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Arboriculture Research

Note

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OAK WILT, by D.D. Burdekin, Principal Pathologist, Forestry Commission

Abstract

Oak wilt, a serious disease of oak in North America but not found in this country, has recently attracted wide publicity. This note provides information on this disease and on the possible dangers associated with the importation of oak wood from North America.

1. Oak wilt, caused by the fungus *Ceratocystis fagacearum*, is a disease characterised by wilting and discoloration of foliage. Red oaks affected by the disease usually die within a few weeks of infection. The red oaks are not native to Britain but they have been planted as amenity trees in many districts. In the white oak group, to which the native British oaks, *Quercus robur* and *Q. petraea*, belong, symptoms are often restricted to certain branches and only limited dieback occurs. However, recurrence of the disease in subsequent years can lead to the eventual death of the tree.
2. The disease was first discovered in Wisconsin in the USA in the early 1940s and by 1951 it was known to be present in 18 States in the east and central parts of the country. Spread of the disease has occurred only slowly and erratically, through root transmission or via insect vectors. Its known distribution has changed very little in recent years. Neither has the disease given rise to losses comparable with those caused in both the USA or Europe by Dutch elm disease.
3. No evidence of the disease has been found in Britain, despite the fact that imports of red and white oak wood from the United States have continued since the disease was first discovered there nearly 40 years ago. Oaks in this country sometimes show dieback and symptoms of 'stag-headiness' (ends of branches dead and defoliated), but this is not due to oak wilt. It is a complex disorder which probably arises as a result of adverse environmental conditions such as drought and attacks by relatively minor pests and diseases.
4. Britain imports substantial quantities of oak wood from North America, notably for furniture and the whisky trade for the manufacture of barrels (leading subsequently to a £600 million a year whisky export trade). Stringent conditions, however, are laid in the Importation of Wood and Bark (Prohibition) (Great Britain) Order 1977 for the import of wood to this country. This order stipulates that all bark must be removed from all oak wood in the round before shipment from North America. Furthermore, such wood must have its moisture content reduced to 20% or must be fumigated with a prescribed chemical. The removal of the bark ensures that any insect vectors of the disease present in the bark are destroyed before export; the drying and chemical treatments are designed to kill the casual fungus which might be present in the outer sapwood.
5. Regulations similar to those exercised in Britain are contained in the EEC Plant Health Directive, the detailed implementation of which has been under discussion in Brussels for a number of years by the EEC Plant Health Working Party. One or two refinements to the Directive are currently under discussion, including the use of heat treatment instead of chemical treatments and the removal of sapwood from imports of square-edged timber. By far the most important part of any treatment, however, is the removal of the bark.

6. In December 1978 the Forestry Commission initiated a study to examine all aspects of the trade in North American oak. This study has involved consultations with the trade and forestry interests and will soon be completed.
7. One of the Forestry Commission's scientists, Dr John Gibbs, has recently returned after spending a year in America studying oak wilt. In addition, two of the Commission's experts have visited French scientists in Nancy to discuss scientific aspects of the problem.
8. In the light of these investigations, of consultations with a range of interested organisations and of the discussions taking place in the EEC Plant Health Working Party, the Forestry Commission will review the present legislation and make amendments as considered necessary.
9. For further reading see:-

Burdenin, D.A., and Phillips, D.H. (1977) Some important foreign diseases of broadleaved Trees. Forestry Commission Record 111. (HMSO).

Gibbs, J.N. (1978). Oak wilt. *Arboricultural Journal* 3(5), pp. 351-356

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