

Efficacy of registered and unregistered fungicides for control of Ramorum blight on camellia, 2007.

This study was conducted as part of the IR-4 Ornamental Horticulture Program to evaluate fungicides for managing foliar diseases of ornamental plants caused by *Phytophthora ramorum*. Camellia plants grown in 3.8-L plastic pots were obtained in early Aug, and maintained outdoors in shade conditions, with daily hand-watering. Four single-plant replications were arranged in a randomized block design by treatment. A single application of fungicide was applied to run-off using a hand-pump sprayer. Two-replicated trials were conducted and initiated on 17 and 21 Aug. Seven days after each fungicide application, three leaves from each plant were removed for detached leaf inoculations under quarantine containment conditions. Leaves were placed in plastic containers with 500 ml moistened vermiculite. Separate containers were used for different chemical treatments. Each leaf was needle-wounded once on the abaxial side to the right of the midvein, just prior to inoculation with *P. ramorum* strain N10A (A2 mating type isolated in OR). A 20- μ l drop of inoculum (3,500 sporangia/ml) was applied to each wound site. Non-inoculated controls received an equivalent drop of sterile distilled water. After inoculation, leaves were misted and containers were placed in an incubator at 20°C with a 14-hour light cycle for seven days. Disease severity was determined by evaluating lesion area from digital images using ASSESS software (APS, St. Paul, MN) on day seven. Lesion data were arcsine-transformed, averaged over both trials after verification of homogeneity of variance by Levene's test, and subjected to analysis of variance (Systat 11.0; Systat Software, Inc., Richmond, CA).

Chemical treatments had a significant effect on % lesion area observed. However, not all chemicals had the same efficacy in reducing lesion expansion and Aliette, Captan, and Stature DM were not significantly different from the untreated controls. For any given product, no differences were observed among high and low rates. NOA 446510 and Subdue MAXX were most effective in reducing disease severity. All chemicals were effectively fungistatic, not fungicidal, after confirmation of the pathogen's viability by isolation and subsequent culture of the pathogen from wound-sites on symptomless leaves. No phytotoxicity was observed for any treatment.

Treatment and rate/L	Lesion area (%) [*]
NOA 446510 (mandipropamid) 0.25 ml	5.1 de
NOA 446510 (mandipropamid) 0.5 ml	2.2 ef
cyazofamid 0.19 g	17.1 bc
cyazofamid 0.37 g	8.7 cd
V-10161 (fluopicolide) 0.48 ml.....	6.8 de
V-10161 (fluopicolide) 0.96 ml.....	11.3 cd
Aliette 0.59 g	29.4 a
Captan 1.99 g.....	33.8 a
Subdue MAXX 0.13 ml.....	1.0 ef
Stature DM 0.40 ml	27.2 ab
Untreated, inoculated control	29.6 a
Non-inoculated control	0.1 ef

^{*}Means followed by the same letter are not significantly different at $P=0.05$, according to a Fisher's protected least significance difference test.