2015 OSU Turf Field Day

Lewis Brown Horticulture Farm
Corvallis, OR
33329 Peoria Rd.
Corvallis, OR 97333
Thursday – September 3, 2015

Speakers:

Alec Kowalewski, Turfgrass Specialist
alec.kowalewski@oergonstate.edu

Brian McDonald, Senior Faculty Research Assistant
brian.mcdonald@oregonstate.edu

Clint Mattox, Graduate Assistant
mattoxc@onid.orst.edu

Brian Daviscourt, Graduate Assistant
daviscob@onid.oregonstate.edu

Micah Gould, Graduate Assistant
gouldm@onid.oregonstate.edu

Conner Olsen, Graduate Assistant
olsenc@onid.oregonstate.edu

Field Day Agenda

Research PowerPoint Updates: 9:00 to 10:00
Opening Remarks. Speaker – A. Kowalewski
Fungicide Alternatives for the Control of Microdochium Patch. Speaker - C. Mattox (Page 3)
Cost Analysis of Synthetic and Natural Grass Athletic Fields. Speaker - B. Daviscourt (Page 4)
Rain Harvesting for Home Lawn Irrigation. Speaker – C. Olsen (Page 5)
Low Maintenance Ground Covers of Oregon Schools. Speaker – G. Micah (Page 6)
Formal Field Tour: 10:00 to 10:45 am
Stop 1: Effects of Wetting Agent Rates and Frequencies on Anthracnose. Speaker – C. Mattox (Page 7)
Stop 2: Fungicides for Management of Anthracnose. Speaker – B. McDonald (Pages 8 and 9)
Stop 3: National Turfgrass Evaluation Project Fine Fescue Trial. Speaker – B. Daviscourt (Page 10 and 11)
Open House: 10:45 to 11:30 am
Featured Projects: • Glyphosate Tolerant Grasses (Page 12) • Koch Polymer Coated Fertilizer Assessment (Page 13) • Tall Fescue Cultivars (Page 14) • Quick Guide to Anthracnose Control in the Pacific Northwest (Pages 15, 16, 17)
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 18
2014/2015 Research Supporters: Page 19
2015 Scholarships and Awards: Page 20

Fungicide Alternatives for the Control of Microdochium Patch.
Clint Mattox
9:00 to 9:15 am

………

Microdochium patch is a turfgrass disease in cool, humid regions caused by the pathogen *Microdochium nivale*. Currently, fungicide applications are the only known method of control. Increasing pesticide restrictions have generated concern regarding management of M. patch. Therefore, three separate field trials exploring non-traditional fungicides and cultural practices (rolling and winter fertility) were conducted between 2013 and 2015 on an annual bluegrass (*Poa annua* L.) sand-based putting green at the Oregon State University Lewis Brown Horticulture Farm, Corvallis, OR. Suppression of M. patch at the peak of disease incidence, progression of disease over time as well as turfgrass visual quality were quantified. No traditional fungicides treatments were applied during the study.

The first experiment evaluated the effects of the cultural practice of rolling in combination with mineral oil (17oz/M Civitas One or no Civitas One) and fertility treatments (0.25#S/M, 6oz/M PK Plus, 0.25#S/M + 6oz/M PK Plus or no fertility treatment) in the absence of traditional fungicides. Rolling treatments were applied five days a week and fertility and mineral oil treatments were applied every two weeks from September 26, 2013 to June 13, 2014 and again from September 22, 2014 to June 12, 2015. In year one, rolling decreased disease activity in the absence of other treatments. When Civitas One was included or Sulfur DF + PK Plus was used < 1% disease was observed regardless of rolling treatments. In year two, Civitas One with any fertility or rolling treatment, as well as Sulfur DF + PK Plus with or without rolling, and Sulfur DF with rolling resulted in <1.5% M. patch incidence. Treatments including Civitas One without rolling produced the highest turf quality; however, Civitas One with rolling resulted in the lowest turf quality due to abiotic damage.

The second experiment evaluated the effects of rolling in combination with biological control treatments (Rhapsody (15.9 L/ha), ProVide (19.1 L/ha) + ReVive (1.3 Kg/ha) and BW136N applied initially at 24.4 Kg/ha and all subsequent applications at 18.3 Kg/ha every other week compared to a control). Rolling treatments were applied five days a week and biological control treatments were applied every two weeks from September 26, 2013 to June 13, 2014 and again from September 22, 2014 to June 12, 2015. In year one, among the rolling treatments, BW136N and Rhapsody were shown to reduce Microdochium patch disease compared to the other biological control treatments. When rolling was included, disease reduction was more pronounced. In year two rolling reduced M. patch incidence compared to unrolled plots. BW136N, followed by Rhapsody reduced M. patch disease compared to the remaining biological control products and the control.

The third experiment evaluated the effects of fertility treatments (Nitrogen 0.0, 0.1, or 0.2 #N / M applied as urea and iron sulfate at 0.25, 0.5, 1.0 or 2.0 # $FeSO_4$ / M every two weeks). Treatments were applied every two weeks from September 26, 2013 to April 12, 2014 and again from September 22, 2014 to April 12, 2015. Traffic simulation was performed by walking over the plots with golf shoes 5 days a week to replicate 76 rounds of golf per day. Treatments receiving no nitrogen in combination with 48.82 Kg $FeSO_4/ha^{-1}$, or 0.0 and 4.88 Kg N/ha-1 combined with 97.65 Kg $FeSO_4/ha^{-1}$ provided the greatest disease control, less than 1% disease. In spite of the disease suppression observed, no treatment received a visual quality rating of 6.0 or greater. Low visual quality ratings were attributed either to turf thinning or blackening of the shoots resulting from iron sulfate applications. Regarding color quality, treatments not receiving nitrogen yielded the lowest ratings.

Research PowerPoint Updates

Cost Analysis of Synthetic and Natural Grass Athletic Fields.
Brian Daviscourt
9:15 to 9:30 am

……….

Introduction:

With the rise in popularity of synthetic infill turf systems in the US it is becoming increasingly important that facility directors and managers understand the costs associated with synthetic infill and natural grass fields so that informed decisions can be made regarding installation choices. The goal of this study is to analyze the budgets and maintenance information of facilities at varying budgetary levels and explore which field type may have the best value.

Methods and Materials:

A field study conducted on 10 fields; 5 synthetic infill systems and 5 natural grass systems from universities, school districts, and state run facilities, is being used to show any possible correlation between field type and maintenance budget. This study will also be used to determine the cost per usage-hour per person for each field over the course of 12 months. This information will be collected from budgets, maintenance plans, installation costs, maintenance equipment costs, and field use and practice schedules of the participating facilities. Using the gathered information, a secondary survey will be conducted among a broader group of facility managers to provide a larger amount of field and budget information.

The fields will also undergo quality testing on a monthly basis to show the change in field condition over time. The quality of the fields will be analyzed using surface firmness, temperature, and coverage. Firmness testing will be accomplished using a FieldScout TruFirm turf surface firmness meter, to measure inches of depression on each surface. The ASTM F1036 "Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field" will be utilized to determine sampling points for firmness, surface temperature and coverage. This procedure requires 10 specified sampling points the recording of surface depth of infield material and ambient air temperature. In order to show a more accurate correlation, the depth of the natural grass surface will be measured as well. Surface temperature will be measured using a Raytek MT6 Non-contact MiniTemp Infrared Thermometer. Coverage will be assessed using lightbox photos and analyzed using SigmaScan pro.

Current Data:

Findings from this study determined that the average cost of installing a synthetic field is $1,149,750 and the average 20 years budget cycle is $3,744,147. The average cost of installing a natural grass field is $464,000 and the average 20 year budget cycle is $2,120,622. When dollar per player hour use is taken into consideration the synthetic fields averaged $7.76 per player use hour. Natural grass fields averaged $52.92 per player use hour and had values as high as $99.26 per player use hour.

Research PowerPoint Updates

Rain Harvesting for Home Lawn Irrigation.
Conner Olsen
9:30 to 9:45

…….

Introduction: The current drought in Oregon is just one of the many examples of how our modern climate is different than the one we've all grown accustomed to. In particular, Oregonians have lived under the impression that freshwater is a nearly unlimited resource. Unfortunately, this mindset is coming back to bite landowners that have relied upon heavy water-use in order to make a livelihood. This scenario has forced Oregonians to rethink their water-use/reduction strategies, and one of the most logical solutions for the Willamette Valley is to utilize rainwater harvesting. This is due to the fact that the average rainfall in the Willamette Valley is sufficient for the majority of its crop production, however, this precipitation occurs almost exclusively in a 9-month period. Thus, irrigation is required for at least 3 months per year. If excess rainfall could be collected for future use, it would reduce summer water consumption by an equivalent amount. Although this would not be feasible on the scale of agricultural production, it makes sense in a residential setting, where irrigated land is small in relation to the roof-area for which rain can be easily harvested. This project looks into two, entirely different storage/application systems, while also investigating the effect of reduced irrigation rates.

Materials and Methods: Two field experiments will be conducted to evaluate the energy inputs and water storage characteristics of 1) a subsurface engineered-aquifer system, and 2) an above-ground cistern system. A 900-sq-ft rooftop will be utilized to harvest rainwater during the rainy months, in order to irrigate turfgrass for the dry months. Water collected in the two systems will be applied to perennial ryegrass (*Lolium perenne*) established on a native soil in August of 2015. Experimental design for both projects is a randomized block design with 4 replications. Factors include various rates of irrigation with coincidentally-varying timescales equating to either half an inch per week, or the EPA recommended value of ~0.95" per week.

Current Progress: This project began in the Spring of 2015, and is currently in the construction phase. At the time of this expo, the following tasks will be complete:

- Installed new gutters, which include two "first-flush" downspout diverters that will divert half of the water to each storage tank, but not before flushing the initial, high-particulate portion of each rain event following a dry period
- Upgraded cistern system to include floating outtake and siphon-style overflow piping, as well as a new hole and fitting for the updated intake
- Painted the tank black for preservation and anti-photosynthetic properties
- Adapted stationary exercise bicycle to turn a Hypro 4-Roller Cast Iron Sprayer Pump, which will pump water from the cistern to the turf plots
- Built roof structure to protect the bicycle-pump assembly and its user
- Planned for the installation of the subsurface aquifer system

Research PowerPoint Updates

Low Maintenance Ground Covers of Oregon Schools.
Gould Micah
9:45 to 10:00

……

Introduction: Oregon public school's need research on low maintenance ground covers and grasses in response to mandated Oregon's school IPM regulations. These IPM regulations require schools to reduce pesticide use to create a healthier environment for the preK-12 school communities. Other driving forces for this research include: pest infestations, contaminated ground water by pesticides, and budget cuts in Oregon's public school system.

The objective of this project is to evaluate the establishment rate, drought tolerance, weed suppression, mowing tolerance, and visual quality of various ground covers and grasses in a low maintenance situation. This data can then be used by school grounds employees to select high performing, low maintenance and low input plants for their landscapes.

Methods and Materials: Research was initiated on 21 April 2015. Experimental design is a 2 by 10 by 2 randomized complete split-block with 4 replications. Factors include location, plant type (whole-plot), and mowing (split-plot). This field research is being conducted at two locations; Lewis-Brown Horticulture Research Farm in Corvallis, and Oregon State University Main Campus.

Prior to establishment a 5 cm layer of mulch was applied to plots that were planted with herbaceous plants. The number of herbaceous plants per plot depended on their size prior to transplant, relative cost, and projected growth. Plants were spaced 6-12 inches apart depending on quantity and size.

Grasses were seeded directly onto soil. After seeding, a layer of sawdust was applied to promote germination. During establishment May to September 2015, irrigation was applied at a rate of 2.5 cm per week (1 inch/week). After September 2015, irrigation will be discontinued for the remainder of the experiment; October 2015 to October 2017.

Half of the individual plots are mowed once monthly at a 10 cm (4 inch) height. The other half of the plot will not mowed for the entire duration of the study.

Response variables will include: percent coverage, visual quality ratings on a 1-5 scale, soil moisture content, and photosynthetic active radiation (P.A.R.), which will be taken monthly. Visual quality ratings will be taken by monthly, as well as biannually by a school grounds employee focus group.

Herbaceous plants include:

Creeping red fescue (*Festuca rubra L. ssp rubra*), Chewings fescue (*Festuca rubra L. spp. commutata*), Colonial bentgrass (*Agrostis tenuis Sibth*), Dwarf periwinkle (*Vinca minor*), Bearberry cotoneaster (*Cotoneaster dammeri*), Wintercreeper (*Euonymus fortunei*), Creeping juniper (*Juniperus horizontalis*), Green carpet (*Herniaria glabra*), Caucasian stonecrop (*Sedum spurium*), and Point reyes ceanothus (*Ceanothus gloriosus 'Point Reyes').*

Current Findings: So far Caucasian stonecrop (*Sedum spurium*) has been identified as the frontrunner by filling out the plot rapidly and generally out-competing other weeds. On campus, we are seeing some interesting effects to the plots due to trees creating shade. The plots in shade show good performance among the grasses, but not so of the ground covers. On the full sun side the effects are reversed. Of all weeds, crabgrass has had the biggest impact on plant competition.

Formal Field Tour

Stop 1: Effects of Wetting Agent Rates and Frequencies on Anthracnose.

Clint Mattox, Alec Kowalewski and Brian McDonald

10:00 to 10:15

………

Introduction: Anthracnose is a turfgrass disease caused by the pathogen *Colletotrichum graminicola* that is particularly damaging to annual bluegrass putting greens, especially during periods of heat and drought stress under low nitrogen fertility conditions and low mowing heights. A previous observation was made regarding Anthracnose disease suppression and the wetting agent "Revolution" (Aquatrols) in Corvallis OR. A new fungicide-free experiment was therefore conducted starting in February 2015 using Revolution at different rates and frequencies in order to determine the effects on Anthracnose disease incidence.

Results: On the August 24th, 2015 the wetting agent Revolution suppressed Anthracnose disease incidence at all rates and frequencies used in this study with the least amount of Anthracnose observed at the 6 ounces per thousand square feet (oz/M) rate applied twice a week (<1%), once a week (2.6%) and every two weeks (7.0%). This was followed by 6 oz/M applied every three weeks (8.8%) followed by 6oz/M applied every four weeks (11.3%) and 1.5 oz/M applied once a week (11.9%). The 3.0 oz/M applied every two weeks resulted in 16.1% disease and finally the control resulted in 30.6% Anthracnose. Turf quality was also improved at all rates and frequencies of Revolution compared to the control, although only the 6 oz/M rate applied twice a week resulted in turfgrass quality considered acceptable for golf course putting greens.

Discussion: While these fungicide-free results are significant regarding Anthracnose disease control and may lead to future options concerning alternatives to traditional fungicides, the 6 oz/M rate used in this study corresponds to the monthly label rate for the product Revolution. Treatments five, six and seven, which amount to the label rate of Revolution did suppress Anthracnose compared to the control, although the turf quality observed was considered less than acceptable for golf course putting greens due to incomplete disease suppression.

Table 1: Effects of Revolution on Anthracnose disease susceptibility (0-100%) and turf quality (1-9 scale with 6 or greater being acceptable) collected on August, 24 2015 at the Lewis-Brown Horticulture Farm in Corvallis, OR.

			August 24, 2015			
Treatments	Revolution oz/M	Timing	% Anthracnose (0-100)		Turf Quality (1-9)	
1	6.0	2 X per week	0.04 %	a*	7.0	a
2	6.0	1 X per week	2.63 %	ab	5.2	b
3	6.0	Every 2 weeks	7.00 %	abc	4.7	bc
4	6.0	Every 3 weeks	8.75 %	bc	4.4	cd
5	6.0	Every 4 weeks	11.25 %	cd	4.1	d
6	1.5	1 X per week	11.88 %	cd	4.7	bc
7	3.0	Every 2 weeks	16.13 %	d	4.4	cd
8	Control		30.63 %	e	3.4	e

*Means followed by the same letter are not significantly different according to Fisher's LSD (0.05).

Formal Field Tour

Stop 2: Fungicides for Management of Anthracnose on Annual Bluegrass
Brian McDonald and Alec Kowalewski
10:15 to 10:30
……

Objective: Evaluate the effects of various fungicide rates and rotations on management of Anthracnose on Annual bluegrass putting greens.

Trial initiated on June 15, 2015.

Trt	Products	rate per 1,000 sq. ft.	Frequency
1	Untreated	NA	NA
2	Signature Xtra + Daconil Ultrex*	2.0 + 3.2 oz.	Weekly
3	Signature Xtra + Daconil Ultrex	4 + 3.2 oz.	every other week
4	Signature Xtra + Daconil Ultrex	6 + 3.2 oz.	every other week
5	Signature + Daconil Ultrex	4 + 3.2 oz.	every other week
6	Signature	4 oz.	every other week
7	Mirage alternated with Signature Xtra + Daconil Ultrex	1 fl. oz. 4 + 3.2 oz.	every other week
8	Daconil Action + Appear + Primo alternated with Heritage Action + Primo	3.5 oz. + 6.0 fl. oz. + 0.1 fl. oz. 0.2 oz. + 0.1 fl. oz.	every other week
9	Daconil Action + Appear + Primo	3.5 oz. + 6.0 fl. oz.+ 0.1 fl. oz.	every other week
10	Daconil Weather Stik + Signature	3.6 fl. oz. + 4.0 oz.	every other week
11	Daconil Action + Appear + Primo alternated with Velista + Appear + Primo	3.5 fl. oz. + 6.0 fl. oz. + 0.1 fl. oz. 0.5 oz. + 6.0 fl. oz. + 0.1 fl. oz.	every other week
12	Daconil Action + Heritage Action + Appear	3.5 fl. oz. + 0.5 oz. + 6.0 fl. oz.	every other week
13	A20518A	0.34 fl. oz.	every other week
14	Insignia SC + Daconil Weather Stik	0.4 fl. oz. + 3.6 fl. oz.	every other week

*All treatments applied with 2.0 gallons of water per 1,000 sq. ft.

Stop 2: Fungicides for Management of Anthracnose on Annual Bluegrass Continued…

……….

Initiated: 06/15/15

ROAD

S--->

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

Stop 3: National Turfgrass Evaluation Project Fine Fescue Trial.
Brian Daviscourt, Brian McDonald and Alec Kowalewski
10:30 to 10:45

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

Formal Field Tour

Stop 3: National Turfgrass Evaluation Project Fine Fescue Trial 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: 10:45 to 11:30 am

Glyphosate Tolerant Grasses

Alec Kowalewski and Brian McDonald
Department of Horticulture, Oregon State University

Introduction: For those trying to control annual bluegrass and other grassy weeds, options are limited. A handful of selective products are available for the management of hard-to-control grassy weeds such as annual bluegrass; however, these products are expensive and typically require multiple applications, providing sporadic control. In response to demands for more control options, breeders have been exploring the development of glyphosate tolerant turfgrass cultivars. Unlike glyphosate resistant cultivars, tolerant cultivars, developed through traditional breeding practices, can be controlled by glyphosate when applied at higher rates.

Objective:

- The objective of this project was to explore the glyphosate tolerance of various perennial ryegrass and fescue species.

Materials and Methods: Field research exploring the effects of glyphosate on fifteen cultivars of perennial ryegrass and fescue (tall and fine) – bred for glyphosate resistance – was initiated on August 28, 2013. Turfgrass was seeded at a rate appropriate to the individual species in August 2013. Glyphosate applications were made on April 2 and June 6, 2014, and then April 17 and Aug 20, 2015, at a rate of 8 oz/acre.

Results: Charger II perennial ryegrass was the only cultivar that had reduced turf cover after glyphosate applications (Figure 1). Cultivars that provided the highest turf cover after glyphosate applications were 5T20, Tarnation GT, and Tarheel II tall fescue; 224 and 2 MAX perennial ryegrass; Enchanted, Tiffany, and Shademaster III chewings fescue. 'AuroraGold' and 'SoilGuard' hard fescue has the lowest turf cover, which is a result of slow germination and establishment rates.

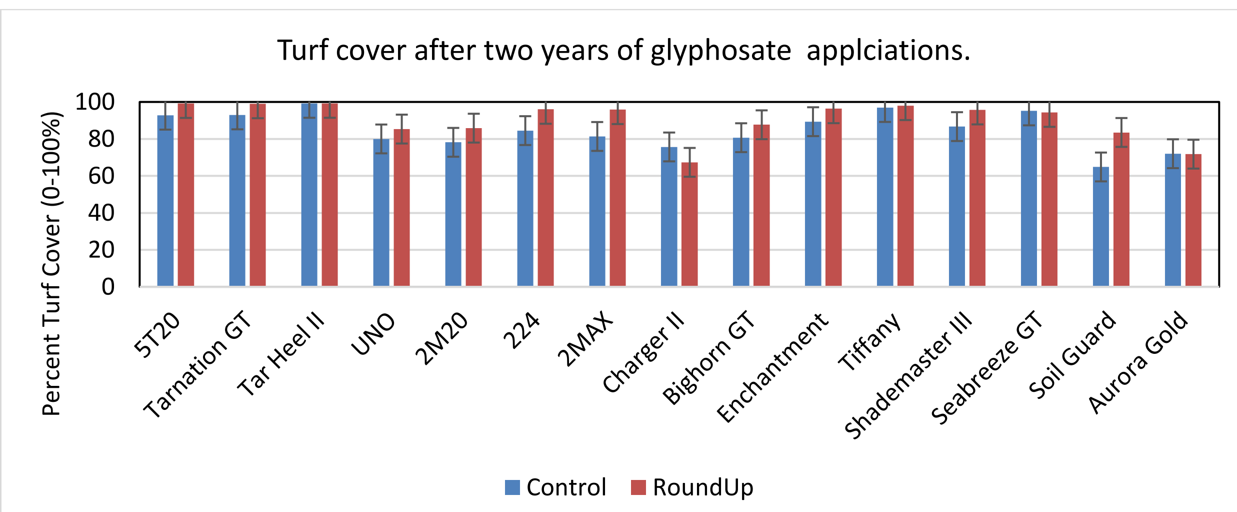


Figure 1: Effects of subsequent glyphosate (Round-Up) applications at a rate of 8 oz/acre on April 2, 2104 and June 6, 2014, and then April 17 and Aug 20, 2015, on percent seeded turf cover (0-100%) observed Aug 28, 2015 in Corvallis, OR. Columns with overlapping error bars are not significantly different according to LSD (0.05).

Open House: 10:45 to 11:30 am

Koch Polymer Coated Fertilizer Assessment

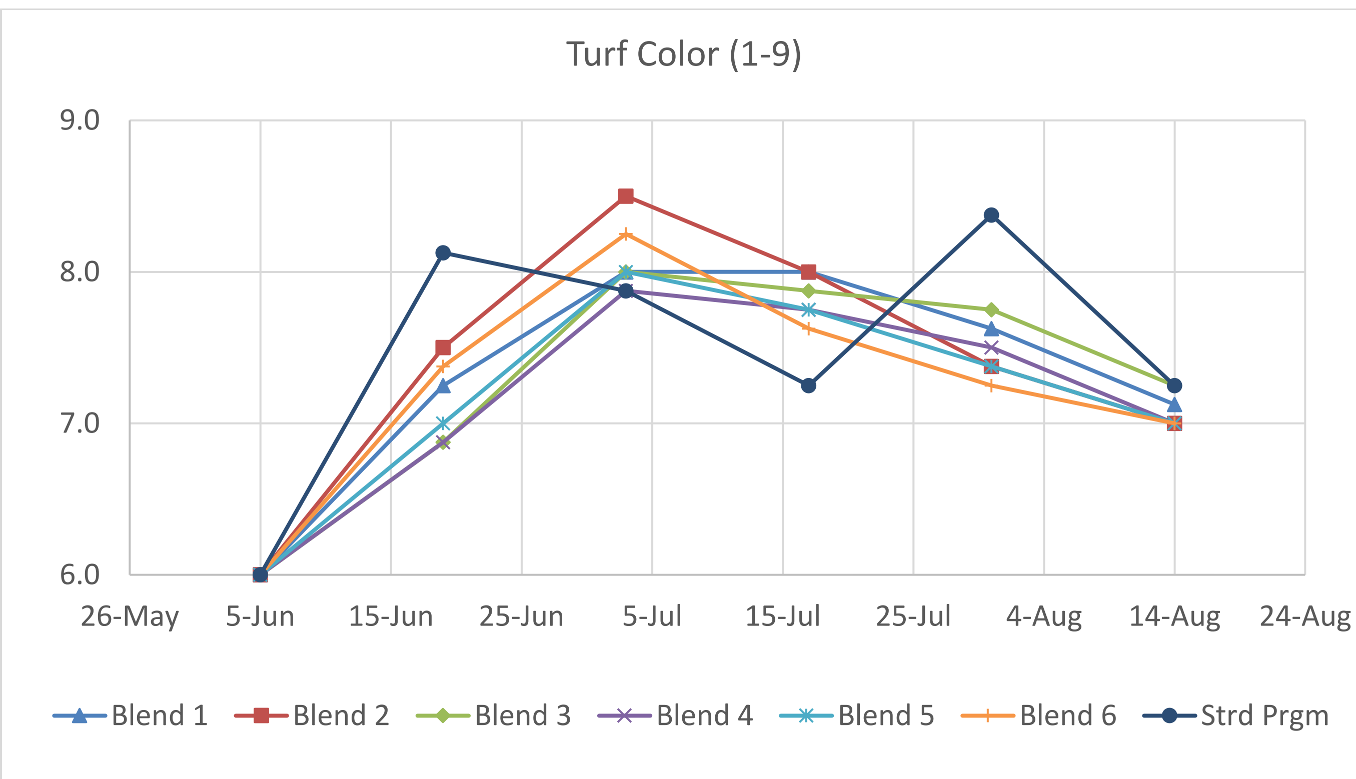
Conner Olsen, Brian McDonald and Alec Kowalewski
Department of Horticulture, Oregon State University

Objective: Evaluate turf response to sequential applications of polymer coated urea fertilizer blends applied throughout the growing season.

All fertility treatments were initiated June 5, 2015.

Treatment	Blend	5-Jun	17-Jul	14-Aug	28-Aug	1-Sep	9-Oct
Blend 1	80% P42, 20% Urea (P=Polyon PCU)	1.6*				1.6	
Blend 2	60% P42, 30% P44.5, 10% Urea	1.6				1.6	
Blend 3	40% P42, 40% P43, 20% Urea	1.6				1.6	
Blend 4	80% P43, 20% Urea	1.3		1.0			1.3
Blend 5	60% P43, 30% P44.5, 10% Urea	1.3		1.0			1.3
Blend 6	40% P43, 40% P44.5, 20% Urea	1.3		1.0			1.3
Strd Prgm	46% Urea	1.0	1.0		1.0		1.0

*Rates are expressed as lbs N per 1000 ft^2.



Open House: 10:45 to 11:30 am

Tall Fescue Cultivars

Clint Mattox, Alec Kowalewski and Brian McDonald
Department of Horticulture, Oregon State University

Introduction: Among the cool season grasses, tall fescue inherently possesses a high tolerance to drought and heat stress. Considering the increasing concerns associated with water use in the Western United States, tall fescue is a natural choice for Oregon's dry, summer climate. However, tall fescue aesthetics and plant health are often greatly compromised by cool season pathogens in the Pacific Northwest. Therefore, the objectives of this project were to evaluate the season-long aesthetics and plant health of tall fescue cultivars in the Willamette Valley.

No significant differences in winter disease susceptibility were observed between the thirteen cultivars assessed (Table 1). Thor, Diablo and Darlington received the highest summer color ratings, while KY31 and Fine Lawn Petite received the lowest color ratings. Temple, Diablo, Thor, Thunderstruck, D, Z, Trinity and Talladega received the highest summer turf quality ratings, while Fine Lawn Petite and finally KY31 received the lowest turf quality ratings.

Table 1: Effects of tall fescue cultivars on winter disease susceptibility (1 = most susceptible 9 = least susceptible) collected in Jan 2015, and summer turf color and quality (1-9 scales with 6 or greater being acceptable) collected in Aug 2015 at the Lewis-Brown Horticulture Farm in Corvallis, OR.

	24-Jan-15		25-Aug-15			
Cultivar	Winter Disease Susceptibility (1-9)		Turf Color (1-9)		Turf Quality (1-9)	
D	5.5	a*	7.3	ab	7.7	a
Z	5.7	a	7.3	ab	7.8	a
Talladega	6.0	a	7.5	ab	7.7	a
Lexington	5.7	a	7.3	ab	7.0	b
Sitka	5.7	a	7.0	b	7.0	b
Thunderstruck	6.0	a	7.5	ab	7.8	a
Temple	5.8	a	7.5	ab	8.0	a
Diablo	5.8	a	7.8	a	8.0	a
Thor	5.3	a	7.8	a	7.8	a
Darlington	5.5	a	7.7	a	7.2	b
Trinity	5.7	a	7.5	ab	7.7	a
KY31	6.5	a	6.0	c	6.0	d
Fine Lawn Petite	5.5	a	6.0	c	6.5	c

*Means followed by the same letter are not significantly different according to LSD (0.05).

Open House: 10:45 to 11:30 am

Quick Guide to Anthracnose Control in the Pacific Northwest

Brian McDonald
Department of Horticulture, Oregon State University

……

Cultural Practices:

- Apply soluble nitrogen at .15 to .25 lbs. per 1,000 sq. ft. every 2 weeks, along with potassium at a 2:1 ratio of nitrogen to potassium.
- Keep mowing heights as high as possible to achieve your desired putting green speeds. Use rolling, Primo, and verticutting to attain your desired speeds.
- Apply consistent amounts of irrigation (avoid dry-down cycles if possible). Make monthly applications of wetting agents beginning in April or May before your greens dry out. There is some evidence that applying wetting agents weekly may reduce anthracnose.
- Apply a light sand topdressing every two weeks.
- Mow less: research at Oregon State University has shown that mowing Monday, Wednesday, Friday, and Saturday along with daily rolling achieves the same putting speeds as mowing and rolling every day.
- Core in the spring and fall. Use smaller tines (1/2”) in the spring with closer spacing to create more holes for roots to grow.
- Use growth regulators: begin Proxy (5.0 fl. oz. per 1,000 sq. ft.) and Primo Maxx (0.125 fl. oz. per 1,000 sq. ft.) applications in early-to-mid March in Oregon. Make 3 applications on a 4-week interval. Make Primo only applications 2 weeks after the Proxy and Primo applications at 0.125 oz. per 1,000 sq. ft. Continue Primo applications every other week at 0.125 fl. oz. per 1,000 sq. ft. throughout the summer. **Do not apply Primo with DMI fungicides.**
- Keep your sulfur/sulfate levels below 2.0 lbs. per 1,000 ft^2 per year.

For more detailed information, see http://turf.rutgers.edu/research/GCM-BMP-Anthracnose.pdf

Quick Guide to Anthracnose Control in the Pacific Northwest (Cont.)

……….

Fungicide Rotation Programs: Don't be late with the first application!

Scenario Number 1: Goal of making the fewest applications as possible: – Must have low anthracnose pressure - (3 week spray interval)

a. No resistance issues with Strobilurins or thiophanate methyl

Date	Chemicals	Notes
3rd week of June	Banner, Mirage, Trinity, Torque (Avoid Bayleton & Tourney) mixed with Daconil Action (3.5 oz.)	Bayleton is weak. Tourney injures *Poa annua.*
2nd week of July	Heritage, Insignia, or Briskway mixed with Secure (3.5 oz.)	Briskway is Heritage + Difenaconazole
1st week of August	Thiophanate methyl (e.g. 3336, Fungo 50) mixed with Daconil Action (3.5 oz.)	This application will take you into September

b. With Strobilurin and thiophanate methyl resistance (**3 week spray interval**)

Date	Chemicals	Notes
3rd week of June	Banner, Mirage, Trinity, Torque (Avoid Bayleton & Tourney) mixed with Daconil Action (3.5 oz.)	Bayleton is weak. Tourney injures *Poa annua.*
2nd week of July	Medallion SC (1.0 oz.) mixed with Daconil Action (3.5 oz.)	Good on brown patch as well.
1st week of August	Signature (4.0 oz.) mixed with Daconil Action (3.5 oz.)	If hot temperatures occur earlier, switch the 2nd and 3rd applications

Note: As you move into September and *Microdochium* patch season starts, you can apply Banner Maxx again which is strong on *Microdochium* patch and will also control anthracnose.

Note: Mirage, Trinity, and Torque are all weak on *Microdochium* patch.

Quick Guide to Anthracnose Control in the Pacific Northwest (Cont.)

……….

Scenario Number 2: Cadillac Program – apply every 2 weeks. Start earlier if local experience has shown symptoms appear earlier. Apply 3 weeks before you normally see symptoms.

Date	Chemicals	Notes
1st week of June	Banner, Mirage, Trinity, or Torque, (Avoid Bayleton & Tourney) mixed with Daconil Action (3.5 oz.)	Bayleton is weak. Tourney injures *Poa annua.*
3rd week of June	Briskway, Heritage, or Insignia, mixed with Secure (0.5 oz.)	Only use if resistance is not observed
1st week of July	Velista mixed with Signature (4.0 oz.) and Secure (0.5 oz.)	
3rd week of July	Medallion SC (1.0 oz.) mixed with Daconil Action (3.5 oz.)	Good on brown patch as well.
1st week of August	Thiophanate methyl (e.g. 3336, Fungo 50) mixed with Daconil Action (3.5 oz.)	Only use if resistance is not observed
3rd week of August	Affirm (0.9 oz.) mixed with Spectro 90 (3.6 oz.)	
1st week of September	Banner Maxx (2.0 fl. oz.) – will work as your first *Microdochium* patch application as well.	You could delay this application a couple of weeks if weather is still dry

Notes: Avoid repeated applications of Banner, Mirage, Triton, Trinity, and Torque. To avoid an excessive growth regulator effect (or brown tingeing) from these fungicides, wait at least 4 weeks to reapply. **DO NOT APPLY PRIMO WHEN USING DMI FUNGICIDES.**

New Products:

- Briskway – Difenoconazole + azoxystrobin. Difenoconazole does not appear to have the same growth regulator effects that other DMI's have.
- Secure – new contact. Early indications are that it is a good tank mix partner for both anthracnose and *Microdochium* patch.
- Velista – Has shown good activity on anthracnose when used in rotation programs.
- Mirage – new DMI from Bayer that mixes tebuconazole and the StressGard pigment. Provides excellent control of anthracnose.

Exhibitors

Name	Organization	Phone	Email
Alea Miehls	FMC Agricultural Solutions	(714)833-1911	Alea.Miehls@fmc.com
Alexis Wenker	Oregon Turf Foundation	(503)303-7459	otf@oregonturfgrassfoundation.org
Crystal Rose-Fricker	Pure Seed Testing	(503)651-3300	cfricker@pureseed.com
Dan Macias	Aquatrols	(541)971-3794	dmacias@aquatrols.com
Elyssa Trejo	Dow AgroSciences	(541)224-4632	Eatrejo@dow.com
Greg Loberg	OSA; W. Coast Beet Seed Comp	(503)930-7204	greg.loberg@wcbeet.com
Jack Karlin	Turfgrass Water Conservation Alliance	(541)971-441	jack.karlin@tgwca.org
Robert DeAngelo	Target Specialty Products	(503)252-2732	robert.deangelo@target-specialty.com
Jen Browning	BASF	(503)602-0925	jennifer.browning@basf.com
John Hassler	Western Equipment Distributors	(503)706-6027	john.hassler@western-equip.com
Levi Smith	Husqvarna	(360)600-3202	Levi.smith@husqvarnagroup.com
Mark Willcut	Rain Bird International Inc.	(503)798-7203	mwillcut@rainbird.com
Mike Hebrard	Athletic Field Design	(503)705-6845	hebrard@athleticfield.com
Scott R. Harer	Columbia Seeds LLC	(888)681-7333	sharer@columbiaseeds.com
Sean Watts	CPS Professional Products	(503)989-1907	Sean.Watts@cpsagu.com

Golf Outing Tee Sponsors

Columbia Seeds LLC
CPS Professional Products
Rain Bird International Inc.

Thank you to the 2014-2015 Turfgrass Research Supporters

Aquatrols
Bandon Dunes Golf Resort
BASF
Bayer Crop Science
Columbia Seeds LLC
Crop Production Services
E. Marker A/S
Flora USA
FMC Cooperation
Golf Course Superintendents Association of America
Giustina Family
IPP Center, OSU
Jacobsen
JB Instant Lawn
JNB Trucking
Koch
National Turfgrass Evaluation Project
Northwest Turf Association
Oregon Golf Association
Oregon Golf Course Superintendents Association
Oregon Seed Association
Oregon Turf Foundation
Pure Seed Testing
RainBird
RMT Equipment
Seed Research of Oregon
Shonnard's
Syngenta Crop Protection, Inc.
Toro Irrigation
Tru-Turf Pty. Ltd.
Trysting Tree Golf Course
Turf Merchants Inc.
United States Golf Association
Western Equipment Distributors
Western IPM Center
Wilbur-Ellis Company

2015 Scholarships and Awards

2015	Gordon Kiyokawa	Friends and Alumni
2015	Chris Gaughan	Friends and Alumni
2015	Joel Balsiger	USGA Competitive Internship
2015	Micah Gould	Western Canada Turfgrass Association Scholarship
2015	Clint Mattox	Jason Oliver Memorial Scholarship
2015	Brian Daviscourt	Jason Oliver Memorial Scholarship
2015	Micah Gould	OGCSA - Whitworth
2015	Joel Balsiger	OGCSA - Martin
2015	Sam Pape	Tom Cook Legacy Scholarship
2015	Kabe Hockema	Tom Cook Legacy Scholarship
2015	Joel Balsiger	Bruce Faddis Memorial Scholarship

2014 Jason Oliver Memorial Golf Tournament Champions

Akoni Ganir
Brent Radford
Scott Larson
William Bensen
John Cook