Take All Patch (*Gaeumannomyces graminis*)

Take All Patch (*Gaeumannomyces graminis*) studies were conducted preventively and curatively this year. The preventive study was established on the Lynx Golf Club in Otsego, MI on a bentgrass fairway where take-all patch has been observed in recent years. Unfortunately, no active disease was observed on this fairway this year, so no data was available. A curative study was established on an actively diseased bentgrass fairway at the Bloomfield Hills Golf Club in Bloomfield Hills, MI. The study was set out in 4 replications of a randomized complete block design utilizing 6' x 9' plots, each of which displayed one or more take-all patches. A pre-treatment disease rating was taken on 5/31, and initial treatments were applied on 6/6. Applications were made with a small plot, CO_2 sprayer with two flat fan nozzles at 30 PSI and 48 GPA. Treatments were re-applied at the interval cited in the data table (Table 10) through 7/10, when the last disease rating was taken. Fertility was applied on 6/6 (1/4 #N/1000 ft^2), on 6/19 (1/4 #N/1000 ft^2), and on 6/29 (1/4 #N/1000 ft^2) to promote new growth in the treated plots.

A second curative take-all patch study was established on a diseased bentgrass fairway at the Golf Club of Michigan. The study was established in 4 replicates of 6' x 9' plots in a randomized complete block design. Treatments were applied with a CO_2 backpack sprayer using flat-fan nozzles at 32 PSI and 100 GPA. Because disease was already present, a pre-treatment disease rating was taken prior to application of the initial treatments on Aug 8. The fertilizer treatments were pre-weighed and hand-applied. The fungicide plots were fertilized at the rate of ¼ #N/1000 ft^2 every 14 days throughout the course of the study, with the initial application being made on Aug 9. Fungicides and fertilizers were reapplied at intervals listed in the data table.

As the data in Table 10 indicate, by the 7/5 rating, most of the fungicide treatments were promoting a significantly faster recovery than the untreated controls were experiencing. By the 7/10 rating, all the treatments exhibited significantly better recovery than the untreated control. The recovery that was observed in the controls during the course of the study can be attributed to the low rate of fertility that was applied to the overall study. Data were analyzed using ANOVA and the LSD test (0.05).

As the data in Table 11 indicate, Heritage was very effective in curing this take-all outbreak. As we have seen in the past, somewhat elevated fertility (ammonium sulfate, sulfur-coated urea, Country Club 18-3-18) also proved efficacious in managing the disease. The failure of 3336 and Banner Maxx fungicides to control this outbreak was surprising. Fertility in the plot area was very low when the first treatments were applied and remained moderate through the end of the study. This may explain the apparent lack of efficacy we usually observe with 3336. Data were analyzed using ANOVA and the LSD test (0.05).

Table 10. Take All Patch, Bloomfield Hills CC, Bloomfield Hills, MI
Rating Scale: Mean % recovery from pre-treatment disease levels on 5/31.

Treatment Rate/1000 sq ft	Int.	19-Jun[a]	26-Jun	5-Jul	10-Jul
Heritage (ICIA 5504) 18 gm/100 sq m	28	45.1 a	52.5 ab	88.6 a	93.8 a
Heritage (ICIA 5504) 12 gm/100 sq m	28	26.7 ab	39.6 a-d	82.2 a-c	93.5 a
TADS 12529 (70 WG) 4.25 g	28	31.3 ab	31.7 a-d	77.9 a-c	92.1 ab
Heritage (50WG) 0.4 oz (2 apps only)	28	49.2 a	48.3 a-c	88.8 a	91.8 ab
Heritage (ICIA 5504) 6 gm/100 sq m	28	32.5 ab	63.3 a	86.7 ab	91.7 ab
Chipco Triton (1.67SC) 1 fl oz	14	19.4 a-d	42.7 a-d	79.0 a-c	89.5 a-c
Chipco Triton (1.67SC) 0.5 fl oz	14	20.0 a-d	-7.5 e	71.8 a-d	89.5 a-c
Compass (50WG) 0.25 oz + Banner Maxx 2 fl oz	28	-5.0 cd	20.8 b-e	77.5 a-c	87.2 a-e
Chipco Triton (1.67SC) 1 fl oz	28	20.8 a-d	40.1 a-d	75.4 a-c	86.4 a-e
TADS 12529 (70 WG) 8.5 g	28	24.2 a-c	39.7 a-d	81.5 a-c	85.7 a-e
Compass (50WG) 0.20 oz + Banner Maxx 2 fl oz	28	10.0 b-d	38.0 a-d	79.3 a-c	83.8 a-e
Banner Maxx 8.1 gm ai/100 sq m	28	7.7 b-d	25.0 a-e	69.8 a-d	78.1 a-e
3336 F 6 fl oz	14	5.0 b-d	43.3 a-d	52.1 de	76.7 b-e
Compass (50WG) 0.25 oz	28	22.7 a-d	21.9 b-e	62.9 cd	73.7c-e
Chipco Triton (1.67SC) 0.5 fl oz	28	25.1 a-c	15.8 b-e	66.4 b-d	72.7 de
Banner Maxx 2 fl oz	14	-7.7 d	8.4 de	65.4 cd	71.6 e
Control	--	22.7 a-d	12.1 c-e	35.7 e	53.7 f

[a] Means followed by the same letter do not significantly differ (LSD, p=0.05).

Table 11. Take All Patch, Golf Club of Michigan, Brighton, MI
Rating Scale: Mean % recovery from pre-treatment disease levels on 8/8.
Rating Date: 10/18/00

Treatment and Rate/1000 ft^2	Interval (Days)	Mean (LSD[a])
Heritage (50WG) 0.4 oz *(2 apps only)*	28	87.9 a
Heritage (ICIA 5504) 18 gm/100 sq m	28	80.0 ab
Heritage (ICIA 5504) 12 gm/100 sq m	28	74.7 a-c
Ammonium sulfate 1/2 #N	14	69.6 a-d
Country Club 18-3-18 1/2#N	14	59.2 a-e
Heritage (ICIA 5504) 6 gm/100 sq m	28	58.8 a-e
Sulfur-coated urea 1/2#N	14	49.9 a-f
TADS 12529 (70 WG) 4.25 g/1000 sq ft	28	35.8 a-g
Chipco Triton (1.67SC) 0.5 fl oz	14	34.6 a-g
Chipco Triton (1.67SC) 0.5 fl oz	28	25.1 a-g
3336 F 6 fl oz	14	21.0 b-g
Banner Maxx 8.1 gm ai/100 sq m	28	19.7 b-g
Banner Maxx 2 fl oz	14	19.2 b-g
Chipco Triton (1.67SC) 1 fl oz	28	15.8 c-g
TADS 12529 (70 WG) 8.5 g/ 1000 sq ft	28	13.2 c-g
Chipco Triton (1.67SC) 1 fl oz	14	13.1 c-g
Compass (50WG) 0.25 oz + Banner Maxx 2 fl oz	28	10.8 c-g
Sulfur-coated urea 1/4#N	14	9.6 d-g
Ammonium sulfate 1/4 #N	14	9.5 d-g
Compass (50WG) 0.25 oz	28	-11.0 fg
Control (fertilized)	--	-14.6 g
Compass (50WG) 0.20 oz + Banner Maxx 2 fl oz	28	-19.1 g
Unfertilized control	--	-106.3 h

[a] Means followed by the same letter do not significantly differ (LSD, p=0.05).