



<b>habitat</b>	
natural distribution	Europe, Turkey, Northern Africa, Iran
in N.W. Europe since	7.000 BC
natural areas The Netherlands	forests
geological landscape types The Netherlands (Hoek 1997)	loess covered terraces, coversand area, holocene cover, dune area, till plateau, ice pushed ridges
forested areas The Netherlands	not a forest canopy tree
area Netherlands	
% of forest trees in the Netherlands	-
soil type	
pH-KCl	indifferent
soil fertility	nutrient rich to medium
light	shade tolerant to highly shade tolerant
① shade tolerance (0=no tolerance to 5=max. tolerance)	3.9 remark: (in Dutch forests it is as tolerant than <i>Fagus sylvatica</i> , which scores 4.6)
① drought tolerance (0=no tolerance to 5=max. tolerance)	3.0
① waterlogging tolerance (0=no tolerance to 5=max. tolerance)	1.4
plant communities in the Netherlands	Klasse der Eiken-beukenbossen op voedselarme grond: -Fago-Quercetum - Beuken-eikenbos -Luzulo luzuloides-Fagetum – Veldbies-beukenbos -Deschampsio-Fagetum – Bochtige smele-beukenbos
<b>management</b>	
status Europe	infrequent, locally frequent indigenous species in forests and urban environment
status	frequent indigenous species in forests and urban environment
application	nature tree, ornamental tree
propagation	cuttings, layering, seed, root-cuttings; named cultivars by grafting
regeneration	planting; natural regeneration from seed and uprootings
optimal gap size for regeneration	< 1x tree length
first plantation Netherlands	
resprouting after cutting	good
growth rate (M.A.I. in $m^3ha^{-1}j^{-1}$ )	slow, (data unknown)
diseases	none
insects	<i>Phytomyza ilicis</i> – holly leaf-miner – (Hulstvlieg, een bladmineerder)
<b>wood</b>	
wood	holly (Dutch: hulst)
wood structure key characteristics of pores	diffuse porous; few, scattered, long radial files of pores
vol. mass heartwood (kg/m <sup>3</sup> )	
elastic modulus (N/mm <sup>2</sup> )	
durability heartwood	
heartwood color	white
sapwood color	white
contents	
products	tools, turnery, cutlery
<b>non-timber products</b>	
leaves and berries	in flower arrangements (traditionally for Christmas)
fruits	poisonous for humans

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



Holly leaves with spines



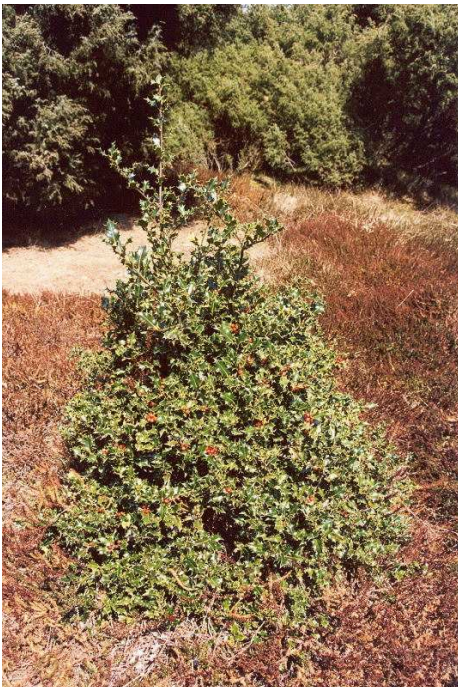
leaves in tree tops are often spine free



seedling



sapling 2 years old



young tree, browsed by deer  
photography 6x © Leo Goudzwaard



mature tree above the browse line, Wageningen





flowers



berries



bark of a young tree  
photography 4x © Leo Goudzwaard



stem of an old tree, New Forest, U.K.



Holly in a gap with grazed and ungrazed trees, New Forest, U.K.  
photo © Leo Goudzwaard