3rd Annual Microdochium Patch Field Day

February 27, 2018
Lewis-Brown Horticulture Farm
33329 Peoria Rd, Corvallis, OR 97333

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Oregon State University

3:00 to 5:00 – Microdochium patch Research Update

- Speakers: Clint Mattox, Brian McDonald and Emily Braithwaite

5:30 to 7:00 pm – Dinner

- DeMaggio's New York Pizza, 151 NW Monroe Ave #102 Corvallis, OR 97330

Presentations

- History of Fungicide Alternatives – Clint Mattox
- Fungicides for Microdochium Patch – Brian McDonald

Treatments Lists and Plot Maps: Page 2 to 9

- Stop 1: Microdochium Patch Model – Clint Mattox
- Stop 2: Iron Sulfate rates with or without Phosphorous Acid – Clint Mattox
- Stop 3: Civitas+Phosphorous Acid and Sulfur+Phosphorous Acid Rotations– Clint Mattox
- Stop 4: Winter Nitrogen, Phosphorus and Potassium Rates/Combinations – Emily Braithwaite
- Stop 5: Sulfur, Phosphorous Acid and Iron Sulfate Combination – Brian McDonald
- Stop 6: Mineral Oil, Sulfur Sources and Phosphorous Acid Sources – Brian McDonald

Research Reports: Page 9 to 12

- Effects of Fungicides on Microdochium patch
- Effects of Fungicides on Leaf Spot
- Effects of fungicides on Gray Snow Mold

National Turfgrass Evaluation Project: Page 13 to 19

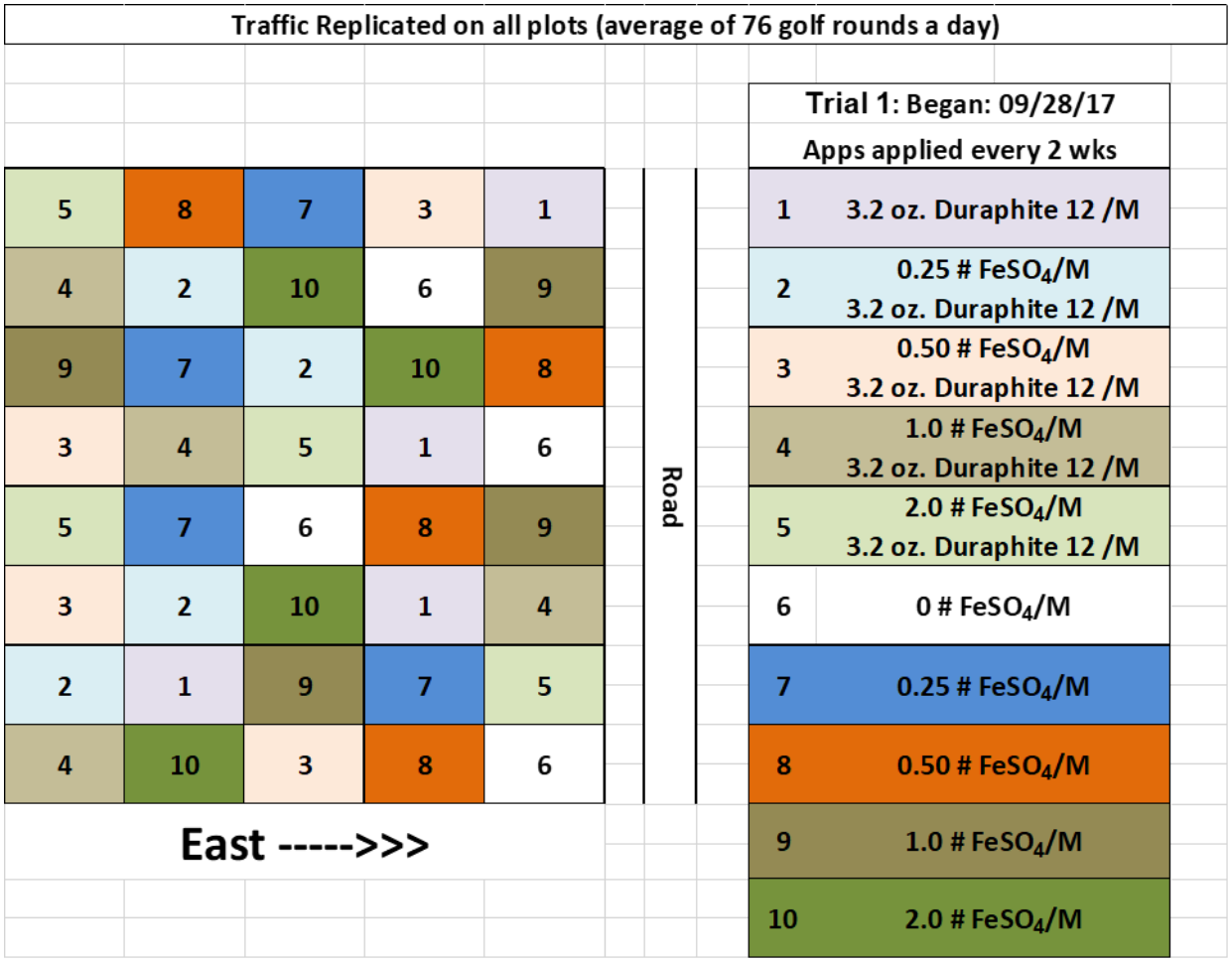
- Fine Fescue
- Perennial ryegrass

Stop 1: Microdochium Patch Model – Clint Mattox

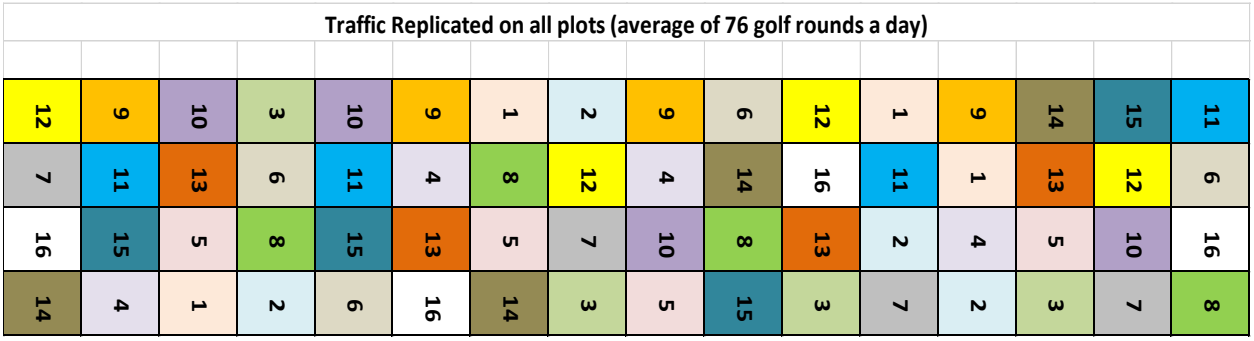
This trial is being duplicated at the Irish Sports Research Institute in partnership with the University of Wisconsin in the hopes of building a Microdochium patch model using daily disease severity and environmental data.

1a	**Photos taken daily on blue plots Oct to end of Jan**
1b	
2b	
2a	
3a	**North ---- >>>>**
3b	
4a	**Fungicides applied to orange plots from Sept through Dec and photos taken daily from Feb through end of Apr**
4b	
5b	
5a	
6b	
6a	

Stop 2: Comparing Different Iron Sulfate rates with or without Phosphorous Acid on the Incidence of Microdochium Patch on an Annual – Clint Mattox



Stop 3: Comparing Different Rotations of Civitas + Phosphorous Acid and Sulfur + Phosphorous Acid on the Incidence of Microdochium Patch – Clint Mattox



East →

Trial 2: Began: 09/28/17

Trt		Oct	Nov	Dec	Jan	Feb	Mar	Apr
1	Every Two Weeks	Civ + Dur		S + Dur 12			Civ + Dur	
2		Civ + Dur			S + Dur 12		Civ + Dur	
3		Civ + Dur			S + Dur 12			Civ + Dur
4		Civ + Dur		S + Dur 12				Civ + Dur
5		Civ + Dur X 4 wks in rotation with Sulfur + Dur X 4wks						
6		Civ + Dur						
7		S + Dur 12						
Trt		Oct	Nov	Dec	Jan	Feb	Mar	Apr
8	Every Three Weeks	Civ + Dur		S + Dur 12			Civ + Dur	
9		Civ + Dur			S + Dur 12		Civ + Dur	
10		Civ + Dur			S + Dur 12			Civ + Dur
11		Civ + Dur		S + Dur 12				Civ + Dur
12		Civ + Dur X 6 wks in rotation with Sulfur + Dur X 6wks						
13		Civ + Dur						
14		S + Dur 12						
15		Fungicide Control (monthly applications using a fungicide rotation)						
16		Untreated Control						

Civitas One	8.5 oz./M
Duraphite 12	3.2 oz./M
Sulfur	0.25 #S/M
Duraphite 12	3.2 oz./M

Stop 4: Winter Nitrogen, Phosphorus and Potassium Rates/Combinations – Emily Braithwaite

2017-2019 USGA Poa Fertility Trial — **S --->**

Initiated:10/05/17

All plots treated with Duraphite + Sulfur

Total Area: 70' x 10' 6"

Plot size 4' x 5'

Applied Monthly:

Elemental Sulfur - 0.25 lbs S/1,000 ft^2

Duraphite - 3.1 fl. oz./1,000 ft^2

Rates are elemental N, P & K

	5'	6"	5'
4'	7		6
	8		1
	2		5
	5		8
	6		4
	1		3
	3		7
	4		2
6'			
4'	1		8
	3		2
	4		6
	7		1
	5		4
	6		7
	8		3
	2		5

Trt #	N	P	K
1	0.1	0	0
2	0.1	0	0.10
3	0.1	0.025	0
4	0.1	0.025	0.10
5	0.2	0	0
6	0.2	0	0.10
7	0.2	0.025	0
8	0.2	0.025	0.10

Products

Urea (46 - 0 - 0)

Phophoric Acid 0 - 52 - 0 (Simplot)

Muriate of Potash (Potassium Chloride - 60% K_2O, 49.8 % K)

Stop 4: Winter Nitrogen, Phosphorus and Potassium Rates/Combinations Continued…

Percent Disease 02-22-18							
	N at 0.10 lbs/M			N at 0.20 lbs/M			
	K Rate (lbs/1,000)			K Rate (lbs/1,000)			
P Rate (lbs. P/1,000)	0	0.1	Avg	0	0.1	Avg	Both N
0.00	25.6	14.8	20.2	35.5	22.0	28.7	24.4
0.025	18.8	17.4	18.1	29.2	29.4	29.3	23.7
Avg	22.2	16.1	19.1	32.3	25.7	29.0	24.1

Stop 5: Sulfur, Phosphorous Acid and Iron Sulfate Combination – Brian McDonald

Initiated: 09-29-17

South --->

Rep 4	Rep 3		Rep 2	Rep 1
1	4		6	7
6	5		4	2
2	7		1	3
7	1		2	6
3	6		3	5
5	3		7	4
4	2		5	1

Trt #	Products	Rates	Timing
1	Untreated	na	na
2	Super 6 + Duraphite + Ambient Plus	5.34 + 3.14 + 0.37	14 days
3	Super 6 + Duraphite + Extreme Green	4.0 + 3.14 + 4.0	14 Days
4	Super 6 + Duraphite + Extreme Green + Ambient Plus	4.0 + 3.14 + 2.0 + 0.37	14 Days
5	Duraphite + Extreme Green + Ambient Plus	6.0 + 6.0 + 0.37	14 Days
6	Super 6 + Duraphite + Ambient Plus	10.7 + 8.0 + 0.74	28 days
7	Torque + Simplot Spray Active	0.60 + 0.125%	28 days

Stop 6: Mineral Oil, Sulfur Sources and Phosphorous Acid Sources – Brian McDonald

Initiated: 12/01/17

South ----->

	15	12	6	Rep 4
14	5	8	4	
7	1	11	2	
3	10	9	13	
2	4	7	9	Rep 3
12	15	1	5	
	3	6	8	
13	11	10	14	
8		3	11	Rep 2
1	6	13	14	
10	5	2	12	
9	7	15	4	
13	14	1	10	Rep 1
15	2	9	6	
4	12	7	3	
	8	11	5	

* All Sprayed every 2 weeks except Banner which was sprayed every 4 weeks.

Trt #	Treatments	Rate	Units
1	Untreated	na	na
2	Banner Maxx II	2.0	fl. oz.
3	EAC 1100 (Phosphite Fungicide)	1.4	fl. oz.
4	EAC 1100 (Phosphite Fungicide)	4.0	fl. oz.
5	EAC 1713	8.5	fl. oz.
6	EAC 1504 (Sulfur Fungicide)	5.0	wt. oz.
7	Transom 4.5 F (Thiophanate Methyl)	2.45	fl. oz.
8	Transom 4.5 F (Thiophanate Methyl)	3.5	fl. oz.
9	EAC 1100 (phosphite) + Transom 4.5 F	4.0 + 3.0	fl. oz.
10	EAC 1100 (Phosphite) + EAC 1504 (Sulfur)	4.0 + 5.0	fl. oz./wt. oz.
11	Rotation:		
	Fall - EAC 1100 (phosphite) + EAC 1713	4.0 + 8.5	fl. oz.
	Winter - EAC 1100 (phosphite) + EAC 1504 (Sulfur)	4.0 + 5.0	fl. oz./wt. oz.
	Spring - EAC 1100 (phosphite) + EAC 1713	4.0 + 8.5	fl. oz.
12	DR-II-D2 Mineral Oil (pigmented)	6.0	fl. oz.
13	DR-II-D2 + TF Base K26	6.0 + 3.0	fl. oz.
14	DR-II-D2 + Element 6 + Greensphite Supreme	0 + 3.0 + 3	all fl. oz.
15	Gravity L 38 Special 5 - 0 - 15	2.0	fl. oz.

Research Reports:

ANNUAL BLUEGRASS (*Poa annua*)
Microdochium patch (*Microdochium nivale*)

A.R. Kowalewski, and B.W. McDonald
Department of Horticulture

Evaluation of fungicides for preventative control of Microdochium patch on annual bluegrass in western Oregon

Microdochium patch is a major turfgrass disease in cool, humid regions of the Pacific Northwest, Western Canada and Northern Europe. The objective of this study was to evaluate the efficacy of systemic fungicide applications in the DMI class and various contact fungicides for Microdochium patch control on an annual bluegrass putting green. A field experiment was initiated on 26 Jan on an annual bluegrass putting green grown on silty clay loam soil with no drainage at Oregon State University, Corvallis, OR. Experimental design was a randomized complete block, with three replications. The size of the plots measured 25 sq ft (5 ft × 5 ft). Fungicide treatments were applied on a two or four week interval, depending on labeled frequency and fungicide mode of action. Treatments were applied with a CO_2-powered, two-wheeled sprayer with a 4-ft boom using TeeJet 80015 nozzles spraying 2 gal of spray solution per 1,000 sq ft at 35 psi. Percent disease (0-100%) and turf quality (1-9 scale, with a 6 or greater considered acceptable) ratings were collected on 28 Mar, at the peak of disease. Data were subjected to analysis of variance and differences between means were determined by Fisher's protected LSD at the 0.05 level of probability.

The untreated plots had the highest percent disease (28.3%), followed by Trinity (18.3%), and then Tourney, Torque, and Mirage (11, 7.0, and 4.3%, respectively). Secure, Turfcide 400, Daconil Weather Stik, and Dithane resulted in the lowest percent disease ranging from 0.1 to 0.4%, and had the highest turf quality ranging from 6.8 to 7.7. Banner Maxx II was the only DMI that provided acceptable turf quality with an average rating of 6.2. The untreated plots received the lowest quality ratings (2.8).

			28 Mar			
Treatment, rate (per 1,000 sq ft)	Number of applications	Application interval [z]	Percent disease (0-100%)[y]		Turf quality (1-9)[z]	
untreated			28.3	a	2.8	h
Banner Maxx II 1.3MEC 2.0 fl oz	2	4 wk	1.4	d	6.2	bcd
Trinity 1.67SC 2.0 fl oz	2	4 wk	18.3	b	3.5	g
Torque 3.6SC 1.1 fl oz	2	4 wk	7.0	cd	4.3	efg
Mirage 2.0SC 2.0 fl oz	2	4 wk	4.3	cd	5.0	def
Tourney 50WDG 0.37 oz	2	4 wk	11.0	bc	3.7	fg
Secure 4.17SC 0.5 fl oz	4	2 wk	0.1	d	7.7	a
Dithane 75DF Rainshield 8.0 oz	4	2 wk	0.4	d	6.8	abc
Daconil Weather Stik 6F 5.0 fl oz - Daconil Weather Stik 6F 3.6 fl oz	1 3	initial 2 wk	0.2	d	7.5	ab
Medallion 50WP 0.5 oz - Medallion 50WP 0.25 oz	2 2	initial 2 wk	2.5	d	5.5	cde
Turfcide 400 4SC 8.0 fl oz	2	4 wk	0.1	d	7.3	ab

[z] Initiated 26 Jan;

[y] Mean disease severity ratings are based on a 0 to 100% scale in three replicated plots. Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05).

[x] Turf quality ratings are based on 1 – 9 scale (9 = best, 6.0 is acceptable). Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05).

ANNUAL BLUEGRASS (*Poa annua*)
Microdochium patch (*Microdochium nivale*)

B.W. McDonald, and A.R. Kowalewski
Department of Horticulture

Effect of fungicides applied at reduced rates on Microdochium patch in western Oregon

The primary objective of this research was to evaluate the effects of fungicides on Microdochium patch when applied to an annual bluegrass putting green at reduced rates in western Oregon. Research was conducted on a native soil (Malabon silty, clay, loam), annual bluegrass putting green maintained at a 0.15 in at the Oregon State University Lewis-Brown Horticulture Farm in Corvallis, OR. Due to the high precipitation rates in the Oregon winter and spring plots were not irrigated during the experiment. From Sept 2016 to Mar 2017 1.1 lbs N per 1,000 sq ft were applied to the research plots. Experimental design was a randomized complete block with four replications. The individual plot size was 5 ft x 5 ft. Fungicides were applied on 2 Feb, 17 Feb and 4 Mar. Fungicide treatments were applied with a CO_2-powered two-wheeled sprayer at 40 psi using TeeJet 80015 nozzles spraying at 2 gal of spray solution per 1000 sq ft. Disease severity was assessed as a visual estimation of the percent area diseased per plot. Turf quality was assessed on a 1 to 9 scale based on color, uniformity and density with 9 = exceptional, 6 = commercially acceptable and 1= dead turf. Percent disease and turf quality were collected every other week throughout the duration of the study (2 Feb to 18 Apr). Data were subjected to analysis of variance and differences between means were determined by Fisher's protected LSD (P = 0.05).

On 14 March 2017 Contend B, Contend A + Contend B, and Contend A at the high rate provided the highest turf quality, while the untreated control had the lowest turf quality. All fungicide treatments reduced disease severity in comparison to the untreated control in March. On 18 April 2017 all fungicide treatments resulted in higher turf quality than the untreated control. Regarding disease severity, Contend B, Contend A + Contend B, and Contend A at the high rate provided the lowest disease severity on 18 April 2017. The untreated control had the highest disease severity in April.

	Turf quality (1-9)		Disease severity (0-100%)	
Treatments[z], rate per 1,000ft^2	14-Mar-17	18-Apr-17	14-Mar-17	18-Apr-17
Untreated, NA	4.0 c	3.6 b	11.0 b	18.1 c
Contend A 0.86SL 0.5 fl oz	6.5 b	5.1 a	0.3 a	5.6 b
Contend B 1.66SE 1.3 fl oz	7.1 ab	5.9 a	0.0 a	1.7 a
Contend A 0.86SL 0.5 fl oz + Contend B 1.66SE 1.3 fl oz	6.9 ab	6.8 a	0.1 a	0.9 a
Contend A 0.86SL 1.0 fl oz	7.3 a	5.8 a	0.0 a	2.7 ab

[z] All fungicides were applied on 2 Feb, 17 Jan and 4 Mar.
[y] Mean disease severity ratings are based on a 0 to 100% scale in four replicated plots. Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05).
[x] Turf quality ratings are based on 1 – 9 scale (9 = best, 6 = acceptable, 1 = dead turf). Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05).

Research Reports

PERENNIAL RYEGRASS (*Lolium perenne*)
Leaf spot (*Drechslera* spp.)

B.W. McDonald, and A.R. Kowalewski
Department of Horticulture

Effects of Fungicides on Leaf Spot in Western Oregon

The objective of this research was to evaluate the effects of fungicides on leaf spot when applied to perennial ryegrass maintained in western Oregon. Research was conducted at Oregon State University Lewis-Brown Horticulture Farm in Corvallis, Oregon on a perennial ryegrass stand planted in the summer of 2015 on a silty clay loam soil maintained at a 2 in height. After planting and prior to the initiation of this research 1.0 lbs N per 1,000 sq ft were applied in Sept 2015. Due to the high precipitation rates in the Oregon winter and spring plots were not irrigated during the experiment. Experimental design was a randomized complete block with four replications. The individual plot size was 5 ft x 5 ft. Fungicide treatments were applied every 28 d from 27 Oct 2015 to 20 Jan 2016, and compared to a control treatment which did not receive fungicides. Fungicide treatments were applied with a CO_2-powered two-wheeled sprayer at 35 psi with a TeeJet 80015 nozzles spraying 2 gal of spray solution per 1,000 sq ft. Disease severity was assessed as a visual estimation of the percent area diseased per plot, while turf quality was assessed on a 1 to 9 scale based on color, uniformity and density with 9 = exceptional, 6 = commercially acceptable and 1= dead turf. Data were collected once per month from Oct to Feb. Data were subjected to analysis of variance and differences between means were determined by Fisher's protected LSD (*P* = 0.05).

Disease activity prior to Dec was minimal and not significant between treatments. In December, Lexicon Intrinsic, Xzemplar, regardless of the rate, Trinity + Insignia produced the lowest disease severity, while the untreated had the highest disease severity. In January and February, all fungicides, with the exception of Headway reduced disease severity in comparison to the control. In December, Lexicon Intrinsic and Xzemplar, regardless of the rate, produced the highest turf quality, while Headway and untreated plots had the lowest turf quality. In January, all fungicide treated plots, with the exception of Headway, had higher turf quality in comparison to the control. In February, when temperature and day length began to increase, Xzemplar, Lexicon Intrinsic, and the untreated produced the highest turf quality, while Headway resulted in the lowest turf quality.

	22-Dec-15		20-Jan-16		20-Feb-16		22-Dec-15		20-Jan-16		20-Feb-16	
Treatment[z], formulation rate per 1,000ft^2	Disease severity (0-100%)						Turf Quality (1-9)					
Untreated	8.1	a	13.2	a	14.1	a	6.6	d	5.1	c	7.0	abc
Xzemplar 2.51L 0.16 fl oz	2.6	cd	5.9	b	5.0	b	7.6	a	6.3	a	7.6	a
Xzemplar 2.51L 0.21 fl oz	2.9	cd	5.9	b	5.7	b	7.4	ab	6.4	a	7.3	ab
Xzemplar 2.51L 0.26 fl oz	3.4	cd	7.1	b	6.8	b	7.3	abc	6.1	a	7.0	abc
Lexicon Intrinsic 4.18SC 0.47 fl oz	2.3	d	6.2	b	6.4	b	7.4	ab	6.4	a	7.4	ab
Trinity 1.67SC 1.0 fl oz + Insignia 2.08SC 0.7 fl oz	3.7	cd	7.2	b	8.0	b	7.1	bc	6.0	a	6.5	c
Encartis 6.24SC 1.0 fl oz	4.5	bc	6.7	b	7.5	b	7.0	c	6.3	a	6.8	bc
Headway 1.39ME 3.0 fl oz	5.9	b	12.3	a	14.1	a	6.4	d	5.8	b	5.6	d

[z] Treatments were applied on 27 Oct, 25 Nov and 22 Dec 2015, and 20 Jan 2016.
[y] Mean disease severity ratings are based on a 0 to 100% scale. Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05).
[x] Turf quality ratings are based on 1 – 9 scale (9 = best, 6 is acceptable). Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05).

Research Reports

ANNUAL BLUEGRASS (*Poa annua*)
PERENNIAL RYEGRASS (*Lolium perenne*)
KENTUCKY BLUEGRASS (*Poa pratensis*)

B.W. McDonald and A.R. Kowalewski
Department of Horticulture

Effects of fungicides on gray snow mold in central Oregon

The objective of this research was to evaluate the effects of fungicides on gray snow mold when applied to a golf course fairway prior to snow cover in central Oregon. Research was conducted on a 40% annual bluegrass, 40% Kentucky bluegrass and 20% perennial ryegrass fairway at the Woodlands Golf Course in Sun River, OR. Experimental design was a randomized complete block, with five replications. The individual plot size was 6 ft by 5 ft. Thirteen different fungicide combinations were applied on 30 Oct 2015, and compared to a control treatment, which did not receive fungicides. Fungicide treatments were applied with a CO_2-powered two-wheeled sprayer with a 4 ft boom and TeeJet 80015 nozzles spraying 2 gallons of spray solution per 1,000 ft^2 at 40 psi. Snow cover was observed from 24 Nov 2015 to 25 Mar 2016 (122 days of consecutive snow cover). Percent disease and turf quality were collected after the spring snow melt on 31 Mar 2016. Percent disease was assessed on a 0-100% scale, while turf quality ratings were made on a 1 to 9 scale, with 1= worst quality and 9=best (Morris, 2015). Data were subjected to analysis of variance and differences between means were determined by Fisher's protected LSD at the 0.05 level of probability.

Treatments receiving combinations of three and four fungicides, regardless of product rate, as well as Instrata and Turfcide 400 applied alone provided a reduction in percent disease after snow melt compared to the untreated control. Interface + Mirage + Proxy, and Interface + Mirage (regardless of the Mirage rate) did not reduce percent disease compared to the untreated control. Interface + Mirage + Daconil Weatherstik at 5.5 oz per 1,000 ft^2, and Turfcide 400 + QualiPro Iprodione + Daconil Weatherstik were the only treatments with percent disease ratings less than 1.0%. Similar to percent disease results, three and four way fungicide combinations, as well as Instrata applied alone, resulted in the highest spring turf quality, except Interface + Mirage + Proxy. Turfcide 400, Interface + Mirage + Proxy, and Interface + Mirage (regardless of the rate) improved turf quality comparted to the untreated control.

	31 Mar			
Treatments, rate per 1,000 ft^2 [z]	Percent disease (0-100%) [y]		Turf quality (1-9) [x]	
Untreated	50.0	a	2.3	e
Interface 2.27SC 4.0 fl oz + Mirage 2SC 1.5 fl oz	23.2	a	4.6	d
Interface 2.27SC 4.0 fl oz + Mirage 2SC 2.0 fl oz	22.8	a	4.6	d
Interface 2.27SC 4.0 fl oz + Mirage 2SC 1.5 fl oz + Proxy 2L 5.0 fl oz	12.0	ab	5.1	d
Interface 2.27SC 6.0 fl oz + Mirage 2SC 2.0 fl oz + Daconil Weatherstik 6F 4.0 fl oz	5.7	b	6.1	abc
Interface 2.27SC 6.0 fl oz + Mirage 2SC 2.0 fl oz + Daconil Weatherstik 6F 5.5 fl oz	0.9	b	7.1	a
Interface 2.27SC 3.0 fl oz + Mirage 2SC 2.0 fl oz + Daconil Weatherstik 6F 5.5 fl oz + Tartan 2.4SC 1.0 fl oz	3.3	b	6.5	ab
XP109 2.0SC 5.0 fl oz + Mirage 2SC 2.0 fl oz + Daconil Weatherstik 6 F 5.5 fl oz	6.8	b	5.8	abcd
XP109 2.0SC 6.0 fl oz + Mirage 2SC 2.0 fl oz + Daconil Weatherstik 6F 5.5 fl oz	5.4	b	5.8	abcd
XP109 2.0SC 8.0 fl oz + Mirage 2SC 2.0 fl oz + Daconil Weatherstik 6F 5.5 fl oz	3.1	b	6.5	ab
Instrata 3.6SE 11.0 fl oz	2.9	b	6.3	abc
Turfcide 400 4SC 8.0 fl oz + QualiPro Iprodione 2SE 4.0 fl oz + Daconil Weatherstik 6F 5.5 fl oz	0.9	b	7.0	ab
Turfcide 400 4SC 12.0 fl oz	7.0	b	5.7	cd

[z] Treatments were applied on 30 Oct 2015; [y] Mean disease severity ratings are based on a 0 to 100% scale in five replicated plot. Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05); [x] Turf quality ratings are based on 1 – 9 scale (9 = best, 6 is acceptable). Means followed by the same letter are not significantly different according to Fisher's protected LSD (α=0.05).

National Turfgrass Evaluation Program Fine Fescue – Plot Map

2014 NTEP Fine Fescue
Plot Map
Seeded 09/17/14; watered Friday 9/18
Plot Size 4' X 5'
Area = 36' X 70' = 2,520 sq ft

42 Entries
14 Entries per Row
3 Rows per Rep

Creepers	
Hard Fescue	
Sheep Fescue	(Trt 10)
Chewings	

S --->

4 '	Rep 3			Rep 2			Rep 1		
5'	31	28	4	42	15	14	25	35	17
	8	32	33	41	16	13	9	1	26
	37	25	5	40	17	12	23	39	24
	27	2	36	39	18	11	21	38	3
	23	11	6	38	19	10	4	33	29
	22	34	30	37	20	9	15	14	28
	18	1	26	36	21	8	2	27	41
	12	3	24	35	22	7	40	13	20
	42	13	17	34	23	6	30	10	12
	19	29	41	33	24	5	36	42	32
	20	38	14	32	25	4	22	19	16
	16	21	7	31	26	3	34	11	6
	35	39	15	30	27	2	5	7	31
	10	9	40	29	28	1	37	8	18

National Turfgrass Evaluation Program Fine Fescue – Entry List

Number	Name	Species	Sponsor
1	Minimus	Hard Fescue	Landmark Turf & Native Seed
2	Marvel*	Strong Creeping Red	Landmark Turf & Native Seed
3	7C34	Strong Creeping Red	Brett Yound Seeds Ltd
4	DLFPS-FL/3066	Hard Fescue	DLF Pickseed USA
5	DLFPS-FRC/3060	Hard Fescue	DLF Pickseed USA
6	DLFPS-FL/3060	Hard Fescue	DLF Pickseed USA
7	DLFPS-FRR/3069	Strong Creeping Red	DLF Pickseed USA
8	MNHD-14	Hard Fescue	University of Minnesota
9	DLFPS-FRR/3068	Strong Creeping Red	DLF Pickseed USA
10	Quatro*	Sheep	Standard
11	Boreal*	Strong Creeping Red	Standard
12	Gladiator* (TH456)	Hard Fescue	Columbia River Seed
13	Resolute (7H7)	Hard Fescue	John Deere Landscapes
14	Sword*	Hard Fescue	Columbia River Seed
15	Seabreeze GT*	Slender Creeping Red	Standard
16	Radar*	Chewings	Standard
17	Beacon*	Hard Fescue	Standard
18	Navigator II*	Strong Creeping Red	Standard
19	Jetty (PPG-FL 106)	Hard Fescue	Mountain View Seeds
20	PPG-FRC 114	Chewings	The Scotts Company
21	SeaMist (PPG-FRT 101)	Slender Creeping Red	Mountain View Seeds
22	Cardinal II (PPG-FRR 111)	Strong Creeping Red	Mountain View Seeds
23	Compass II (PPG-FRC 113)	Chewings	Mountain View Seeds
24	Kent*	Strong Creeping Red	Columbia Seeds
25	Castle (RAD-FC32)	Chewings	Columbia Seeds
26	BAR FRT 5002	Slender Creeping Red	Barenbrug USA
27	BAR VV-VP3-CT	Chewings	Barenbrug USA
28	BAR 6FR 126	Chewings	Barenbrug USA
29	C14-OS3	Strong Creeping Red	The Scotts Company
30	RAD-FR33R	Strong Creeping Red	Brett Yound Seeds Ltd
31	RAD-FC44*	Chewings	Bailey Seed Company
32	RAD-FR47*	Creeping Red Fescue	Bailey Seed Company
33	PST-4DR4	Creeping Red Fescue	Pure Seed Testing Inc.
34	PST-4RUE	Creeping Red Fescue	Pure Seed Testing Inc.
35	PST-4BEN	Creeping Red Fescue	Pure Seed Testing Inc.
36	PST-4BND	Hard Fescue	Pure Seed Testing Inc.
37	PST-4ED4	Creeping Red Fescue	Pure Seed Testing Inc.
38	DLFPS-FRC/3057	Chewings	DLF Pickseed USA
39	Cascade*	Chewings	Standard
40	DLF-FRC 3338	Chewings	DLF Pickseed USA
41	DLF-FRR 6162	Creeping Red Fescue	DLF Pickseed USA
42	Beudin*	Hard Fescue	DLF Pickseed USA
	* Commercial Available in 2017		

National Turfgrass Evaluation Program Perennial Ryegrass – Plot Map

2016 NTEP Perennial Ryegrass Trial																		
Date Seeded: 09/30/16						Seeding rate: 200 grams per 60 sq ft									**S ----->**			
Plot area 68' X 105'						0.4	7.3	lbs/1000						7,140	sq ft			
	4'																	Row
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
REP 3	**38**	**19**	**73**	**45**	**110**	**55**	**54**	**64**	**114**	**27**	**9**	**91**	**X**	**X**	**X**	**X**	**X**	1
	43	**3**	**106**	**17**	**37**	**83**	**59**	**46**	**52**	**95**	**47**	**25**	**81**	**112**	**69**	**14**	**41**	2
	24	**71**	**82**	**12**	**58**	**101**	**60**	**53**	**100**	**2**	**16**	**20**	**72**	**103**	**113**	**65**	**109**	3
	89	**29**	**13**	**78**	**111**	**102**	**49**	**75**	**1**	**23**	**39**	**32**	**90**	**105**	**42**	**85**	**15**	4
	48	**107**	**21**	**7**	**99**	**96**	**57**	**62**	**51**	**35**	**74**	**98**	**28**	**88**	**26**	**31**	**56**	5
	104	**10**	**18**	**61**	**87**	**33**	**80**	**34**	**79**	**4**	**30**	**94**	**6**	**67**	**93**	**40**	**36**	6
	11	**44**	**84**	**76**	**63**	**5**	**22**	**70**	**77**	**8**	**92**	**86**	**108**	**68**	**66**	**97**	**50**	7
REP 2	**103**	**104**	**105**	**106**	**107**	**108**	**109**	**110**	**111**	**112**	**113**	**114**	**X**	**X**	**X**	**X**	**X**	1
	102	**101**	**100**	**99**	**98**	**97**	**96**	**95**	**94**	**93**	**92**	**91**	**90**	**89**	**88**	**87**	**86**	2
	69	**70**	**71**	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**	**85**	3
	68	**67**	**66**	**65**	**64**	**63**	**62**	**61**	**60**	**59**	**58**	**57**	**56**	**55**	**54**	**53**	**52**	4
	35	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	5
	34	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**26**	**25**	**24**	**23**	**22**	**21**	**20**	**19**	**18**	6
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	7
REP 1	**67**	**25**	**104**	**110**	**94**	**107**	**112**	**55**	**40**	**97**	**57**	**36**	**X**	**X**	**X**	**X**	**X**	1
	93	**100**	**109**	**99**	**92**	**65**	**5**	**31**	**71**	**85**	**59**	**88**	**106**	**79**	**51**	**73**	**21**	2
	4	**39**	**61**	**27**	**89**	**90**	**102**	**111**	**46**	**34**	**78**	**6**	**35**	**43**	**58**	**38**	**23**	3
	28	**52**	**41**	**2**	**45**	**20**	**8**	**87**	**95**	**76**	**84**	**103**	**30**	**12**	**50**	**17**	**74**	4
	108	**64**	**9**	**77**	**54**	**82**	**91**	**83**	**26**	**37**	**48**	**15**	**56**	**96**	**7**	**42**	**13**	5
	62	**86**	**11**	**53**	**29**	**68**	**19**	**24**	**33**	**18**	**114**	**69**	**1**	**14**	**22**	**72**	**81**	6
	10	**80**	**16**	**49**	**113**	**63**	**70**	**66**	**47**	**105**	**98**	**3**	**44**	**101**	**75**	**60**	**32**	7
									Road									

National Turfgrass Evaluation Program Perennial Ryegrass – Entry List

Entry	Name	Sponsor	Entry	Name	Sponsor	Entry	Name	Sponsor
1	021	The Scotts Miracle-Gro Co	40	APR2616	Pennington Seed	79	LTP-FCB	Lebanon Seaboard Corp.
2	BSP-17	Bailey Seed & Grain LLC	41	GO-141	Grassland Oregon	80	BAR LP 6117	Barenbrug USA
3	BWH	Bailey Seed & Grain LLC	42	GO-142	Grassland Oregon	81	BAR LP 6131	Barenbrug USA
4	BSP-25	Bailey Seed & Grain LLC	43	GO-143	Grassland Oregon	82	BAR LP 6159	Barenbrug USA
*5	Savant	Ledeboer Seed LLC	44	APR2612	ProSeeds Marketing	83	BAR LP 6233	Barenbrug USA
6	LPB-SD-105	Ledeboer Seed LLC	45	APR3060	Pennington Seed	84	PST-2FOXY	Pure-Seed Testing, Inc.
*7	Saguaro	Ledeboer Seed LLC	46	AMP-R1	AMPAC Seed Co.	85	PST-2CRP	Pure-Seed Testing, Inc.
8	LPB-SD-104	Ledeboer Seed LLC	47	DLFPS-236/3546	DLF Pickseed USA, Inc	86	PST-2EGAD	Pure-Seed Testing, Inc.
*9	Mensa	Ledeboer Seed LLC	48	DLFPS-236/3547	DLF Pickseed USA, Inc	87	PST-2FIND	Pure-Seed Testing, Inc.
10	LPB-SD-101	Ledeboer Seed LLC	49	DLFPS-236/3548	DLF Pickseed USA, Inc	88	PST-2GTD	Pure-Seed Testing, Inc.
11	LPB-SD-102	Ledeboer Seed LLC	50	PR-6-15	Columbia Seeds	89	PST-2BDT	Grassland Oregon
12	LPB-SD-103	Ledeboer Seed LLC	51	DLFPS-236/3550	DLF Pickseed USA, Inc	90	PST-2MAY	Pure-Seed Testing, Inc.
13	DLFPS-236/3540	DLF Pickseed USA, Inc	52	DLFPS-236/3552	DLF Pickseed USA, Inc	91	PST-2GAL	Pure-Seed Testing, Inc.
14	DLFPS-236/3542	DLF Pickseed USA, Inc	53	023	Brett Young Seeds	92	PST-2PDA	Pure-Seed Testing, Inc.
15	DLFPS-236/3544	DLF Pickseed USA, Inc	54	FP2	Turf Merchants, Inc.	93	PST-2A2	Pure-Seed Testing, Inc.
*16	Intense	Landmark Turf & Native Seed	55	02BS2	Brett Young Seeds	94	DLFPS-236/3553	DLF Pickseed USA, Inc.
*17	Xcelerator	Landmark Turf & Native Seed	56	RRT	The Scotts Miracle-Gro Co	95	DLFPS-236/3554	DLF Pickseed USA, Inc.
18	UF3	Landmark Turf & Native Seed	57	PPG-PR 241	Mountain View Seeds	96	PR-5-16	Columbia Seeds
19	JR-123	Jacklin Seed by Simplot	58	PPG-PR 329	Mountain View Seeds	97	BAR LP 6158	Barenbrug USA
20	JR-747	Jacklin Seed by Simplot	59	PPG-PR 331	Turf Merchants, Inc	98	BAR LP 6162	Barenbrug USA
21	JR-888	Jacklin Seed by Simplot	60	Derby Xtreme	Standard	99	BAR LP 6164	Barenbrug USA
22	DLFPS-236/3541	DLF Pickseed USA, Inc	61	PPG-PR 339	Mountain View Seeds	100	BAR LP 6165	Barenbrug USA
23	DLFPS-236/3543	DLF Pickseed USA, Inc	62	PPG-PR 343	Mountain View Seeds	*101	Overdrive 5G	Burlingham Seeds, LLC.
24	DLFPS-236/3545	DLF Pickseed USA, Inc	63	PPG-PR 360	Integra Turf	102	02BS1	ProSeeds Mktg
*25	Evolve	SiteOne Landscape Supply	64	PPG-PR 367	Mountain View Seeds	103	CPN	Columbia Seeds
26	MRSL-PR16	SiteOne Landscape Supply	65	PPG-PR 370	Lewis Seed Company	104	JR-197	Jacklin Simplot
27	PL2	SiteOne Landscape Supply	66	PPG-PR 371	Turf Merchants, Inc.	105	DLFPS-238/3014	DLF Pickseed USA, Inc.
28	MRSL-PR15	SiteOne Landscape Supply	67	PPG-PR 372	Columbia Seeds	106	RAD-PR 103	Lewis Seed Company
29	SNX	Smith Seed Services	68	PPG-PR 385	Mountain View Seeds	107	RAD-PR 112	Bailey Seed
*30	Signet	Smith Seed Services	69	PPG-PR 419	Mountain View Seeds	*108	UMPQUA	Vista Seed Partners LLC
31	02BS4	Smith Seed Services	70	PPG-PR 420	Peak Plant Genetics, LLC.	*109	Seabiscuit	Lebanon Seaboard Corp.
32	CS-6	Columbia Seeds	71	PPG-PR 421	Proseeds Marketing	*110	Man O'War	Lebanon Seaboard Corp.
33	DLFPS-236/3556	DLF Pickseed USA, Inc	72	PPG-PR 422	Columbia Seeds	*111	Pharaoh	Lebanon Seaboard Corp.
*34	ASP0116EXT	Allied Seed LLC	73	PPG-PR 423	Peak Plant Genetics, LLC	*112	Allstar III	Standard
35	A-PR15	Allied Seed LLC	74	PPG-PR 424	Peak Plant Genetics, LLC	*113	Brightstar SLT	Standard
36	A-4G	Allied Seed LLC	*75	Karma	Standard	*114	Linn	Standard
37	A-6D	Allied Seed LLC	*76	SR 4650	Standard			
38	NP-3	Pennington Seed	77	DLFPS-236/3538	DLF Pickseed USA, Inc.			
39	NP-2	Pennington Seed	*78	Grand Slam GLD	Standard			

*COMMERCIALLY AVAILABLE IN THE USA IN 2016