2018 OSU Turf Field Day

Lewis Brown Horticulture Farm
Corvallis, OR
33329 Peoria Rd.
Corvallis, OR 97333
Wednesday –August 1, 2018

Field Day Sponsor: Turfgrass Water Conservation Alliance

Speakers:
Alec Kowalewski, Turfgrass Specialist
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Brian McDonald, Senior Faculty Research Assistant
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Clint Mattox, Graduate Assistant
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Emily Braithwaite, Faculty Research Assistant
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Guest Speaker:
Tyler Carr, Graduate Assistant, University of Arkansas
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Field Day Agenda

Research PowerPoint Presentations: 9:00 to 10:00
OSU Education and Extension Update. Speaker – Alec Kowalewski, Oregon State University
Effect of Nitrogen, Phosphorus and Potassium Rates on Annual Bluegrass Disease Activity. Speaker – Brian McDonald, Oregon State University (Page 3)
Fungicide Alternatives for Microdochium Patch Management. Speaker – Clint Mattox, Oregon State University (Page 4)
Determining Water Requirements and Use Rates of KBG as Affected By Cultivar and Irrigation Volume and Frequency. Speaker – Tyler Carr, University of Arkansas (Page 5)
Formal Field Tour: 10:00 to 11:00 am
Stop 1: Effects of Mowing Height and Frequency on Weed Populations. Speaker – Emily Braithwaite, Oregon State University (Page 6)
Stop 2: Effects of Fertilization on Weed Populations. Speaker – Emily Braithwaite, Oregon State University (Page 7)
Stop 3: Effects of Cultural Practices on Drought Tolerance. Speaker – Clint Mattox, Oregon State University (Page 8)
Stop 4: Moss Control on Putting Greens. Speaker – Clint Mattox, Oregon State University (Page 9)
Stop 5: Effects of DMI Fungicides and Primo on Annual Bluegrass Health. Speaker – Brian McDonald, Oregon State University (Page 10)
Stop 6: National Turfgrass Evaluation Project Perennial Ryegrass. Speaker – Alec Kowalewski (Page 11 and 12)
Open House: 11:00 to 11:30 am
Featured Projects: • National Turfgrass Evaluation Project Fine Fescue Wear Tolerance. (Page 13 and 14) • Effects of Irrigation Rates and Frequency on Weed Populations. (Page 15 and 16) • Effects of Fungicides on Anthracnose – Trial 1. (Page 17 and 18) • Effects of Fungicides on Anthracnose – Trial 2. (Page 19 and 20)
Lunch: 11:30 to 12:30 pm at Lewis Brown Farm
Jason Oliver Memorial Golf Tournament and Dinner **1:00 to 6:00 pm at Trysting Tree Golf Course**
Exhibitor List and Golf Outing Sponsors: Page 21
2017/2018 Research Supporters: Page 22
2018 Scholarships and Awards: Page 23

Effect of Nitrogen, Phosphorus and Potassium Rates on Annual Bluegrass Disease Activity.

Brian McDonald, Oregon State University

9:15 to 9:30 am

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Introduction:

Research on primary nutrient nitrogen (N), phosphorus (P) and potassium (K) ratios have suggested that maintaining the proper balance of those nutrients is critical to disease mitigation[2]. However, research on N, P, and K ratios relevant to annual bluegrass and Microdochium patch is not available. Contrary to traditional recommendations, recent research has suggested that winter applications of N can improve annual bluegrass playing conditions and disease resistance, however, if N rates get too high, Microdochium patch will increase[3]. The objective of this research is to evaluate the effects of winter applied N, P and K rates on Microdochium patch development within an annual bluegrass putting green in the absence of traditional fungicides.

Materials and Methods:

Field research was initiated in September 2017 on a sand-based putting green which was constructed in 2009 at the Lewis-Brown Horticulture Farm, Corvallis, OR. Experimental design is a 2 by 2 by 2 factorial randomized complete block design with four replications; factors include nitrogen rate, phosphorus rate, and potassium rate. All of these treatments receive monthly applications of phosphorous acid (Duraphite 12 applied at 3.7 kg H_3PO_3 ha^{-1}) and sulfur (Sulfur DF applied at 12 kg S ha^{-1}), fungicide alternatives that have shown promising results for control of Microdochium patch. Nitrogen, P and K rates were developed using N:P:K ratios that reflect tissue sampling data[4], and standard extension recommendations for putting greens[1]. Traditional fungicides will not be applied to this experiment for the duration of the study, except for summer anthracnose control. Percent disease (0 to 100%) is collected every other week from September to May. Data were subjected to analysis of variance and mean separated using Fisher's protected least significant difference (LSD) at a 0.05 level of probability.

Results/Discussion:

Regarding nitrogen, monthly applications during the winter at a high rate of 0.20 lbs. N/1,000 ft^2 (9.8 kg N ha^{-1}) resulted in the highest percent disease, while nitrogen applied at a low rate of 0.10 lbs. N/1,000 ft^2 (4.9 kg N ha^{-1}) resulted in the lowest percent disease. Potassium applied at a rate of 0.10 lbs. K/1,000 ft^2 (4.9 kg K ha^{-1}) reduced percent disease when compared to treatments that did not receive K. The main effect of P rate and the interactions between N, P and K were not significant. Findings suggest that winter applications of N and K at 0.10 lbs./1,000 ft^2 (4.9 kg $ha^{-1)}$ each can mitigate Microdochium patch activity.

Fungicide Alternatives for Microdochium Patch Management.

Clint Mattox, Oregon State University

9:30 to 9:45

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INTRODUCTION:

Since 2013, more than a dozen field trials have focused on managing Microdochium patch in the absence of traditional fungicides. Trials have focused on using nitrogen, iron sulfate, sulfur, phosphorous acid, biological control products, horticulture oils, and cultural practices.

Some highlights from previous trials include:

- Microdochium patch incidence is not increased when applying 0.1#N/M every 2 weeks compared to applying no nitrogen from September through April. Urea rates of 0.2#N/M every two weeks increases the incidence of disease compared to rates of 0.1#N/M or no nitrogen.
- Iron sulfate applications of 1.0 and 2.0#/M every 2 weeks suppress Microdochium patch, although turfgrass density is reduced. Higher water carrier volume (7.5 or 10 gal/M compared to 2.5 or 5.0 gal/M) improves turfgrass quality and continues to suppress disease, but thinning still occurs.
- Sulfur applications of 0.25#/M every 2 weeks reduce the incidence of Microdochium patch although there is evidence to suggest that sulfur may lead to more summer incidence of anthracnose.
- Phosphorous acid applications of 0.075# H_3PO_3/M every 2 weeks reduces the incidence of Microdochium patch although suppression is enhanced when applied in combination with Civitas Defense or sulfur.
- Civitas Defense applications of 8.5 oz./M every 2 weeks suppress Microdochium patch, although turfgrass thinning is observed in the coldest periods of winter when traffic is applied.
- A rotation of phosphorous acid applied in combination with sulfur in a two week rotation with phosphorous acid in combination with Civitas Defense provided acceptable disease suppression and turfgrass quality.

2016-2018 Trial Highlights:

- Applying sulfur and phosphorous acid in the coldest periods of the winter (Dec, Jan, & Feb) and using Civitas Defense in combination with phosphorous acid in other months (Sep, Oct, Nov, Mar, & Apr) suppresses Microdochium patch without causing abiotic damage.
- Phosphorous acid applied in combination with iron sulfate will provide disease control at a reduced rate of iron sulfate.

Future Field Trials:

- Quantifying the long-term effects of alternative Microdochium patch management techniques on sand-based annual bluegrass putting green performance over multiple seasons.
- Comparing iron sulfate versus chelated iron for the suppression of Microdochium patch on annual bluegrass putting greens in the absence and presence of phosphorous acid.

Findings for Microdochium patch research are highlighted at our annual Microdochium patch field day.

Determining Water Requirements and Use Rates of KBG as Affected By Cultivar and Irrigation Volume and Frequency.
Tyler Carr, University of Arkansas
9:45 to 10:00

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Background

Turfgrasses provide an aesthetically-pleasing benefit, but many users perceive these systems as only a visual benefit that requires significant water inputs. These concerns have made it to policy makers who have created incentives that encourage homeowners to replace their turfgrass with other landscapes utilizing "water efficient" plants and/or hardscapes. However, it is well documented that water availability in the United States has decreased, therefore, instead of eliminating turfgrass as a whole, there is a need for researchers to identify turfgrass species and cultivars with low water use rates.

Objective

Differences in drought tolerance have been observed both among and within turfgrass species. Irrigation practices such as deficit irrigation have provided reductions in water use, but irrigation requirements may vary by soil texture or irrigation frequency. The objective of this study is to evaluate the effects of cultivar selection, soil texture, irrigation frequency and volume on drought tolerance of Kentucky bluegrass (KBG) (*Poa pratensis)*.

Materials and Methods

The study is conducted under a rainout structure to ensure consistent drought conditions. Two KBG cultivars are compared in this experiment, Mallard (drought-tolerant) and Geronimo (drought-susceptible). Two different soil textures are compared by filling half of the lysimeters with native soil at the site (Captina silt loam, *Typic Fragiudult*) and the other half of the lysimeters with a loamy sand that was created by mixing a medium-coarse sand that meets USGA particle size specifications for putting green construction and a locally-available sandy loam soil.

Each combination of KBG cultivar and soil texture is irrigated either 1x or 3x/week at 40 or 80% reference evapotranspiration. The lysimeters are weighed prior to irrigation, and actual evapotranspiration is calculated between successive lysimeter weights.

Open House - 11:00 to 11:30 am

Stop 1: Effects of Mowing Height and Frequency on Weed Populations.
Emily Braithwaite, Oregon State University

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Introduction

Oregon's school Integrated Pest Management (IPM) law requires that K-12 school districts implement an IPM plan, and designate an IPM coordinator. The goal of the school IPM program is for a healthier school community via a reduction in pests, pesticide uses, and pest management costs. Part of OSU's commitment to the law, is training IPM coordinators, including teaching them the principles of mowing, fertilizing, and irrigating turfgrasses. The purpose of this trial was to simulate existing mowing practices in schools and grounds and look for ways to optimize those practices in order to reduce the number of weeds occurring without relying on traditional pesticides to manage turfgrass weeds.

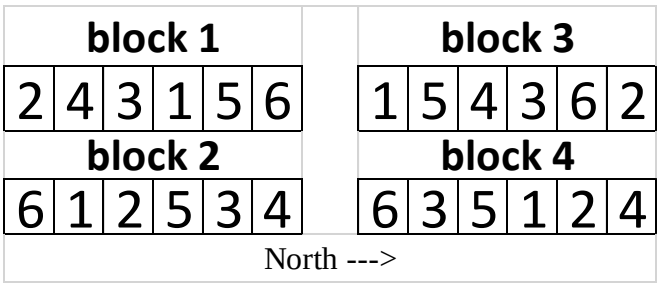
Materials and Methods

Field research was initiated in November 2017 on a mixed stand of turfgrass (consisting primarily of tall fescue and perennial ryegrass) at the Lewis-Brown Horticulture Farm, Corvallis, OR. Six weeks prior to the initiation of the trial, two herbicide applications of Speedzone (*Carfentrazone-ethyl, 2,4-D, 2-ethylhexyl ester, Mecoprop-p acid, and Dicamba acid*) were made (1.8 fl. oz/1000ft^2) with a four week interval between the sprays to allow the trial to begin with no weeds. Perennial ryegrass was then seeded over the trial (9 lbs/1000ft^2) to fill in voids left by weeds.

Experimental design is a 2 by 3 factorial randomized complete block design with four replications; factors include mowing height, and mowing frequency. Mowing heights of 2" and 4" were selected based on current mowing heights IPM coordinators use in Oregon. Mowing frequencies included once, twice, and four times per month, again based on practices observed of IPM coordinators. With the exception of the initial applications, traditional herbicides will not be applied to the trial area. Fertilizer applications will occur four times per year at a rate of 1.0 lbs Nitrogen/1000ft^2 per application, two in the spring, and two in the fall.

Visual quality (1-9 scale where 5=acceptable) will be assessed on a biweekly basis. Weed counts will be made with a 20"x40" transect with 36 intersects four times per year. An initial count with the intersect showed the trial beginning with no weeds.

Trt	Mowing Height	Mowing Frequency
1	2 inches	1x per month
2	2 inches	2x per month
3	2 inches	4x per month
4	4 inches	1x per month
5	4 inches	2x per month
6	4 inches	4x per month



Open House - 11:00 to 11:30 am

Stop 2: Effects of Fertilization on Weed Populations.
Emily Braithwaite, Oregon State University

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Introduction

Oregon's school Integrated Pest Management (IPM) law requires that K-12 school districts implement an IPM plan, and designate an IPM coordinator. The goal of the school IPM program is for a healthier school community via a reduction in pests, pesticide uses, and pest management costs. Part of OSU's commitment to the law, is training IPM coordinators, including teaching them the principles of mowing, fertilizing, and irrigating turfgrasses. The purpose of this trial was to simulate existing fertilizer practices in schools and grounds and look for ways to optimize those practices in order to reduce the number of weeds occurring without relying on traditional pesticides to manage turfgrass weeds.

Materials and Methods

Field research was initiated in November 2017 on a mixed stand of turfgrass (consisting primarily of tall fescue and perennial ryegrass) at the Lewis-Brown Horticulture Farm, Corvallis, OR. Six weeks prior to the initiation of the trial, two herbicide applications of Speedzone (*Carfentrazone-ethyl, 2,4-D, 2-ethylhexyl ester, Mecoprop-p acid, and Dicamba acid*) were made (1.8 fl. oz/1000ft^2) with a four week interval between the sprays to allow the trial to begin with no weeds. Perennial ryegrass was then seeded over the trial (9 lbs/1000ft^2) to fill in voids left by weeds.

Experimental design is a randomized complete block design with four replications; fertilizer rates within this study were 0, 2 and 4 lbs N/1,000 ft^2 annually. Fertilizer applications will occur either two or four times per year at a rate of 1.0 lbs Nitrogen/1000ft^2 per application. With the exception of the initial applications, traditional herbicides will not be applied to the trial area.

Visual quality (1-9 scale where 5=acceptable) will be assessed on a biweekly basis. Weed counts will be made with a 20"x40" transect with 36 intersects four times per year. An initial count with the intersect showed the trial beginning with no weeds. Mowing heights are checked twice per week, and when plots reach 3.5" in height, they will be mowed to 2.5" and the mowing event will be recorded.

Trt	Annual Fertilizer Rate
1	None
2	2.0 lbs N/1000ft^2
3	4.0 lbs N/1000ft^2

	block 1			block 2	
2	1	3	3	2	1
	block 4			block 3	
2	3	1	3	2	1
North ---->					

Open House - 11:00 to 11:30 am

Stop 3: Effects of Cultural Practices on Drought Tolerance.
Clint Mattox, Oregon State University

Trts	Products Applied 6/11, 6/25, and 7/9; Primo only 6/11 and 7/9	Rate per 1,000 sq ft	units
1	Untreated	na	na
2	Primo Maxx	0.75	fl. oz.
3	Calciphite 0 - 0 - 9ϒ	0.75	fl. oz.
4	Kelp Grow 0.1 - 0.5 - 1.0	0.74	fl oz
5	Armor Tech 28 + Si (1%)¥	4.00	fl oz
6	Foltec Fortify 6 - 0 - 0	6.00	fl oz

ϒContains potassium Phosphite + 9% Calcium and organic acids
¥Includes Potassium phosphite (99%)

← North

No Core Cultivation		**Core Cultivation (5/29)**	
4	4	**4**	4
3	3	**3**	3
5	5	**5**	5
2	2	**2**	2
1	1	**1**	1
6	6	**6**	6
2	2	**2**	2
6	6	**6**	6
4	4	**4**	4
1	1	**1**	1
3	3	**3**	3
5	5	**5**	5
No Fertilizer	Fertilizer*	No Fertilizer	Fertilizer*

*25-3-10 + 5% iron applied at 1 lb N per 1,000 sq ft on 6/5 and 6/25 for a total of 2 lbs N per 1,000 sq ft

Irrigation Discontinued – 7/11/2018

Stop 4: Moss Control on Putting Greens.
Clint Mattox, Oregon State University
Trial Initiated 6/19/2018

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Trt #	Products (initiated 6/19)	**Rate/Acre**	Units	Spray Timing
1	Non treated	na	na	na
2	Quicksilver + NIS 0.25% v/v	4.0	fl. oz.	ACE
3	Octane + NIS 0.25% v/v	2.0	fl. oz.	ABCDE
4	Octane + NIS 0.25% v/v	4.0	fl. oz.	ACE
	alternated with Junction	3.6	wt. oz	BD
5	Octane + NIS 0.25% v/v	4.0	fl. oz.	ACE
6	Octane + NIS 0.25% v/v	6.8	fl. oz.	AE
	alternated with Junction	3.6	wt. oz	C
7	Octane + NIS 0.25% v/v	6.8	fl. oz.	AC

Spray Timing Legend
A= Initiation
B= 2 Weeks after intiation
C= 4 Weeks after intiation
D = 6 Weeks after intiation
E = 8 Weeks after intiation

<-- North

2	**7**	**1**	**3**
7	**4**	**6**	**2**
6	**1**	**3**	**4**
1	**3**	**7**	**5**
5	**6**	**2**	**7**
3	**2**	**5**	**1**
4	**5**	**4**	**6**

Open House - 11:00 to 11:30 am

Stop 5: Effects of DMI Fungicides and Primo on Annual Bluegrass Health
Brian McDonald, Oregon State University
Trial initiated 6/25/2018

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← North

Rep 1				Rep 2	
5'	5'	6'	5'	5'	
14	14		7	7	
13	13		4	4	
12	12		2	2	
11	11		6	6	
10	10		8	8	
9	9		5	5	
8	8		3	3	
1	1		11	11	
7	7		1	1	
6	6		13	13	
5	5		9	9	
4	4		14	14	
3	3		10	10	
2	2		12	12	
with Primo	without Primo		without Primo	with Primo	

Trt #	Treatments Applied 06-25, 07-11, and 07-25	fl. oz. per 1,000 sq ft
1	untreated	na
2	Briskway	0.5
3	Briskway	0.725
4	Banner	1.0
5	Banner	1.5
6	Banner	2.0
7	Torque	0.6
8	Torque	0.9
9	Torque	1.1
10	Trinity	1.0
11	Trinity	1.5
12	Trinity	2.0
13	Mirage	1.5
14	Mirage	2.0
	Primo	0.1

Stop 6: National Turfgrass Evaluation Project Perennial Ryegrass.
Alec Kowalewski, Oregon State University

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2016 NTEP Perennial Ryegrass Trial

Date Seeded: 09/30/16 Seeding rate: 200 grams per 60 sq ft **S ---->**

Plot area 68' X 105' 7.3 lbs/1000 7,140 sq ft

4'

	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
	43	3	106	17	37	83	59	46	52	95	47	25	81	112	69	14	41
	24	71	82	12	58	101	60	53	100	2	16	20	72	103	113	65	109
	89	29	13	78	111	102	49	75	1	23	39	32	90	105	42	85	15
	48	107	21	7	99	96	57	62	51	35	74	98	28	88	26	31	56
	104	10	18	61	87	33	80	34	79	4	30	94	6	67	93	40	36
	11	44	84	76	63	5	22	70	77	8	92	86	108	68	66	97	50
REP 2	103	104	105	106	107	108	109	110	111	112	113	114	X	X	X	X	X
	102	101	100	99	98	97	96	95	94	93	92	91	90	89	88	87	86
	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52
	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
REP 1	67	25	104	110	94	107	112	55	40	97	57	36	X	X	X	X	X
	93	100	109	99	92	65	5	31	71	85	59	88	106	79	51	73	21
	4	39	61	27	89	90	102	111	46	34	78	6	35	43	58	38	23
	28	52	41	2	45	20	8	87	95	76	84	103	30	12	50	17	74
	108	64	9	77	54	82	91	83	26	37	48	15	56	96	7	42	13
	62	86	11	53	29	68	19	24	33	18	114	69	1	14	22	72	81
	10	80	16	49	113	63	70	66	47	105	98	3	44	101	75	60	32

Formal Field Tour – 10:00 to 11:00

Stop 6: National Turfgrass Evaluation Project Perennial Ryegrass Continued…

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

*COMMERCIALLY AVAILABLE IN THE USA IN 2016

Open House – 11:00 to 11:30

National Turfgrass Evaluation Project Fine Fescue Wear Tolerance

Alec Kowalewski
Oregon State University, Department of Horticulture

2014 NTEP Fine Fescue
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

Hard Fescue
Sheep Fescue
Chewings
Creeping Red

South-->

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

Open House – 11:00 to 11:30

National Turfgrass Evaluation Project Fine Fescue Wear Tolerance Continued…

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	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	PPG-FL 106	Hard Fescue	Mountain View Seeds
20	PPG-FRC 114	Chewings	The Scotts Company
21	PPG-FRT 101	Slender Creeping Red	Mountain View Seeds
22	PPG-FRR 111	Strong Creeping Red	Mountain View Seeds
23	PPG-FRC 113	Chewings	Mountain View Seeds
24	Kent*	Strong Creeping Red	Columbia Seeds
25	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

Open House – 11:00 to 11:30

Effects of Irrigation Rates and Frequency on Weed Populations

Emily Braithwaite
Department of Horticulture, Oregon State University

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Introduction

Oregon's school Integrated Pest Management (IPM) law requires that K-12 school districts implement an IPM plan, and designate an IPM coordinator. The goal of the school IPM program is for a healthier school community via a reduction in pests, pesticide uses, and pest management costs. Part of OSU's commitment to the law, is training IPM coordinators, including teaching them the principles of mowing, fertilizing, and irrigating turfgrasses. The purpose of this trial was to simulate existing irrigation practices in schools and grounds and look for ways to optimize those practices in order to reduce the number of weeds occurring without relying on traditional pesticides to manage turfgrass weeds.

Materials and Method

Field research was initiated in November 2017 on a mixed stand of turfgrass (consisting primarily of tall fescue and perennial ryegrass) at the Lewis-Brown Horticulture Farm, Corvallis, OR. Six weeks prior to the initiation of the trial, two herbicide applications of Speedzone (*Carfentrazone-ethyl, 2,4-D, 2-ethylhexyl ester, Mecoprop-p acid, and Dicamba acid*) were made (1.8 fl. oz/1000ft^2) with a four week interval between the sprays to allow the trial to begin with no weeds. Perennial ryegrass was then seeded over the trial (9 lbs/1000ft^2) to fill in voids left by weeds.

Experimental design is a randomized complete block design with four replications; factors include irrigation rate, and irrigation frequency. A non-irrigated control was included since there are several school districts that are unable to irrigate over the summer months. A rate of 0.25" applied four times per week reflected current recommendations made to IPM coordinators. Previous research conducted at OSU showed that 0.25" applied four times per week was not optimal in late July and August as temperatures increased, so treatment 3 rates were based on evapotranspiration (ET) rates from weather station data at the farm. The frequency remained the same, but rates were increased to 0.32" in July and August. Treatment 4 was designed as a method of infrequent irrigation (1" once a month) to maintain more turf density, without necessarily keeping the green color. The idea being, watering enough to avoid "clumping out" of the ryegrass which opens up voids for weeds to move in.

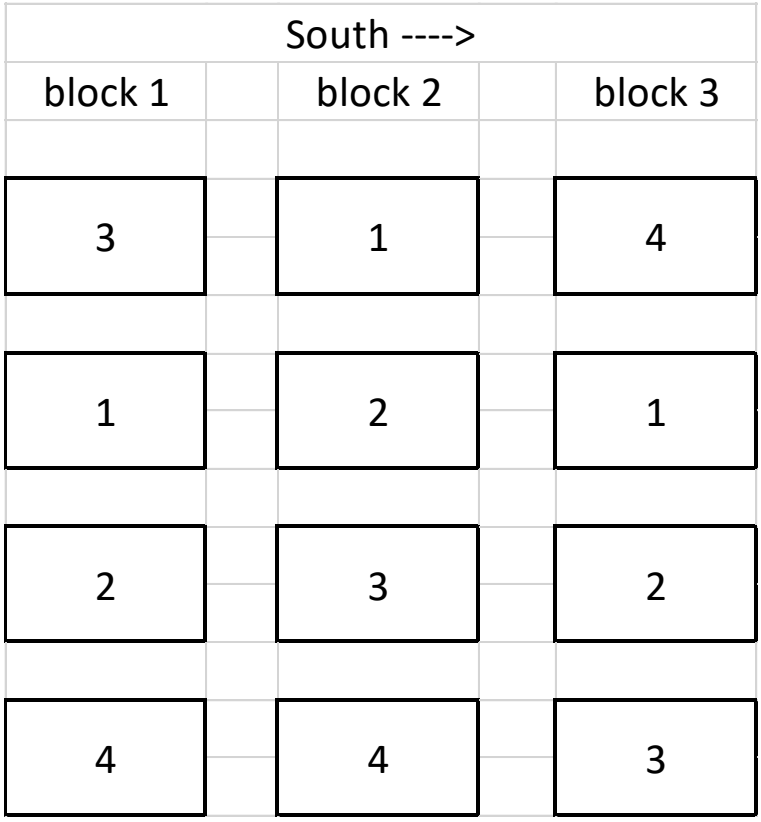
Fertilizer applications will occur either two or four times per year at a rate of 1.0 lbs Nitrogen/1000ft^2 per application. With the exception of the initial applications, traditional herbicides will not be applied to the trial area.

Visual quality (1-9 scale where 5=acceptable) will be assessed on a biweekly basis. Weed counts will be made with a 20"x40" transect with 36 intersects four times per year. An initial count with the intersect showed the trial beginning with no weeds. Mowing heights are checked twice per week, and when plots reach 3.5" in height, they will be mowed to 2.5" and the mowing event will be recorded.

Open House – 11:00 to 11:30

Effects of Irrigation Rates and Frequency on Weed Populations Continued…

Trt	Irrigation Rate	Irrigation Frequency
1	None	-
2	0.25”	4x per week
3	Monthly adjusted ET (0.32”)	4x per week
4	1.0”	1x per month



Open House – 11:00 to 11:30

Effects of Fungicides on Anthracnose – Trial 1

Brian McDonald
Department of Horticulture, Oregon State University

Treatments were applied every 14 days; 6/15, 6-29, 7/15 and 7/28.

Trt #	Product	Rate per 1,00 sq ft	units
1	Untreated control		
2	Briskway	0.5	fl. oz.
	+ Primo Maxx	0.1	fl. oz.
	Rotated with		
	Daconil Action	3.5	fl. oz.
	+ Primo Maxx	0.1	fl. oz.
3	Secure Action	0.5	fl. oz.
	+ Appear 2	6.0	fl. oz.
	+ Primo Maxx	0.1	fl. oz.
	Rotated with		
	Daconil Action	3.5	fl. oz.
	+ Secure Action	0.5	fl. oz.
	+ Primo Maxx	0.1	fl. oz.
4	Daconil Action	3.5	fl. oz.
	+ Appear 2	6.0	fl. oz.
	+ Primo	0.1	fl. oz.
5	A22758A	1.3	fl. oz.
6	Secure Action	0.5	fl. oz.
	+ Daconil Action	3.5	fl. oz.
7	Velista	0.5	Wt. oz.
	+ Primo	0.1	fl. oz.
	Rotated with		
	Daconil Action	3.5	fl. oz.
	+ Primo	0.1	fl. oz.
8	A15457	0.24	fl. oz.
	+ Medallion TL	1.0	fl. oz.

Trt #	Product	Rate per 1,00 sq ft	units
9	Mirage	1.5	fl. oz.
	+ Primo	0.1	fl. oz.
	Rotated with		
	Signature Xtra	4.0	Wt. oz.
	+ Daconil WeatherStik	3.5	fl. oz.
	+ Primo	0.1	fl. oz.
10	Mirage	1.5	fl. oz.
	+ Primo	0.1	fl. oz.
	Rotated with		
	Signature Xtra	4.0	Wt. oz.
	+ Exteris Stressgard	3.0	fl. oz.
	+ Primo Maxx	0.1	fl. oz.
11	Torque	0.9	fl oz.
	+ Daconil WeatherStik	3.5	fl oz.
	Rotated with		
	Signature Xtra	4.0	Wt. oz.
	+ Daconil WeatherStik	3.5	fl. oz.
12	Premion	4.0	fl. oz.
	+ PAR	0.37	fl. oz.
13	Premion	6.0	fl. oz.
	+ PAR	0.37	fl. oz.
14	Premion	8.0	fl. oz.
	+ PAR	0.37	fl. oz.
15	Autilius	6.0	fl. oz.
	+ PAR	0.37	fl. oz.
16	AMVAC Anthracnose Program		

Open House – 11:00 to 11:30

Effects of Fungicides on Anthracnose – Trial 1 Continued…

South -->

1	16	13	11	**Rep 4**
4	3	9	15	
6	12	2	7	
5	10	14	8	
8	4	6	10	**Rep 3**
15	2	3	1	
11	14	5	13	
12	7	9	16	
13	10	12	5	**Rep 2**
8	1	15	4	
2	7	11	9	
3	6	16	14	
12	8	5	2	**Rep 1**
16	11	1	13	
4	6	14	7	
9	15	3	10	

Open House – 11:00 to 11:30

Effects of Fungicides on Anthracnose – Trial 2

Brian McDonald
Department of Horticulture, Oregon State University

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Treatments initiated 6/22/2018

Trt #	Product	Rate/M	units	Application frequency
1	Untreated	na	na	14 days
2	Maxtima	0.4	fl oz	14 days
3	Maxtima	0.6	fl oz	14 days
4	Maxtima	0.8	fl oz	14 days
5	Torque	1.1	fl oz	14 days
6	Navicon Intrinsic	0.85	fl oz	14 days
7	Headway	3.0	fl oz	14 days
8	Traction	1.3	fl oz	14 days
9	Affirm	0.9	fl oz	14 days
10	Affirm + Alude	0.9 + 2.0	fl oz	14 days
11	GG Ultra + PK Plus + Dac Ultrex	12.0 + 6.0 + 1.8	fl oz/oz	7 days
12	Manni-Plex + Nutri-Gro + Dac Ultrex	12.0 + 2.0 + 1.8	fl oz/oz	7 days
13	EX-003 + PK Plus	3.0 + 6.0	fl oz	14 days
14	EX-003 + PK Plus + Daconil Ultrex	3.0 + 6.0 + 1.8	fl oz/oz	14 days
15	Daconil Ultrex	1.8	wt. oz.	14 days
16	Daconil Ultrex	3.2	wt. oz.	14 days

Open House – 11:00 to 11:30

Effects of Fungicides on Anthracnose – Trial 2 Continued…

South-->				
11	9	16	14	**Rep 4**
13	8	3	1	
6	2	5	10	
12	4	7	15	
14	6	10	11	**Rep 3**
8	16	1	13	
7	15	4	3	
2	12	9	5	
1	10	15	8	**Rep 2**
4	3	14	2	
13	9	7	16	
5	11	12	6	
15	7	11	4	**Rep 1**
10	1	2	12	
14	5	13	9	
6	8	16	3	

Exhibitor List and Golf Outing Sponsors

…….……Exhibitors……

Organization	Name	Email
Aquatrols	Dan Macias	dmacias@aquatrols.com
Athletic Field Design	Mike Hebrard	hebrard@athleticfield.com
Barenbrug USA	Micah Gould	mgould@barusa.com
Columbia Seeds	Kristen Pick	kpick@columbiaseeds.com
Hydro Engineering, Inc.	AJ Brower	abrower@hydroblaster.com
Marion Ag Service, Inc.	Jeff Freeman	jefff@marionag.com
Nutrien Solutions	Sean Watts	sean.watts@nutrien.com
Oregon Golf Course Superintendents Association	Alexis Wenker	ogcsa@ogcsa.org
Oregon Turf Foundation	Sally Cheyne	otf@oregonturfgrassfoundation.org
Pure Seed	Nick Layton	nlayton@pureseed.com
Rain Bird Golf	Mark Willcut, CGIA	MWillcut@rainbird.com
Rocky Mountain Turf Equipment	Rich Schwabauer	rich@rmtequipment.com
SePRO Corporation	Travis Fuller	travisf@sepro.com
Target Specialty Products	Tony Lasher	tony.lasher@target-specialty.com
Target Specialty Products	Gary Willis	gary.willis@target-specialty.co
Trimax Mowing Systems	Raymond Prefume	(626)656-0397
The Andersons, Inc.	Ed Price, CGCS	Ed_Price@AndersonsInc.com
Winfield	Roger Henderson	RDHenderson@landolakes.com

Golf Outing Tee Sponsors
Barenbrug
BASF
Brett Young
Columbia River Seed
Integra Turf, Inc.
Karlin Consulting
NexGen
Nufarm
Nutrien
Pennington
Pure Seed
Turf Merchants, Inc.

2017/2018 OSU Turf Program Research Supporters

Agricultural Research Foundation	Oregon Golf Course Superintendents Association
AMVAC Environmental Products	Oregon Seed Association
Andersons Inc.	Oregon Seed Council Research Committee
Aquatrols	Oregon Turf &Tree Farms
Athletic Field Design	Oregon Turf Foundation
Bandon Dunes Resort	Oregonians for Food and Shelter
Barenbrug USA	OSU Department of Athletics
BASF	PBI Gordon
Bayer Crop Science	Pure Seed
Canadian Turfgrass Research Foundation	Pure-Seed Testing
Columbia Edgewater Country Club	Rainbird Company
Columbia Seeds, Inc.	Residex
Corvallis Country Club	Rocky Mountain Turf Equipment
CPS Professional Products	Seed Research of Oregon
Dakota	SePRO
DLF International	Simplot
Dow AgroSciences LLC	SiteOne Landscape Supply
E. Marker A/S	Smith Seed Services
Engage Ago	Suncor Energy Inc.
Fine Fescue Commission	Sunriver Resort
Flora USA, Ltd.	Syngenta Crop Protection, Inc.
FMC Corporation	Tall Fescue Commission
GenNext	Target Specialty Products
Golf Course Superintendents Association	Tom Cook
Gribb Brothers	Toro
Helena	TruTurf
Illahe Hills Country Club	Trysting Tree Golf Club
Intelligro	Turf Fuel
Jacobsen	Turf Merchants, Inc.
Koch Agronomic Services LLC	Turfgrass Water Conservation Alliance
Melgreen/Olmix NA, Inc.	United States Golf Association
Mountain View Seeds	USDA-NIFA
National Turfgrass Evaluation Program	Western Canada Turf Association
Northwest Turf Association	Western Equipment Distributors
NuFarm Americas Inc.	Wilbur-Ellis Company
Ontario Turfgrass Research Foundation	Winfield, Land O'Lakes
Oregon Golf Association	WISErg Corporation

2018 Scholarships and Awards

Randy Shults	OSU Turf Friends and Alumni
Ken Nice	OSU Turf Friends and Alumni
Clint Mattox	USGA Competitive Internship
Jeremy Lee	Jason Oliver Memorial Scholarship
Clint Mattox	OGCSA - Whitworth
Evan McFadden	OGCSA - Martin
Grant Roth	OGCSA Scholarship
Grant Roth	Tom Cook Legacy Scholarship
Evan McFadden	Bruce Faddis Memorial Scholarship

2017 Jason Oliver Memorial Golf Tournament Champions

Kurt Wright
Tyler Gabriel
Mike Turley
Corey Beelke