

Many thanks to Chris Prior, head of plant pathology at the RHS, who very kindly sent this latest update on *Cylindrocladium*.

Cylindrocladium blight of buxus: an update

A new problem of blight on box has been recognised recently in the UK and has been known to the RHS Advisory Service at Wisley since 1998. As yet, we know too little about this disease to give clear-cut answers to all the questions that are being asked, but the following summarises our current knowledge.

Leaf blight and stem infections in box are associated with several fungi. One, *Volutella buxi*, has been known for a long time, although it has been little studied. Three others, *Sesquicillium* (*Verticillium*) *buxi*, *Fusarium lateritium* var. *buxi* and *E. buxicola* are recorded from box with symptoms of blight or leaf fall, but they are even less studied and their status as pathogens is unclear. *Cylindrocladium* sp. has only been recognised recently and is the fungus currently causing concern. It appears to cause more serious damage than *Volutella*. The two pathogens often occur together, but both can cause disease on their own. In both cases, the problem is most frequently reported during the cooler, wetter seasons.

The RHS is studying the *Cylindrocladium* to try and identify the species; this may give a clue about its origin. The genus has a world-wide distribution, particularly attacking woody plants, and several species occur in the

UK. However, we now recognise that the species on box, which is also reported elsewhere in northern Europe, is distinctly different and does not precisely conform to any described species. The RHS is also studying its infection biology. Infection is favoured by long periods of wetness on the plant surface, but it does not need wounds to infect. It attacks *Buxus sempervirens* 'Suffruticosa' and other varieties as well as the native species, including the wild population on Box Hill, and also *B. microphylla*, *B. sinica* and possibly other species. The host range of this previously unknown fungus species has not been fully established.

By analogy with other species of *Cylindrocladium*, we can be confident that the disease is likely to be splash-dispersed. The spores, or infected leaves, may be carried by wind or wind-blown rain over short distances, but will not be carried by wind over distances of many kilometers, like some wind-dispersed fungi. However, animals and birds might carry them. It also produces resting spores in infected leaves and these can survive in fallen leaves, then in the soil, for at least a year. Humans are probably the main agents of dispersal, by inadvertently moving contaminated soil on muddy boots, etc, and also by moving around infected plants.

The most important precaution gardeners can take

is to ensure that the box plants they buy are uninfected. There are no fungicides available to treat the disease once it appears in gardens, but nursery owners have professional fungicides available to them to use in the nursery to suppress the disease. It should therefore be possible to obtain clean planting material. The risk of the disease arriving in a garden after planting depends primarily upon the owner's vigilance in keeping it out, in particular, they should avoid contact with contaminated soil or infected plants.

Unfortunately, we do not know the frequency or distance that the fungus may be carried by animals or other agents, so we cannot advise how likely it is that the disease might arrive subsequent to planting, by agencies outside gardeners' control. However, this situation is common to most garden diseases, and does not usually preclude the use of any particular plant by gardeners. One exception is Dutch Elm Disease, where the likelihood of infection is so high that the RHS discourages gardeners from planting elms (with the exception of some neighbourhood schemes designed to encourage planting of locally selected plants that may have some resistance), but this is an unusual disease because it is vectored by beetles that select elms as food.

Cylindrocladium is not

closely associated with any particular insect as far as we know and the risk of it entering a garden by such means is probably no greater than any similar disease.

To be certain of obtaining disease-free planting material, gardeners might consider asking a local nursery to strike cuttings for them from known disease-free plants, or doing so themselves. Box strikes readily from cuttings, nodal stem tip cuttings should root in about two months.

B. sempervirens 'Suffruticosa' is normally used for parterres and is the variety most commonly affected by *Cylindrocladium*, in the RHS's experience. Native *B. sempervirens* is also attacked, but because it is faster growing it may recover more quickly from an attack and would grow back more quickly when diseased parts were pruned out. Although it would need clipping more frequently than 'Suffruticosa' it might therefore be an appropriate alternative for hedging. Some species and varieties of box have a more open growth habit than 'Suffruticosa' and do not retain water so easily on the leaves. It has been suggested that these may be less readily infected, but this is not yet confirmed.

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