

Tree factsheet

images at pages 3, 4, 5

***Tilia cordata* Mill.**

taxonomy	
author, year	Miller
synonym	-
Family	Malvaceae
Eng. Name	Small-leaved linden, Small leaved lime, Little leaved linden (USA)
Dutch name	Winterlinde, Kleinbladige linde
subspecies	-
varieties	-
hybrids	<i>Tilia x vulgaris</i> Hayne (syn. <i>T. x europaea</i>) (= <i>T. cordata</i> x <i>T. platyphyllos</i>) <i>Tilia x flavescens</i> (= <i>T. cordata</i> x <i>T. americana</i>)
cultivars, frequently used (7e rassenlijst Bomen)	
'Böhlje'	parks, avenues
'Greenspire'	streets, avenues, parks
'Rancho'	streets, avenues
references	Weeda, 2003, Nederlandse Oecologische Flora, vol.2.
	Maes, N. 1989. De Linde in Nederland. Stichting Kritisch Bosbeheer.
	Maes, N. 2006. Inheemse bomen en struiken in Nederland en Vlaanderen.
	Hiemstra, J.A. 2002. Rassenlijst Bomen.
	Plants for a Future Database; www.pfaf.org/index.html
morphology	
crown habit	tree, pyramidal to round
max. height (m)	35
max. dbh (cm)	>200
actual size Europe	year ..., d(050) 262, h 16, Dallam Park, Cumbria, England year ..., d(050) 120, h 37, Bell Beck, Rusland, Cumbria, England
actual size Netherlands	1600-1700, d(130) 178, h 8 1750-1800, d(130) 197, h 30 1870-1880, d(130) 111, h 35
leaf length (cm)	4,5-9
leaf petiole (cm)	2-4
leaf color upper surface	green
leaf color under surface	blue-green
leaves arrangement	alternate
flowering	June-July
flowering plant	monoecious
flower	hermaphrodite
flower diameter (cm)	0,8-1
flower male catkins length (cm)	-
pollination	insects: bees and moths
fruit; length	nut containing 2-4 seeds; 0,6 cm
fruit petiole (cm)	1-3
seed; length	seed; approx 0,5 cm
seed-wing length (cm)	3-4
weight 1000 seeds (g)	30-40
seeds ripen	October
seed dispersal	wind, water (mice?)

habitat	
natural distribution	Europe, Caucasus
in N.W. Europe since	<i>Tilia</i> spp.: 6500 B.C.
natural areas The Netherlands	forests
geological landscape types The Netherlands (Hoek 1997)	loss-covered terraces, ice pushed ridges, coversand area
forested areas The Netherlands	loamy, clay and sandy soils.
area Netherlands	<1400 (2002, Probos)
% of forest trees in the Netherlands	0,6 (2002, Probos)
soil type	
pH-KCl	slightly acid to neutral to alkaline
soil fertility	nutrient medium to rich
light	highly shade tolerant
① shade tolerance (0=no tolerance to 5=max. tolerance)	4.2
① drought tolerance (0=no tolerance to 5=max. tolerance)	2.8
① waterlogging tolerance (0=no tolerance to 5=max. tolerance)	1.8
plant communities in the Netherlands	Querco-Fagetea: Klasse der Eiken-beukenbossen op voedselarme grond
management	
status Europe	infrequent indigenous species in forests
status The Netherlands	rare indigenous species in forests and urban environment
application	timber tree, street tree
propagation	seed; named cultivars by grafting
regeneration	planting; natural regeneration from seed
optimal gap size for regeneration	1-2x tree length ?
first plantation Netherlands	
resprouting after cutting	good
growth rate (M.A.I. in m ³ ha ⁻¹ j ⁻¹)	moderate:...
diseases	<i>Nectria cinnabarina</i> – fungus – a weak parasite - Meniezwammetje <i>Verticillium dahliae</i> – Verticillium wilt – fungus on leaves - verwelkingsziekte
insects	<i>Eucallipterus tiliae</i> , aphid on leaves – lindebladluis <i>Caliroa annulipes</i> , wasp on leaves - lindebladwesp <i>Eotetranychus tiliarum</i> , mite on leaves – lindespintmijt <i>Phalera bucephala</i> , Buff tip - caterpillar on leaves - Wapendrager
wood	
wood	European linden, lime (Europees linden) (basswood = American linden)
wood structures key characteristics of pores	diffuse porous to semi-ring porous; radially oriented pore groups; triseriate and tetraseriate rays.
vol. mass heartwood (kg/m ³)	(520-) 540 (-560) (12% moisture content)
elastic modulus (N/mm ²)	12.000
durability heartwood	fungus 5
heartwood color	white to yellowish brown
sapwood color	white to yellowish brown
contents	
products	kitchen-tools, toys, cutlery, turnery, musical instruments
non-timber products	
flowers	lime flower tea
leaves	young raw edible
inner bark	fibres

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



Tilia cordata leaves



winter twig and buds



lime wood photo © Chris Sonnemans



fruits
photo © Leo Goudzwaard



endocarp



seed

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Tilia cordata seedling, Renkum © Leo Goudzwaard



mature tree in Dreyen Botanical Garden, Wageningen
photo's 2x © Leo Goudzwaard



Ornamental tree, *Tilia cordata* 'Böhlje', Rhenen