

## SUMMER STRESS IN BENTGRASS

This trial was conducted on a Penncross creeping bentgrass green at the Hancock Turfgrass Research Center, East Lansing, MI. The plot area was mowed initially at 0.157" and taken down to 0.125". Fertility was as listed below. The study was set up in a randomized complete block design with four replications of each treatment. Plots measured 2' x 4.5' with 1' alleys. Treatments were applied at 34 PSI in a 48 GPA spray volume using a CO<sub>2</sub> backpack sprayer and a single 8002E tee-jet flat fan nozzle. Initial treatment application was on June 15. Re-applications were made on intervals as indicated in Table 4. Treatments on a 14 day interval were applied on 6/15, 6/28, 7/13, 7/26, and 8/9. A ½ # nitrogen 1000 ft<sup>2</sup> application was made on 5/28 with subsequent fertilizer applications of 1/8 # nitrogen ft<sup>2</sup> on 6/29, 7/13, 7/26; and 1/10 # applied on 8/14 and 8/20. Due to the variety of fungicide combinations tested in this study, no additional chemical applications were made to control dollar spot. Quality ratings were visually estimated using a 1 to 10 scale, where 1 = poor, 10 = excellent, and 7 = acceptable. Data were analyzed using ANOVA and means separated by LSD (p = 0.05).

The Chipco Signature/Daconil Ultrex combination treatment provided significantly better turfgrass quality than the untreated control for the entire duration of the study. The quality of the various treatments varied throughout the study, and many treatments provided improved quality over the untreated control. During August, the most stressful period of the study, the following treatments provided significant improvement over the control: Chipco Signature/Chipco 26GT, Heritage, Chipco Signature/Triton, Chipco Signature/Prostar, Heritage/Banner Maxx, and the Primo Maxx/Banner Maxx/Heritage/Daconil Ultrex series.

**Table 4. Summer Bentgrass Decline 2001.**

Hancock Turfgrass Research Center, East Lansing, MI						
Rating Scale: Mean quality ratings; 1 to 10, 1 = poor and 7 = acceptable.						
Treatment and Rate/1000 sq ft	Interval (Days)	9-Jul LSD <sup>a</sup>	19-Jul	1-Aug	17-Aug	24-Aug
Chipco Signature 4 oz + Ch 26 GT 4 fl oz	14	7.3 b	7.0 b-d	7.0 b-d	6.3 bc	7.0 b
Chipco Signature 4 oz + Daconil Ultrex 3.2 oz	14	8.0 a	8.0 a	8.0 a	7.0 a	6.8 bc
Heritage 0.2 oz	14	6.5 c	6.5 d-f	6.8 b-e	6.8 ab	6.8 bc
Chipco Signature 4 oz + Triton 1 fl oz	14	7.3 b	7.5 ab	7.5 ab	6.8 ab	7.8 a
Chipco Signature 4 oz + Prostar 2.2 oz	14	6.8 bc	6.8 c-e	7.3 a-c	6.8 ab	7.0 b
TS-LF300 2.5 gal/A	14	6.8 bc	6.8 c-e	6.5 c-f	5.8 d	6.3 cd
TS-LF300 2.5 gal/A + Dac. Ultrex 3.2 oz	14	7.0 bc	7.0 b-d	7.0 b-d	6.3 b-c	6.5 b-d
Heritage 0.2 oz + Banner Maxx 1 fl oz	21 <sup>b</sup>	6.8 bc	6.8 c-e	6.8 b-e	7.0 a	7.0 b
Dac. Ultrex 3.2 oz + Primo Maxx 0.125 fl oz	14 (6/15)	6.8 bc	6.5 d-f	7.5 ab	7.0 a	7.0 b
Dac. Ultrex 3.2 oz + Banner Maxx 1 fl oz + Primo Maxx 0.125 fl oz	14 (6/28)					
Heritage 0.2 oz + Banner Maxx 1 fl oz + Primo Maxx 0.125 fl oz	14 (7/13)					
Heritage 0.2 oz + Dac. Ultrex 3.2 oz + Primo Maxx 0.125 fl oz	14 (7/26)					
Banner Maxx 1 fl oz + Primo Maxx 0.125 fl oz	14 (8/9)					

Dac. Ultrex 3.2 oz	14	7.3b	7.0 b-d	7.3 a-c	6.0 cd	6.3 cd
Macrosorb 2 fl oz	14	6.5 c	6.3 ef	5.8 f	5.8 d	6.0 d
Dac. Ultrex 1 oz	14	7.0 bc	6.8 c-e	6.3 d-f	6.0 cd	6.0 d
Macrosorb 2 fl oz + Dac. Ultrex 1 oz	14	7.0 bc	7.0 b-d	6.0 ef	6.3 bc	6.3 cd
Quelant-CA 2 oz	14	6.5 c	6.0 f	6.0 ef	6.3 bc	6.5 b-d
MKP 5#/A	14	7.0 bc	6.5 d-f	6.0 ef	5.8 d	6.3 cd
MKP 5#/A + Dac. Ultrex 1.5 oz	14	7.3 b	7.3 bc	6.8 b-e	6.5 a-c	6.3 cd
Dac. Ultrex 1.5 oz	14	7.3 b	7.3 bc	6.5 c-f	6.0 cd	6.0 d
Control (Fertilized)	--	7.0 bc	6.0 f	6.0 ef	5.8 d	6.0 d

<sup>a</sup>Treatment means followed by the same letter do not significantly differ (LSD,  $p = 0.05$ ).

<sup>b</sup>Treatment applied on the following dates: 6/15, 7/6, 7/13, 7/26, and 8/15.

## SUMMER STRESS IN ANNUAL BLUEGRASS

This trial was conducted on a *Poa annua* fairway at the Hancock Turfgrass Research Center, East Lansing, MI. The plot area was mowed at 0.5" and fertility was as listed below with fertilizer applications being made on a 14-day schedule. The study was set up in a randomized complete block design with four replications of each treatment. Plots measured 2' x 4.5' with 1' alleys. Treatments were applied at 34 PSI in a 48 GPA spray volume using a CO<sub>2</sub> backpack sprayer and a single 8002E tee-jet flat fan nozzle. Initial application of treatments was on June 14. Re-applications were made on intervals as indicated in Table 5. Treatments on a 14 day interval were applied on 6/14, 6/28, 7/13, 7/27, and 8/9; and those on a 21 day interval on 6/14, 7/6, 7/27, and 8/15. Fertilizer applications were made as follows: 1/4 # nitrogen 1000 ft<sup>2</sup> on 29 June, 12 July, 27 July; 1/8 # nitrogen on 19-July; 1 # N on 7-Aug; and 1/10 # nitrogen on 14 Aug. Due to the varied fungicide combinations tested in this study, no additional chemical applications were made to control dollar spot. Quality ratings were visually estimated using a 1 to 10 scale, where 1 = poor, 10 = excellent, and 7 = acceptable. Data were analyzed using ANOVA and means separated by LSD ( $p = 0.05$ ).

Several treatments provided significant improvement in turf quality compared to the control during the entire study. These treatments include: Chipco Signature/ Daconil Ultrex, Chipco Signature/Chipco 26GT, Heritage/Banner Maxx, TS-LF300/Daconil Ultrex, Daconil Ultrex alone (3.2 oz/1000 ft<sup>2</sup>), and Macrosorb/Daconil Ultrex. The TS-LF300/Daconil Ultrex combination and Daconil Ultrex alone at a comparable rate of chlorothalonil were not significantly different during the study duration. Similarly, although the Macrosorb/Daconil Ultrex treatment provided significant improvement compared to the control, it did not provide improvement over the Daconil Ultrex alone at the same rate. During the August ratings, the Primo Maxx/Banner Maxx/Daconil Ultrex/Heritage series treatment was among the best in turfgrass quality as was Heritage/Banner Maxx, Chipco Signature/Triton, Chipco Signature/Daconil Ultrex, and Chipco Signature/Chipco 26GT. Other treatments in the study provided significant improvement in turf quality compared to the control at some point during the study, but this difference was not consistent for the entire course of the study.