

## Seasonal Programs for Control of Turfgrass Diseases

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### OBJECTIVE

To determine the efficacy of fungicide spray programs for the control of turfgrass diseases and abiotic stresses throughout the summer.

### MATERIALS AND METHODS

The study was conducted at the O.J. Noer Turfgrass Research and Education Facility on a mixed stand of creeping bentgrass (*Agrostis stolonifera*) and annual bluegrass (*Poa annua*) maintained at 0.100 inch cutting height. The individual plots measured 3 ft X 10 ft and were arranged in a randomized complete block design with four replications. Individual treatments were applied at a nozzle pressure of 40 p.s.i using a CO<sub>2</sub> pressurized boom sprayer equipped with two XR Teejet 8004 VS nozzles. All fungicides were agitated by hand and applied in the equivalent of 2 gallons of water per 1000ft<sup>2</sup>. A leaf spot application was applied to treatment 2 on April 17<sup>th</sup>. Eleven different fungicide programs were initiated on June 1<sup>st</sup> and applied every 14 or 21 days until a final fall dollar spot application was made in early September. Number of dollar spot infection centers and turfgrass quality (1-9, 9 being excellent and 6 acceptable) were visually assessed and the data was subjected to an analysis of variance to determine statistical differences between treatments.

### RESULTS AND DISCUSSION

All treatments provided significant reductions in dollar spot severity compared to the non-treated control across all rating dates. The August 18<sup>th</sup> rating date provided the highest dollar spot pressure, and treatments 2, 4, and 7 were the only ones to allow an average of less than 10 dollar spots per plot. Most treatments provided significant increases in turfgrass quality compared to the untreated control throughout the season. Treatments 2, 3, 4, 6, and 7 provided the highest turf quality ratings on average throughout the season, though they were not always significantly higher than other treatments or the non-treated control. No diseases other than dollar spot were observed during the year.



**Photos for this report**  
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**Table 1. Mean number of dollar spot infection centers per treatment at the O. J. Noer Turfgrass Research and Education Facility in Verona, WI in 2009.**

	Treatment	Rate	Application Date	Dollar Spot Disease Severity* (Number of dollar spots per treatment)				
				Jul 14	Jul 27	Aug 18	Aug 31	
1	Non-treated control			21.5a	41.8a	209a	73a	
2	Bayleton Flo	1.0	FL OZ/M	April 17	0.0b	1.0b	9.0b	1.8b
	Chipco Signature	4.0	OZ/M	June 1				
	Triton Flo	0.5	FL OZ/M	June 1				
	Chipco Signature	4.0	OZ/M	June 15				
	Daconil Ultrex	3.2	OZ/M	June 15				
	Chipco Signature	4.0	OZ/M	June 29				
	Triton Flo	0.5	FL OZ/M	June 29				
	Chipco Signature	4.0	OZ/M	July 13				
	Daconil Ultrex	3.2	OZ/M	July 13				
	Chipco Signature	4.0	OZ/M	July 27				
	Reserve	3.6	FL OZ/M	July 27				
	Chipco Signature	4.0	OZ/M	Aug 10				
	Daconil Ultrex	3.2	OZ/M	Aug 10				
	Chipco Signature	4.0	OZ/M	Aug 24				
	Chipco 26GT	4.0	FL OZ/M	Aug 24				
	Chipco Signature	4.0	OZ/M	Sep 7				
	Reserve	3.6	FL OZ/M	Sep 7				
3	Triton Flo	0.75	FL OZ/M	June 1	1.0b	1.8b	12.5b	4.8b
	Interface	4.0	FL OZ/M	June 22				
	Triton Flo	0.75	FL OZ/M	July 13				
	Interface	4.0	FL OZ/M	Aug 3				
	Reserve	4.5	FL OZ/M	Aug 24				
	Interface	4.0	FL OZ/M	Sep 14				
	Tartan	1.5	FL OZ/M	Oct 5				
4	Headway	3.0	FL OZ/M	May 1	0.0b	2.8b	7.8b	6.5b
	Daconil Ultrex	3.2	OZ/M	May 15				
	Concert	4.5	FL OZ/M	June 1				
	Daconil Ultrex	3.2	OZ/M	June 15				
	Heritage	0.2	FL OZ/M	June 15				
	Medallion	0.25	OZ/M	June 29				
	Daconil Ultrex	3.2	OZ/M	June 29				
	Headway	1.5	FL OZ/M	July 13				
	Daconil Ultrex	3.2	OZ/M	July 13				
	Medallion	0.25	OZ/M	July 27				
	Daconil Ultrex	3.2	OZ/M	July 27				
	Concert	4.5	FL OZ/M	Aug 10				
	Daconil Ultrex	3.2	OZ/M	Aug 24				
	Heritage	0.2	FL OZ/M	Aug 24				
	Concert	4.5	FL OZ/M	Sep 7				

5	Insignia	0.9	OZ/M	June 1	5.3b	12.3b	75.3b	16.0b
	Chlorothalonil	3.2	OZ/M	June 1				
	Trinity	1.0	FL OZ/M	June 15				
	Chlorothalonil	3.2	OZ/M	June 15				
	Insignia	0.5	OZ/M	June 29				
	T-Methyl	2.0	FL OZ/M	June 29				
	Trinity	1.0	FL OZ/M	July 13				
	Chlorothalonil	3.2	OZ/M	July 13				
	Trinity	0.5	FL OZ/M	July 27				
	Insignia	0.5	OZ/M	July 27				
	T-Methyl	2.0	FL OZ/M	Aug 10				
	Chlorothalonil	3.2	OZ/M	Aug 10				
	Emerald	0.13	OZ/M	Aug 24				
	Chlorothalonil	2.0	OZ/M	Aug 24				
	Emerald	0.13	OZ/M	Sep 7				
Chlorothalonil	2.0	OZ/M	Sep 7					
6	Heritage	0.4	FL OZ/M	May 1	2.0b	4.3b	31.3b	19.8b
	Strider	2.0	OZ/M	May 15				
	Legend	3.6	FL OZ/M	May 15				
	3336 Plus	3.0	FL OZ/M	June 1				
	Legend	3.6	FL OZ/M	June 1				
	Alude	6.0	FL OZ/M	June 1				
	26/36	3.0	FL OZ/M	June 15				
	Alude	6.0	FL OZ/M	June 15				
	Heritage	0.4	FL OZ/M	June 29				
	Protect	4.0	OZ/M	June 29				
	Alude	6.0	FL OZ/M	June 29				
	Spectro	5.0	OZ/M	July 13				
	Alude	6.0	FL OZ/M	July 13				
	Strider	1.0	FL OZ/M	July 27				
	Legend	3.6	FL OZ/M	July 27				
Alude	6.0	FL OZ/M	July 27					
26/36	3.0	FL OZ/M	Aug 10					
Spectro	4.0	OZ/M	Aug 24					
7	QP Fosetyl-Al	4.0	OZ/M	June 1	1.8b	2.0b	9.8b	5.5b
	QP Propiconazole	1.0	FL OZ/M	June 1				
	Insignia	0.9	OZ/M	June 15				
	QP Fosetyl-Al	4.0	OZ/M	June 29				
	Fore	4.0	OZ/M	June 29				
	QP TM/C	4.0	OZ/M	June 29				
	QP Fosetyl-Al	4.0	OZ/M	July 13				
	Fore	4.0	OZ/M	July 13				
	QP Chlorothalonil	3.2	OZ/M	July 13				
	Insignia	0.9	OZ/M	July 27				
	Fore	4.0	OZ/M	July 27				
	QP Fosetyl-Al	4.0	OZ/M	Aug 10				
	Fore	4.0	OZ/M	Aug 10				
	QP Chlorothalonil	3.2	OZ/M	Aug 10				
	QP Fosetyl-Al	4.0	OZ/M	Aug 24				
	Fore	4.0	OZ/M	Aug 24				
	QP Ipro	4.0	FL OZ/M	Aug 24				
QP Fosetyl-Al	4.0	OZ/M	Sep 7					
Fore	4.0	OZ/M	Sep 7					
QP Propiconazole	1.0	FL OZ/M	Sep 7					

QP Propiconazole	1.0	FL OZ/M	June 1			
Insignia	0.9	OZ/M	June 15			
QP TM/C	6.0	OZ/M	June 29			
QP Fosetyl-Al	4.0	OZ/M	July 13			
Fore	8.0	OZ/M	July 13			
QP Chlorothalonil	3.2	OZ/M	July 13			
Insignia	0.9	OZ/M	July 27	0.0b	8.0b	16.8b
QP Fosetyl-Al	4.0	OZ/M	Aug 10			
Fore	8.0	OZ/M	Aug 10			
QP Chlorothalonil	3.2	OZ/M	Aug 10			
QP Fosetyl-Al	4.0	OZ/M	Aug 24			
QP Ipro	4.0	FL OZ/M	Aug 24			
QP Fosetyl-Al	4.0	OZ/M	Sep 7			
QP Propiconazole	1.0	FL OZ/M	Sep 7			
QP Propiconazole	1.0	FL OZ/M	June 1			
QP Mefenoxam	1.0	FL OZ/M	June 1			
Insignia	0.9	OZ/M	June 15			
QP TM/C	4.0	OZ/M	June 29			
QP Fosetyl-Al	4.0	OZ/M	July 13			
Fore	8.0	OZ/M	July 13	1.3b	3.5b	30.0b
QP Chlorothalonil	3.2	OZ/M	July 13			
Insignia	0.9	OZ/M	July 27			
QP Mefenoxam	1.0	FL OZ/M	Aug 10			
Fore	8.0	OZ/M	Aug 10			
QP Ipro	4.0	FL OZ/M	Aug 24			
QP Propiconazole	1.0	FL OZ/M	Sep 7			
QP Fosetyl-Al	4.0	OZ/M	June 1			
QualiGard	0.36	OZ/M	June 1			
QP Propiconazole	1.0	FL OZ/M	June 1			
Insignia	0.9	OZ/M	June 15			
QP Fosetyl-Al	4.0	OZ/M	June 29			
QualiGard	0.36	OZ/M	June 29			
Fore	4.0	OZ/M	June 29			
QP TM/C	4.0	OZ/M	June 29			
QP Fosetyl-Al	4.0	OZ/M	July 13			
QualiGard	0.36	OZ/M	July 13			
Fore	4.0	OZ/M	July 13			
QP Chlorothalonil	3.2	OZ/M	July 13			
Insignia	0.9	OZ/M	July 27	0.5b	8.3b	13.0b
Fore	4.0	OZ/M	July 27			
QP Fosetyl-Al	4.0	OZ/M	Aug 10			
QualiGard	0.36	OZ/M	Aug 10			
Fore	4.0	OZ/M	Aug 10			
QP Chlorothalonil	3.2	OZ/M	Aug 10			
QP Fosetyl-Al	4.0	OZ/M	Aug 24			
QualiGard	0.36	OZ/M	Aug 24			
Fore	4.0	OZ/M	Aug 24			
QP Ipro	4.0	FL OZ/M	Aug 24			
QP Fosetyl-Al	4.0	OZ/M	Sep 7			
QualiGard	0.36	OZ/M	Sep 7			
Fore	4.0	OZ/M	Sep 7			
QP Propiconazole	1.0	FL OZ/M	Sep 7			

	QP Fosetyl-Al	4.0	OZ/M	June 1				
	QP Propiconazole	1.0	FL OZ/M	June 1				
	Insignia	0.9	OZ/M	June 15				
	QP Fosetyl-Al	4.0	OZ/M	June 29				
	Fore	4.0	OZ/M	June 29				
	TM/C	4.0	OZ/M	June 29				
	T-NEX	0.125	FL OZ/M	June 29				
	QP Fosetyl-Al	4.0	OZ/M	July 13				
	Fore	4.0	OZ/M	July 13				
	QP Chlorothalonil	3.2	OZ/M	July 13				
	T-NEX	0.125	FL OZ/M	July 13				
	Insignia	0.9	OZ/M	July 27				
11	Fore	4.0	OZ/M	July 27	2.0b	8.8b	31.5b	14.5b
	T-NEX	0.125	FL OZ/M	July 27				
	QP Fosetyl-Al	4.0	OZ/M	Aug 10				
	Fore	4.0	OZ/M	Aug 10 Aug				
	QP Chlorothalonil	3.2	OZ/M	10				
	T-NEX	0.125	FL OZ/M	Aug 10				
	QP Fosetyl-Al	4.0	OZ/M	Aug 27				
	Fore	4.0	OZ/M	Aug 27				
	QP Ipro	4.0	FL OZ/M	Aug 27				
	T-NEX	0.125	FL OZ/M	Aug 27				
	QP Fosetyl-Al	4.0	OZ/M	Sep 7				
	Fore	4.0	OZ/M	Sep 7				
	T-NEX	0.125	FL OZ/M	Sep 7				

\*Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

**Table 2. Mean turf quality ratings per treatment at the O. J. Noer Turfgrass Research and Education Facility in Verona, WI in 2009.**

	Treatment	Rate	Application Date	Turf Quality*			
				Jun 30	Jul 6	Jul 14	Aug 31
1	Non-treated control			5.0b	5.0b	4.8d	3c
	Bayleton Flo	1.0	FL OZ/M	April 17			
	Chipco Signature	4.0	OZ/M	June 1			
	Triton Flo	0.5	FL OZ/M	June 1			
	Chipco Signature	4.0	OZ/M	June 15			
	Daconil Ultrex	3.2	OZ/M	June 15			
	Chipco Signature	4.0	OZ/M	June 29			
	Triton Flo	0.5	FL OZ/M	June 29			
	Chipco Signature	4.0	OZ/M	July 13			
2	Daconil Ultrex	3.2	OZ/M	July 13	6.5a	6.8a	7.3a
	Chipco Signature	4.0	OZ/M	July 27			6.8a
	Reserve	3.6	FL OZ/M	July 27			
	Chipco Signature	4.0	OZ/M	Aug 10			
	Daconil Ultrex	3.2	OZ/M	Aug 10			
	Chipco Signature	4.0	OZ/M	Aug 24			
	Chipco 26GT	4.0	FL OZ/M	Aug 24			
	Chipco Signature	4.0	OZ/M	Sep 7			
	Reserve	3.6	FL OZ/M	Sep 7			
	Triton Flo	0.75	FL OZ/M	June 1			
	Interface	4.0	FL OZ/M	June 22			
	Triton Flo	0.75	FL OZ/M	July 13			
3	Interface	4.0	FL OZ/M	Aug 3	6.5a	6.0ab	6.3abc
	Reserve	4.5	FL OZ/M	Aug 24			6.5ab
	Interface	4.0	FL OZ/M	Sep 14			
	Tartan	1.5	FL OZ/M	Oct 5			
	Headway	3.0	FL OZ/M	May 1			
	Daconil Ultrex	3.2	OZ/M	May 15			
	Concert	4.5	FL OZ/M	June 1			
	Daconil Ultrex	3.2	OZ/M	June 15			
	Heritage	0.2	FL OZ/M	June 15			
	Medallion	0.25	OZ/M	June 29			
	Daconil Ultrex	3.2	OZ/M	June 29			
4	Headway	1.5	FL OZ/M	July 13	6.3ab	6.0ab	6.0bc
	Daconil Ultrex	3.2	OZ/M	July 13			5.5ab
	Medallion	0.25	OZ/M	July 27			
	Daconil Ultrex	3.2	OZ/M	July 27			
	Concert	4.5	FL OZ/M	Aug 10			
	Daconil Ultrex	3.2	OZ/M	Aug 24			
	Heritage	0.2	FL OZ/M	Aug 24			
	Concert	4.5	FL OZ/M	Sep 7			

5	Insignia	0.9	OZ/M	June 1				
	Chlorothalonil	3.2	OZ/M	June 1				
	Trinity	1.0	FL OZ/M	June 15				
	Chlorothalonil	3.2	OZ/M	June 15				
	Insignia	0.5	OZ/M	June 29				
	T-Methyl	2.0	FL OZ/M	June 29				
	Trinity	1.0	FL OZ/M	July 13				
	Chlorothalonil	3.2	OZ/M	July 13	5.0b	5.0b	5.3cd	5.0b
	Trinity	0.5	FL OZ/M	July 27				
	Insignia	0.5	OZ/M	July 27				
	T-Methyl	2.0	FL OZ/M	Aug 10				
	Chlorothalonil	3.2	OZ/M	Aug 10				
	Emerald	0.13	OZ/M	Aug 24				
	Chlorothalonil	2.0	OZ/M	Aug 24				
	Emerald	0.13	OZ/M	Sep 7				
Chlorothalonil	2.0	OZ/M	Sep 7					
6	Heritage	0.4	FL OZ/M	May 1				
	Strider	2.0	OZ/M	May 15				
	Legend	3.6	FL OZ/M	May 15				
	3336 Plus	3.0	FL OZ/M	June 1				
	Legend	3.6	FL OZ/M	June 1				
	Alude	6.0	FL OZ/M	June 1				
	26/36	3.0	FL OZ/M	June 15				
	Alude	6.0	FL OZ/M	June 15				
	Heritage	0.4	FL OZ/M	June 29	6.5a	5.8ab	6.3abc	5.0b
	Protect	4.0	OZ/M	June 29				
	Alude	6.0	FL OZ/M	June 29				
	Spectro	5.0	OZ/M	July 13				
	Alude	6.0	FL OZ/M	July 13				
	Strider	1.0	FL OZ/M	July 27				
	Legend	3.6	FL OZ/M	July 27				
Alude	6.0	FL OZ/M	July 27					
26/36	3.0	FL OZ/M	Aug 10					
Spectro	4.0	OZ/M	Aug 24					
7	QP Fosetyl-Al	4.0	OZ/M	June 1				
	QP Propiconazole	1.0	FL OZ/M	June 1				
	Insignia	0.9	OZ/M	June 15				
	QP Fosetyl-Al	4.0	OZ/M	June 29				
	Fore	4.0	OZ/M	June 29				
	QP TM/C	4.0	OZ/M	June 29				
	QP Fosetyl-Al	4.0	OZ/M	July 13				
	Fore	4.0	OZ/M	July 13				
	QP Chlorothalonil	3.2	OZ/M	July 13				
	Insignia	0.9	OZ/M	July 27				
	Fore	4.0	OZ/M	July 27	6.8a	5.8ab	6.8ab	5.8ab
	QP Fosetyl-Al	4.0	OZ/M	Aug 10				
	Fore	4.0	OZ/M	Aug 10				
	QP Chlorothalonil	3.2	OZ/M	Aug 10				
	QP Fosetyl-Al	4.0	OZ/M	Aug 24				
	Fore	4.0	OZ/M	Aug 24				
	QP Ipro	4.0	FL OZ/M	Aug 24				
QP Fosetyl-Al	4.0	OZ/M	Sep 7					
Fore	4.0	OZ/M	Sep 7					
QP Propiconazole	1.0	FL OZ/M	Sep 7					

8	QP Propiconazole	1.0	FL OZ/M	June 1				
	Insignia	0.9	OZ/M	June 15				
	QP TM/C	6.0	OZ/M	June 29				
	QP Fosetyl-Al	4.0	OZ/M	July 13				
	Fore	8.0	OZ/M	July 13				
	QP Chlorothalonil	3.2	OZ/M	July 13				
	Insignia	0.9	OZ/M	July 27	5.8ab	5.3b	6.5ab	5.5ab
	QP Fosetyl-Al	4.0	OZ/M	Aug 10				
	Fore	8.0	OZ/M	Aug 10				
	QP Chlorothalonil	3.2	OZ/M	Aug 10				
	QP Fosetyl-Al	4.0	OZ/M	Aug 24				
	QP Ipro	4.0	FL OZ/M	Aug 24				
	QP Fosetyl-Al	4.0	OZ/M	Sep 7				
	QP Propiconazole	1.0	FL OZ/M	Sep 7				
9	QP Propiconazole	1.0	FL OZ/M	June 1				
	QP Mefenoxam	1.0	FL OZ/M	June 1				
	Insignia	0.9	OZ/M	June 15				
	QP TM/C	4.0	OZ/M	June 29				
	QP Fosetyl-Al	4.0	OZ/M	July 13				
	Fore	8.0	OZ/M	July 13	6.0ab	5.5b	6.8ab	6.0ab
	QP Chlorothalonil	3.2	OZ/M	July 13				
	Insignia	0.9	OZ/M	July 27				
	QP Mefenoxam	1.0	FL OZ/M	Aug 10				
	Fore	8.0	OZ/M	Aug 10				
	QP Ipro	4.0	FL OZ/M	Aug 24				
QP Propiconazole	1.0	FL OZ/M	Sep 7					
10	QP Fosetyl-Al	4.0	OZ/M	June 1				
	QualiGard	0.36	OZ/M	June 1				
	QP Propiconazole	1.0	FL OZ/M	June 1				
	Insignia	0.9	OZ/M	June 15				
	QP Fosetyl-Al	4.0	OZ/M	June 29				
	QualiGard	0.36	OZ/M	June 29				
	Fore	4.0	OZ/M	June 29				
	QP TM/C	4.0	OZ/M	June 29				
	QP Fosetyl-Al	4.0	OZ/M	July 13				
	QualiGard	0.36	OZ/M	July 13				
	Fore	4.0	OZ/M	July 13				
	QP Chlorothalonil	3.2	OZ/M	July 13				
	Insignia	0.9	OZ/M	July 27	6.0ab	5.5b	6.8bc	6.0ab
	Fore	4.0	OZ/M	July 27				
	QP Fosetyl-Al	4.0	OZ/M	Aug 10				
	QualiGard	0.36	OZ/M	Aug 10				
	Fore	4.0	OZ/M	Aug 10				
	QP Chlorothalonil	3.2	OZ/M	Aug 10				
	QP Fosetyl-Al	4.0	OZ/M	Aug 24				
	QualiGard	0.36	OZ/M	Aug 24				
Fore	4.0	OZ/M	Aug 24					
QP Ipro	4.0	FL OZ/M	Aug 24					
QP Fosetyl-Al	4.0	OZ/M	Sep 7					
QualiGard	0.36	OZ/M	Sep 7					
Fore	4.0	OZ/M	Sep 7					
QP Propiconazole	1.0	FL OZ/M	Sep 7					



	QP Fosetyl-Al	4.0	OZ/M	June 1				
	QP Propiconazole	1.0	FL OZ/M	June 1				
	Insignia	0.9	OZ/M	June 15				
	QP Fosetyl-Al	4.0	OZ/M	June 29				
	Fore	4.0	OZ/M	June 29				
	TM/C	4.0	OZ/M	June 29				
	T-NEX	0.125	FL OZ/M	June 29				
	QP Fosetyl-Al	4.0	OZ/M	July 13				
	Fore	4.0	OZ/M	July 13				
	QP Chlorothalonil	3.2	OZ/M	July 13				
	T-NEX	0.125	FL OZ/M	July 13				
	Insignia	0.9	OZ/M	July 27				
11	Fore	4.0	OZ/M	July 27	6.3ab	5.3b	6.0bc	5.3ab
	T-NEX	0.125	FL OZ/M	July 27				
	QP Fosetyl-Al	4.0	OZ/M	Aug 10				
	Fore	4.0	OZ/M	Aug 10				
	QP Chlorothalonil	3.2	OZ/M	Aug 10				
	T-NEX	0.125	FL OZ/M	Aug 10				
	QP Fosetyl-Al	4.0	OZ/M	Aug 27				
	Fore	4.0	OZ/M	Aug 27				
	QP Ipro	4.0	FL OZ/M	Aug 27				
	T-NEX	0.125	FL OZ/M	Aug 27				
	QP Fosetyl-Al	4.0	OZ/M	Sep 7				
	Fore	4.0	OZ/M	Sep 7				
	T-NEX	0.125	FL OZ/M	Sep 7				
*Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)								