

The New *Phytophthora ramorum* Dynamic in Europe: Spread to Larch¹

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Abstract

Phytophthora ramorum has been reported from most European Union member states, mainly affecting ornamental plants in nurseries. The most epidemiologically important hosts are those that support abundant sporulation, and, until recently, in Europe this applied primarily to rhododendron and vaccinium. However, following the first findings of *P. ramorum* on Japanese larch (*Larix kaempferi* (Lam.) Carrière) in southwest Britain in 2009, it soon became clear that infected foliage of Japanese larch could produce abundant numbers of sporangia, as demonstrated in the laboratory (see Webber, J.F.; Mullett, M.; Brasier, C.M. 2010. Dieback and mortality of plantation Japanese larch (*Larix kaempferi*) associated with infection by *Phytophthora ramorum*. New Disease Reports. 22: 19.) and on naturally infected needles, leading to bark infections on larch and other nearby susceptible tree species.

To compare the spore-producing potential of larch foliage with other known sporulating hosts (*Umbellularia californica* (Hook. & Arn.) Nutt. and *Rhododendron ponticum* L.), laboratory tests were carried out using shoots of Japanese larch, hybrid larch (*Larix x eurolepis* Henry), and European larch (*L. decidua* Mill.) challenged with zoospore suspensions of *P. ramorum* (EU1 lineage). These tests were carried out at different times of year and have shown that sporulation potential varies with larch species, pathogen genotype, and also with the age of the foliage. Japanese larch generally supports the highest levels of sporulation, even exceeding that on *U. californica*. Sporulation on larch needles can also occur in the absence of any symptoms, particularly early in the season. In the field, symptoms on infected needles only become visible towards the end of the season just before they are shed. Field performance of the different larch species also suggests that European larch is more resistant to stem infections caused by *P. ramorum*, as resinous bark lesions are only seen occasionally on this tree species. However, somewhat surprisingly, laboratory tests indicated that bark of European larch is much more susceptible than bark of Japanese larch, suggesting that European larch may escape infection in the field because its needles usually sustain lower levels of sporulation.

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