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bluegrass and 77 percent fewer symptoms of *Acidovorax* on creeping bentgrass.

Plant quality

One of the most interesting results during the development of Daconil Action was the discovery of enhanced plant quality and drought avoidance that resulted in improved plant health. Annual bluegrass plant quality is enhanced with multiple applications of Daconil Action that resulted in a healthier putting green surface. This increased plant quality was in spite of one of the most stressful summers, 2010.

In a Penn State researcher's study, Daconil Action-treated annual bluegrass had anthracnose levels of less than 3 percent.

Enhanced plant quality was also seen in trials on creeping bentgrass mowed at fairway height, as evidenced by a trial conducted by Steve McDonald in 2011. Plant quality was not only better than any other chlorothalonil product, but the plant quality steadily improved during the heat of the summer. Interestingly, this research site not only was stressed by high temperature, it also received record rainfall to potentially make a bad situation worse. Yet, Daconil Action-treated creeping bentgrass performed very well.

In trials conducted in Syngenta research facilities, Daconil Action-treated creeping bentgrass showed excellent signs of avoiding drought stress. In a greenhouse trial conducted in Vero Beach, Fla., after two applications of fungicides, watering was stopped. Daconil Action-treated creeping bentgrass maintained green turf vigor 2 to 3 days after Daconil-treated plants wilted. In a corresponding study conducted in Switzerland, creeping bentgrass plants were treated on a 14-day spray interval with Daconil Action, where watering was stopped 14 days after last applica-

tion. Wilting of the creeping bentgrass was noted on Day 3 for untreated turf; Day 4 for Daconil; and wilt was not seen in Daconil Action-treated turf on Day 5, when turf was watered. Further research to investigate this phenomenon is ongoing.

Conclusion

All protectant fungicides work best if applied preventively. This is also true for plant activators. Applying plant activators prior to disease and stress allows for the full activation of stress genes and proteins. This primes the plant to be fully activated to protect itself the best it can. Research demonstrated that ASM fully activated SAR genes in 48 hours.¹ Multiple, consecutive applications on a 14-day spray interval is optimum for continual gene expression.

Spray coverage is critical for chlorothalonil to be effective. Avoid extremely large spray droplets and water volumes that dilute the fungicide too much. The key is to keep the fungicide on the leaf surface and not move it into the thatch.

Daconil Action is best used in a spray program that uses other classes of fungicides. No fungicide, not even multi-site fungicides, can give continual control of dollar spot and anthracnose when used alone. Instead, use Daconil Action in rotational programs and in a tank mixture with single-site fungicides for best disease protection.

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