

New Weapons Available in the Battle Against Summer Bentgrass Decline

Summer bentgrass decline complex. Long considered the single greatest summer threat to cool-season turf, this disease complex causes severe damage on golf courses throughout much of the U.S. each year. But now that's changing.

Until recently, there was little that superintendents could do to stop this devastating root-and-crown rot disease complex. However, new research conducted at North Carolina State University has shown that the complex can be effectively controlled.

Understanding Bentgrass Summer Decline

Summer decline complex commonly occurs on bentgrass and other cool-season turf during the peak of summer, when temperatures and humidity remain very high. The very steady, widespread turf decline associated with this complex is the result of root and crown rots caused by various species of *Pythium* and *Rhizoctonia* (borwn patch) as well as environmental stresses.

Various stresses such as traffic, com-

paction, and poor air movement, coupled with high heat and humidity make bentgrass particularly vulnerable to damage from these diseases. As summertime temperatures and humidity increase, the already stressed turf is subjected to even more stress as root systems are destroyed by disease infestation

The result is a vicious stress-disease-stress cycle which causes very severe turfgrass damage and a decline in turf quality, according to Leon Lucas, Ph.D., Extension Turf Pathologist at North Carolina State University. Slow growth and recovery in the fall when growing conditions are favorable is another symptom of the decline.

"Cool-season grasses such as bentgrass are not well suited to the summertime heat and humidity that you encounter throughout the transition zone and in northern states during some years," says Lucas. "Therefore, bentgrass is more susceptible to damage from *Pythium* and *Rhizoctonia*. But we have found that summer decline complex can be effectively controlled if you use the right management techniques and the right combination of fungicides."

New Combination Provides Unprecedented Control

While searching for ways to control fungi associated with summer decline, Lucas and his staff experimented with various fungicide combinations. What they found in 1992 has already begun changing the way superintendents view summer disease control.

"We tested a large number of fungicides, alone and in combination for control of the *Pythium* and *Rhizoctonia* species that cause bentgrass decline," says Lucas. "What we found was that the combination of CHIPCO ALIETTE brand WDG fosetyl-Al plus Fore brand WP mancozeb fungicides provided virtually complete control. the result was dramatically higher quality turf"

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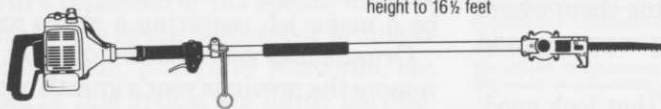
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Bentgrass Decline—

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Since a reduction in root systems and a decline in turf quality are the two primary symptoms of bentgrass decline complex, Lucas used these two characteristics as benchmarks to determine the efficacy of his fungicide applications.

"With the combination of CHIPCO ALIETTE plus Fore, we found healthier, stronger roots, which indicated that the fungal pathogens were being controlled," says Lucas. "In addition, this combination resulted in healthier turf that had better color and a measurably higher quality rating."

In tests conducted at certain times during the summer, Lucas found that check plots typically had 50 percent brown patch, while the CHIPCO ALIETTE plus Fore plots had zero brown patch.

In addition, check plots typically had a turf quality rating of 4.5, while plots treated with the combination were rated at 7.5 or above on a scale of 1-9 (with 9 being best).

Lucas also discovered that turf canopy temperatures in plots treated with the new combination were significantly cooler than those of check plots treated with the new combination were significantly cooler than

those of check plots. Because healthier turf remains cooler than stressed turf, this indicated that plots treated with the CHIPCO ALIETTE plus Fore combination were being protected from the destructive effects of summer decline complex.

"This is the first fungicide treatment I've seen that can actually provide higher quality turf during the summer by controlling the root and crown rots that cause summer turfgrass decline."

—Lon Lucas, Ph.D.

When Does 1 + 1 = 3?

One of the most intriguing elements of the new fungicide combination, according to Lucas, is the fact that the two products somehow enhance efficacy. In scientific terms, this reaction is called "synergy."

Although the exact mechanisms are not fully understood, the new fungicide combination appears to offer this type of synergistic reaction. CHIPCO ALIETTE and Fore were applied alone at half the lowest recommend-

ed rate. In both cases, there was zero percent brown patch control. But when the two were applied in combination at this same rate, there was 55 percent brown patch control. The combination of the two products applied at the full recommended rates provided 100 percent control.

APPLICATION:

Timing: Application every two weeks has given the best control.

Rates:

4 oz. CHIPCO ALIETTE WDG
+ 8 oz. Fore WP

(Note: combinations of CHIPCO ALIETTE WDG with Fore flowable are not compatible.)

Cultural Control

Dr. Lucas' ongoing research has shed new light on how summer turfgrass decline gets started. For cultural control, he suggests clearing away brush to improve air movement around greens, using oscillating fans to create cooler, drier turf surfaces, and summer aerification (with hollow tines if possible) to loosen compacted soils, improve air penetration, and encourage root growth. In addition, he emphasizes that it is important to maintain correct fertility and add small amounts of nutrients regularly during the stress period — especially on high-sand content greens.

Good News Travels Fast

As might be expected, news of this new fungicide combination has rapidly spread among superintendents as well as the academic community.

Just about everywhere I go, people know about the combination and ask me for more information," says Lucas. "We are doing more work to determine how best to use this treatment in a turf management program."

Lucas adds that superintendents who have heard of the combination are eager to try it, and those who have tried it plan to use it again next year.

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