

**Bostock, R.M. and Roubtsova, T. Episodic abiotic stress and ramorum blight in nursery ornamentals: impacts on symptom expression and chemical management of *Phytophthora ramorum* in *Rhododendron*.**

Episodes of abiotic stress, such as soil salinity, waterlogging, and chilling can affect the physiology of plants to increase their vulnerability to diseases. Previous work demonstrated that a brief episode of salt stress predisposes roots of *Rhododendron sp.* and *Viburnum tinus* to infection by *Phytophthora ramorum* to significantly increase disease severity. Root infections may play a role in the disease cycle of ramorum blight in some hosts, and it is likely that such infections can remain cryptic, or asymptomatic, for a time. This project will provide a better understanding of specific factors that contribute to disease development from soilborne infections, with the intent to inform and guide management decisions. These factors could have a large effect on inoculum thresholds necessary for disease, the extent and significance of root infections in various hosts, the consistency and reliability of assessment tests for host resistance, and the efficacy of chemical treatments to manage disease. We will examine how stresses that are encountered in nurseries, such as inappropriate nitrogen fertilization, waterlogging, water deficit, and chilling, can serve as potential triggers for disease development arising from low inoculum levels or cryptic root infections. We will assess the importance of these stresses as they may contribute to rapid development of ramorum blight in seemingly healthy *Rhododendron* plants, such as might occur following shipment and planting. We will also examine the impact of mild episodic stress on the efficacy of selected chemicals for managing ramorum blight. This research will illustrate interactions that can increase the disease proneness of plants to *P. ramorum*, and suggest measures to complement or refine disease management practices.