

**2021 OSU TURF FIELD DAY**  
**Lewis Brown Horticulture Farm**  
**Corvallis, OR**  
**33329 Peoria Rd.**  
**Corvallis, OR 97333**  
**Thursday – August 26, 2021**



**Oregon State**  
**University**

**Speakers:**

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**Research PowerPoint Presentations: 9:00 to 10:00**

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| <b>Research PowerPoint Presentations: 9:00 to 10:00</b>   |
| <b>Presentation 1:</b> OSU Research, and Northwest Turf Association Updates.<br>Speaker – Alec Kowalewski, PhD, and Paul Ramsdell (5 minutes) Page 3  |
| <b>Presentation 2:</b> Long-term Effects of Fungicide Alternatives on Soil Chemical Properties<br>Speaker - Clint Mattox, PhD (7.5 minutes) Page 4  |
| <b>Presentation 3:</b> Tall Fescue Winter Fertility Trial<br>Speaker - Clint Mattox, PhD (7.5 minutes) Page 5   |
| <b>Presentation 4:</b> Influence of Plant Growth Regulators on Annual Bluegrass Cultivation Recovery<br>Speaker - Chas Schmid, PhD (7.5 minutes) Page 6   |
| <b>Presentation 5:</b> Effects of Proxy Timing on Annual bluegrass Seedhead Suppression<br>Speaker – Brian McDonald, and Chas Schmid, PhD (7.5 minutes) Page 7  |
| <b>Presentation 6:</b> Oregon State University Disease Diagnosis Laboratory Updates<br>Speaker - Emily Braithwaite (7.5 minutes) Pages 8 to 10  |
| <b>Formal Field Tour: 10:00 to 11:00 am</b>   |
| <b>Stop 1:</b> Enhancing Turfgrass Carbon Sequestration<br>Speaker - Wrennie Wang, PhD, Clint Mattox, PhD and Claire Phillips, PhD (15 minutes) Page 11   |
| <b>Stop 2:</b> - Long-Term Effects of Alternatives to Fungicides on Dollar spot and Anthracnose<br>Speaker – Clint Mattox, PhD (5 minutes) Page 12  |
| <b>Stop 3:</b> Long-term Effects of Topdressing and Cultivation Practices on an Annual Bluegrass<br>Speaker – Chas Schmid, PhD (10 minutes) Pages 13 to 15  |
| <b>Stop 4:</b> Anthracnose Management with Fungicides<br>Speaker – Emily Braithwaite and Brian McDonald (15 minutes) Pages 16 and 17  |
| <b>Stop 5:</b> Anthracnose Management with Fungicides and Wetting Agents<br>Speaker – Emily Braithwaite and Brian McDonald (5 minutes) Pages 18 and 19  |
| <b>Open House: 11:00 to 11:30 am</b>  |
| <b>Featured Projects:</b> <ul style="list-style-type: none"> <li>• Preemergence Herbicide for Broadleaf Weed Management, Schmid, Page 20</li> <li>• Slow-Release Nitrogen Sources, Kowalewski, Page 21</li> <li>• Using herbicides to remove perennial ryegrass from annual bluegrass, Mattox, Pages 22 and 23</li> <li>• National Turfgrass Evaluation Program Tall Fescue Trial, Wang, Pages 24 and 25</li> <li>• National Turfgrass Evaluation Program Perennial Ryegrass Trial, Braithwaite, Pages 26 and 27</li> <li>• Divot Repair Material Trial, Stover, Page 28</li> </ul> |
| <b>Lunch: 11:30 to 12:30 pm at Lewis Brown Farm</b>   |
| <b>Jason Oliver Memorial Golf Tournament and Dinner 1:00 to 6:00 pm at Trysting Tree</b>  |
| <b>Golf Outing Sponsors: Page 29</b>  |
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## Research PowerPoint Presentations: 9:00 to 10:00

### Presentation 1: OSU Research, Education and Extension Update

Speaker – Alec Kowalewski, PhD, and Paul Ramsdell

#### 2021 Internships:

- Reece Johnson, Salt Lake City Country Club, Salt Lake City, UT
- Ryder Johnson, Sand Valley Resort, Rome, WI
- Naia Evans, Idaho Falls Country Club, Idaho Falls, Idaho
- Vince Romo, Mallard Creek Golf Course, Lebanon, OR

#### Recent Donations:

- Burlingham Trust
- Oregon Turf Foundation
- Oregon Golf Course Superintendents Association
- Northwest Turf Association

#### In Memoriam:

- Bill Johnston, Professor of Turfgrass Science, Washington State University
- Tom DeArmond, Sr, Founder, Oregon Turf and Tree

#### Continuing USDA-SCRI Projects:

*Herbicide Resistance Management in Annual Bluegrass* <http://resistpoa.org/>

- We are conducting research on seed persistence, seedling emergence, phenology, species and variety selection, cultural practice research conducted in the state of Oregon. We are also conducting an annual bluegrass socioeconomic investigation. OSU is also providing extension and undergraduate education material on annual bluegrass management.

#### Professional and Continuing Education (PACE) Turfgrass Management Program:

This series includes the following component courses:

- Introduction to Turfgrass Management
- Introduction to Golf Course Management
- Pesticide Applicator Education and Safety
- Irrigation and Drainage
- Turfgrass Diseases and Suppression Using Fungicides
- Turfgrass Mathematics
- Turfgrass Insects and Weed Management

**Research PowerPoint Presentations: 9:00 to 10:00**

**Presentation 2: Long-term Effects of Fungicide Alternatives on Soil Chemical Properties**

Speaker - Clint Mattox, PhD

**Introduction:** Two field trials focusing on managing Microdochium patch in the absence of traditional fungicides have been taking place in the same location at the Lewis-Brown Horticulture farm since the fall of 2018. Soil samples are collected every spring allowing for comparison of soil chemical properties over time. These soil samples provide a means of quantifying any long-term concerns from continually applying products on a sand-based annual bluegrass putting green. Of particular interest is whether phosphorous acid (phosphite) products will lead to an increase in plant available phosphorus, if sulfur and/or iron sulfate will lead to a decrease in soil pH, and whether copper-based pigments lead to an increase in copper soil levels.

**Materials and**

**Methods:** The two field studies were implemented on a sand-based annual bluegrass putting green in September 2018 and treatments were applied every two weeks (except for a fungicide control applied monthly) through April of each year. In May of each year, soil

| Trt | Long-Term Trial Treatments (applied every 2 weeks Sep through Apr)  |
|-----|---|
| 1   | 0.25# S/M + 3.2 oz. Duraphite 12/M  |
| 2   | 8.5 oz. Civitas Defense/M + 3.2 oz. Duraphite 12/M applied Sep, Oct, Nov, & Apr<br>0.25# S/M + 3.2 oz. Duraphite 12/M applied Dec through Mar |
| 3   | 8.5 oz. Civitas Defense/M + 3.2 oz. Duraphite 12/M applied in a four-week rotation with 0.25# S/M + 3.2 oz. Duraphite 12/M                    |
| 4   | 8.5 oz. Civitas Defense/M applied alone in a four-week rotation with 0.25# S/M + 3.2 oz. Duraphite 12/M                                       |
| 5   | 0.5# FeSO <sub>4</sub> /M + 3.2oz. Duraphite 12   |
| 6   | 1.0# FeSO <sub>4</sub> /M + 3.2oz. Duraphite 12   |
| 7   | 0.25# S/M   |
| 8   | 3.2 oz. Duraphite 12/M  |
| 9   | Fungicide Control (applied every 4 weeks)   |
| 10  | Non-treated Control   |

| Trt | Iron Source Treatments (applied every 2 weeks Sep through Apr)                     |
|-----|--|
| 1   | 0.5 # FeSO <sub>4</sub> / M  |
| 2   | 0.5 # FeSO <sub>4</sub> / M + 3.2 oz. Duraphite 12 / M                             |
| 3   | 1.0 # FeSO <sub>4</sub> / M  |
| 4   | 1.0 # FeSO <sub>4</sub> / M + 3.2 oz. Duraphite 12 / M                             |
| 5   | 0.1 # Fe as chelated iron / M (equivalent to Fe level in 0.5 # FeSO <sub>4</sub> ) |
| 6   | 0.1 # Fe as chelated iron / M + 3.2 oz. Duraphite 12 / M                           |
| 7   | 0.2 # Fe as chelated iron / M (equivalent to Fe level in 1.0 # FeSO <sub>4</sub> ) |
| 8   | 0.2 # Fe as chelated iron / M + 3.2 oz. Duraphite 12 / M                           |
| 9   | Fungicide Control  |
| 10  | Non-treated Control  |

samples were collected to a depth of 3 inches, with the verdure removed. In the long-term trial, the samples are divided into two sections (0 to 1 inch & 1 to 3 inch). In the iron source trial, the soil samples are collected from 0 to 3 inch only. The soil samples that include the top 1 inch of material include the mat layer, which is typically discarded by the soil analytical lab. For this reason, the soil samples including this layer are freeze dried with liquid nitrogen and crushed with a mortar and pestle prior to sending the samples to the lab in order to capture any soil chemical properties in this layer.

## Research PowerPoint Presentations: 9:00 to 10:00

### Presentation 3: Tall Fescue Winter Fertility Trial

Speaker - Clint Mattox, PhD

#### Introduction:

Little is known about optimal timing or rate of nitrogen fertilization on tall fescue in cool, humid regions like the western region of the Pacific Northwest. Tall fescue performs well in these regions during the warmer months of the year, leading to savings of water, fertilizer, and mowing labor. However, winter diseases are common, leading to a thinning of the tall fescue stand and eventual contamination by annual bluegrass. The poor winter quality and subsequent degradation of the sward discourages stakeholders to try or to recommend the use of tall fescue in these climates. This field study is designed to compare multiple annual fertility rates and timings on a tall fescue lawn in western Oregon, quantifying monthly turfgrass quality, with a focus on winter turfgrass quality.

#### Materials and Methods:

A field study was initiated in September 2020 on a new stand of ‘Thor’ Tall Fescue that was planted on July 14<sup>th</sup>, 2020 on a silty clay loam soil (‘Malabon’) with a pH of 6.0. There are three factors considered in this experiment (annual nitrogen rate, seasonal timing, and mowing height) and the experiment is replicated four times. Plot size is 5 feet by 5 feet and half of the plots are mown in strips at either 2” or 3” as needed with clippings removed. Dependent variables in the study include NDVI, turfgrass quality, turfgrass color, percent disease, and *Poa annua* percentage.

#### Preliminary Findings:

In the first year of the study, there was no evidence that treatments applying most of the nitrogen in the fall and early winter led to an increase in disease. Preliminary observations show that higher annual NDVI averages (an indication of better turfgrass health) are resulting from treatments 3,7, 9,10, and 11 (all of which provide the majority of nitrogen in the fall and winter).

| Trt # | Months Applied             | N/app   | Total lbs. of N per year |
|-------|----------------------------|---------|--------------------------|
| 1     | May, Jul, Sep, Nov, & Dec  | 0.4 lb. | 2                        |
| 2     | May, Jul, Sep, Oct, & Nov  | 0.4 lb. | 2                        |
| 3     | May, Sep, Oct, Nov, & Dec  | 0.4 lb. | 2                        |
| 4     | Apr, May, July, Aug, & Sep | 0.4 lb. | 2                        |
| 5     | May, Jul, Sep, Nov, & Dec  | 0.8 lb. | 4                        |
| 6     | May, Jul, Sep, Oct, & Nov  | 0.8 lb. | 4                        |
| 7     | May, Sep, Oct, Nov, & Dec  | 0.8 lb. | 4                        |
| 8     | Apr, May, July, Aug, & Sep | 0.8 lb. | 4                        |
| 9     | May, Jul, Sep, Nov, & Dec  | 1.2 lb. | 6                        |
| 10    | May, Jul, Sep, Oct, & Nov  | 1.2 lb. | 6                        |
| 11    | May, Sep, Oct, Nov, & Dec  | 1.2 lb. | 6                        |
| 12    | Apr, May, July, Aug, & Sep | 1.2 lb. | 6                        |

## Research PowerPoint Presentations: 9:00 to 10:00

### **Presentation 4:** Influence of Plant Growth Regulators on Annual Bluegrass Cultivation Recovery

Speaker - Chas Schmid, PhD

#### **Introduction:**

Plant growth regulators are commonly used on golf courses to manage vertical growth and to improve turf stand density. On golf courses, core cultivation is one of the most disruptive events to occur, but no research currently exists that demonstrates the effect of PGRs on recovery from core cultivation.

#### **Materials and Methods:**

A field study was initiated in March 2021 on a 1-yr old annual bluegrass putting green with the objectives to 1) determine the effect of trinexapac-ethyl application timing on core cultivation recovery, 2) determine if ethephon treatments applied in the spring for annual bluegrass seedhead control influence cultivation recovery time, 3) evaluate the effect of gibberellic acid (GA<sub>3</sub>) on core cultivation recovery. Treatments were arranged as a 3 x 2 factorial with four replications. Trinexapac-ethyl (TE) was applied up to either 400, 200, and 10 growing degree days (GDD) prior to cultivation, in combination with ethephon or no ethephon treatments (spring only). Gibberellic acid (RyzUp) applied at 1.4 and 2.8 g GA<sub>3</sub> ha<sup>-1</sup> and a non-treated control were included for comparison. Trial area was cored in the spring and fall with 1.3 cm inside diameter hollow tines in a 5.1 x 5.1 cm spacing. Following core cultivation, digital images were collected daily using a lightbox to determine percent cover over time.

#### **Treatment Summary:**

1. Untreated control
2. TE applied 400 GDD prior to cultivation
3. TE applied 400 GDD prior to cultivation + ethephon
4. TE applied 400 and 200 GDD prior to cultivation
5. TE applied 400 and 200 GDD prior to cultivation + ethephon
6. TE applied 400, 200 and 10 GDD prior to cultivation
7. TE applied 400, 200 and 10 GDD prior to cultivation+ ethephon
8. GA<sub>3</sub> applied 10 GDD prior to cultivation at 0.05 oz RyzUp /Acre
9. GA<sub>3</sub> applied 10 GDD prior to cultivation at 0.1 oz RyzUp/Acre

#### **Preliminary Findings:**

Results from the spring of 2021 indicate that the main effect of ethephon treatments had the greatest impact on cultivation recovery time, with plots receiving ethephon recovering quicker than plots that received no ethephon. The main effect of TE timing was only significant on one date in the spring of 2021, with the last app of TE applied 400 GDD prior to cultivation having greater percent recovery 5-d after cultivation compared to TE applied 10 GDD prior to cultivation.

## Research PowerPoint Presentations: 9:00 to 10:00

### Presentation 5: Effects of Proxy Timing on Annual bluegrass Seedhead Suppression

Speaker –Brian McDonald, and Chas Schmid, PhD

#### Objectives:

1. Will adding one application of Proxy applied October through February (along with traditional spring timing) improve annual bluegrass seed head suppression?
2. Will lower rates of Proxy applied with Primo during the summer improve annual bluegrass seed head suppression? (Note: Maximum annual Proxy amount is 30 fl. oz./yr.)

#### Materials and Methods:

A field trial was initiated in October 2020 at the Oregon State University Lewis-Brown Horticulture farm in Corvallis, OR. Research is being conducted on a 1-yr old annual bluegrass putting green with 12" of USGA sand over drain tiles and native soil.

#### Preliminary Findings:

Seedhead production peaked on April 29, 2021. The control treatment has the highest percent seedhead at the peak of production (33.4%). All Proxy application program suppressed seedhead production. Treatments 2, 7, 8, 11, 12, and 13 suppressed seedhead to less than 2%. Applications that incorporated January and February applications had the lowest seedhead production (0.7 to 1.8%).

| Trt # | 1st App*  | Subsequent Apps            | Percent Seedhead (0-100%) |       |       |
|-------|-----------|----------------------------|---------------------------|-------|-------|
|       |           |                            | 04/14                     | 04/21 | 04/29 |
| 1     | untreated | -                          | 16.1                      | 27.4  | 33.4  |
| 2     | Feb       | GDD - Started 1 week later | 0.8                       | 1.8   | 1.5   |
| 3     | None      | Mar, Apr, May              | 3.0                       | 4.0   | 5.3   |
| 4     | Oct       | Mar, Apr, May              | 1.0                       | 3.5   | 4.0   |
| 5     | Nov       | Mar, Apr, May              | 0.9                       | 2.5   | 2.8   |
| 6     | Dec       | Mar, Apr, May              | 0.8                       | 1.8   | 3.0   |
| 7     | Jan       | Mar, Apr, May              | 1.1                       | 1.3   | 1.3   |
| 8     | Feb       | Mar, Apr, May              | 0.5                       | 1.3   | 1.1   |
| 9     | Oct       | Mar, Apr, May + summer†    | 1.5                       | 4.8   | 2.5   |
| 10    | Nov       | Mar, Apr, May + summer     | 0.9                       | 2.5   | 3.3   |
| 11    | Dec       | Mar, Apr, May + summer     | 0.5                       | 1.5   | 2.0   |
| 12    | Jan       | Mar, Apr, May + summer     | 0.6                       | 1.3   | 1.1   |
| 13    | Feb       | Mar, Apr, May + summer     | 0.8                       | 1.0   | 0.7   |

\*Proxy was applied at 5.0 fl. oz. in Feb, Oct, Nov, Dec, Jan, Mar, Apr and May: Growing degree day (GDD) applications were made at 5.0 fl. oz. on 3/17, GDD 4/15, and GDD 5/13.

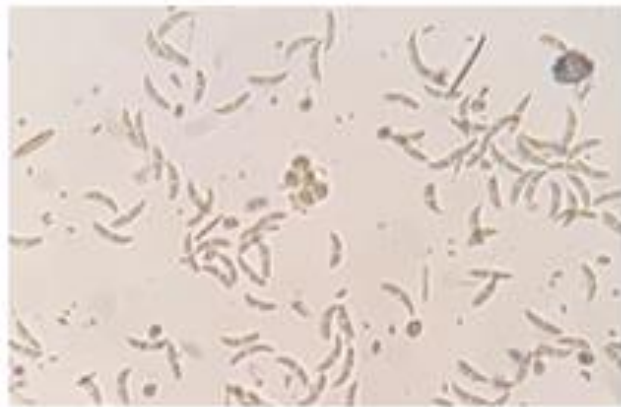
†Summer apps - Trts 9 -13 receive Proxy @ 3.3 fl. oz. on 6/2, 7/2, and 7/30.

**Presentation 6:** Oregon State University Disease Diagnosis Laboratory Updates

Speaker - Emily Braithwaite



# Turfgrass Diagnostic Lab



Located at Lewis-Brown Farm, the OSU Turfgrass Diagnostic Lab provides quick and accurate diagnostic information and management recommendations for turfgrass problems.

Visit our website below or follow QR code for details on submission costs, sampling and shipping methods, or email us for more information.

Lewis-Brown Farm:  
33329 Peoria Rd, Corvallis, OR 97333  
<https://horticulture.oregonstate.edu/beaverturf/diagnostic-lab>





Research PowerPoint Presentations: 9:00 to 10:00

Presentation 6: Oregon State University Disease Diagnosis Laboratory Updates Continued...



Oregon State University

Turfgrass Diagnostic Lab
Oregon State University
33329 Peoria Rd
Corvallis, Oregon 97331

P 541-737-XXXX
beaverturf.lab@oregonstate.edu

Turfgrass Sample Submission Form

Method of Payment

- \$100 Diagnosis via phone/email
\$150 Diagnosis with full report including recommendations
Send me an invoice for payment
Check made payable to Ag Research Foundation included

Office Use Only

Date Received: \_\_\_/\_\_\_/\_\_\_
Sample #: \_\_\_\_\_
Response Date: \_\_\_/\_\_\_/\_\_\_

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Company/Golf Course: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Contact #: \_\_\_\_\_ Email: \_\_\_\_\_

Visual Symptoms (photos required - see submission guidelines) Plant Part Affected

- Patches, Yellowing, Other, Leaf, Rings, Wilt, Stem, Spots, Stunting, Roots, Streaks, Root Rot, Other, Thinning, Complete Kill

Comments/Description of Problem (Attach additional sheets if needed):

Location of Turf

- Green, Seed Farm, Tee, Sod Farm, Fairway, Lawn

Site Exposure

- Full Sun, Part-Shade, Full Shade

Soil Type

- Sandy, Loam, Silt, Clay

Drainage

- Good, Fair, Poor

Date Collected: \_\_\_/\_\_\_/\_\_\_

Date Symptoms Appeared: \_\_\_/\_\_\_/\_\_\_

Sample ID/Turf Species: \_\_\_\_\_

**Research PowerPoint Presentations: 9:00 to 10:00**

**Presentation 6: Oregon State University Disease Diagnosis Laboratory Updates Continued...**

**Fungicide(s) Applied in the Last 2 Months (or attach spray records)**

| Date  | Product | Rate/1000ft <sup>2</sup> |
|-------|---------|--------------------------|
| _____ | _____   | _____                    |
| _____ | _____   | _____                    |
| _____ | _____   | _____                    |
| _____ | _____   | _____                    |

**Insecticide(s)/Herbicide(s) Applied in the Last 2 Months (or attach spray records)**

| Date  | Product | Rate/1000ft <sup>2</sup> |
|-------|---------|--------------------------|
| _____ | _____   | _____                    |
| _____ | _____   | _____                    |
| _____ | _____   | _____                    |
| _____ | _____   | _____                    |

**Fertilizer(s) Applied this Season (or attach spray records)**

| Date  | Product | Rate Nitrogen/1000ft <sup>2</sup> |
|-------|---------|-----------------------------------|
| _____ | _____   | _____                             |
| _____ | _____   | _____                             |
| _____ | _____   | _____                             |
| _____ | _____   | _____                             |

**Cultural Practices (include irrigation practices)**

| Date  | Description |
|-------|-------------|
| _____ | _____       |
| _____ | _____       |
| _____ | _____       |
| _____ | _____       |

**Additional Comments (attach separate sheets where needed)**

## Formal Field Tour: 10:00 to 11:00 am

### Stop 1: Enhancing Turfgrass Carbon Sequestration

Speaker - Wrennie Wang, PhD, Clint Mattox, PhD, and Claire Phillips, PhD

#### Introduction

Criticisms of the environmental impacts of lawns, including a high climate footprint, pose challenges to the market acceptance of natural turfgrass domestically and internationally. However, turfgrass systems have been shown to accumulate soil organic carbon (SOC) at high rates, comparable to regenerating forests and fallowed cropland. The greenhouse gas emissions associated with turfgrass come primarily from maintenance practices, including fuel emissions from mowing and soil N<sub>2</sub>O emissions following nitrogen fertilizer application. But what happens when turf is managed with low-intensity management? Is low-input turf still good at accumulating soil carbon? What is good for turf growth—fertilization and irrigation—should also be good for soil carbon accumulation, even though these practices also increase maintenance emissions. It is not known how a low-maintenance lawn—with infrequent fertilization, irrigation, and mowing—will compare to a lawn managed for aesthetic characteristics. While a number of studies have tried to make these comparisons with simulation models, there are few on-the-ground studies directly measuring turfgrass emissions. The turf team at Oregon State University has initiated a series of field trials to address this issue, evaluating trade-offs between maintenance intensity, soil carbon storage, and turf aesthetic characteristics.

#### Materials and Methods

In one study, we are constructing a complete annual carbon budget for a newly-seeded perennial ryegrass lawn under optimum management practices. We are using automatic chambers to continuously measure CO<sub>2</sub> uptake (through photosynthesis) and release (through respiration) throughout the day and night. We hypothesize that cool-season turfgrass, which is able to grow during the winter in the northwestern U.S. and western Canada, can therefore provide a winter carbon sink in this region.

In a related experiment, we are comparing turfgrass plots that have been receiving different levels of maintenance intensity for the last four years. In these plots, we measured CO<sub>2</sub> fluxes once every two weeks, and compare plots with high and low levels of N fertilization and irrigation, as well as mowing frequency and height of cut. We will continue to measure these plots for two years, along with quantifying gasoline and fertilizer consumption needed to maintain the plots in order to complete carbon budgets for each treatment.

#### Preliminary Findings:

Our initial observations from January to March 2021 for both projects suggest that cool-season turfgrass lawns are actively assimilating atmosphere CO<sub>2</sub> during the day in winter months. We will continue to collect data to calculate the annual carbon balance, which will provide a better understanding of the cool-season turfgrass system in our local environment.

**Formal Field Tour: 10:00 to 11:00 am**

**Stop 2: Long-Term Effects of Alternatives to Fungicides on Dollar spot and Anthracnose**

Speaker – Clint Mattox, PhD

**Introduction:** Since 2013, great strides have been made regarding the management of *Microdochium* patch in the absence of traditional fungicides in the Pacific Northwest however the long-term effects of these practices are not yet known. Of particular concern is the incidence of summer diseases that may be affected by the previous winter applications. Previous trials have provided evidence for an increase in anthracnose when sulfur is frequently applied, however less is known about how iron sulfate applications affect anthracnose.

**Materials and Methods:** A field trial focusing on managing *Microdochium* patch in the absence of traditional fungicides have been taking place in the same location at the Lewis-Brown Horticulture farm since the fall of 2018. Treatments are applied Sept. through Apr. and then no other disease control applications except for pythium and yellow patch controls are made over the summer, allowing anthracnose and dollar spot to be expressed.

**Preliminary Findings:** The summer of 2021 experienced some of the highest anthracnose pressure observed in recent memory in the Willamette Valley and some dollar spot was present all summer as well. Of note was the higher average amount of anthracnose earlier in the summer on plots previously treated with iron sulfate and the limited amount of anthracnose observed on the winter fungicide control and the non-treated control in both June and July. By August, anthracnose appeared throughout.

| Plot Map: East-->> |   |   |    |    |
|--------------------|---|---|----|----|
| 5                  | 3 | 2 | 4  | 6  |
| 8                  | 7 | 9 | 10 | 1  |
| 10                 | 3 | 7 | 2  | 8  |
| 4                  | 6 | 1 | 9  | 5  |
| 5                  | 8 | 4 | 7  | 3  |
| 2                  | 9 | 6 | 1  | 10 |
| 4                  | 7 | 3 | 2  | 5  |
| 10                 | 6 | 1 | 8  | 9  |

| Trt | Long-Term Trial Treatments (applied every 2 weeks Sep through Apr)  | Anthracnose |       |        | Dollar Spot |      |        |
|-----|---|-------------|-------|--------|-------------|------|--------|
|     |   | June        | July  | August | June        | July | August |
| 1   | 0.25# S/M + 3.2 oz. Duraphite 12/M  | 0.0%        | 27.5% | 47.5%  | 1.5%        | 0.6% | 2.1%   |
| 2   | 8.5 oz. Civitas Defense/M + 3.2 oz. Duraphite 12/M applied Sep, Oct, Nov, & Apr<br>0.25# S/M + 3.2 oz. Duraphite 12/M applied Dec through Mar | 0.4%        | 26.3% | 37.5%  | 1.2%        | 1.1% | 1.6%   |
| 3   | 8.5 oz. Civitas Defense/M + 3.2 oz. Duraphite 12/M applied in a four-week rotation<br>with 0.25# S/M + 3.2 oz. Duraphite 12/M                 | 0.1%        | 20.0% | 37.5%  | 0.5%        | 0.2% | 1.1%   |
| 4   | 8.5 oz. Civitas Defense/M applied alone in a four-week rotation<br>with 0.25# S/M + 3.2 oz. Duraphite 12/M                                    | 0.0%        | 30.0% | 46.3%  | 1.2%        | 0.5% | 0.4%   |
| 5   | 0.5# FeSO4/M + 3.2oz. Duraphite 12  | 12.5%       | 32.5% | 22.5%  | 2.8%        | 4.0% | 0.9%   |
| 6   | 1.0# FeSO4/M + 3.2oz. Duraphite 12  | 28.8%       | 25.0% | 17.5%  | 0.7%        | 0.7% | 0.6%   |
| 7   | 0.25# S/M   | 0.6%        | 32.5% | 38.8%  | 0.7%        | 0.5% | 1.8%   |
| 8   | 3.2 oz. Duraphite 12/M  | 0.5%        | 16.3% | 28.8%  | 4.0%        | 4.4% | 3.6%   |
| 9   | Fungicide Control (applied every 4 weeks)   | 0.0%        | 0.6%  | 20.0%  | 0.0%        | 0.0% | 0.3%   |
| 10  | Non-treated Control   | 0.9%        | 3.8%  | 28.0%  | 0.3%        | 0.2% | 1.3%   |

## **Formal Field Tour: 10:00 to 11:00 am**

### **Stop 3: Long-term Effects of Topdressing and Cultivation Practices on an Annual Bluegrass**

Speaker – Chas Schmid, PhD

#### **Introduction:**

Hollow tine aerification and sand topdressing have been used on golf course putting greens for decades to manage organic matter accumulation, improve infiltration, and maintain firm playing conditions. In more recent years, superintendents and researchers have been exploring solid tine aerification and topdressing without aerification. Despite recent trends, aerification and topdressing research on annual bluegrass putting greens in the Pacific Northwest, where 12 months of growth can be expected, is minimal.

#### **Materials and Methods:**

A 5-year field trial was initiated in May 2020 at the OSU Lewis-Brown Horticulture Farm in Corvallis, OR. Experimental design for the trial is a randomized complete block design with four replications. Treatments are arranged in a 2 x 7 factorial, with two sand topdressing rates (50 and 100 lbs 1000 ft<sup>-2</sup>) and 7 cultivation treatments [hollow tine (HT) spring, fall, and both spring and fall; solid tine (ST) spring, fall, and both spring and fall; and a non-cultivated plot that received sand topdressing]. A non-treated control (no cultivation, no sand topdressing) was also included in the analysis.

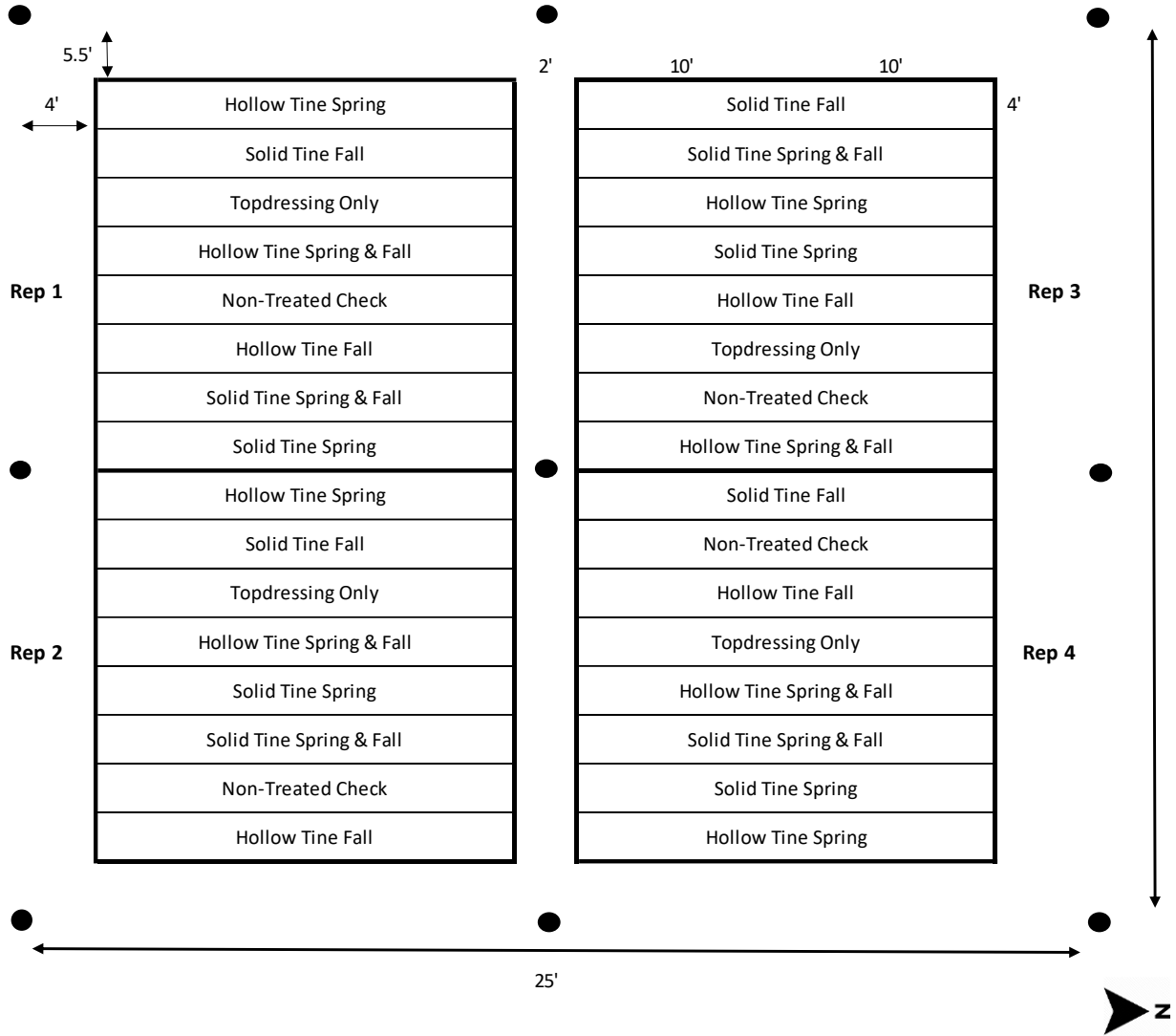
#### **Preliminary Results:**

The main effect of cultivation treatment influenced turf quality (TQ) in Aug, Sept, Oct, and Nov of 2020, with spring cultivation treatments (HT spring, HT spring & fall, ST spring, ST spring & fall) generally resulting in greater TQ rating than fall cultivation treatments and topdressing only plot. Orthogonal contrast between spring cultivation treatments and all other treatments indicate spring cultivation had greater infiltration than plots that didn't receive spring cultivation. Neither main effect of topdressing rate or cultivation treatment had an effect on yellow patch severity in the fall of 2020; however, all combinations of topdressing rate and cultivation treatments reduced yellow patch severity compared to the non-treated control.

**Formal Field Tour: 10:00 to 11:00 am**

**Stop 3:** Long-term Effects of Topdressing and Cultivation Practices on an Annual Bluegrass Continued...

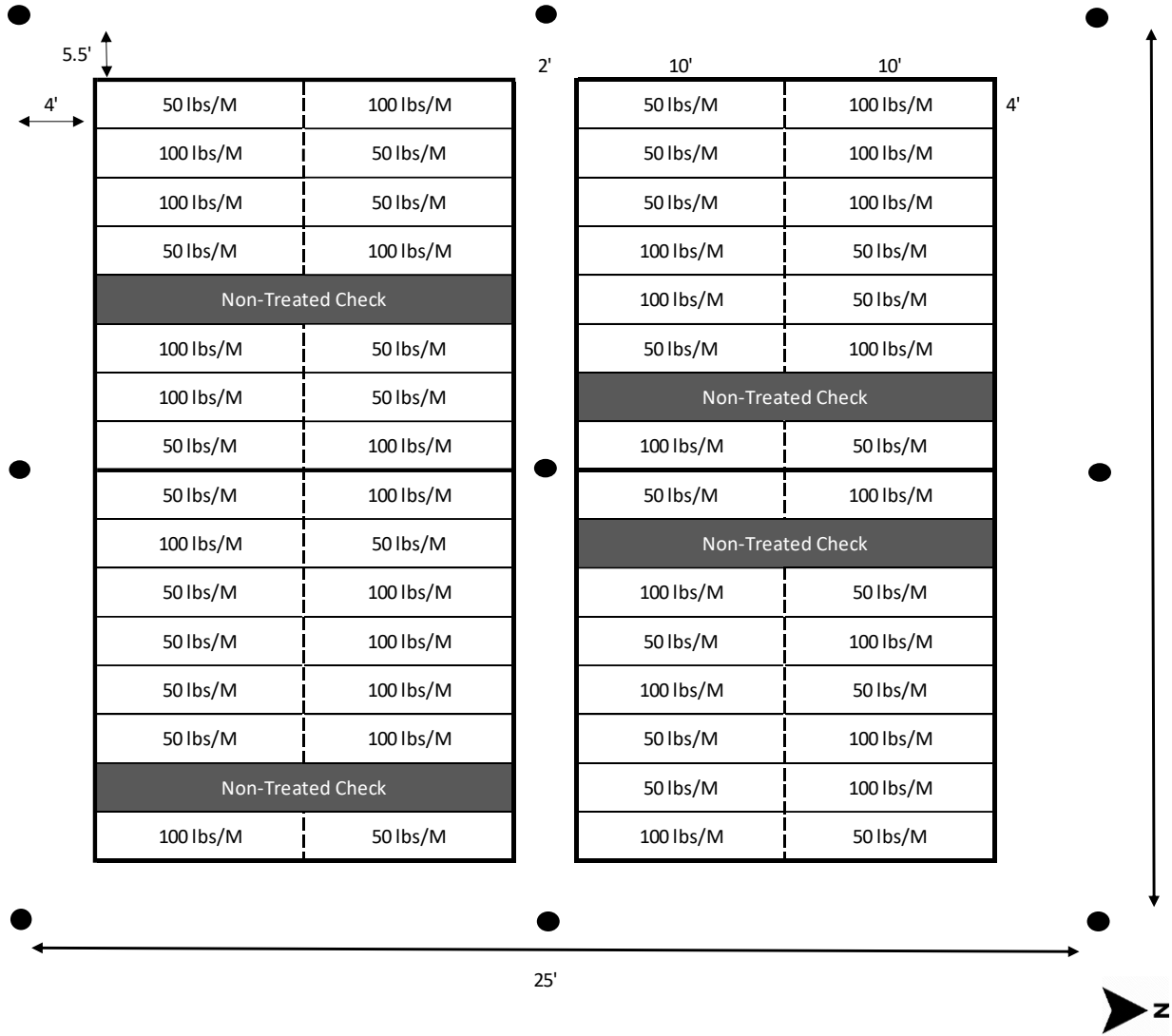
**Whole Plot Factor:** Cultivation treatment



**Formal Field Tour: 10:00 to 11:00 am**

**Stop 3: Long-term Effects of Topdressing and Cultivation Practices on an Annual Bluegrass**  
Continued...

**Subplot Factor: Topdressing rate**



## Formal Field Tour: 10:00 to 11:00 am

### Stop 4: Anthracnose Management with Fungicides on an Annual Bluegrass Putting Green

Speaker – Emily Braithwaite and Brian McDonald

Initiated: June 17, 2021

Location: Eugene Green, Lewis-Brown Farm

| Treatments |   | Rate (oz/M)       | Interval            | Percent Disease 6/30/21 | Percent Disease 8/18/21 |
|------------|---|-------------------|---------------------|-------------------------|-------------------------|
| 1          | Untreated                               | -                 | -                   | 12.0                    | 36.3                    |
| 2          | Premion + Par                           | 4.0 + 0.37        | 14 day              | 1.4                     | 0.5                     |
| 3          | Premion + Par                           | 6.0 + 0.37        | 14 day              | 0.2                     | 0.3                     |
| 4          | Premion + Par                           | 8.0 + 0.37        | 14 day              | 0.3                     | 0.3                     |
| 5          | Turfcide 400 + Par                      | 6.0 + 0.37        | 14 day              | 1.4                     | 2.1                     |
| 6          | 2021 Anth Prog #1                       | -                 | 14 day <sup>1</sup> | 0.2                     | 0.3                     |
| 7          | 2021 Anth Prog #2                       | -                 | 14 day <sup>2</sup> | 0.3                     | 0.3                     |
| 8          | Daconil Action + Appear II + Primo Maxx | 3.5 + 6.0 + 0.125 | 14 day              | 1.9                     | 1.2                     |
| 9          | 2021 Anth Prog #3                       | -                 | 14 day <sup>3</sup> | 1.5                     | 0.3                     |
| 10         | Ascernity + Appear II + Primo Maxx      | 1.0 + 6.0 + 0.125 | 14 day              | 1.5                     | 0.5                     |
| 11         | 2021 Anth Prog #4                       | -                 | 14 day <sup>4</sup> | 0.3                     | 0.3                     |
| 12         | 2021 Anth Prog #5                       | -                 | 14 day <sup>5</sup> | 0.6                     | 0.2                     |
| 13         | Densicor                                | 0.1               | 14 day              | 0.3                     | 0.6                     |
| 14         | Densicor                                | 0.1               | 21 day              | 0.4                     | 0.3                     |
| 15         | Densicor                                | 0.2               | 14 day              | 1.2                     | 1.0                     |
| 16         | Densicor                                | 0.2               | 21 day              | 0.8                     | 0.5                     |
| 17         | Densicor                                | 0.2               | 14 day              | 5.3                     | 1.3                     |
| 18         | Maxtima                                 | 0.4               | 14 day              | 2.8                     | 0.4                     |
| 19         | Maxtima                                 | 0.4               | 21 day              | 1.1                     | 0.3                     |
| 21         | Pinpoint                                | 0.3               | 14 day              | 6.5                     | 1.3                     |
| 22         | Fame                                    | 0.4               | 14 day              | 2.1                     | 0.8                     |
| 25         | Xzemplar                                | 0.159             | 14 day              | 5.1                     | 40.0                    |
| 26         | Lexicon                                 | 0.47              | 14 day              | 2.1                     | 1.6                     |
| 27         | 2021 Anth Prog #6                       | -                 | 14 day <sup>6</sup> | 9.5                     | 0.7                     |
| 28         | 2021 Anth Prog #7                       | -                 | 14 day <sup>7</sup> | 16.3                    | 0.5                     |

<sup>1</sup> Treatment 6 (2021 Anth Prog #1) consisted of Premion (6.0 fl oz) + Par (0.37 fl oz) rotated with Turfcide 400 (6.0 fl oz) + Par (0.37 fl oz)

<sup>2</sup> Treatment 7 (2021 Anth Prog #2) consisted of Premion (8.0 fl oz) + Par (0.37 fl oz) applied 17 June, Chipco Signature Xtra (4.0 oz) + Previa (3.6 fl oz) applied 1 July, Velista (0.3 oz) + Affirm (0.88 oz) applied 15 July, Oximus (1.0 fl oz) + Medallion (1.5 fl oz) applied 29 July, Chipco Signature Xtra (4.0 oz) + Previa (3.6 fl oz) applied 12 August, and Velista (0.3 oz) + Affirm (0.88 oz) applied 25 August

<sup>3</sup> Treatment 9 (2021 Anth Prog #3) consisted of Briskway (0.9 fl oz) + Appear II (6.0 fl oz) + Primo Maxx (0.125 fl oz) applied 17 June, Daconil Action (3.5 fl oz) + Secure Action (0.5 fl oz) + Primo Maxx (0.125 fl oz) applied 1 July, Ascernity (1.0 fl oz) + Appear II (6.0 fl oz) + Primo Maxx (0.125 fl oz) applied 15 July, Briskway (0.9 fl oz) + Appear II (6.0 fl oz) + Primo Maxx (0.125 fl oz) applied 29 July, Daconil Action (3.5 fl oz) + Secure Action (0.5 fl oz) + Primo Maxx (0.125 fl oz) applied 12 August, and Ascernity (1.0 fl oz) + Appear II (6.0 fl oz) + Primo Maxx (0.125 fl oz) applied 25 August

<sup>4</sup> Treatment 11 (2021 Anth Prog #4) consisted of Densicor (0.196 fl oz) rotated with Daconil Ultrex (3.2 oz) + Signature Xtra (4.0 oz)

<sup>5</sup> Treatment 12 (2021 Anth Prog #5) consisted of Densicor (0.196 fl oz) + Signature Xtra (4.0 oz) rotated with Daconil Ultrex (3.2 oz) + Signature Xtra (4.0 oz)

<sup>6</sup> Treatment 27 (2021 Anth Prog #6) was an early curative application and consisted of Maxtima (0.6 fl oz) applied 1 July, Insignia (0.7 fl oz) + Encartis (0.4 fl oz) applied 15 July, Maxtima (0.6 fl oz) + Civitas (12.0 fl oz) + Affirm (1.0 oz) applied 29 July, Insignia (0.7 fl oz) + Encartis (0.4 fl oz) applied 12 August, and Maxtima (0.6 fl oz) + Civitas (12.0 fl oz) + Affirm (1.0 oz) applied 25 August

<sup>7</sup> Treatment 28 (2021 Anth Prog #7) was an early curative application and consisted of Navicon Intrinsic (0.85 fl oz) + Primo Maxx (0.125 fl oz) applied 1 July, Lexicon Intrinsic (0.47 fl oz) + Signature Xtra (5.3 oz) + Primo Maxx (0.125 fl oz) applied 15 July, Navicon Intrinsic (0.85 fl oz) + Secure Action (0.5 fl oz) applied 29 July, Lexicon Intrinsic (0.47 fl oz) + Signature Xtra (5.3 oz) + Primo Maxx (0.125 fl oz) applied 12 August, and of Navicon Intrinsic (0.85 fl oz) + Primo Maxx (0.125 fl oz) applied 25 August



**Formal Field Tour: 10:00 to 11:00 am**

**Stop 4:** Anthracnose Management with Fungicides on an Annual Bluegrass Putting Green  
Continued...

**E --->**

|              |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|              | 26 |    | 13 | 18 | 27 | 3  | 28 | 11 | 8  | 19 | 7  |    |    | 2  |
| <b>Rep 4</b> | 16 | 25 | 5  | 1  | 15 | 10 | 9  | 6  | 21 | 4  | 22 | 12 | 17 | 14 |
|              | 18 | 3  | 4  | 11 | 8  | 14 |    | 27 | 28 |    | 16 | 10 | 26 | 9  |
| <b>Rep 3</b> | 22 | 19 | 15 | 7  | 2  | 13 | 12 | 1  | 5  | 25 |    | 6  | 21 | 17 |
|              | 7  |    | 14 | 12 | 15 | 26 | 22 | 8  | 2  | 9  | 18 | 11 |    | 5  |
| <b>Rep 2</b> | 6  | 10 |    | 17 | 16 | 21 | 27 | 3  | 1  | 19 | 28 | 13 | 25 | 4  |
|              | 21 | 7  |    | 1  |    | 25 | 19 | 16 | 17 | 12 | 14 | 15 | 18 | 8  |
| <b>Rep 1</b> | 27 | 11 | 2  | 9  | 6  | 5  | 28 | 4  | 26 |    | 13 | 10 | 3  | 22 |

**Formal Field Tour: 10:00 to 11:00 am**

**Stop 5:** Anthracnose Management on an Annual Bluegrass Putting Green with Fungicides and Wetting Agents

Speaker – Emily Braithwaite and Brian McDonald

Initiated: June 15, 2021

Location: Swale Green, Lewis-Brown Farm

South →

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

**Formal Field Tour: 10:00 to 11:00 am**

**Stop 5: Anthracnose Management on an Annual Bluegrass Putting Green with Fungicides and Wetting Agents Continued...**

| Trts | Company    | Product                   | Rate/1,000 sq ft | Units      | Interval |
|------|------------|---------------------------|------------------|------------|----------|
| 1    | na         | Untreated                 | na               | na         | na       |
| 2    | Exacto     | Daconil Ultrex            | 3.3              | oz         | 2 weeks  |
| 3    | Exacto     | Daconil Ultrex            | 1.6              | oz         | 2 weeks  |
| 4    | Exacto     | Daconil Ultrex + EXT 1045 | 1.6 + 0.25% v/v  | oz/fl. oz. | 2 weeks  |
| 5    | Exacto     | EXT 1045                  | 0.25% v/v        | fl. oz.    | 2 weeks  |
| 6    | Exacto     | EXT 1420                  | 2.0              | fl. oz.    | weekly   |
| 7    | Exacto     | EXT 1420                  | 4.0              | fl. oz.    | 2 weeks  |
| 8    | Exacto     | Daconil Ultrex + EXT 1420 | 2.0              | oz/fl. oz. | weekly   |
| 9    | Exacto     | Daconil Ultrex + EXT 1420 | 4.0              | oz/fl. oz. | 2 weeks  |
| 10   | Exacto     | EXT 1453                  | 0.25% v/v        | fl. oz.    | 2 weeks  |
| 11   | Exacto     | Daconil Ultrex + EXT 1453 | 1.6 + 0.25% v/v  | oz/fl. oz. | 2 weeks  |
| 12   | Exacto     | EXT 1454                  | 0.25% v/v        | fl. oz.    | 2 weeks  |
| 13   | Exacto     | Daconil Ultrex + EXT 1454 | 1.6 + 0.25% v/v  | oz/fl. oz. | 2 weeks  |
| 14   | Intelligro | Urea + Civitas            | 0.1#N/M + 8.5    | oz/fl. oz. | 2 weeks  |
| 15   | Intelligro | Civitas                   | 8.5              | fl. oz.    | 2 weeks  |
| 16   | Intelligro | Urea                      | 0.1#N/M          | oz         | 2 weeks  |

**Open House: 11:00 to 11:30 am**

**Featured Project:** Preemergence Herbicide for Broadleaf Weed Management in Perennial Ryegrass at Lawn Height

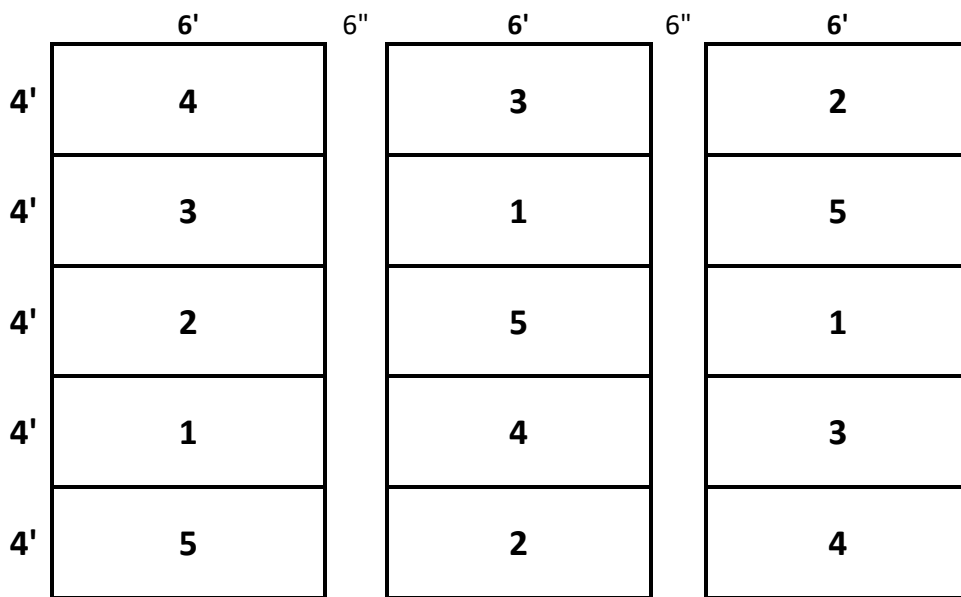
Speaker – Chas Schmid, PhD and Brian McDonald

Applications Initiated: April 16, 2021

Weed Seeds Applied (common dandelion and frosty berseem clover): May 14, 2021

East →

**Plot size 4' x 6'**



| Trt # | Treatment            | lbs per Acre | Retreatment   |
|-------|----------------------|--------------|---------------|
| 1     | Untreated            | na           | na            |
| 2     | Crew G               | 150          | na            |
| 3     | Crew G               | 200          | na            |
| 4     | Crew G               | 150          | June 27, 2021 |
| 5     | Dimension Ultra 40WP | 0.95         | na            |

**Open House: 11:00 to 11:30 am**

**Featured Project:** Slow-Release Nitrogen Sources (Allied Nutrients) for use on cool-season turf at lawn height

Speaker - Alec Kowalewski, PhD

treatments Applied: June 29, 2021

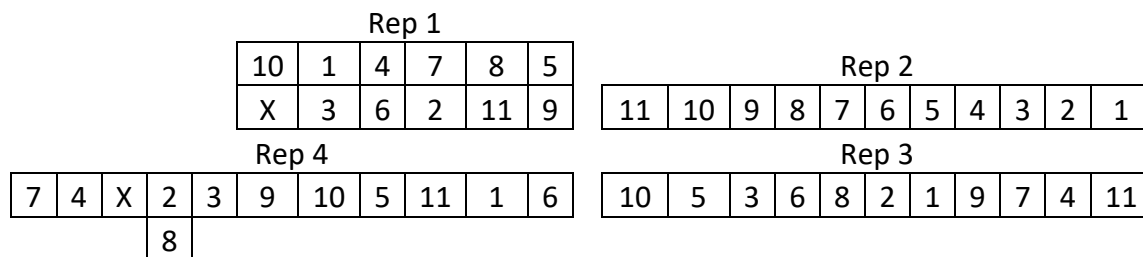
**Preliminary Results:**

Effects of fertilizer source on normalized difference vegetation index (NDVI), turf quality and turf color. Data were collected weekly from July 6 to Aug 4, 2021, and then pooled across time.

|                    | Trt # | Product                | Analysis | lb N /<br>1000 ft <sup>2</sup> | NDVI | Quality<br>(1-9) | Color<br>(1-9) |
|--------------------|-------|------------------------|----------|--------------------------------|------|------------------|----------------|
| 45-day<br>release  | 1     | DURATION CR 45         | 44-0-0   | 0.9                            | 89.1 | 8.4              | 8.3            |
|                    | 2     | ANG 21-1               | 44-0-0   | 0.9                            | 88.8 | 8.4              | 8.4            |
|                    | 3     | ANG 21-3               | 44-0-0   | 0.9                            | 88.8 | 8.4              | 8.1            |
|                    | 4     | Gal-Xe One 45          | 45-0-0   | 0.9                            | 88.1 | 8.2              | 8.0            |
| 90-day<br>release  | 5     | DURATION CR 90         | 44-0-0   | 1.5                            | 89.6 | 8.5              | 8.4            |
|                    | 6     | ANG 21-4               | 44-0-0   | 1.5                            | 88.5 | 8.5              | 8.3            |
|                    | 7     | Gal-Xe One 44          | 44-0-0   | 1.5                            | 88.3 | 8.5              | 8.3            |
| 120-day<br>release | 8     | DURATION CR 120        | 43-0-0   | 2                              | 87.8 | 8.4              | 8.0            |
|                    | 9     | ANG 21-5               | 43-0-0   | 2                              | 88.4 | 8.5              | 8.2            |
|                    | 10    | Gal-Xe One 43          | 43-0-0   | 2                              | 89.6 | 8.6              | 8.5            |
|                    | 11    | Non-fertilized control | N/A      | N/A                            | 86.2 | 7.5              | 7.4            |

**Plot Map:**

South →



**Open House: 11:00 to 11:30 am**

**Featured Project:** Using herbicides (Manuscript and Fusilade II) to remove perennial ryegrass from an annual bluegrass fairway

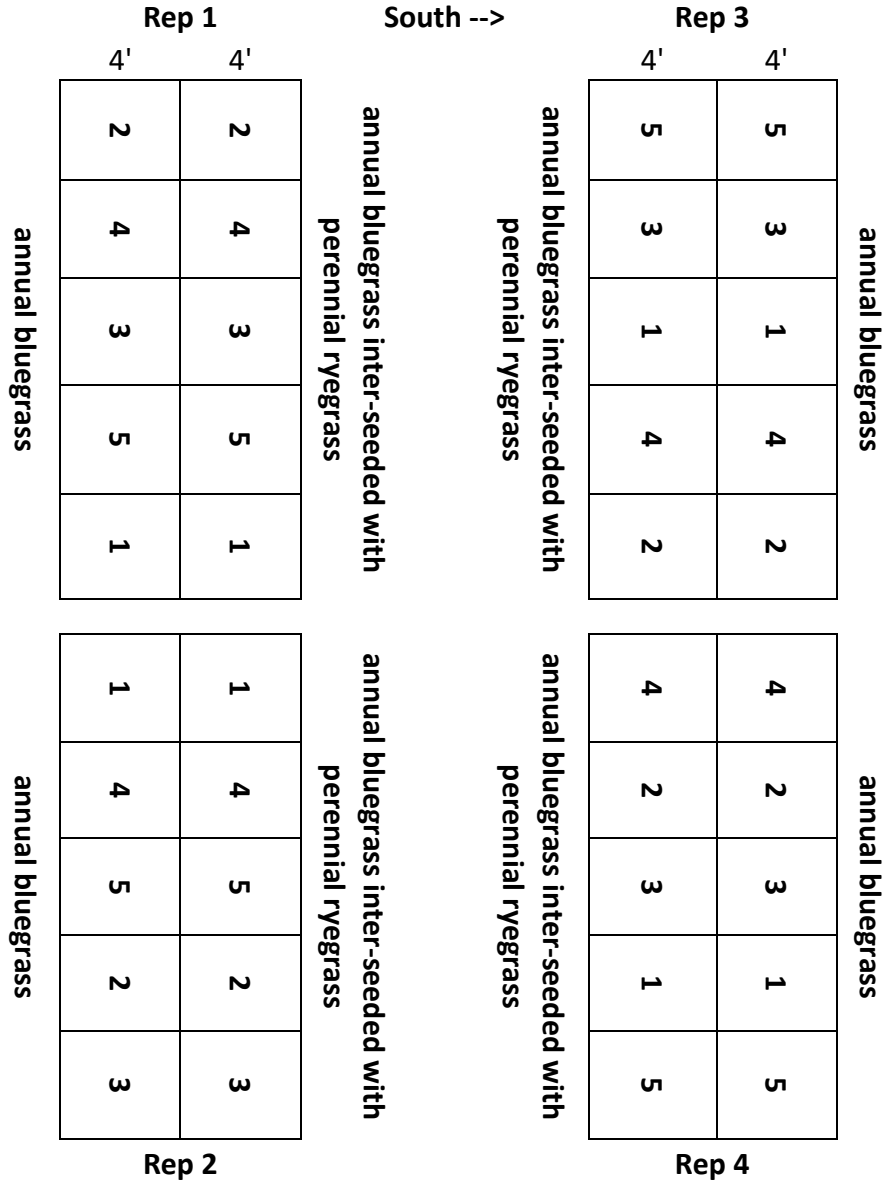
Speaker – Clint Mattox, PhD and Brian McDonald

| 2021 Syngenta Perennial Ryegrass Control in a <i>Poa annua</i> Fairway Trial                    |                       |                      |      |                          |      |  |                  |                                      |                  |
|---|-----------------------|----------------------|------|--------------------------|------|--|------------------|--------------------------------------|------------------|
| Oregon State University   |                       |                      |      |                          |      |  |                  |                                      |                  |
| Initiated: 5-30-21; Second App: 6-23-21 (3 weeks later)   |                       |                      |      |                          |      |  |                  |                                      |                  |
| **NOTE: The EPA REGISTRATION FOR MANUSCRIPT USE ON COOL SEASON GRASSES IS PENDING               |                       |                      |      |                          |      |  |                  |                                      |                  |
| It is not legal to use Manuscript on cool season grasses currently (as of August 26, 2021).     |                       |                      |      |                          |      |  |                  |                                      |                  |
|   |                       |                      |      |                          |      | Color Ratings 1 - 9; 9 is dark green     |                  |                                      |                  |
| Trt #   | Treatments            | Rate/Acre            | Apps | Percent Ryegrass Control | Grp* | Poa Color 15 DAT <sup>y</sup> 1st App*** | Grp <sup>z</sup> | Poa Color 7 DAT <sup>y</sup> 2nd App | Grp <sup>z</sup> |
| 1   | Untreated             | na                   | na   | 0.0                      | C    | 7.0                                      | A                | 7.0                                  | A                |
| 2   | Fusilade II + Adigor  | 16.0 fl oz + 0.5%v/v | 2    | 25.0                     | B    | 6.6                                      | A                | 6.6                                  | A                |
| 3   | Manuscript** + Adigor | 9.6 fl oz +0.5%v/v   | 2    | 95.5                     | A    | 6.9                                      | A                | 7.0                                  | A                |
| 4   | Manuscript** + Adigor | 19.2 fl oz + 0.5%v/v | 2    | 99.4                     | A    | 6.9                                      | A                | 6.9                                  | A                |
| 5   | Manuscript** + Adigor | 38.4 fl oz + 0.5%v/v | 2    | 100.0                    | A    | 6.9                                      | A                | 6.9                                  | A                |
| <sup>z</sup> Groups with the same letter are not statistically different at the 5% alpha level. |                       |                      |      |                          |      |  |                  |                                      |                  |
| <sup>y</sup> DAT = "Days after Treatment"   |                       |                      |      |                          |      |  |                  |                                      |                  |

**Open House: 11:00 to 11:30 am**

**Featured Project:** Using herbicides (Manuscript and Fusilade II) to remove perennial ryegrass from an annual bluegrass fairway continued...

Initiated: May 30, 2021



## Open House: 11:00 to 11:30 am

**Featured Project: National Turfgrass Evaluation Program Tall Fescue Trial**

**Speaker - Wrennie Wang, PhD and Chas Schmid, PhD**

| ENTRY | NAME            | SPONSOR                 | ENTRY | NAME           | SPONSOR                     | ENTRY | NAME         | SPONSOR                     |
|-------|-----------------|-------------------------|-------|----------------|-----------------------------|-------|--------------|-----------------------------|
| *1    | Naturally Green | Carlton Seed Co.        | 45    | PST-5MINK      | Pure Seed Testing           | 89    | ZRC1         | Z Seeds                     |
| *2    | Paramount       | Standard                | *46   | Moondance      | Integrated Seed Growers     | 90    | PPG-TF-231   | Peak Plant Genetics LLC     |
| 3     | DLFPS-321/3693  | DLF Pickseed USA        | 47    | PST-5SQB       | Pure Seed Testing           | 91    | PPG-TF-306   | Peak Plant Genetics LLC     |
| 4     | DLFPS-321/3694  | DLF Pickseed USA        | 48    | PST-5DZM       | Pure Seed Testing           | 92    | PPG-TF-318   | Peak Plant Genetics LLC     |
| 5     | DLFPS-321/3695  | DLF Pickseed USA        | 49    | PST-5GLBS      | Pure Seed Testing           | *93   | Bullseye     | Standard                    |
| 6     | TMT1            | DLF Pickseed USA        | 50    | PST-5DART      | Pure Seed (Rose Agri)       | *94   | Firehawk SLT | Burlingham Seeds            |
| 7     | ATF2116         | Pennington Seed         | 51    | PST-5DC24      | Pure Seed (Rose Agri)       | *95   | Hemi         | Standard                    |
| 8     | NT-3            | Pennington Seed         | *52   | Tango          | Site One Land. Supply       | *96   | Bullseye LTZ | Burlingham Seeds            |
| 9     | RS1             | DLF Pickseed USA        | 53    | 3N1            | Site One Land. Supply       | *97   | Turbo SS     | Burlingham Seeds            |
| 10    | 5LSS            | Pure Seed Testing       | *54   | Bandit         | Site One Land. Supply       | *98   | Dragster     | Burlingham Seeds            |
| 11    | BGR-TF3         | Berger International    | *55   | Copious TF     | Site One Land. Supply       | 99    | GO-RH20      | Grassland Oregon Seed       |
| 12    | ATF 1768        | Pennington Seed         | *56   | Padre 2        | Site One Land. Supply       | *100  | Birmingham   | Grassland Oregon Seed       |
| 13    | DLFPS-TF/3550   | DLF Pickseed USA        | *57   | Bravo 2        | Site One Land. Supply       | 101   | GO-AOMK      | Grassland Oregon Seed       |
| 14    | DLFPS-TF/3552   | DLF Pickseed USA        | 58    | NAI-FQZ-17     | Lakeside Ag. Ventures       | 102   | NAI-3N2      | Columbia Seeds              |
| 15    | DLFPS-TF/3553   | DLF Pickseed USA        | 59    | DLFPS-321/3705 | DLF Pickseed USA            | 103   | NAI-ROS4     | Landmark Turf & Native Seed |
| 16    | DLFPS-321/3679  | DLF Pickseed USA        | 60    | DLFPS-321/3706 | DLF Pickseed USA            | 104   | NAI-TUE      | Columbia Seeds              |
| 17    | LBF             | Tualatin Valley Seeds   | 61    | DLFPS-321/3707 | DLF Pickseed USA            | 105   | NAI-ST5      | Landmark Turf & Native Seed |
| 18    | TD2             | Pennington Seed         | 62    | DLFPS-321/3708 | DLF Pickseed USA            | 106   | SE5302       | Smith Seed Services, LLC    |
| 19    | DLFPS-321/3696  | DLF Pickseed USA        | 63    | BAR-TF-134     | Barenbrug Research          | 107   | SE5STAR      | Smith Seed Services, LLC    |
| 20    | DLFPS-321/3699  | DLF Pickseed USA        | 64    | BAR-FA8230     | Barenbrug Research          | 108   | SE5CR1       | Smith Seed Services, LLC    |
| *21   | Grande 3        | DLF Pickseed USA        | 65    | AH1            | Landmark Turf & Native Seed | 109   | SETF104      | Smith Seed Services, LLC    |
| *22   | Fayette         | Standard                | 66    | PPG-TF-249     | Landmark Turf & Native Seed | 110   | SETFM2       | Smith Seed Services, LLC    |
| 23    | JT-517          | Jacklin Seed by Simplot | 67    | PPG-TF-262     | Landmark Turf & Native Seed | 111   | SETFM3       | Smith Seed Services, LLC    |
| 24    | JS-DTT          | Jacklin Seed by Simplot | 68    | PPG-TF-267     | Landmark Turf & Native Seed | 112   | 3B2          | ProSeeds Marketing          |
| 25    | RDC             | Rutgers University      | 69    | AH2            | Brett Young Seeds           | 113   | RAD--TF105   | Radix Research              |
| 26    | BAR 9FE MAS     | Barenbrug Research      | 70    | K18-R56        | The Scotts Mirdle Gro Co    | 114   | RAD-TF0.0    | Radix Research              |
| 27    | BAR FA 8228     | Barenbrug Research      | 71    | K18-WB1        | The Scotts Mirdle Gro Co    | 115   | RHL2         | Semillas Fito               |
| 28    | COL-TF-148      | Columbia Seeds          | 72    | RH1            | ProSeeds Marketing Inc.     | *116  | Raptor III   | Standard                    |
| 29    | LTP-TF-122      | Lebanon Seaboard Corp.  | 73    | RH3            | ProSeeds Marketing Inc.     | 117   | RHF          | Semillas Dalmau             |
| 30    | LTP-TF-111      | Lebanon Seaboard Corp.  | 74    | JT 233         | Jacklin Seed by Simplot     | 118   | PPG-TF-313   | Columbia Seeds              |
| 31    | K18-ROE         | Scotts Co.              | 75    | JT 268         | Jacklin Seed by Simplot     | 119   | PPG-TF-320   | Peak Plant Genetics         |
| 32    | K18-NSE         | Scotts Co.              | 76    | PPG-TF 244     | Integra Turf, Inc.          | 120   | PPG-TF-323   | Columbia Seeds              |
| 33    | BY-TF-169       | Brett Young             | 77    | PPG-TF 305     | Integra Turf, Inc.          | 121   | PPG-TF-338   | Columbia Seeds              |
| 34    | DLFPS-321/3701  | DLF Pickseed USA        | 78    | PPG-TF 316     | Lewis Seed Co.              | *122  | Estrena      | Semillas Fito               |
| 35    | DLFPS-321/3702  | DLF Pickseed USA        | 79    | RC4            | Semillas Fito               | *123  | AST8118LM    | Allied Seed LLC             |
| 36    | DLFPS-321/3703  | DLF Pickseed USA        | 80    | PPG-TF-257     | Vista Seed Partners         | *124  | AST8218LM    | Allied Seed LLC             |
| 37    | PST-STRN        | Pure Seed Testing       | 81    | PPG-TF-238     | Mountain View Seeds         | 125   | A-TF31       | Allied Seed LLC             |
| 38    | PST-5GQ         | Pure Seed Testing       | 82    | PPG-TF-254     | Mountain View Seeds         | *126  | Palomar      | Oregro Seed                 |
| 39    | PST-5MCMO       | Pure Seed Testing       | 83    | PPG-TF-308     | Mountain View Seeds         | *127  | Escalade     | Oregro Seed                 |
| *40   | ProGold         | Integrated Seed Growers | 84    | PPG-TF-255     | Mountain View Seeds         | *128  | OG-WALK      | Oregro Seed                 |
| 41    | PST-5E6         | Pure Seed Testing       | 85    | PPG-TF-312     | Mountain View Seeds         | 129   | TF445        | Smith Seed Services         |
| 42    | PST-5THM        | Pure Seed Testing       | 86    | PPG-TF-315     | Mountain View Seeds         | 130   | TF456        | Smith Seed Services         |
| 43    | PST-5BYOB       | Brett Young             | 87    | PPG-TF-336     | Mountain View Seeds         | 131   | FC15-01P     | Criadero El Concerro SA     |
| *44   | Lifeguard       | Pure Seed (Rose Agri)   | 88    | PPG-TF-337     | Mountain View Seeds         | *132  | Kentucky-31  | Standard                    |

\*Commercially Available in the USA in 2018



**Open House: 11:00 to 11:30 am**

**Featured Project: National Turfgrass Evaluation Program Tall Fescue Trial Continued**

| <b>2018 - 2022 NTEP Tall Fescue Trial</b> |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| <b>Oregon State University</b>            |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |
| <b>Planted: 10-03-18</b>                  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |
| <b>South --&gt;</b>                       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |       |
|   | 61  | 51  | 128 | 58  | 117 | 57  | 30  | 22  | 124 | 12  | 87  | 130 | 68  | 44  | 6   | 54  | 125 | Rep 3 |
|   | 13  | 15  | 26  | x   | 19  | 11  | 129 | 66  | 78  | 25  | x   | 20  | 46  | 84  | 40  | 72  | 106 |       |
|   | 85  | 121 | 41  | 109 | 23  | 2   | 70  | 105 | 47  | 107 | 76  | 8   | 64  | 45  | 29  | 67  | 56  |       |
|   | 94  | 114 | 100 | 80  | 126 | 3   | 93  | 120 | 50  | 38  | 59  | 82  | 17  | 101 | 71  | 99  | 113 |       |
|   | 116 | 90  | 86  | 73  | 33  | 49  | 131 | 31  | 81  | 62  | 43  | 10  | 119 | 110 | 102 | 122 | 16  |       |
|   | 96  | 53  | 55  | 111 | 34  | 79  | 112 | 52  | 97  | 4   | 42  | 123 | 1   | 9   | 132 | 35  | 74  |       |
|   | 77  | 69  | 63  | 75  | 28  | 108 | 7   | 115 | 48  | 27  | 83  | 88  | 103 | 118 | 60  | 127 | 92  |       |
|   | 32  | 89  | 95  | x   | 104 | 24  | 18  | 5   | 21  | 91  | x   | 39  | 36  | 98  | 37  | 65  | 14  |       |
|   | x   | x   | 132 | 131 | 130 | 129 | 128 | 127 | 126 | 125 | 124 | 123 | 122 | 121 | 120 | 119 | 118 |       |
|   | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 |       |
|   | 100 | 99  | 98  | 97  | 96  | 95  | 94  | 93  | 92  | 91  | 90  | 89  | 88  | 87  | 86  | 85  | 84  | Rep 2 |
|   | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  | 80  | 81  | 82  | 83  |       |
|   | 66  | 65  | 64  | 63  | 62  | 61  | 60  | 59  | 58  | 57  | 56  | 55  | 54  | 53  | 52  | 51  | 50  |       |
|   | 35  | 36  | 37  | x   | 38  | 39  | 40  | 41  | 42  | 43  | 44  | x   | 45  | 46  | 47  | 48  | 49  |       |
|   | 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  |       |
|   | x   | x   | 3   | 44  | 109 | 131 | 48  | 50  | 122 | 49  | 77  | 106 | 70  | 72  | 115 | 75  | 104 | Rep 1 |
|   | 110 | 117 | 95  | 7   | 71  | 25  | 69  | 111 | 119 | 78  | 103 | 61  | 26  | 43  | 18  | 85  | 64  |       |
|   | 84  | 12  | 114 | 116 | 24  | 5   | 8   | 34  | 65  | 14  | 101 | 68  | 132 | 62  | 74  | 4   | 92  |       |
|   | 45  | 125 | 90  | x   | 38  | 58  | 11  | 126 | 53  | 56  | 96  | x   | 10  | 88  | 86  | 63  | 55  |       |
|   | 39  | 99  | 15  | 66  | 80  | 23  | 31  | 6   | 1   | 102 | 27  | 107 | 16  | 81  | 105 | 59  | 129 |       |
|   | 57  | 32  | 37  | 21  | 83  | 98  | 82  | 73  | 112 | 30  | 108 | 52  | 127 | 9   | 113 | 13  | 94  |       |
|   | 121 | 51  | 91  | 28  | 76  | 54  | 35  | 67  | 93  | 17  | 2   | 19  | 60  | 100 | 89  | 36  | 124 |       |
|   | 33  | 20  | 87  | 41  | 46  | 118 | 40  | 128 | 97  | 79  | 42  | 29  | 22  | 47  | 120 | 130 | 123 |       |

## Open House: 11:00 to 11:30 am

**Featured Project:** National Turfgrass Evaluation Program Perennial Ryegrass Trial

**Speaker -** Emily Braithwaite and Brian McDonald

| 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          | MRS�-PR16      | SiteOne Landscape Supply    | 83          | BAR LP 6233    | Barenbrug USA             |
| 27          | PL2            | SiteOne Landscape Supply    | 84          | PST-2FOXY      | Pure-Seed Testing, Inc.   |
| 28          | MRS�-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                  |

\*COMMERCIALY AVAILABLE IN THE USA IN 2016

**Open House: 11:00 to 11:30 am**

**Featured Project: National Turfgrass Evaluation Program Perennial Ryegrass Trial Continued...**

| <b>2016 NTEP Perennial Ryegrass Trial</b> |     |     |     |     |     |                                      |     |     |     |     |     |     |     |     |     |                   |     |
|---|-----|-----|-----|-----|-----|--------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------------|-----|
| <b>Date Seeded: 09/30/16</b>              |     |     |     |     |     | Seeding rate: 200 grams per 60 sq ft |     |     |     |     |     |     |     |     |     | <b>S ----&gt;</b> |     |
| 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 |     |     |     |     |     |                                      |     |     |     |     |     |     |     |     |     |                   |     |
| <b>REP 3</b>                              | 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  |
| <b>REP 2</b>                              | 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  |
| <b>REP 1</b>                              | 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  |

**Open House: 11:00 to 11:30 am**

**Featured Project:** Divot repair material Trial

Speaker- Cole Stover

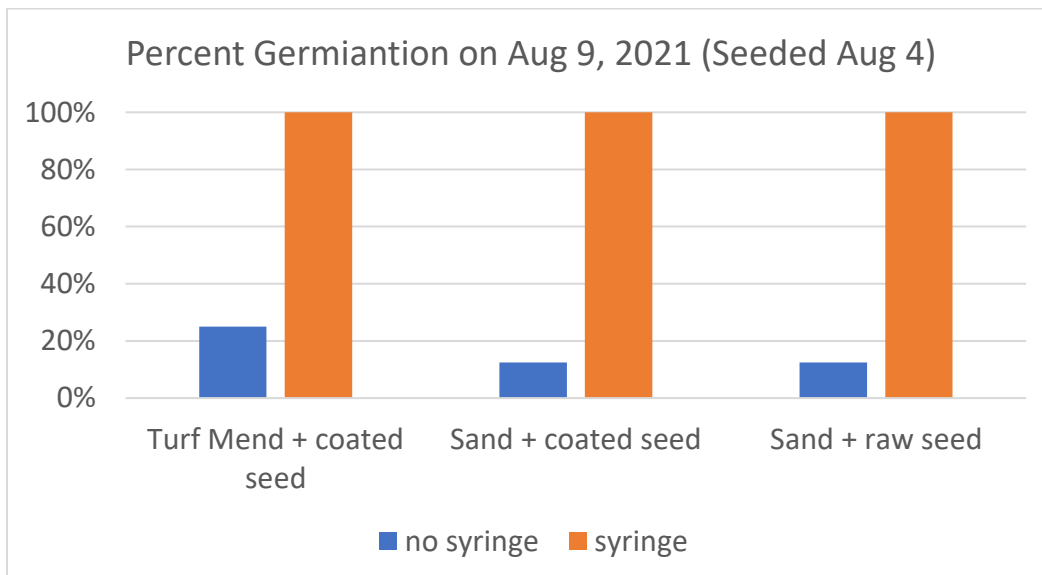
Divots made Aug 3, 2021

Divot repair material applied Aug 4, 2021

All treatments receive 0.2” of water in the morning, syringe treatments receive an additional 0.15” application of water in the early afternoon.

| Seeded Aug 4, 2021            | 9-Aug-21                            | 10-Aug | 11-Aug |
|-------------------------------|-------------------------------------|--------|--------|
| <b>Divot Repair Treatment</b> | <b>Percent Germination (0-100%)</b> |        |        |
| Turf Mend + coated seed       | 63%                                 | 100%   | 100%   |
| Sand + coated seed            | 56%                                 | 100%   | 100%   |
| Sand + raw seed               | 56%                                 | 94%    | 100%   |

| Seeded Aug 4, 2021 | Percent Germination (0-100%) |        |        |
|--------------------|------------------------------|--------|--------|
| <b>Watering</b>    | 9-Aug-21                     | 10-Aug | 11-Aug |
| no syringe         | 17%                          | 96%    | 100%   |
| syringe            | 100%                         | 100%   | 100%   |



Jason Oliver Memorial Golf Outing Sponsors

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The Oliver Family

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## 2020/2021 Research Supporter

|   |   |
|---|---|
| Advanced Ag                                     | Northern California Superintendents Association |
| Agricultural Research Foundation                | Northwest Turfgrass Association                 |
| A-List  | NuFarm Americas Inc.                            |
| AMVAC   | Oregon Department of Agriculture                |
| AMVAC Environmental Products                    | Oregon Golf Course Superintendents Association  |
| Aquatrols                                       | Oregon Seed Association                         |
| Bandon Dunes Golf Resort                        | Oregon Tall Fescue Commission                   |
| Barenbrug                                       | Oregon Turf Foundation                          |
| BASF  | OSU Ecampus                                     |
| Bayer Crop Science                              | OSU Foundation                                  |
| Belchium Crop Protection                        | Oswego Lake Country Club                        |
| Black Butte Ranch                               | Pacific Golf and Turf                           |
| Brandt  | Pacific Sports Turf                             |
| Broken Top Golf Club                            | Petro Canada Lubricants Inc.                    |
| Burlingham Trust                                | Planet Turf                                     |
| Chambers Bay                                    | Plant Peak Genetics                             |
| City of Bend                                    | Pleasant Hill School District                   |
| Columbia Seeds                                  | Portland Parks and Recreation                   |
| Control Solutions Inc.                          | Pronghorn Resort                                |
| Corteva   | Pumpkin Ridge Golf Club                         |
| Corteva Agriscience                             | Quebec Turfgrass Research Foundation            |
| DLF Pick seed                                   | Rainbird  |
| DPH   | RhizoSolutions                                  |
| Emerald Valley                                  | Royal Oak Country Club                          |
| EnviroLogic Resources, Inc.                     | Salmon Run Golf                                 |
| Eugene Country Club                             | Scott Larson                                    |
| Evergreen Golf Course                           | Simplot   |
| Exacto Inc.                                     | Stewart Meadows Golf Course                     |
| Golf Course Superintendents Association         | Sunriver Resort                                 |
| Grain Millers                                   | Syngenta Crop Protection, Inc.                  |
| Great Lakes Marketing                           | TeeJet  |
| Gwen Stahnke                                    | The Andersons Plant Nutrient Group              |
| HollyFrontier Lubricants & Specialties          | Tom Cook  |
| Hunter Industries                               | Trysting Tree Golf Course                       |
| Koch Agronomic Services LLC                     | Turf Star Western and the Toro Company          |
| Land O Lakes                                    | Turfgrass Water Conservation Alliance           |
| Langdon Farms Golf Club                         | TurfMend, LLC                                   |
| Linn and Benton Country Master Gardener Program | United States Golf Association                  |
| Marion AG Services                              | USDA-SCRI                                       |
| Melgreen/Olmix NA, Inc.                         | Valent  |
| Middlefield Golf Course                         | Waverly Country Club                            |
| Milliken Chemical                               | Western Canada Turf Association                 |
| Milroy Golf Systems                             | Wilbur Elis                                     |
| Mycorrhizal Applications                        | Wilbur-Ellis CO.                                |
| National Turfgrass Evaluation Program           | Wilbur-Ellis Company                            |
| Nike  | Yakima Elks Club                                |
|   | Winfield United                                 |

**2020/2021 Scholarships and Awards**

|      |                                   |   |
|------|-----------------------------------|---|
| 2021 | Friends and Alumni Award          | Ty Patton, Brian Koffler and John Propheter |
| 2021 | OTF - Whitworth Scholarship       | Vince Romo                                  |
| 2021 | OTF - Martin Scholarship          | Ryder Johnson                               |
| 2021 | Jason Oliver Memorial Scholarship | Naia Evans                                  |
| 2021 | Bruce Faddis Scholarship          | Megan Ward                                  |
| 2021 | Tom Cook Legacy Scholarship       | Naia Evans                                  |

|      |  |   |
|------|--|---|
| 2020 | Jason Oliver Golf Tournament Champions | Ty Patton, Pat Doran, R.O. Gamez, and Joel Snyder |
|------|--|---|

