PHOSPHITE INHIBITS LESION DEVELOPMENT OF *PHYTOPHTHORA CINNAMOMI* FOR AT LEAST FOUR YEARS FOLLOWING TRUNK INJECTION OF *BANKSIA* SPECIES AND *EUCALYPTUS MARGINATA*

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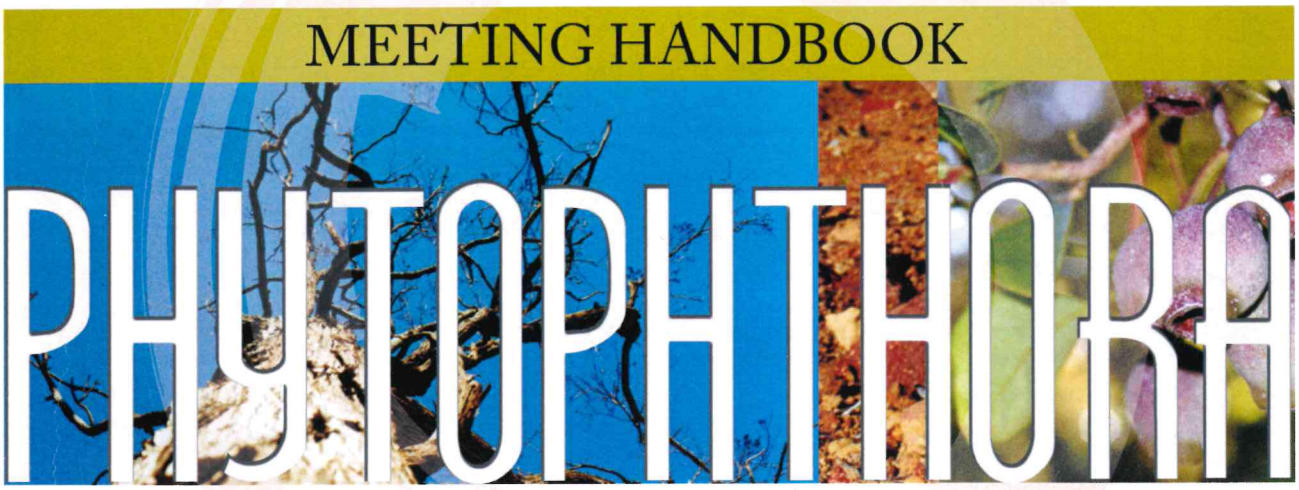
We sought to determine the duration of effectiveness of phosphite in limiting lesion development of *P. cinnamomi,* following trunk injection of *Banksia* species and *Eucalyptus marginata* Donn ex Smith. Sufficient numbers of *B. grandis* and *E. marginata* were trunk injected with 50, 100 and 200 g L^{-1} phosphite in 1988 to give estimates of the duration of effectiveness of phosphite over time. For each species, groups of 10 trees were inoculated with *P. cinnamomi* in mid-summer approximately every two years, with a different group being inoculated each time. Control trees nearby were not injected with phosphite. Lesion size was determined 6-weeks after inoculation. At each inoculation time, more groups of ten trees were injected with phosphite to give a range of periods after injection. Along two disease fronts, trees of *B. attenuata* R. Brown close to one another and of similar size were paired and one tree at random injected with 100 g L^{-1} phosphite at the rate of 1 ml/cm trunk circumference and the other tree not treated. There was 41 pairs of trees at one site and 13 at the other. Mortality was monitored during a 8-year-period. Increase in *P. cinnamomi* lesion length with time after injection was greatest for trees injected with 50 g L^{-1} phosphite, least for those injected with 200 g L^{-1} and intermediate for trees injected with 100 g L^{-1} phosphite. All three concentrations of phosphite effectively controlled lesion extension for at least 4 years after injection. Trends in tangential spread of lesions were similar to those

described for linear extension. Injection of 200 g L^{-1} phosphite caused tissue necrosis at the site of injection and inhibited canopy growth. Mortality of trees injected with 100 g L^{-1} phosphite was significantly less than trees receiving no phosphite in both disease fronts. One injection protected trees for at least 4 years, after which mortality of injected trees increased. This period of effectiveness was similar to that obtained from controlled inoculation.The results suggest that the period of effectiveness of phosphite against *P. cinnamomi* in the low phosphate environment of native communities in south-western Australia is considerably greater than that found in the high phosphate, frequently harvested horticultural situation.

MEETING HANDBOOK



PHYTOPHTHORA

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