

Effect of Phosphonate Treatments on Sudden Oak Death in Tanoak and Shreve's Oak¹

Doug Schmidt², Matteo Garbelotto², Dave Chambers³,
and Steve Tjosvold³

Abstract

Field experiments were conducted to evaluate the effectiveness of phosphonate chemical treatments for control of sudden oak death in tanoak (*Lithocarpus densiflorus*) and Shreve's oak (*Quercus parvula* var. *Shrevei*). Native stands of mature trees were preventatively treated with Agrifos® systemic fungicide and subsequently infected with *Pytophthora ramorum*. Both injection treatments as well as topical application of Agrifos® with Pentrabark® surfactant were evaluated. Experimental methods were designed to test both within tree and between tree variability. Leaves and wood samples were also collected from the treated trees for chemical analysis of phosphonate levels.

The injection and topical phosphonate treatments significantly reduced lesion size in tanoaks and Shreve's oaks compared to untreated control trees. However, the extent of moss covering the tree trunk affected the Shreve's oaks topical treatment. A combined treatment of injection and topical application methods was found to be most effective in Shreve's oak. The results suggest that the dosage of phosphonate that is successfully introduced into the tree may be as important as the application method. In addition, the range of resistance and susceptibility to *P. ramorum* that exists in native stands may affect the success of phosphonate treatments.

Key words: sudden oak death, *Phytophthora ramorum*, phosphonate treatment

¹ A version of this paper was presented at the Sudden Oak Death Second Science Symposium: The State of Our Knowledge, January 18-21, 2005, Monterey, California

² Department of Environmental Science, Policy and Management, University of California, Berkeley, CA 94720, 510-414-2405, dschmidt@nature.berkeley.edu,

³ University of California Cooperative Extension, Santa Cruz and Monterey Counties.