

**Turfgrass (Creeping Bentgrass)**  
**“Summer Decline”**  
**Stephen R. Vann, University of Arkansas**

The etiology and cause of “Summer Decline” has not been elucidated. Environmental stress appears to be a significant factor in this disease. Symptoms include irregular “dry” turf patches, decaying roots and crowns and during hot day-night temperatures, thin-brown areas develop, followed by grass loss. Various species of *Pythium* have been reported from affected roots and crowns.

This trial was conducted to evaluate Fore Rainshield/Fosphite, Fore Rainshield/Aliette, Fosphite, and Daconil/Aliette for control of summer decline of Creeping Bentgrass at the Longhills County Club golf course, near Benton, Arkansas on a 4,000 sq. ft. nursery green consisting of a mixture of Penncross, SR 1020 and Crenshaw varieties of creeping bentgrass. The green was a USGA spec green with a soil type of 85% sand and 15% composted rice hulls. Plots were mowed daily at 0.40 cm and fertilized monthly from January through April with 1.0 lb. Nitrogen and potash per 1000 sq. ft. during May (urea quick release). The green received micronutrients by foliar applications from June through August. Fungicide treatments were applied to 4 ft. by 6 ft. plots arranged in a randomized block design with 3 replications. Untreated blots were positioned alongside the treated area. Applications were hand made using a hand held CO<sub>2</sub> powered backpack sprayer at 35 psi with four 8006VS flat fan TeeJet nozzles spaced 10 inches apart, delivering a rate of 1.8 gal. Spray volume per 1000 sq. ft.

Plots were rated for disease incidence, severity, and overall turf quality. Disease incidence was a percent measure of plot area with declining turf. Severity measurements represented the intensity of the decline using a 0-9 numerical scale, where 9 represented the most intense decline. Overall turf quality measure the level of color, vigor and density of the test plots. Four-inch diameter turf cores were collected from selected treatment plots and returned to the laboratory for microscopic examination following the final treatment. Ten root tissue mounts per core were prepared and stained in a lactic acid/aniline blue solution following 72 hrs. incubation in a moist chamber. Mounts were examined at 100X and 400X using a compound microscope.

### **Results**

Turf profile cores from dark/declining patches within plots treated with Fosphite showed low incidence of *Pythium* (<5%) from the upper root system. *Pythium* was also observed at very low levels from cores of Fore/Aliette and untreated areas. *Pythium* was absent in roots below 1.5 cm. of the soil surface of cores examined. There was an indication of a drainage problem in the turf profile possibly due to the layer of dead leaf and root tissue (Surface algae were present in one Fosphite treated plot core and one untreated plot core). *Pythium* was confined to dead/declining roots with in the upper 1.5 cm and the level of *Pythium* was not consistent with the level of summer decline.

The data suggests there was only a slight benefit with the Fore + Fosphite mix in reducing bentgrass and Poa decline over Fosphite alone. (Fore was not evaluated alone.) The Fore + Aliette mixture was only slightly more effective than the combination with Fosphite. The Daconil + Aliette mixture was more effective than the Fore + Aliette and Fore + Fosphite mixtures in controlling both declines. Fosphite was as effective as Aliette in controlling both declines.