



## *Carpinus betulus* 'Fastigiata' 'Fastigiata' European Hornbeam<sup>1</sup>

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### INTRODUCTION

'Fastigiata' European Hornbeam, the most common cultivar sold, grows 30 to 40 feet tall and 20 to 30 feet wide, without a central leader but instead fans out into a very densely-foliated, columnar or oval-shaped tree making it ideal for use as a hedge, screen, or windbreak (Fig. 1). The 1.5 to 3.5-inch-long leaves are dark green through the summer, fading to yellow in the fall. The smooth, grey, rippling bark shields the extremely hard, strong wood. This wood is so solid it was reportedly used by the ancient Romans to make chariots, as well as being used by the American pioneers to make yokes for their oxen.

### GENERAL INFORMATION

**Scientific name:** *Carpinus betulus* 'Fastigiata'

**Pronunciation:** kar-PYE-nus BET-yoo-lus

**Common name(s):** 'Fastigiata' European Hornbeam

**Family:** *Betulaceae*

**USDA hardiness zones:** 5 through 8 (Fig. 2)

**Origin:** not native to North America

**Uses:** Bonsai; container or above-ground planter; espalier; hedge; large parking lot islands (> 200 square feet in size); wide tree lawns (>6 feet wide); medium-sized parking lot islands (100-200 square feet in size); medium-sized tree lawns (4-6 feet wide); recommended for buffer strips around parking lots or for median strip plantings in the highway; screen; small parking lot islands (< 100 square feet in size); narrow tree lawns (3-4 feet wide); specimen; sidewalk cutout (tree pit); residential street tree; tree has been successfully grown in urban areas where air pollution, poor drainage, compacted soil, and/or drought are

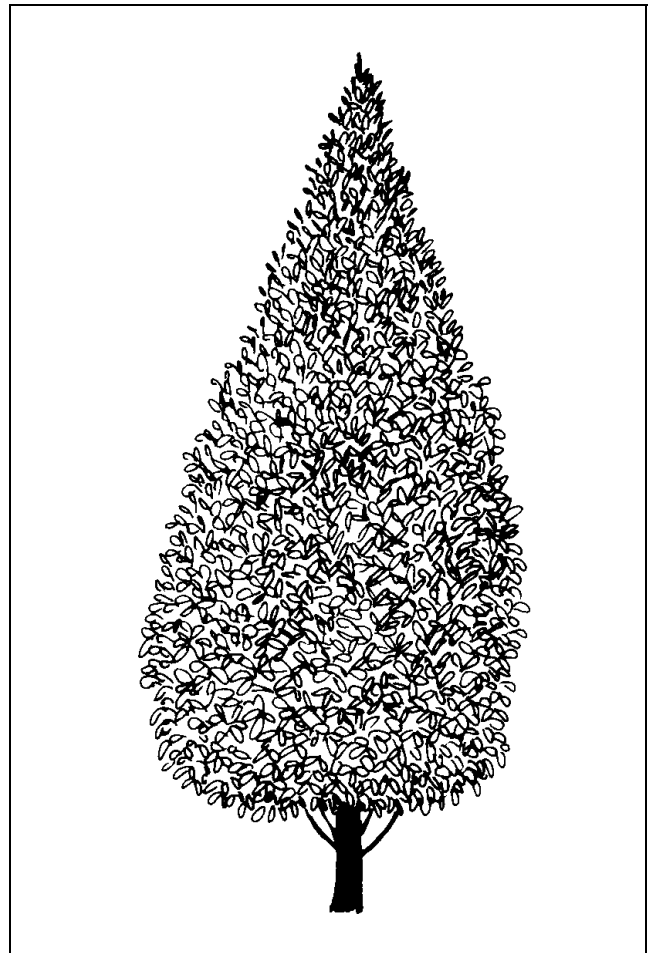


Figure 1. Middle-aged 'Fastigiata' European Hornbeam.

common

**Availability:** generally available in many areas within its hardiness range

1. This document is adapted from Fact Sheet ST-119, a series of the Environmental Horticulture Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: November 1993.
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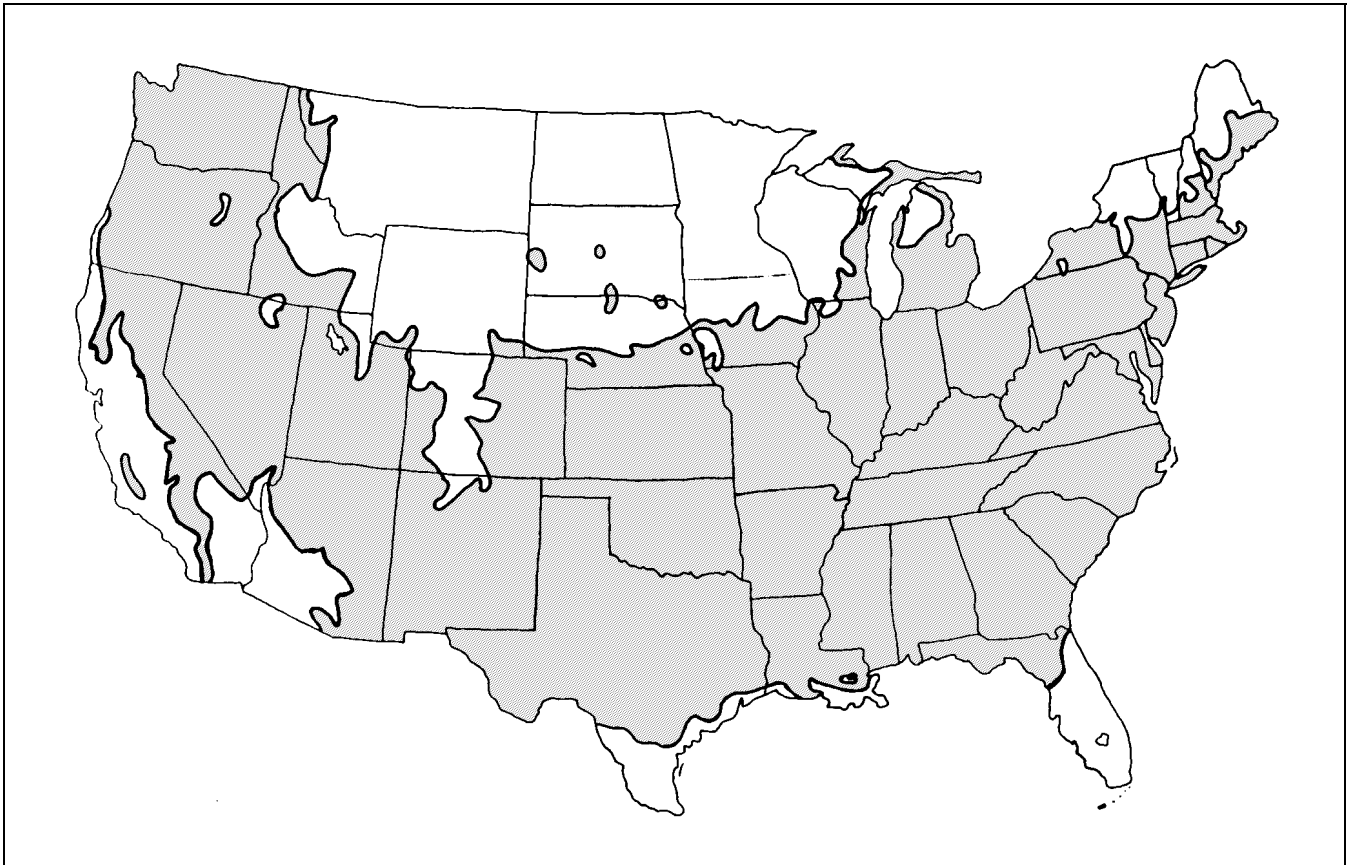


Figure 2. Shaded area represents potential planting range.

## DESCRIPTION

**Height:** 30 to 40 feet  
**Spread:** 15 to 20 feet  
**Crown uniformity:** symmetrical canopy with a regular (or smooth) outline, and individuals have more or less identical crown forms  
**Crown shape:** columnar; pyramidal; upright  
**Crown density:** dense  
**Growth rate:** slow  
**Texture:** fine

## Foliage

**Leaf arrangement:** alternate (Fig. 3)  
**Leaf type:** simple  
**Leaf margin:** double serrate  
**Leaf shape:** oblong; ovate  
**Leaf venation:** pinnate  
**Leaf type and persistence:** deciduous  
**Leaf blade length:** 2 to 4 inches  
**Leaf color:** green  
**Fall color:** yellow  
**Fall characteristic:** showy

## Flower

**Flower color:** white  
**Flower characteristics:** inconspicuous and not showy; spring flowering

## Fruit

**Fruit shape:** oval  
**Fruit length:** < .5 inch  
**Fruit covering:** dry or hard  
**Fruit color:** brown  
**Fruit characteristics:** attracts birds; inconspicuous and not showy; no significant litter problem; persistent on the tree

## Trunk and Branches

**Trunk/bark/branches:** grow mostly upright and will not droop; not particularly showy; should be grown with a single leader; no thorns  
**Pruning requirement:** needs little pruning to develop a strong structure  
**Breakage:** resistant  
**Current year twig color:** brown  
**Current year twig thickness:** thin

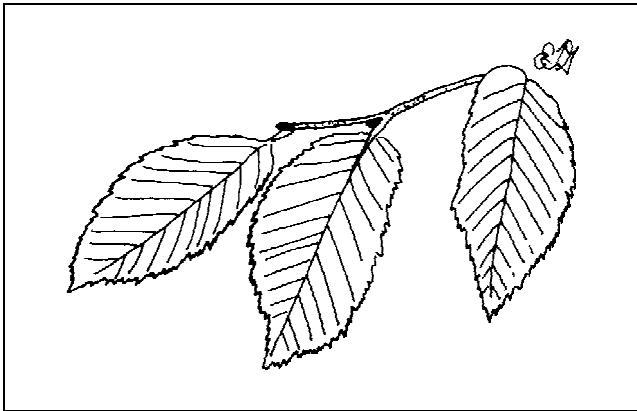


Figure 3. Foliage of 'Fastigiata' European Hornbeam.

### Culture

**Light requirement:** tree grows in part shade/part sun;  
tree grows in full sun

**Soil tolerances:** clay; loam; sand; acidic;  
occasionally wet; alkaline; well-drained

**Drought tolerance:** high

**Aerosol salt tolerance:** none

**Soil salt tolerance:** poor

### Other

**Roots:** surface roots are usually not a problem

**Winter interest:** tree has winter interest due to  
unusual form, nice persistent fruits, showy winter  
trunk, or winter flowers

**Outstanding tree:** tree has outstanding ornamental  
features and could be planted more

**Invasive potential:** little, if any, potential at this time

**Verticillium wilt susceptibility:** not known to be  
susceptible

**Pest resistance:** long-term health usually not  
affected by pests

## USE AND MANAGEMENT

The tree is sold as tree-form for street tree use or low-branching for use as specimens and screens. Young trees will be quite narrow but they will broaden some with age making them well-adapted for planting in areas with limited horizontal space for crown development. It has been rated very highly in the Shade Tree Evaluation tests for street trees in Ohio. The upright branching habit makes pruning almost unnecessary during the service life of the tree but, of course, the tree will not form a canopy over the street as do broad-spreading trees. European Hornbeam tolerates clipping extremely well and has been used as a screening plant for centuries.

'Fastigiata' European Hornbeam will grow in full sun or light shade on almost any well-drained soil, from dry and rocky to wet. It adapts to both acid and alkaline soil and is tolerant of drought, poor drainage, pollution and urban conditions. There are specimens in the south which look great, having received no irrigation in recent droughts. These plants were observed growing in clay soil where soil space was not limiting, and roots were able to expand unhindered by urban structures like curbs, pavement and sidewalks. Due to the dense arrangement of leaves on the fine-textured, upright stems, pruning is seldom required once the proper branch-height clearance is established early in the life of the tree. Usually pest-free, it is considered a low maintenance tree.

Propagation is by grafting.

### Pests and Diseases

Occasionally bothered by two-lined chestnut borer or trunk canker. Japanese beetle can eat significant quantities of foliage in parts of the upper south. May dieback in severe drought in areas with limited soil space such as narrow tree lawns or parking lot islands. But it performs well without irrigation in areas with open soil where roots can grow unrestricted.