

habitat	
natural distribution	mountains of South and Central Europe
in N.W. Europe since	?
natural areas The Netherlands	not indigenous
geological landscape types The Netherlands (Hoek 1997)	
forested areas The Netherlands	dry and moist sandy soils; former heath fields
area Netherlands	occasionally planted in groups
% of forest trees in the Netherlands	
soil type	sand and peaty soils
pH-KCl	3,5 – 4,5
soil fertility	nutrient poor
light	light demanding
① shade tolerance (0=no tolerance to 5=max. tolerance)	1.7
① drought tolerance (0=no tolerance to 5=max. tolerance)	4.2
① waterlogging tolerance (0=no tolerance to 5=max. tolerance)	1.0
plant communities in the Netherlands	-
management	
status Europe	frequent indigenous species in high mountain forests, around the timberline
status The Netherlands	infrequent exotic species in forest edges, in municipal parks and gardens
application	soil protection against erosion and avalanches; ornamental
propagation	seed
regeneration	planting; natural regeneration
optimal gap size for regeneration	3x tree length
first plantation Netherlands	?
resprouting after cutting	no
growth rate (M.A.I. in $m^3ha^{-1}j^{-1}$)	slow
diseases	<i>Rhizina undulata</i> (Koffievuurtjeszwam) – fungus on roots
insects	
wood	
wood	pine
wood structures key characteristics of pores	-
density heartwood (kg/m^3)	-
elastic modulus (N/mm^2)	-
durability heartwood	-
heartwood colour	-
sapwood colour	white to yellow
contents	resin (Dutch: hars)
products	unsignificant
non-timber products	

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



Pinus mugo at Loonsche en Drunense Duinen



at the timberline in the Swiss Alps



pollen flowers



flowering tree in Rhenen



young cones