

TURFGRASS DISEASE MANAGEMENT REPORT 1995-96

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I. Snow Mold Fungicide Studies - 1995-96

Studies A & B

The snow mold fungicide studies were conducted during the fall and winter of 1995-96. The study was established at the Tree Tops/Sylvan Resort in Gaylord, MI. Treatments were applied preventively to three replicate 6' x 9' plots on bentgrass fairways mowed at 1/2". The treatments were applied on November 6, 1995. Liquid treatments were applied with a CO₂ sprayer at 32 PSI and 48 GPA utilizing 8002E flat fan nozzles. Granular treatments were pre-weighted and hand-applied.

The study was rated on April 18, 1996, immediately following snow cover melt-off. The predominant snow mold species was gray snow mold (*Typhula ishikariensis*). As the data indicates, disease pressure was moderate this year, with approximately 60% infection in the controls (Table 1). Under these moderate disease conditions, most treatments gave statistically significant control of snow mold, compared to the untreated controls. Effective treatments include all the standard snow molds products (Scotts F + F II, Calo Clor, Turfcide 400, Daconil 27887 + Chipco 26019, etc.) as well as many untraditional and experimental treatments (Fore, Heritage, IB 10222, UBI 4121, etc). No phytotoxicity was observed except for severe yellowing in the Calo Clor plots, as reflected in the quality ratings (Table 1).

Table 1. Snow Mold Fungicide Study - 1995-96 at Tree Tops/Sylvan Resort, Gaylord, Mi

Rating Scale: Percent plot area infected by gray snow mold (*Typhula ishikariensis*). Quality rating: (5) = best, (0) = worst.

Rating Date: April 17, 1996

| Treatment | Rate/1000 ft ² | Ie | II | III | AVG (TUKEYS) ^a | |
|---------------------------|---------------------------|--------|--------|--------|---------------------------|---|
| Calo Clor | 3 oz | 0(2) | 0(2) | 0(3) | 0 | A |
| Heritage + Banner | 0.4 oz + 4 fl oz | 0(5) | 0(5) | 0(5) | 0 | A |
| IB 11924 | 8 fl oz | 0(5) | 9(5) | 0(5) | 0 | A |
| Ch. 26019 FLO + Dac. 2787 | 8 fl oz + 8 fl oz | 0(5) | 0.5(5) | 0(5) | 0.17 | A |
| Turfcide 400 | 12 fl oz | 0(4) | 0.5(4) | 0(5) | 0.17 | A |
| Turfcide 400 + Dac. 2787 | 8 fl oz + 8 fl oz | 0.5(4) | 0(5) | 0(5) | 0.17 | A |
| Heritage + Fluazinam 500 | 0.4 oz + 2.5 fl oz | 0(5) | 0(5) | 0.5(5) | 0.17 | A |
| Fluazinam 500 + PCNB | 1.5 fl oz + 4 oz | 1(4) | 0(5) | 0(5) | 0.33 | A |
| UBI 4121 | 160 oz | 0.5(4) | 0.5(4) | 0(5) | 0.33 | A |
| Turfcide 400 + Heritage | 8 fl oz + 0.7 oz | 0(5) | 0.5(5) | 0.5(5) | 0.33 | A |
| Ch. 26019 FLO + Terraclor | 4 fl oz + 8 oz | 0.5(4) | 0.5(4) | 0(5) | 0.33 | A |
| Eagle + Fore (WP) | 1.2 oz + 6 oz | 0.5(5) | 0(5) | 0.5(5) | 0.33 | A |
| Banner MAXX + Medallionc | 4 fl oz + 0.5 oz | 0.5(4) | 0.5(5) | 0(5) | 0.33 | A |
| Heritage + Terraclor | 0.4 oz + 8 oz | 0.5(5) | 1(5) | 0(5) | 0.5 | A |
| IB 11521 + Ch. 26109 FLO | 8 fl oz + 4 fl oz | 1(5) | 0.5(5) | 0(5) | 0.5 | A |
| Turfcide 400 + Spotrete | 8 fl oz + 6 oz | 0.5(4) | 0.5(5) | 0.5(5) | 0.5 | A |
| Turfcide 400 | 8 fl oz | 0.5(4) | 0.5(5) | 0.5(5) | 0.5 | A |
| IB 10222 + Ch. 26019 FLO | 6 oz + 4 fl oz | 0.5(5) | 0.5(5) | 0.5(5) | 0.5 | A |
| Heritage + Rubigan | 0.4 oz + 8 fl oz | 0.5(5) | 0.5(5) | 0.5(5) | 0.5 | A |
| Rizolex | 4 oz | 0.5(5) | 1(5) | 0.5(5) | 0.7 | A |

cont.

Table 1. cont.

| Treatment | Rateb/1000 ft ² | Ic | II | III | AVG (TUKEYS)a | |
|--|----------------------------|--------|--------|--------|---------------|-----|
| Ch. 26019 FLO + Dac. 2787 | 4 fl oz + 8 fl oz | 0.5(5) | 0.5(5) | 1(5) | 0.7 | A |
| Ch. 26019 FLO + Dac. Ultrex | 4 fl oz + 4.8 oz | 0.5(5) | 0.5(5) | 1(5) | 0.7 | A |
| Turfcide 400 + Prostar | 8 fl oz + 4 oz | 1(4) | 1(5) | 0(5) | 0.7 | A |
| Sentinel + Rizolex | 0.33 oz + 4 oz | 1(5) | 1(5) | 0.5(5) | 0.8 | A |
| Fluazinam 500 | 1 fl oz | 1(5) | 0.5(5) | 1(5) | 0.8 | A |
| Turfcide 400c | 12 fl oz | 0.5(4) | 0.5(4) | 2(5) | 1.0 | A |
| Eagle + Fore (WP) | 1.8 + 6 oz | 0.5(5) | 2(5) | 0.5(5) | 1.0 | A |
| Heritage + Terraclor | 0.7 oz + 8 oz | 1(5) | 2(5) | 0.5(5) | 1.2 | A |
| RH - 0611 | 8 oz | 3(5) | 1(5) | 1(5) | 1.7 | A |
| Banner MAXX + Turfcide 400c | 4 fl oz + 9 fl oz | 5(3) | 0(4) | 0(5) | 1.7 | A |
| Dac. 2787 + Cl. 3336 | 8 fl oz + 2 oz | 5(5) | 0(5) | 0.5(5) | 1.8 | A |
| Ch. 26019 FLO + PCNB + Dac. 2787 | 4 fl oz + 4 oz + 8 fl oz | 5(5) | 0.5(5) | 0(5) | 1.8 | A |
| Calo Gran | 6 lbs. | 3(3) | 0.5(3) | 2(4) | 1.8 | A |
| Turfcide 15G | 107 oz | 5(4) | 0.5(5) | 0(5) | 1.8 | A |
| TOF 020795-5 | 8 oz | 0.5(4) | 5(5) | 0(5) | 1.8 | A |
| Eagle + Fore (WP) | 0.6 oz + 6 oz | 2(5) | 3(5) | 0.5(5) | 1.8 | A |
| Terraclor | 8 oz | 3(5) | 3(5) | 0(5) | 2.0 | A |
| Aliette + Fore (F) + Dac. Ultrex ^d | 4 oz + 8 fl oz + 4.8 oz | 5(5) | 0.5(5) | 1(5) | 2.2 | A |
| Dac. 2787 | 6 fl oz | 3(5) | 3(5) | 0.5(5) | 2.2 | A |
| Dac. 2787 + PCNB | 8 fl oz + 4 oz | 7(5) | 3(5) | 0(5) | 3.3 | AB |
| Fore (WP) | 8 oz | 2(5) | 10(5) | 0.5(5) | 4.2 | AB |
| Aliette + Fore (F) ^d | 4 oz + 8 fl oz | 10(5) | 2(5) | 1(5) | 4.3 | AB |
| Heritage | 0.7 oz | 10(5) | 1(5) | 5(5) | 5.3 | ABC |
| Aliette + Fore (F) + Ch. 26019 FLO ^d | 4 oz + 8 fl oz + 4 fl oz | 3(5) | 0.5(5) | 20(5) | 7.8 | ABC |
| Scts. F + F II | 2X | 20(4) | 7(5) | 0.5(5) | 9.2 | ABC |
| Ch. 26910 FLO + Prostar | 4 fl oz + 6 oz | 10(4) | 2(4) | 20(4) | 10.7 | ABC |
| Eagle | 1.8 oz | 25(4) | 7(4) | 0(5) | 10.7 | ABC |
| Turfcide 10G | 160 oz | 15(4) | 20(5) | 3(5) | 12.7 | ABC |
| Heritage | 0.4 oz | 35(5) | 10(5) | 0.5(5) | 15.2 | ABC |
| Banner MAXX ^c | 4 fl oz | 45(4) | 5(5) | 15(5) | 21.7 | A-D |
| Heritage + Fungo 85 | 0.4 oz + 2.4 oz | 40(5) | 25(5) | 10(5) | 25.0 | A-D |
| Ch. 26019 (WP) | 2 oz | 40(4) | 25(5) | 20(5) | 28.3 | A-D |
| PX-293 | 1 lb | 80(4) | 15(5) | 2(5) | 32.5 | A-E |
| V-10028 | 27.33 gm | 35(5) | 25(5) | 40(5) | 33.3 | A-E |
| V-10028 | 54.7 gm | 25(5) | 35(5) | 40(5) | 33.3 | A-E |
| Eagle | 1.2 oz | 20(5) | 55(5) | 35(5) | 36.7 | A-E |
| Eagle | 0.6 oz | 65(1) | 35(4) | 15(4) | 38.3 | A-E |
| PX-293 | 0.5 lb | 65(4) | 25(5) | 35(5) | 41.7 | B-E |
| PX-293 | 0.75 lb | 80(4) | 30(5) | 20(5) | 43.3 | CDE |
| Control | ----- | 85(1) | 80(4) | 15(5) | 60.0 | DE |
| Vig. 7-0-0-8 | 10 lbs. | 80(3) | 80(4) | 50(5) | 70.0 | E |

aTreatments followed by the same letter are not significantly different from each other at the 5% level (Tukey's Honestly Significant Differences Test).

bRates are formulation

cApplied in a spray volume of 5 gallons/1000 ft²

dLatron CS-7 added at 0.5 oz/gallon spray volume as a compatibility agent.

eRatings in parentheses indicate turf quality, based primarily on turf color.

II Brown Patch Fungicide Study - 1996

Hancock Turfgrass Research Center, E. Lansing, MI

The brown patch fungicide study at the turf center on the MSU campus was established on irrigated perennial ryegrass. It was maintained at 1.5 inches of height and was fertilized at 2 lb nitrogen per 1000 sq ft per month to promote disease. Plots were 2' x 4.5' with 1' alleys between rows. Four replications of each treatment were included. Brown patch plots were inoculated with *Rhizoctonia* growing on a cornmeal/sand mixture to encourage uniform disease development. Plots were covered with plastic greenhouse trays in the evenings to maintain high humidity levels during the night. The trays were removed in the mornings. Treatments were applied beginning on 6/28/96 according to company protocols and were re-applied according to the specifications in Table 2. Daily treatments were applied beginning on 6/12/96. Application equipment and procedures are those described in the snow mold study section of this write up.

Due to cool, mild temperatures and relatively low humidity, disease severity was not very great. A rather superficial infection occurred which is the basis for these ratings. As the data in Table 4 indicates, many of our standards performed well including Daconil, Ultrex, and Thalonil. Sentinel and Heritage also performed well.

No phytotoxicity was observed in this study this year.

Table 2. Brown Patch Fungicide Study, Hancock Turfgrass Research Center, E. Lansing, MI.

Rating Scale: Percent area under pan infected by brown patch (*Rhizoctonia solani*)

Rating Date: August 7, 1996

| Treatment | Rate/1000 ft ² b | Applic. Interval | I | II | III | IV | AVG LSD(.05)a |
|-------------------|-----------------------------|------------------|----|----|-----|----|---------------|
| RH-130753 | 1 oz | 28 days | 0 | 0 | 0 | 0 | 0 A |
| Heritage | 0.25 oz | 28 days | 0 | 0 | 0 | 0 | 0 A |
| RH-130753 | 0.5 oz | 28 days | 0 | 0 | 0 | 1 | 0.25 A |
| Daconil | | | | | | | |
| Weather Stik | 4.1 fl oz | 14 days | 0 | 0 | 1 | 0 | 0.25 A |
| Daconil Ultrex | 3.8 oz | 14 days | 0 | 1 | 1 | 0 | 0.5 AB |
| Sentinel | 0.25 oz | 21 days | 0 | 1 | 0 | 5 | 1.5 AB |
| Daconil Ultrex + | | | | | | | |
| IB10813 | 3.8 oz + 0.5% v/v | 14 days | 1 | 0 | 5 | 0 | 1.5 AB |
| Spectro | 5 oz | 14 days | 0 | 5 | 5 | 0 | 2.5 A-C |
| RH-130753 | 0.25 oz | 28 days | 0 | 5 | 0 | 5 | 2.5 A-C |
| IB11924 | 2.75 fl oz | 14 days | 10 | 1 | 0 | 0 | 2.75 A-C |
| Sentinel | 0.33 oz | 21 days | 1 | 5 | 5 | 0 | 2.75 A-C |
| Heritage | 0.4 oz | 21 days | 5 | 0 | 5 | 1 | 2.75 A-C |
| Daconil Ultrex + | | | | | | | |
| Aliette Signature | | | | | | | |
| WDG | 3.8 oz + 4 oz | 14 days | 10 | 0 | 1 | 0 | 2.75 A-C |
| Thalonil 4L | 6 fl oz | 14 days | 1 | 1 | 0 | 10 | 3.0 A-C |
| Exp. 10704A + | | | | | | | |
| Dithane | | | | | | | |
| | 4 oz + 8 oz | 14 days | 5 | 5 | 0 | 5 | 3.75 A-C |
| Daconil Ultrex | 4 oz | 14 days | 0 | 0 | 5 | 10 | 3.75 A-C |

Table 2. cont.

| Treatment | Rate/1000 ft ² b | Applic. Interval | I | II | III | IV | AVG LSD(.05)a |
|-------------------|-----------------------------|------------------|----|----|-----|----|---------------|
| Eagle WP | 0.6 oz | 14 days | 0 | 0 | 0 | 15 | 3.75 A-C |
| Eagle WP + Fore | 0.6 oz + 6 oz | 14 days | 10 | 1 | 5 | 0 | 4.0 A-C |
| Thalonil 6L | 4 fl oz | 14 days | 1 | 5 | 5 | 5 | 4.0 A-C |
| Amv 53d | 2 oz | 14 days | 1 | 5 | 0 | 15 | 5.25 A-D |
| Daconil ZN | 6 fl oz | 14 days | 5 | 0 | 15 | 5 | 6.25 A-E |
| IB11522 | 4 fl oz | 14 days | 10 | 5 | 5 | 5 | 6.25 A-E |
| RH-130753 | 1 oz | 21 days | 0 | 0 | 20 | 5 | 6.25 A-E |
| Amv 53 d | 4 oz | 14 days | 5 | 10 | 5 | 5 | 6.25 A-E |
| RH-130753 | 0.25 oz | 21 days | 0 | 10 | 10 | 10 | 7.5 A-E |
| Thalonil 90DF | 3.5 oz | 14 days | 5 | 15 | 5 | 5 | 7.5 A-E |
| Daconil ZN + | | | | | | | |
| Aliette Signature | | | | | | | |
| WDG | 6 fl oz + 4 oz | 14 days | 20 | 0 | 10 | 0 | 7.5 A-E |
| IB1223 1 | 4.7 oz | 14 days | 15 | 10 | 5 | 0 | 7.5 A-E |
| Amv 41 d | 4 fl oz | 14 days | 10 | 5 | 20 | 0 | 8.75 A-E |
| Prostar WP | 2 oz | 14 days | 20 | 0 | 0 | 15 | 8.75 A-E |
| Daconil 2787(F) | 6 fl oz | 14 days | 5 | 20 | 10 | 1 | 9.0 A-E |
| Procymidone | 1 oz | 14 days | 10 | 5 | 10 | 15 | 10.0 A-E |
| Amv 41 d | 2 fl oz | 14 days | 25 | 10 | 5 | 5 | 11.25 A-E |
| Rizolex | 3 oz | 21 days | 15 | 15 | 0 | 15 | 11.25 A-E |
| Eagle WP | 1.2 oz | 21 days | 25 | 0 | 0 | 25 | 12.5 A-F |
| Heritage | 0.25 oz | 21 days | 10 | 5 | 10 | 25 | 12.5 A-F |
| RH-130753 | 0.5 oz | 21 days | 20 | 5 | 25 | 5 | 13.75 A-G |
| Boiled TSB | ----- | Daily | 30 | 10 | 10 | 5 | 13.75 A-G |
| Prostar WP | 2 oz | 21 days | 25 | 0 | 30 | 5 | 15.0 A-H |
| Chipco 26019 | | | | | | | |
| WDG | 2 oz | 14 days | 0 | 20 | 10 | 35 | 16.25 A-I |
| WAC 71 EXP | 7 oz | 14 days | 20 | 10 | 5 | 35 | 17.5 A-I |
| Exp. 10715A + | | | | | | | |
| Dithane | 4 oz + 4 oz | 14 days | 0 | 5 | 40 | 25 | 17.5 A-I |
| Exp. 10751A + | | | | | | | |
| Dithane | 8 oz + 8 oz | 14 days | 1 | 5 | 55 | 10 | 17.75 A-I |
| Spotrete + | | | | | | | |
| Clearspray | 5 oz + 2 fl oz | 14 days | 25 | 1 | 20 | 25 | 17.75 A-I |
| Exp. 10715A | 8 oz | 14 days | 15 | 50 | 5 | 1 | 17.75 A-I |
| Chipco 26019 | | | | | | | |
| 50WP | 2 oz | 14 days | 1 | 25 | 15 | 40 | 20.25 A-J |
| Chipco Aliette | | | | | | | |
| WDG + Fore WP | 4 oz + 8 oz | 14 days | 5 | 20 | 50 | 10 | 21.25 B-J |
| Procymidone | 3 oz | 14 days | 25 | 10 | 10 | 40 | 21.25 B-J |
| Companion | 4 fl oz | 14 days | 35 | 20 | 25 | 10 | 22.5 C-J |
| TX-1 | 107 CFU/cm ² | Daily | 25 | 0 | 70 | 5 | 25.0 D-J |

cont.

Table 2. cont.

| Treatment | Rate/1000 ft ² b | Applic. Interval | I | II | III | IV | AVG LSD(.05)a | |
|----------------------------------|-----------------------------|------------------|----|----|-----|----|---------------|-----|
| Chipco 26019 50WP | 1.5 oz | 14 days | 5 | 50 | 35 | 10 | 25.0 | D-J |
| Actinovate | 3#/acre/season | 14 days | 65 | 5 | 60 | 0 | 32.5 | F-J |
| Companion 2 | 4 fl oz | 14 days | 25 | 25 | 80 | 0 | 32.5 | F-J |
| Chipco 26019 WDG | 1.5 oz | 14 days | 30 | 20 | 30 | 50 | 32.5 | F-J |
| Chipco 26019 F | 3 fl oz | 14 days | 20 | 30 | 30 | 50 | 32.5 | F-J |
| Procymidone | 5 oz | 14 days | 55 | 55 | 10 | 15 | 33.75 | G-J |
| Untreated control | ---- | ---- | 60 | 30 | 30 | 25 | 36.25 | IJ |
| Chipco 26019 F | 4 fl oz | 14 days | 30 | 20 | 25 | 80 | 38.75 | J |
| Chipco 26019 F + Clearys 3336 | 2 fl oz + 2 fl oz | 14 days | 25 | 85 | 90 | 80 | 70.0 | K |

aTreatments followed by the same letter are not significantly different from each other at the 5% level (LSD).

bRates represent formulated product.

cMild phytotoxicity observed on

d Amv treatments plugged sprayer screens and had to be filtered before each application.

Take-all Fungicide Studies-1996

Fungicide studies for the preventive control of take-all patch (*Gaeumannomyces graminis*) on creeping bentgrass were established on irrigated fairways on two Michigan golf courses with a history of take-all patch disease. The Lakewood Shores Golf Club (Oscoda, MI) study was initiated in early spring 1996.

Treatments were applied to four replicate 6'x9' plots in both studies using equipment and procedures previously described in this report (refer to snow mold section). Treatments were generally re-applied monthly or as cited in the data tables and the studies (non-fertility treatments) were fertilized monthly with Lebanon Country Club fertilizer (18-5-9) at 0.5 lb nitrogen/1000 ft².

Lakewood Shores Golf Club, Oscoda, MI

This study was established on a perennially infected bentgrass fairway on May 2, 1996, shortly after the second mowing of the season. No pre-treatment disease ratings were taken because the disease was not active. The spring-initiated fungicide treatments were applied on May 2 and re-applied on June 5 (except as noted in the data tables), while the fertilizer treatments were applied May 2 and monthly throughout the growing season.

As the data in table 3, 4, & 5 indicate, on all these rating dates, the one pound rates of ammonium sulfate, IBDU, and sulfur-coated urea produced statistically significant disease management compared to the controls (fertilized and unfertilized). The high rate fertility treatments also produced the best quality turf. The fungicides also provided some disease management, although the differences were statistically different from the fertilized control treatments, except for the Rubigan (1oz.) and the Banner (4fl.oz) treatments on Oct 19 (Table5).

Table 3. Lakewood Shores Golf Club Take-all Patch Fungicide Study-1996

Rating Scale: Percent plot area infected by take-all patch (*Gaeumannomyces graminis*). Quality rating: (10)=best, (0)=worst, (7)=acceptable.

Rating Date: Aug. 2, 1996

| Treatment | Rate/1000ft ² b | Applic. Timing | I | II | III | IV | AVG TUKEYS(.05)>a |
|------------------------|----------------------------|---------------------------|-------|-------|-------|-------|-------------------|
| Sulfur Coated Urea | 1#N/MO. | Monthly | 5(9) | 0(9) | 2(9) | 0(9) | 1.8(9.0) B |
| Amm. Sulfate | 1#N/MO. | Monthly | 2(10) | 3(9) | 2(8) | 0(10) | 1.8(9.3) B |
| IBDU | 1#N/MO. | Monthly | 5(9) | 0(8) | 5(8) | 3(9) | 3.3(8.5) B |
| Banner | 4 fl oz | 5/2, 6/5 | 7(7) | 10(7) | 10(7) | 5(8) | 8.0(7.8) B |
| Amm. Sulfate | 1/2#N/MO. | Monthly | 15(8) | 0(8) | 15(7) | 5(8) | 8.8(7.8) B |
| Sulfur Coated Urea | 1/2#N/MO. | Monthly | 15(6) | 15(7) | 5(9) | 3(8) | 9.5(7.5) B |
| Rubigan (WP)c | 2 oz | 5/2 only | 10(8) | 25(6) | 5(8) | 10(6) | 12.5(7.0) B |
| Fluazinam 500 | 1.5 fl oz | 5/2, 6/5 | 30(6) | 15(7) | 0(7) | 10(7) | 13.8(6.8) AB |
| Clearys 3336 (WP)c | 8 oz | 5/2, 6/5 | 30(7) | 10(8) | 15(6) | 0(10) | 13.8(7.8) AB |
| IBDU | 1/2#N/MO. | Monthly | 20(8) | 10(7) | 15(7) | 10(8) | 13.8(7.5) AB |
| Fluazinam 500 | 0.5 fl oz | 5/2, 6/5 | 25(7) | 7(7) | 10(8) | 20(6) | 15.5(7.0) AB |
| Fluazinam 500 | 1 fl oz | 5/2, 6/5 | 20(7) | 5(8) | 5(7) | 40(6) | 17.5(7.0) AB |
| Control (fertilized) | 1/2 lb N | Monthly | 40(6) | 10(7) | 10(7) | 10(8) | 17.5(7.0) AB |
| Rubigan (WP)c | 1 oz | 5/2, 6/5, 2 fall apps. | 20(7) | 20(7) | 25(7) | 10(7) | 18.8(7.0) AB |
| Rubigan (WP)c | 1 oz | 5/2, 6/5 | 10(8) | 15(7) | 35(6) | 30(6) | 22.5(6.8) AB |
| Control (unfertilized) | _____ | _____ | 25(6) | 35(5) | 40(5) | 50(6) | 37.5(5.5) A |

aTreatments followed by the same letter are not significantly different from each other at the 5% level (Tukeys Honestly Significant Differences Test).

bRates are formulated product

cTreatments watered in before dry on foliage

Table 4. Lakewood Shores Golf Club Take-all Patch Fungicide Study - 1996

Rating Scale: Percent plot area infected by take-all patch (*Gaeumannomyces graminis*). Quality rating: (10)=best, (0)=worst, (7)=acceptable

Rating Date: Sept. 4, 1996

| Treatment | Rate/1000 ft ² ^b | Applic. Timing | I | II | III | IV | AVG.(TUKEYS.05) ^a |
|---------------------------|--|--------------------------|-------|-------|-------|-------|------------------------------|
| Amm. Sulfate | 1 lb N | Monthly | 0(9) | 0(9) | 0(10) | 0(9) | 0(9.3) B |
| Sulfur Coated Urea | 1 lb N | Monthly | 0(10) | 0(9) | 0(10) | 0(10) | 0(9.8) B |
| IBDU | 1 lb N | Monthly | 0(9) | 0(10) | 0(9) | 0(10) | 0(9.5) B |
| Amm. Sulfate | 1/2 lb N | Monthly | 5(8) | 0(8) | 3(8) | 0(8) | 2.0(8) B |
| Banner | 4 fl oz | 5/2, 6/5 | 8(8) | 0(8) | 3(7) | 0(8) | 2.8(7.8) B |
| Clearys 3336 ^c | 8 oz | 5/2, 6/5 | 10(7) | 0(8) | 3(7) | 2(8) | 3.8(7.5) B |
| IBDU | 0.5 lb N | Monthly | 10(8) | 0(8) | 7(8) | 0(8) | 4.3(8) B |
| Rubigan (WP) ^c | 2 oz | 5/2 only | 3(9) | 10(6) | 0(8) | 10(7) | 5.8(7.5) B |
| Sulfur Coated Urea | 1/2 lb N | Monthly | 15(7) | 7(8) | 0(9) | 2(9) | 6.0(8.3) B |
| Rubigan (WP) ^c | 1 oz | 5/2, 6/5 | 0(8) | 3(7) | 20(7) | 10(7) | 8.3(7.3) AB |
| Fluazinam 500 | 1.5 fl oz | 5/2, 6/5 | 25(6) | 5(7) | 0(8) | 10(7) | 10.0(7) AB |
| Rubigan (WP) ^c | 1 oz | 5/2, 6/5, 2 fall apps | 20(7) | 5(7) | 15(6) | 3(8) | 10.8(7) AB |
| Fluazinam 500 | 0.5 fl oz | 5/2, 6/5 | 15(7) | 3(7) | 15(6) | 3(8) | 10.8(6.8) AB |
| Fluazinam | 1 fl oz | 5/2, 6/5 | 15(7) | 0(8) | 0(8) | 30(5) | 11.3(7) AB |
| Control (fertilized) | 1/2 lb N | Monthly | 30(6) | 10(7) | 5(7) | 5(7) | 12.5(6.8) AB |
| Control (unfertilized) | _____ | _____ | 5(6) | 25(5) | 35(5) | 50(4) | 28.8(5) A |

^aTreatments followed by the same letter are not significantly different from each other at the 5% level (Tukey's Honestly Significant Differences Test).

^bRates are formulated product.

^cTreatments watered in prior to drying on foliage

Table 5. Lakewood Shores Golf Club Take-all Patch Fungicide Study - 1996

Rating Scale: Percent plot area infected by take-all patch (*Gaeumannomyces graminis*). Quality rating: (10)=best, (0)=worst, (7)=acceptable.

Rating Date: Oct. 19, 1996

| Treatments | Rate/1000 ft ² ^b | Applic. Timing | I | II | III | IV | AVG. (TUKEYS.05) ^a | |
|--------------------------------|--|--------------------|-------|-------|-------|-------|-------------------------------|----|
| Amm. Sulfate | 1 lb N | Monthly | 0(9) | 0(9) | 0(9) | 0(9) | 0(9) | B |
| Sulfur Coated Urea | 1 lb N | Monthly | 0(9) | 0(9) | 0(9) | 0(8) | 0(8.8) | B |
| IBDU | 1 lb N | Monthly | 0(8) | 0(8) | 0(9) | 0(9) | 0(8.5) | B |
| Amm. Sulfate | 1/2 lb N | Monthly | 5(7) | 0(7) | 2(7) | 0(7) | 1.8(7.0) | B |
| Banner | 4 fl oz | 5/2, 6/5 | 5(7) | 0(6) | 5(7) | 0(7) | 2.5(6.8) | B |
| Rubigan (WP) ^d | 1 oz | 5/2, 6/5 | 0(7) | 3(7) | 7(7) | 7(6) | 4.3(6.8) | AB |
| IBDU | 1/2 lb N | Monthly | 7(7) | 3(7) | 5(7) | 5(7) | 5(7) | AB |
| Rubigan (WP) ^d | 2 oz | 8/2 only | 2(7) | 10(7) | 0(8) | 10(7) | 5.5(7.3) | AB |
| Clearys 3336 (WP) ^d | 8 oz | 5/2, 6/5, 10/2 | 7(7) | 3(7) | 5(7) | 10(7) | 6.3(7) | AB |
| Rubigan (WP) ^d | 2 oz | 5/2 only | 5(7) | 10(7) | 3(7) | 10(6) | 7(6.8) | AB |
| Bayleton ^{cd} | 4 oz | 8/2, 9/4 | 7(7) | 5(7) | 10(7) | 10(6) | 8(6.8) | AB |
| Rubigan (WP) ^d | 1 oz | 8/2, 9/4 | 5(7) | 10(7) | 7(7) | 10(6) | 8(6.8) | AB |
| Banner | 4 fl oz | 8/2, 9/4 | 20(6) | 7(6) | 5(6) | 0(6) | 8(6) | AB |
| Sulfur Coated Urea | 1/2 lb N | Monthly | 20(6) | 12(7) | 0(7) | 2(8) | 8.5(7) | AB |
| Fluazinam 500 | 0.5 fl oz | 5/2, 6/5 | 10(7) | 7(7) | 10(6) | 10(6) | 9.3(6.5) | AB |
| Fluazinam 500 | 1 fl oz | 5/2, 6/5 | 12(7) | 0(6) | 0(6) | 30(5) | 10.5(6) | AB |
| Lynx (250 EW) ^c | 1.92 fl oz | 8/2, 9/4 | 10(7) | 15(5) | 10(6) | 10(6) | 11.3(6) | AB |
| Rubigan (WP) ^d | 1 oz | 5/2, 6/5, 8/2, 9/4 | 15(7) | 10(6) | 10(6) | 10(6) | 11.3(6.3) | AB |
| Fluazinam 500 | 1.5 fl oz | 5/2, 6/5 | 25(6) | 10(6) | 0(6) | 10(7) | 11.3(6.3) | AB |
| Control (fertilized) | 1/2 lb N | Monthly | 25(6) | 10(6) | 15(7) | 5(7) | 13.8(6.5) | AB |
| Lynx (DF) ^c | 2 oz | 8/2, 9/4 | 25(6) | 10(6) | 3(7) | 25(6) | 15.8(6.3) | AB |
| Control (unfertilized) | _____ | _____ | 10(4) | 20(3) | 15(5) | 30(3) | 18.8(3.4) | A |

^aTreatments followed by the same letter are not significantly different from each other at the 5% level (Tukey's Honestly Significant Differences Test).

^bRates are formulated product.

^cTreatments applied in 2 gallons/1000 ft²

^dTreatments watered in before dry on foliage.