



Being green does not make a plant environmentally friendly.

Béatrice Henricot and **Caroline Gorton** take a look at the risks of introducing new pathogens into the UK on imports of garden plants.

comment plant pathogens on the move

Despite increasing public awareness of our impact on the natural environment there has been very little discussion of the threats posed by the importation of exotic pathogens on garden plants. The volume of plant movement has never been greater, and the risk of introducing novel and ecosystem-shaping diseases is at an all-time high. The pressure to enable free movement of goods is unlikely to decrease and so we need to examine the protocols in place in the UK to detect and eradicate unwanted organisms.

Epidemics caused by introduced plant pathogens are not new and infamous examples include potato blight in the 19th century and Dutch elm disease in the late 1960s. However, attention has only recently been focused on the inadequacies of our plant health protection system by publicity about the imported fungal disease known as 'sudden oak death'. More appropriately called 'ramorum dieback', it is caused by *Phytophthora ramorum*. Whilst surveying for it, another new pathogen, *P kernoviae*, was discovered, with the potential to be even more destructive. In the March issue of the RHS journal *The Plantsman*, Clive Brasier covers the biological, economic and social weaknesses of the plant health protection system and urges for drastic changes. He estimates that 80% of potentially high-risk pathogens are not listed as quarantine organisms and that more efforts should be made to identify them before they escape from their natural environment. However, with so many potentially threatening pathogens,

detailed analysis of them all is virtually impossible. It would also be impractical to account for those which cause no damage in their native environment but might pose a risk if transferred to a different ecological niche.

The fungus *Cylindrocladium buxicola*, which causes defoliation and die back of box, illustrates the ease with which novel organisms can become established. It was introduced by a nursery in the UK in the mid-90s and has had a devastating impact on the nation's garden heritage. Incorrectly identified for several years as a related fungal species already known here, it was eventually recognized as a new pathogen to the UK. Despite having all the characteristics of an introduced organism (homogenous genotype, no close genetic relationship to any described species of the same genus and causing great damage to its host where it has been introduced), it was not classified as a quarantine organism. It soon became established in gardens and the wild, including Box Hill where it threatens the rare native habitat.

The first failing was not identifying the intercepted organism as a new species. Sadly, the required mycological skills are now rare as few postgraduates are entering the jobs market with training in plant pathology these days. The second problem is our inability to value the British flora and fauna as an asset to be protected. Countries such as New Zealand and Australia have procedures to limit the damage caused to their wildlife by non-native organisms. The UK does not, perhaps because the long history of importing material from its colonies makes people think that the majority of the

plants growing in Britain are not native. And finally, the problem has been compounded by the use of suppressant fungicides. There is a strong argument to support limiting products that are available to professionals. Many commercial products that are legally approved for crops can also be used on ornamental plants in nurseries, but no data are available on their efficacy or the appropriate dosage to control specific diseases. Consequently, symptoms can be suppressed in the nursery and unwitting gardeners introduce diseased specimens to their own plots. Brasier calls this the 'Trojan Horse' method of transmitting disease. It is the prime reason for the spread of both *Cylindrocladium* and *Phytophthora*!

If plant movement was controlled as strictly as that of animals, there would be a dramatic reduction in the opportunities for new diseases to spread. By permitting the import of certified tissue cultures which were propagated at the ultimate destination, that country's horticultural sector would benefit. At present the lack of a 'polluter pays' approach to pathogens means that it makes economic sense to ignore the environmental cost, but consumers could have a significant effect, by being more aware of the origins of the plants they buy. We must never forget that plants are not sterile objects, but potentially entire ecosystems.

Béatrice Henricot & Caroline Gorton are plant pathologists at RHS, Wisley, Woking, Surrey GU23 6QB, UK (e beatricehenricot@rhs.org.uk)

Please note that views expressed in Comment do not necessarily reflect official policy of the SGM Council.

▲ Box (*Buxus sempervirens*) parterre affected by box blight. Sir E. Harper