

Oak

(*Quercus robur* L. & *Quercus petraea* (Mattuschka) Lieblein)

Distribution & Provenance

There are two species of oak native to Ireland. These are pedunculate oak (*Quercus robur* L.) and sessile oak (*Quercus petraea* L.). The two species have the ability to hybridise and many intermediate forms occur. Because the two species grow at similar rates, achieve broadly comparable stature, produce nearly identical timber and receive very similar management regimes they are often not differentiated. The natural distributions of both species are similar, encompassing the whole of central Europe, south to the northern Mediterranean coast, and north to southern Sweden. The range of pedunculate oak extends further to the north east than sessile oak. Provenances currently recommended for planting in Ireland are preferably Irish registered but Dutch, northern German, Belgian and northern French sources are also acceptable.



Natural distribution of sessile oak

Silviculture & Management in Ireland

While oak can tolerate a wide range of soil conditions, both species are best suited to well aerated but wet, deep and fertile soils. They dislike exposure although both are relatively wind firm. Very light, quick drying soils are said to lead to shake – a condition whereby star shaped and circular cracks occur in the timber up the stem. Pedunculate oak is slightly better suited to heavier clayey soils and will tolerate a higher soil pH than sessile oak. Oak is light demanding throughout its life and will not grow in shady situations. Current practice in Ireland is to establish oak either as a pure crop at a stocking level of 6,600 stems per hectare or with a coniferous nurse (Scots pine or European larch) at a stocking level of 4,530 stems per hectare.

Oak does not compete well with grass and other vegetation and weed control is essential for as long as competition persists. This can be followed by a period of formative shaping when a single leader is encouraged although, despite early appearances, the species often establishes apical dominance. When the crop has reached a top height of 6 or 7 metres, stocking is reduced to about 3,600 of the best stems per hectare. At a top height of about ten metres this operation is repeated, leaving about 2,000 of the best stems per hectare. At a top height of between 13 and 15 metres a crown thinning is carried out reducing the stocking to between 1,000 and 1,300 stems per hectare, 100 of which are selected to grow on as final crop trees. These 100 are favoured in all further crown thinnings until they reach a diameter at breast height of between 65 and 70 centimetres, at which time they can be considered for final felling.

The timing and intensity of oak thinnings has a large influence on the development of epicormic branching whereby side shoots develop from buds on the oak stem. These branches have an adverse effect on timber quality. If oak is thinned too heavily then the resulting increase in light will trigger growth of epicormic branches. However, too light a thinning will lead to smaller crowns which may result in epicormic branching further down the stem. An under-storey of a shade tolerant species such as beech or hornbeam is often established in order to prevent the development of epicormic branching.



Mature, free standing sessile oak



Sessile oak sprig with acorns

Oak is susceptible to grey squirrel damage and, as a young tree, to browsing from deer, rabbits, hares and domestic stock. Oak mildew is commonly found on oak in Ireland in damp and mild conditions. It has the effect of reducing growth but, except in nurseries, is not considered a serious disease and is not treated in any way.

Non Timber Benefits

Both pedunculate and sessile oak are native to Ireland and as such have a high heritage value. Oak is a climax species and is associated with mature and stable ecosystems. Oak woodland is therefore a host to a wide range of other fauna and flora species, resulting in very high levels of biodiversity. Oak is an important species in the Irish landscape, both in a woodland context and as a spreading hedgerow or parkland tree.

Position in Irish Forestry

Derry, the anglicised version of "doire" signifying an oak wood, is frequently found in Irish placenames. Oak is the natural climax species for much of Ireland and once dominated the forests of a large part of the country. The native oak population has been severely depleted both in terms of size and genetic composition. This depletion has especially occurred since Tudor times through increased access to forests to counter rebellion, increased oak timber demand for staves, casks, building and ship building and a rapid rise in its use in charcoal production for the iron smelting industry. Oak is now one of the most popular broadleaves planted in Ireland and over 1.75 million oak transplants are produced and sold by Irish nurseries each year. Coillte, the Irish Forestry Board, manage an area of over 3,500 hectares of oak. In addition to this, much oak woodland is owned by Dúchas, the Heritage Service, and by private landowners. The recent National Forest Inventory indicates that there are approximately 5,800 hectares of oak woods of various ages in the country. This does not include very young plantations.

Uses & Markets

Oak timber is distinguished when cross cut by the broad rays which radiate from the centre of the stem. These can show up as "silver grain" when timber is quarter sawn. When freshly cut, oak timber has a light tan colour. Irish oak was once famed internationally as a structural timber and can be found in the roofs and floors of many historic buildings in Europe, particularly in the United Kingdom. In the past, large industries such as ship building and cooperage depended on quality oak timber. Irish oak is still used as a structural timber although the supply of quality logs of satisfactory length is extremely limited. Currently in Ireland, oak is primarily used in furniture making, fittings for commercial premises, joinery and restoration work in old buildings. High grade, cylindrical, straight and blemish free logs can be peeled for veneer and such logs command the highest prices on the market. Otherwise, branches and poor quality logs are popular as fencing material or firewood.

Further Information

Further information on growing oak can be obtained from your local Forest Service Inspector or any Professional Forester.



Mature oak wood with bluebells in springtime

The tallest oak recorded in Ireland is a sessile oak located at Coolalin Golf Club, Co. Wicklow and measures 37 metres in height. The oak with the widest girth is a pedunculate oak in Stradbally, Co. Laois, measuring 9.9 metres in circumference.



Quality oak is prized by furniture makers