Evaluation of Heritage for Control of *Asperisporium* (*Cercospora*) Needle Blight of Leyland Cypress

Dr. Jean L. Williams-Woodward
Extension Plant Pathology
University of Georgia
Athens, GA 30602

Pathogen: *Asperisporium sequoiae* (syn. *Cercospora sequioae*)

Host: Leyland Cypress (× *Cupressocyparis leylandii*)

Methods:

Six single-plant replications per fungicide treatment (Table 1) of naturally infected Leyland cypress trees were arranged in a randomized complete block design at the Center for Applied Nursery Research in Dearing, GA. All trees were grown in a 9:1 pine bark:sand potting mix in 7-gallon containers. Lime and 14 lb/cu.yd 15-9-12 fertilizer (Scotts) were incorporated into the mix. Plants were overhead irrigated throughout the duration of the study. Supplemental fertilizer was applied 15 May 00.

The study was initiated in September 1999 with plants receiving their first fungicide application on 22 Sept 99. All fungicides were applied on 14-day intervals for a total of five applications in the fall (22 Sept, 6 Oct, 21 Oct, 5 Nov, and 19 Nov 99). Two additional fungicide applications were made on 9 May and 24 May 00. All plants were jammed during the winter (Dec-Feb) and then spaced 3-ft apart on 15 Feb 00.

Plants were rated for defoliation caused by *Asperisporium* on 17 Feb 00 and for new needle blight infection on 25 Aug 00. Defoliation ratings (expressed as a percentage) were made by visually estimating how much of the plant canopy was affected by the disease based upon the amount of needle drop on lower branches that occurred as a result of *Asperisporium* infection. Needle blight infection was determined by averaging the total number of new infection sites within a six-inch section of the previous year=s growth on three randomly selected lower branches of each tree. New infection sites consisted of yellowing or browning needles and lesions on the branch. All data were subjected to analysis of variance (ANOVA) and means were separated using Tukey=s HSD pairwise comparison of means at $P = 0.05$.

Results:

Defoliation ratings were collected in Feb 00 to determine the amount of infection that occurred on the plant during the previous fall. It was not possible to collect infection site data because the disease affects 1-year-old and older growth and it was not possible to differentiate when infection occurred. The fungicide treatments of Heritage (4 oz and 8 oz/100 gal), Systhane and Cleary=s 3336 resulted in significantly lower defoliation ratings than the Heritage at 1oz and 2 oz/100 gal rate and the untreated plants (Table 1).

Needle infection data were collected only from the previous year=s growth. *Asperisporium* sporulation occurs primarily in late summer and fall, followed presumably by infection of the previous and current year=s growth. Infection may also be occurring in the spring. A detailed disease cycle of this disease on Leyland cypress is not known at this time. New infections were evident in the spring 2000 which may support fall infection because no *Asperisporium* sporulation was seen on the branches in the spring and there is a typically a delay in symptom expression following infection by a pathogen. Fungicides were also applied in May 00 to reduce possible infection in case spring infection was occurring.

All Heritage fungicide application rates significantly reduced the number of visible new infections compared to the untreated plants (Table 1). Although infections following Systhane and Cleary=s 3336 applications were lower than the untreated plants, the difference was not significant. Application of Heritage at 4 oz and 8 oz/100 gal rates provided the best numerical disease reduction with less than four new infections (individual needles or lesions on the branch) occurring on the previous year=s growth.

Table 1. Defoliation and needle infection of Leyland cypress caused by *Asperisporium sequoiae* (syn. *Cercospora sequioae*) following fungicide treatment

Fungicide Treatment	Rate per 100 gal	Defoliation (%)[1]	Needle Infection[2]
Untreated **YYYYYY**..	------	23.3 a[3]	13.3 a
Heritage **YYYYYYY**	1 oz	13.3 ab	6.1 b
Heritage **YYYYYYY**	2 oz	23.3 a	6.6 b
Heritage **YYYYYYY**	4 oz	7.5 b	3.8 b
Heritage **YYYYYYY**	8 oz	8.7 b	3.7 b
Systhane **YYYYYY**...	1 oz	8.3 b	8.7 ab
Cleary=s 3336 **YYYY**...	24 oz	11.7 b	8.0 ab

[1] Defoliation was the mean percentage of the plant canopy affected by the disease based upon a visual estimate.

[2] Needle infection was the mean of new infection sites within six-inch branch sections of the previous year=s growth on three randomly selected lower branches per tree.

[3] Numbers followed by the same letter within a column are not significantly different from each other based upon Tukey=s HSD pairwise comparison of means at $P = 0.05$.