

## Fraxinus excelsior

schneitelesche, olivesche, olive ash, Hurley ash, black ash

### LOCAL NAMES

English (common ash, english ash, European ash, golden ash, venus of the forest); French (Frêne commun, frand frêne); German (esche, gewöhnliche Esche, gewöhnliche Esche, gemeine Esche, frassino comune, frassino maggiore); Portuguese (freixo-centro-europeu, freixo comum); Spanish (fresno comun); Trade name (black ash, Hurley ash, olive ash, olivesche, schneitelesche)

### BOTANIC DESCRIPTION

*Fraxinus excelsior* is a deciduous tree up to 40 m in height. Twigs greenish-grey, bark firm and ridged. Grows in moist areas with deep soil, generally in hollows and gulleys at the medium and subalpine mountain levels.

Leaves large, measuring between 20-35 cm long, divided into 9-13 folioles. These have a lanceolate form, serrated margins and with lamina base touching the principal vein, leaves glabrous except for tufts of hair at the base of the underside of the midrib of each leaflet. Winter buds felted.

Flowers small, polygamous in bunches, lacking petals, flower stigmas long appearing before leaves.

Fruit are slightly twisted ellipsoid samaras 3-5 cm long, with wide wing aiding wind dispersal.

The specific epithet *excelsior* is the Latin word for "higher", the generic name is derived from the Greek *phraxis* (closed), a fence for ash wood is often used in fence making.

### BIOLOGY

*F. excelsior* is hermaphroditic, and deciduous tree (leaf shedding in fall), its polygamous flowers usually appear before the leaves in October and by May the anthesis is over and the ovaries have started to grow, at this point leaves begin to resprout. The leaves reach maturity in June. Some ash trees bear only male flowers, the ash bears fruit in inverse proportion to the luxuriance of its foliage. The common ash is wind pollinated.

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Oleaceae



Compound leaves. (Arnoldo Mondadori Editore SpA)



Detail of buds. (Anderberg A. (Den virtuella floran))



Detail of flowers. (Anderberg A. (Den virtuella floran))

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### ECOLOGY

The common ash is native throughout Europe and into western Asia, where it grows in moist areas with deep soil, generally in hollows and gulleys at the medium and subalpine mountain levels. The European ash is commonly found in meadows and hedgerows where plenty of water is available. Also found growing in scree woods in hilly country but rarely forming monocultural forests. The ash is sensitive to late spring frosts which often damages its terminal shoots, causing the development of twin stems. The European ash is smog resistant.

### BIOPHYSICAL LIMITS

Altitude: 1 500 m

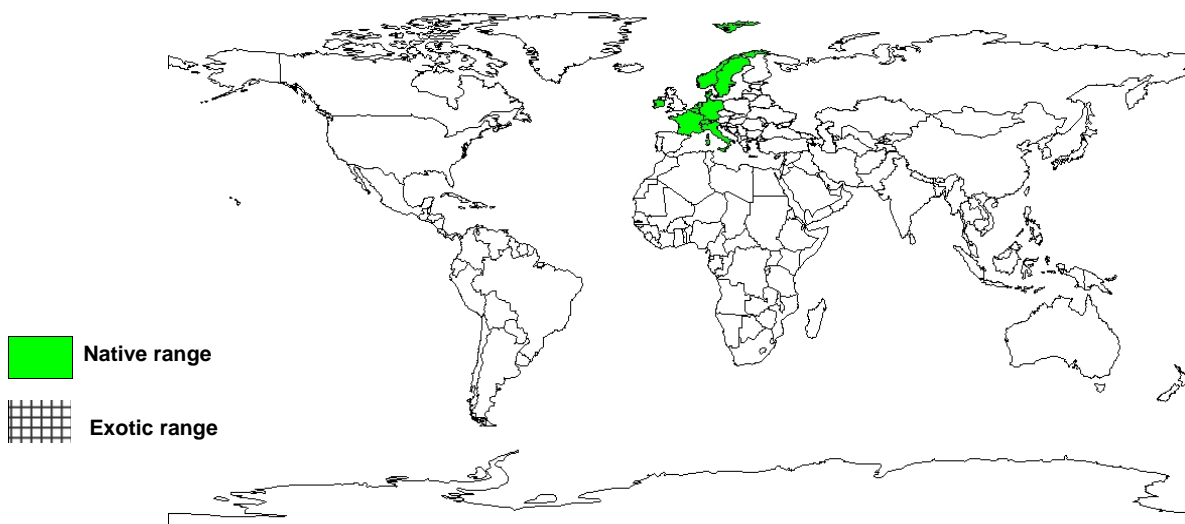
Mean annual rainfall: 600 mm

Soil type: It prefers deep moist soils, but can grow on heavier soils than other *Fraxinus* spp.

### DOCUMENTED SPECIES DISTRIBUTION

Native: Belgium, Denmark, France, Germany, Ireland, Italy, Netherlands, Norway, Russian Federation, Sweden, Switzerland, United Kingdom

Exotic:



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

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### PRODUCTS

Food: The fruits were used for food, pickled and eaten with salads.

Fuel: High quality firewood is obtained from the ash.

Timber: Ash wood was preferred for axe handles, spears, axles, planks for boat construction and all necessary materials for which the Norwegians were famous in the middle age wars. Skis were made of ash as well as oars, baseball bats, church pews and bowling alleys. The bark also served as a good writing surface.

Poison: Leaves and fruits are reportedly poisonous to cattle.

Medicine: The seeds have long been considered an aphrodisiac. A bark decoction served to control kidney function and as a febrifuge and diuretic. The leaves were used for their cathartic properties. Other medicinal uses of the ash are for vomit induction, peritonitis, as a substitute for cinchona bark, constipation, arthritis, adder bite, intestinal worms, insect bites, malaria, nervous disease, diabetes, syphilis, healing wounds, tuberculosis and dropsy.

### SERVICES

Erosion control: The ash protects soil from denuding forces.

Shade or shelter: *F. excelsior* is a popular summer shade tree and an important windbreak.

Soil improver: Leaf litter from *F. excelsior* replenishes soil nutrients.

Ornamental: A popular ornamental tree with an attractive upright crown, it is commonly grown in parks, gardens and along avenues. *F. excelsior* exists in several ornamental varieties, notably *F. excelsior* var. *pendula* which has a broad crown of pendulous branches.

Boundary or barrier or support: The European ash is commonly used for fence construction.

Other services: A lot of cultural value is placed on the tree, it is central to the Norwegian mythology, called Yggdrasil, where it is held that the human race emerged from a hollow ash tree. This is one reason for its importance to the Norwegians. In English lore, the ash was used to predict the weather. It was also thought to be proof against snakes or serpents; women working in the fields would often hang their children's cradles on the tree to protect them from snakes.

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### TREE MANAGEMENT

In naturally regenerated stands, the first tending operation should take place when the crop reaches a top height of 5 m, to eliminate coarse-branched, deformed and cankered trees (4000 stems/ha). A second intervention follows at a top height of 7-8 m (2000 stems/ha).

Forking of the stem occurs frequently in young ash (approximately 60% of all trees in a plantation.). These, and competitive branches, should be cut when the crop reaches a height of 6-7 m to favour the development of a straight bole.

Thinning begins at 10 m and is repeated for every 2 or 3 m increase in top height, according to site quality. A strong reduction in stem numbers at the first thinning facilitates crown development at this stage. Thinning intensity is 35% for very good sites and 30% for medium sites. Final crop trees are selected at top heights of 14-15 m.

F. excelsior is a fast growing tree seldom affected by pests or diseases and should be given full light as it does not tolerate shade. The tree needs adequate soil moisture and is susceptible to frost.

### GERMPLASM MANAGEMENT

F. excelsior seeds are harvested when they turn brown in October/November. Seeds can be also collected as soon as they fill and can be sown immediately. A high proportion will germinate in the following. Storage is classified as orthodox and seeds can be stored for up to 10 years.

### PESTS AND DISEASES

The most frequent stem defect of common ash is canker caused by *Pseudomonas syringae* subsp. *savastanoi* or *Nectria galligena*. Bacterial canker is characterized by a brown, corky swelling with wart-like excrescences on the stem. This disease can easily be confused with other diseases.

Forks are relatively frequent on ash. They can be genetically determined or produced by wind, late spring frosts, birds or the ash bud moth. Ash trees are also liable to attack by forest longhorn or jewel beetles.

Seedlings and young trees compete with climbing plants such as *Hedera helix*, *Convolvulus*, *Lonicera* or *Clematis vitalba*, which have to be eliminated mechanically when attack is severe. Rabbits can damage the bark, while hares snip off the stems. Deer tend to browse on young plants.

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### **FURTHER READNG**

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Reeves RJC. 1966. Cattle Poisoning from Ash Leaves and Fruits. Vet. Rec. 79, 580

### **SUGGESTED CITATION**

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