

Dutch Elm Disease – Q&A



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When did it start?

Dutch elm disease has been around for about 100 years. Initially, it was caused by the fungus *Ophiostoma ulmi*, but the devastating epidemic which took off in England in the late 1960's resulted from the accidental introduction of a new and highly aggressive form of the pathogen which turned out to be a new species - *Ophiostoma novo-ulmi*. Bark beetles (*Scolytus* spp.) are also an essential part of the Dutch elm disease cycle because they spread the fungus from diseased to healthy trees. But despite familiarity with the disease, many myths abound. Some queries about Dutch elm disease come up year after year. Here's a selection!

Are there any elms left?

Most of the mature elms that formed a part of our landscape have been lost. In 1985 it was estimated that 30 million elms had died of Dutch elm disease in Britain, after that no further surveys were undertaken to estimate elm losses. But that doesn't mean there are no elms left – quite the reverse. When an English elm (*Ulmus procera*) is killed by the disease, some roots remain alive and new elms regenerate from these. A single dead elm is often replaced by a thicket of vigorous young elms. Other elm species are prolific seed producers from an early age, and seedling elms grow rapidly. So not many big elms remain in Britain, but there are many millions of young elms growing around the countryside.

Are the young elms resistant to Dutch elm disease?

Sadly no. Elms that grow from the roots of dead elms are genetically identical to the 'parent' tree and just as likely to succumb to the disease. Some elms, such as smooth-leaved elm (*U. carpinifolia*) do have some resistance but they, and the seedling elms that they produce, can still be killed by the disease.

Is that big elm I saw the other day resistant to Dutch elm disease?

Probably not. Apart from the trees that remain in Elm Disease Control areas such as Brighton, Hove and parts of East Sussex, pockets of mature elms, and even some large individual trees exist around the countryside. Almost invariably when cuttings are taken from these trees and challenged with the Dutch elm disease pathogen, they turn out to be susceptible to *O. novo-ulmi*. These trees, known as 'escapes', have probably avoided infection through lack of exposure to the beetles that spread Dutch elm disease.

Interestingly, the beetles favour certain species of elms when it comes to feeding. Their favourite is English elm and their least preferred is Wych elm (*U. glabra*). If a Wych elm is infected it actually succumbs more readily to the pathogen than English elm, but Wych elm often avoid infection because the beetles feed on this species less and so it is considered to have field resistance.

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Is it true young elms can't get Dutch elm disease?

Unfortunately not. Young elms often avoid infection because they are overlooked by the beetles which seem to prefer taller elms. Also, when all larger elms have been killed, the beetles run out of places to breed as the elm bark has to be a certain thickness for breeding to be successful. As breeding material (i.e. large recently dead elms) runs out, beetle numbers dwindle and the small elms remain safe for while.

Will Dutch elm disease ever die out?

Not in the foreseeable future but there are some glimmers of hope. Elm breeders have produced resistant elms which are gradually being introduced into the landscape. Some resistant elms are even being tested as food plants for elm-dependent rare butterflies (see <http://www.hantsiow-butterflies.org.uk/conservation/elmreport%202006.pdf>). There has also been research to look into the possibility of producing genetically engineered English elm with resistance to Dutch elm disease, but the end result is a long way off. We also know the Dutch elm disease fungus can be infected by viruses that weaken it and make it less pathogenic, but so far it has not been possible to turn this into an effective means of control. So Dutch elm disease is likely to be around for a while, but so are the elms.

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