1}j^{-1}$)	fast; 6-16
diseases	<i>Heterobasidion annosum</i> , fungus on roots (Wortelzwam) <i>Rhizina undulata</i> , fungus on roots (Koffievuurtjeszwam)
insects	
wood	
wood	European spruce (vuren)
wood structures key characteristics of pores	Resin canals. Continous transition from earlywood to latewood
density heartwood (kg/m^3)	(300-) 460 (-620) (12% moisture content)
elastic modulus (N/mm^2)	11.600-13.500
durability heartwood	fungus 4
heartwood colour	white
sapwood colour	white
contents	resin (hars)
products	construction timber, cladding, pulpwood for paper, packing-wood, resonance boxes for musical instruments
non-timber products	
seeds	raw edible
resin	for turpentine (Jura turpentine) and pitch (Burgundy pitch), (Plants For a Future database)

① Ülo Niinemets and Fernando Valladares. 2006. Tolerance to shade, drought, and waterlogging of temperate Northern Hemisphere trees and shrubs. Ecological Monographs 76:521–547



sapling, Het Loo, Apeldoorn



young tree, Oostereng, Wageningen



mature trees, Het Loo, Apeldoorn



Spruce stand, Het Loo, Apeldoorn



branch



Spruce cones



rough bark of an old tree