



Ghent University Botanical Garden

Fagus L. (Fagaceae)

VEGETATIVE KEY TO SPECIES IN CULTIVATION

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Vegetative key.

This key is based on vegetative characteristics, and therefore also of use when flowers and fruits are absent.

Taxa treated in this key: see page 3.

Taxa referred to synonymy: see page 3.

Questionable/frequently misapplied names: see page 3.

To improve accuracy:

- Use a 10x hand lens to judge lamina margin indentation and pubescence in general.
- Look at the entire plant, and only examine leaves of short shoots or leaves at base of long shoots. Young specimens and strong shoots give an atypical view.
- Beware of hybridisation, especially with plants raised from seed other than wild origin.

Background information:

- JDL herbarium
- living specimens, in various arboreta, botanic gardens and collections
- literature:

Bean, W.J. - (1981) - *Fagus* in Trees and Shrubs hardy in the British Isles VOL.2, p. 173-184.
Clarke, D.L. - (1988) - *Fagus* in Trees and Shrubs hardy in the British Isles supplement, p. 237-241.
Grimshaw, J. & Bayton, R. - (2009) - *Fagus* in New Trees, p. 368-371.
Hillier, J. & Coombes, A. - (2002) - *Fagus* in The Hillier Manual of Trees & Shrubs, p. 119-120.
Huang, C., Zhang, Y. & Bartholomew, B. - (1999) - *Fagus* in Flora of China VOL.4, p. 314-315.
Nixon, K.C. - (1999) - *Fagus* in Flora of North America VOL. 3.
Krüssmann, G. - (1977) - *Fagus* in Handbuch der laubgehölze VOL.2, p. 68-72.
Kurata, S. - (1971) - *Fagus* in Illustrated Important Forest Trees Of Japan VOL.3, p. 86-89.
Rehder, A. - (1940) - *Fagus* in Manual of cultivated trees and shrubs hardy in North America, p. 147-150.
Roland, W.-A. - (2010) - Die welt der Buchen (Gattung *Fagus* L., Fagaceae) in MDDG Nr.95, p. 47-58.

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<http://www.plantentuin.ugent.be>

<http://www.arboretumwespelaar.be/EN>

- 01 a Upper half of lamina margin predominantly minutely dentate with (tiny) acute teeth (10x LENS!!). 02
- b Upper half of lamina entire, undulate or crenate, IF teeth are present these are obtuse (10x LENS!!). 07
- 02 a Midvein length predominantly >9 cm AND secondary veins 9-15/side. 03
- b Midvein length predominantly ≤9 cm AND secondary veins 8-12/side. 05
- 03 a Petiole variable 10-30 mm. Lamina L/W ratio 2/1-3/1 AND LS green to glaucous green (often pubescent with tiny short hairs - 10x LENS). *F. sinensis*
- b Petiole ≤12 mm. Lamina L/W ratio +/- 2/1(-3/1) AND LS green (often +/- silky pubescent with long hairs - 10x LENS). 04
- 04 a Lamina ovate, apex gradually acuminate +/- from the middle. *F. grandifolia*
- b Lamina often obovate, apex acute, sometimes abruptly acuminate. *F. orientalis*
- 05 a Lamina elliptic oblong, largest width in the middle (cupule appendages long and free).
..... *F. grandifolia* subsp. *mexicana*
- b Lamina ovate to rhomboid, largest width in or below the middle (cupule appendages short and appressed or long and free). 06
- 06 a Lamina margin predominantly with tiny acute teeth from apex towards base (pedicel thick and short, cupule appendages short and appressed). *F. lucida*
- b Lamina margin predominantly with tiny acute teeth absent towards base (pedicel thick and short, cupule appendages long and free). *F. crenata*
- 07 a Lamina ovate with largest width below the middle AND margin clearly regularly crenate from apex to base AND LS green (pedicel thick and short, cupule appendages long and free).
..... *F. crenata*
- b Lamina elliptic at least in part of the leaves, OR margin entire to irregularly undulate, OR LS glaucous green. 08
- 08 a Secondary veins predominantly ≤9/side, only a few leaves with 10 secondary veins/side (pedicel stout +/- pubescent, cupule appendages narrowly linear - basal appendages partly spatulate in hybrids). *F. sylvatica*
- Similar leaf characters but cupule basal appendages spatulate, pedicel +/- stout and densely silky pubescent, hybrid with *F. orientalis*. *F. xtaurica*
- b Secondary veins often >9/side (pedicel slender and +/- glabrous, OR silky pubescent; cupule basal appendages scaly or long to spatulate). 09
- 09 a Petiole thick and densely +/- silky pubescent (pedicel slender and silky pubescent; cupule 20-40 mm, basal appendages spatulate). *F. orientalis*
- b Petiole slender and almost glabrous to thinly pubescent (pedicel slender and +/- glabrous, cupule <15 mm appendages scaly or long to spatulate). 10
- 10 a Mature lamina US +/- blue-green to dark green, margin undulate to partly crenate (cupule +/- longer than nut (covering nuts when closed); appendages free, long to spatulate).
..... *F. engleriana*
- b Mature lamina US pale green, margin (slightly) undulate (cupule clearly shorter than nut; appendages scaly and appressed). *F. japonica*

Taxa treated in this identification key.

F. crenata
F. engleriana
F. grandifolia
F. grandifolia subsp. *mexicana*
F. japonica

F. lucida
F. orientalis
F. sinensis
F. sylvatica
F. ×taurica (= *F. orientalis* × *F. sylvatica*)

Taxa referred to synonymy in this identification key.

F. crenata var. *multinervis* Hort. = *F. engleriana*
F. grandifolia var. *caroliniana* = *F. grandifolia*
F. japonica var. *multinervis* Hort. = *F. engleriana*

F. longipetiolata = *F. sinensis*
F. ×moesiaca = *F. ×taurica*
F. multinervis Hort. = *F. engleriana*

Questionable/frequently misapplied names.

Most plants in collections named *Fagus crenata* var. *multinervis*, *F. japonica* var. *multinervis*, or *F. multinervis*, are *F. engleriana*, and do not correspond to *F. crenata* (pedicel long and slender, not short as the latter) nor to *F. japonica* (cupule covering nuts when closed with long appendages, not shorter than nuts with scaly appendages as the latter).

