

# Oaks in Belgium

## Text of a Slide Presentation Made at the Arboretum Trompenburg July 3, 1999

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Belgium

Belgium is a small country, and these notes would probably apply to most of the Netherlands and northern France. The temperature can vary at any given time by 6°C between the western coast and the higher eastern region which reaches elevations of up to 600 m. Temperatures will rarely fall below -20°C, and only for a couple of days. But this will happen at least once in a decade. Otherwise, the prevailing westerly winds result in a typical maritime climate. Frosts may start in late October and occur periodically until mid May. These are often damaging to oaks from the more continental climates of the world.

There are only two indigenous Belgian oaks: *Quercus robur* and *Q. petraea*. The oak forests of Belgium are concentrated along a narrow band in mid Belgium at a lower altitude than the beech and conifer forests. There are 80,000 ha of mixed deciduous forests spread over that region, with various combinations of *Quercus* spp., *Fraxinus* spp., *Acer pseudoplatanus*, etc. Oaks command the highest price for commercial timber.

Between 1985 and 1991, members of the Belgian Dendrology Society conducted a survey of remarkable trees in approximately 800 parks, gardens, and arboreta in Belgium. A total of 13,500 trees were measured and identified. The results of the work were

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published in 1992 under the name *Bomen in België / Arbres de Belgique*. The resulting inventory includes 1,067 oaks, belonging to approximately 100 taxa. But more significantly, only 18 taxa were identified more than ten times, 43 taxa were found in only two to ten locations, and 41 taxa were found only once in a single location, and most probably in one of the specialist collections (although these were not intensely researched).

Common beech (*Fagus sylvatica*) was the most frequently encountered remarkable tree in the 800 parks, and *Quercus robur* was a distant second. More precisely, *Q. robur* was found in 322 locations. It was followed by *Q. rubra* in 155 locations, *Q. robur* f. *fastigiata* in 81 locations, *Q. cerris* in 57 locations, *Q. palustris* in 44 locations, *Q. petraea* in 41 locations, *Q. xturneri* in 21 locations, and *Q. frainetto* in 20 locations.

Wild and cultivated plants originating from Europe and introductions from America have dominated the 19<sup>th</sup> century plantations. Smaller oaks, which may have been introduced from Asia in the 20<sup>th</sup> century, remain very rare and limited to specialist collections. Several dendrological collections were established starting at the end of the 19<sup>th</sup> Century. The most complete are without doubt the Geographical Arboretum at Tervuren and

the Systematic Arboretum at Groenendaal. The more recent introductions are found in the collection at Hemelrijk (established by Robert and Jelena de Belder), which has 200 specimens of 83 taxa. There are also good oak collections at Bokrijk, Herkenrode and Mariemont. The most complete, albeit on very limited space, is without doubt the collection established by Michel Decalut at Arboretum Waasland. He has also developed a nursery, and his worldwide connections allow him to offer for sale a selection of approximately 250 taxa.

The following are results of a survey of a number of successful oaks found in Belgium, representing taxa which eventually may be useful for future plantings in parks and gardens. Most of the measurements of girth (made at 1.5 m height) date back to the 1985-1991 inventory period. Some of the trees may have died or been cut without our knowledge since then. A few measurements may have been updated since the original survey. Obviously, more recent introductions have not been evaluated, and it may be possible that hardier origins more adapted to our climate might justify the inclusion of further taxa into such a list of those considered useful.

*Q. acutissima* was reported only twice,

and the champion tree (184 cm) was found in the old botanical garden in Brussels. Unfortunately, it has lost many lower branches recently for lack of light. It is a most decorative and hardy species, at least in mid and low Belgium. This taxon should be planted more frequently.

*Q. alba* is a difficult plant to grow here, but where successful it can reach good heights. Six significant trees were identified; the best one (232 cm in girth) is in the Stadspark at Tienen. It has grown to good size in a cramped position between other major trees. Autumn color is outstanding and these plants really deserve to be isolated on a lawn or open space to show off their purple coloring early in

October, well before our native oaks.

Only two plants of *Q. aliena* were found. They are unhappy, suffering frequently from the effect of spring frost.

*Q. bicolor* is a much better plant here. Approximately 12 plants have been found. All are growing in lower (west-erly) Belgium.

*Q. castaneifolia* has been reported six times. This tree is also frequently damaged by spring frost, but it will end up, if isolated, as a beautifully formed specimen. The champion tree at Groenendaal has reached 246 cm in girth.

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Guy Sternberg standing with the Gros Chene de Liernu, a 1,000 year old *Quercus robur* in Liernu, Belgium.

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*Q. cerris* is quite frequent in collections. The girth of the largest specimen is well above 400 cm. This tree is found in most areas of Belgium with the exception of the very high altitudes. In the Ardennes, it will frequently be damaged by frost and the stem will bear the marks of such wounds. There are a number of cultivars in old landscape gardens. These plants often have reverted to the type on most of the crown, but the variations are still visible at the end of some lateral shoots. Recently, a large tree (293 cm) of *Q. cerris* 'Aureomarginata' was identified, but the tree had reverted to the type on more than 95 percent of its crown. This cultivar was apparently not in cultivation anymore. Specimens of *Q. cerris* 'Laciniata', 'Marmorata', 'Pendula', and 'Argenteovariegata' have been found in some of the parks.

Although *Q. coccinea* has been mentioned several times, one is never very sure of its identification. It is my feeling that *Q. coccinea* is not that hardy here, and that many plants are stock of *Q. palustris* or possibly *Q. palustris* hybrids. *Q. coccinea* 'Splendens' definitely is not hardy; many young plants have been tried, and died at an early age.

Plants of *Q. faginea* have been found, with two significant specimens (320 cm and 154 cm) in northern Belgium. This

rare plant from the Iberian Peninsula could be planted more frequently in specialist collections. It is a hardy and elegant tree, as demonstrated by the two specimens that were discovered.

*Q. falcata* is not hardy here, and only one young plant has been identified in specialist collections.

*Q. frainetto* is probably one of the better exotic trees to plant in our parks and gardens; 20 remarkable trees were identified, with five having girths of more than 400 cm.

*Q. xheterophylla* has been found in seven old parks; it is a rare plant here, and all specimens have reached significant size. There are no young plants; it seems that it is not propagated much at the present time. The champion tree stands at 412 cm. Most plants are in the northern province of Antwerp; it is a good grower, as you would expect given its two parents (*Q. phellos* and *Q. rubra*).

*Q. xhispanica* (*Q. suber* x *Q. cerris*) is a very rare tree; only two trees of significant size were found. However, there are today many young plants in specialist collections.

*Q. ilex* is a rarity and not completely hardy in Belgium. One plant of reasonable size has survived in a park in Brussels, and without doubt it enjoys the benefit of the warm microclimate of the

city environment.

*Q. imbricaria* is very much at home in our Belgian parks and gardens. It grows to a significant size, and is similar to *Q. palustris* in its shape and aspect. The Belgian champion is 332 cm in girth and grows at the arboretum of the Agronomic Institute at Gembloux.

*Q. xleana* is more common than its parent *Q. imbricaria*; significant plants have been found, and one may guess that most of these were grown as *Q. imbricaria* seedlings, pollinated by *Q. velutina*. Several trees are above 400 cm in girth, with a champion at 457 cm.

*Q. macranthera* was found in only one location. Young plants can be found in specialist collections. It is not hardy here and frequently is damaged by spring frost.

*Q. macrocarpa* is a better plant here, growing to significant size like *Q. palustris*. Several trees have reached 200 cm in girth; they may be hybrids of other oaks of the *Quercus* section.

*Q. palustris* has been found in close to 50 locations, with at least 40 significant trees reaching sizes above 400 cm in girth. If they are well isolated from an early age, they will withstand any storms; but in forest plantations, when openings occur, they will fall over in the face of strong winds after reaching a certain height. They contribute significantly to the autumn coloring of our parks and woodland.

*Q. petraea* is our second indigenous oak tree. Remarkable specimens were found in approximately 41 gardens. This

is a surprisingly low number considering the fact that this is an indigenous plant. It nevertheless has reached significant size, with a champion at 692 cm (in the center of the country, at Dave). As would be expected for long-cultivated species, there are several cultivars, with 'Mespilifolia' the most frequent, represented by several trees well above 300 cm in girth.

*Q. phellos* and its hybrids (particularly *Q. xschochiana*) have been found in several parks and gardens in lowland Belgium. It is not completely hardy here and suffers in our maritime climate from autumn and spring frosts. It will sometimes hold on to its leaves well into January. This is especially the case on young trees. The autumn color is a little disappointing.

*Q. pubescens* might be indigenous in the southern warm hills in the region of Chimay, but I know of no spontaneous wild trees. A couple of big trees have been found in a number of parks, with a champion at 435 cm in the center of the country. This elegant oak should be used more frequently in our parks.

*Q. pyrenaica* is a rare plant. Six good specimens were found, mostly in the north of the country. A champion tree at 310 cm grows in the city of Liège, and is probably the most northerly plant of this species in Europe. The cultivar 'Pendula' is found at least as frequently as the type.

*Q. robur* was found in close to half of

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the parks and gardens. The largest Belgian tree, at Liernu (985 cm), is a very damaged tree. It has lost most of its crown and is completely hollow. It is a well-known tree, the object of many stories and cults, and well looked after by a number of folklore societies. For this indigenous oak, many cultivars have been found, including 'Albomarmorata' (4 plants), 'Atropurpurea' (3 locations), 'Cucullata' (9 locations), and 'Tortuosa' (4 locations). The most frequent of the selections is *Q. robur* f. *fastigiata*. There are clearly several forms of this oak and it is the third most frequently encountered taxon in the Belgian parks and gardens (81 locations).

*Q. xrosacea*, the hybrid between our two indigenous oaks, is quite frequent, with 16 big trees found all over the country; the champion tree has reached 500 cm in girth.

*Q. rubra* is the second most frequent oak encountered. It shows rapid growth and good adaptation to most of low and middle Belgium. Its autumn color and commercial value justify its presence; but it also is an invasive plant, seeding itself

in the many woodland areas and displacing the existing vegetation. It has become a pest in several parks, and can actually destroy the woodland structure if care is not taken to eliminate the young seedlings. Many of the largest trees are greater than 500 cm in girth, with a champion of 672 cm. *Q. rubra* 'Aurea' contributes significantly to spring color. The golden coloring will remain for several weeks, well into June and July, if there is good growth and plenty of sun.

*Q. xturneri* is a favorite of many gardens. It was found more than 20 times in many parks and botanical gardens. It is a spectacular evergreen tree, especially when planted as an isolated specimen. The champion plant has reached 285 cm in girth. It is obviously hardy here, and is found all the way to the city of Liège, but of course not in the higher elevations of the country.

*Q. velutina* has been found in approximately 15 parks. It is often confused with *Q. rubra*. It reaches significant girth (455 cm); the autumn color is somewhat rusty red, surely less flamboyant than that of *Q. rubra*, but of a warmer coloring.

*EDITOR: This paper was presented at the 75th Anniversary Symposium of the Dutch Dendrology Society, Rotterdam.*