

Evaluation of fungicides as preventive vs. curative applications for the management of boxwood blight, 2013.

This trial compared the efficacy of eight commercially available fungicides for preventive versus curative activity for the management of boxwood blight, caused by *Cylindrocladium buxicola* (= *Calonectria pseudonaviculata*). The eight fungicides were chosen because they performed the best as preventive applications in a previous boxwood blight trial conducted during the spring of 2013. Treatments were arranged in a randomized complete block design consisting of four replications of six 1-gal English boxwood plants per treatment on a shaded container pad with overhead irrigation at the Mountain Horticultural Crops Research Station in Mills River, NC. Treatments were applied as foliar sprays until runoff using a CO₂-pressurized backpack sprayer equipped with a handheld boom and a single, hollow-cone nozzle (TXVS-26) delivering 50-60 psi. Preventive treatments were applied on a 14-day schedule on 11 Jul (one day before inoculation), 25 Jul, and 8 Aug. Curative treatments were applied on a 14-day schedule on 18 Jul (six days after inoculation), 1 Aug, and 15 Aug. All plants receiving either preventive or curative applications were inoculated on the same day (12 Jul) with the same spore suspension. Inoculum was prepared by flooding Petri-dishes of actively-growing PDA cultures (<14 days) of the pathogen. Plants were spray inoculated with a suspension containing 15,000 spores per ml until runoff. Disease assessments were conducted on 19 Jul, 26 Jul, 7 Aug, and 19 Aug. The percentage of leaves with disease symptoms was recorded for each treatment block using a modified Horsfall-Barratt scale. Air temperatures and rainfall during the trial were optimal for high rates of infection. Average daily high and low temperatures were 81.7 and 64.2°F for Jul and 78.9 and 62.3°F for Aug; cumulative rainfall was 16.0 inches in Jul and 8.4 inches in Aug.

Phytotoxic symptoms were not observed for any of the treatments. Preventive applications were far more effective at protecting foliage and reducing boxwood blight symptoms in comparison to curative applications of the same product made 6 days after inoculation with the fungus. No curative applications provided acceptable disease control. It is possible that curative treatments applied on a shorter time interval (<6 days) post inoculation would have been more effective at reducing boxwood blight. The most effective treatments were preventive applications of Strike Plus, Daconil WeatherStik, Concert II Spectro and Disarm C. Due to splash dispersal of this fungus, leaf area infection reached 3.6% within the non-inoculated control plots by the end of the trial 38 days after inoculation.

Treatment and rate/100 gal	FRAC code*	Percent leaf area diseased (19 Aug) geometric midpoint	
		Curative	Preventative
Non-inoculated negative control.....	NA	3.6 d **	3.6 de
Strike Plus 50WDG 9.0 oz.....	3 + 11	36.5 c	0.5 e
Concert II 35.0 fl oz.....	M5 + 3	36.5 c	2.1 e
Daconil WeatherStik 1.375 pt.....	M5	40.2 c	0.9 e
Spectro 90WDG 1.5 lb	M5 + 1	40.2 c	2.1 e
Torque 10.0 fl oz	3	43.4 c	10.6 bc
Tourney 50WDG 4.0 oz	3	47.1 c	14.4 b
Medallion WDG 4.0 oz.....	12	62.5 b	8.0 cd
Disarm C 11.0 fl oz.....	M5 + 11	67.4 ab	3.6 de
Non-treated inoculated control	NA	78.6 a	78.6 a

* Fungicide Resistance Action Committee (FRAC) code indicates fungicide mode of action.

**Means within a column followed by the same lower case letter are not significantly different ($P = 0.05$) based on the Waller-Duncan k -ratio ($k = 100$) t test.