

Poa annua Control with Methiozolin ('PoaCure')

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Methiozolin

Moghu Research Center

South Korea

Registered for turf in Korea
April 2010 'PoaCure'

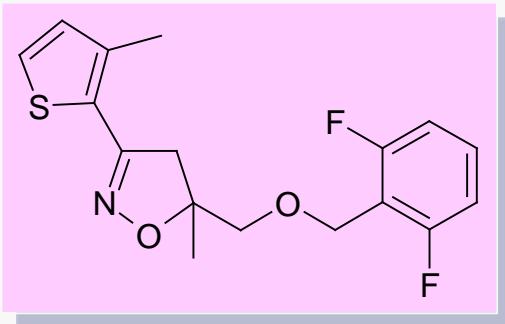


Formulation

2.06 lb ai/gal EC

**Moghu; working on a
granular formulation
for turf since 2009**

- ◆ **Structure:**



- ◆ **Chemical name:** Methiozolin
- ◆ **Brand name:** PoaCure®
- ◆ **Code name:** MRC-01
- ◆ **Chemical name:** 5-(2,6-Difluoro-benzyloxymethyl)-5-methyl-3-(3-methyl-thiophen-2-yl)-4,5-dihydro-isoxazole
- ◆ **CAS registration number:** 403640-27-7
- ◆ **Empirical formula:** $C_{17}H_{17}F_2NO_2S$
- ◆ **Molecular weight:** 337.39

**Formulation
(25% EC)**



Product



- Initial research was in rice
- Active on grass species
 - *Poa annua f. annua*
 - *Poa annua f. reptans*
 - Junglerice/barnyardgrass, crabgrass, goosegrass

- Pre-emergence activity (Moghu's MSDS)
- Post-emergence with some pre-emergence
(Walker, AU, personal communication, 2011)
- Mode of action: inhibits cell wall biosynthesis
and pigment inhibition
- 'PoaCure' labeled in 2010 in S. Korea
for Poa annua control in:
creeping bentgrass greens and
perennial ryegrass and Kentucky bluegrass fairways

Primarily root/crown/stem uptake



4 L/ha

(1.26 fl oz/M)
(0.42 gal/A)

CK

Foliar
Only

Over
Top

Soil
Only

(Walker and Belcher, Auburn, Univ., 2010)

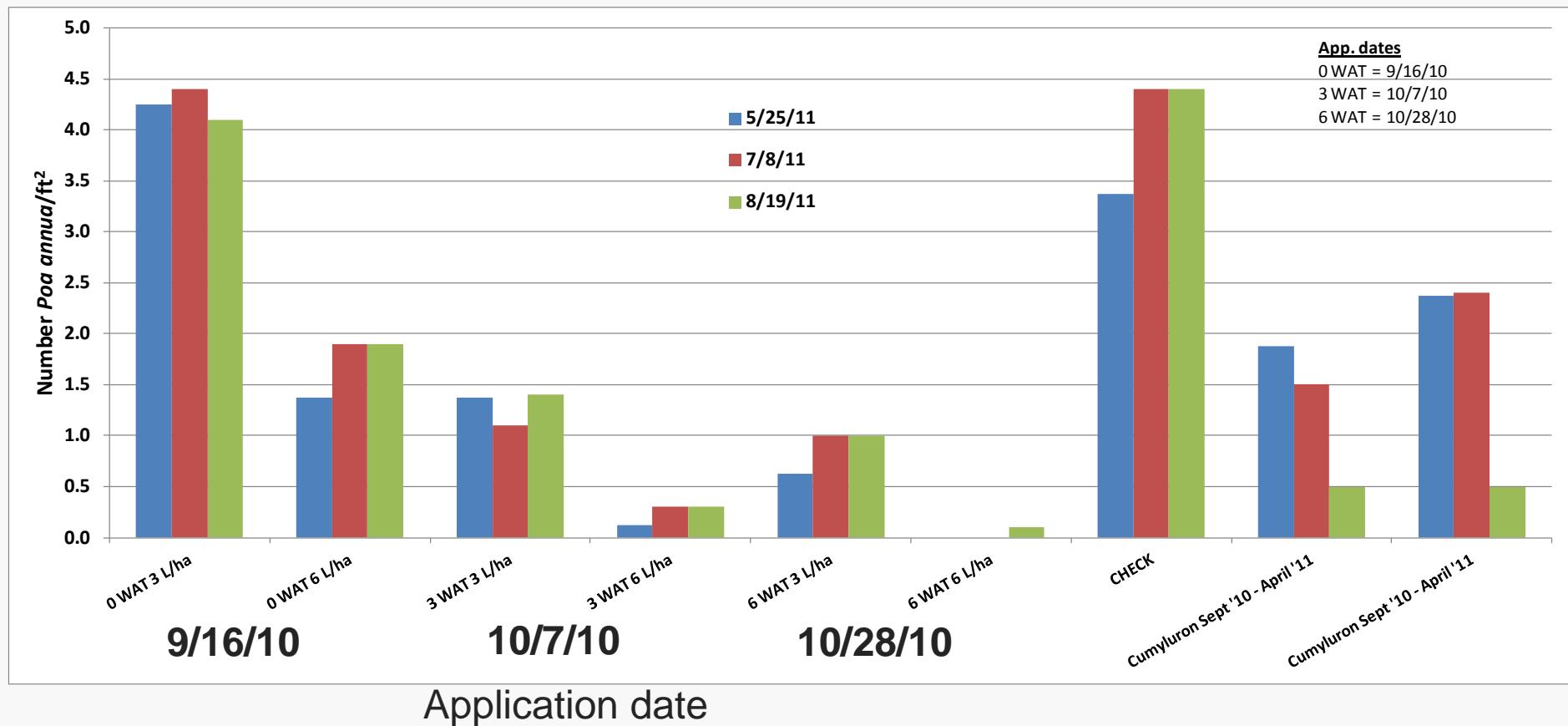
Early USA Research

- 1. Do not add surfactant**
- 2. Can apply to wet turf**
- 3. Light irrigation after application**
 - ◆ Limits foliar uptake
 - ◆ More available for root uptake
- 4. Implications for granular formulation**

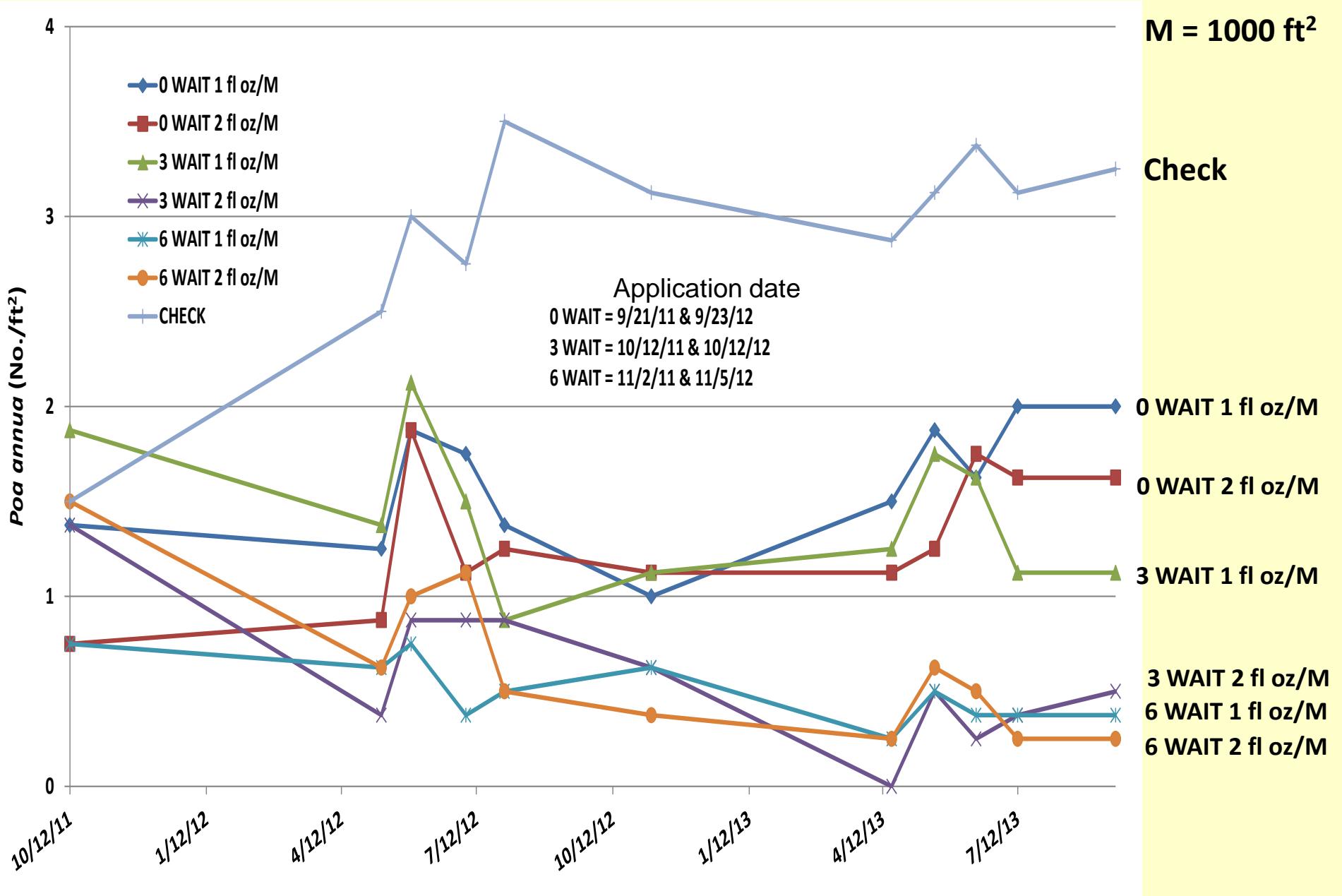
Early WSU Research

- Fall 2010; 2 locations
 - Palouse Ridge Golf Club @ Pullman
 - New 'T-1' green
 - <5% *Poa annua*
 - Chewelah Golf & County Club
 - Older 'Penncross' (?) nursery green
 - 25-30% *Poa annua*

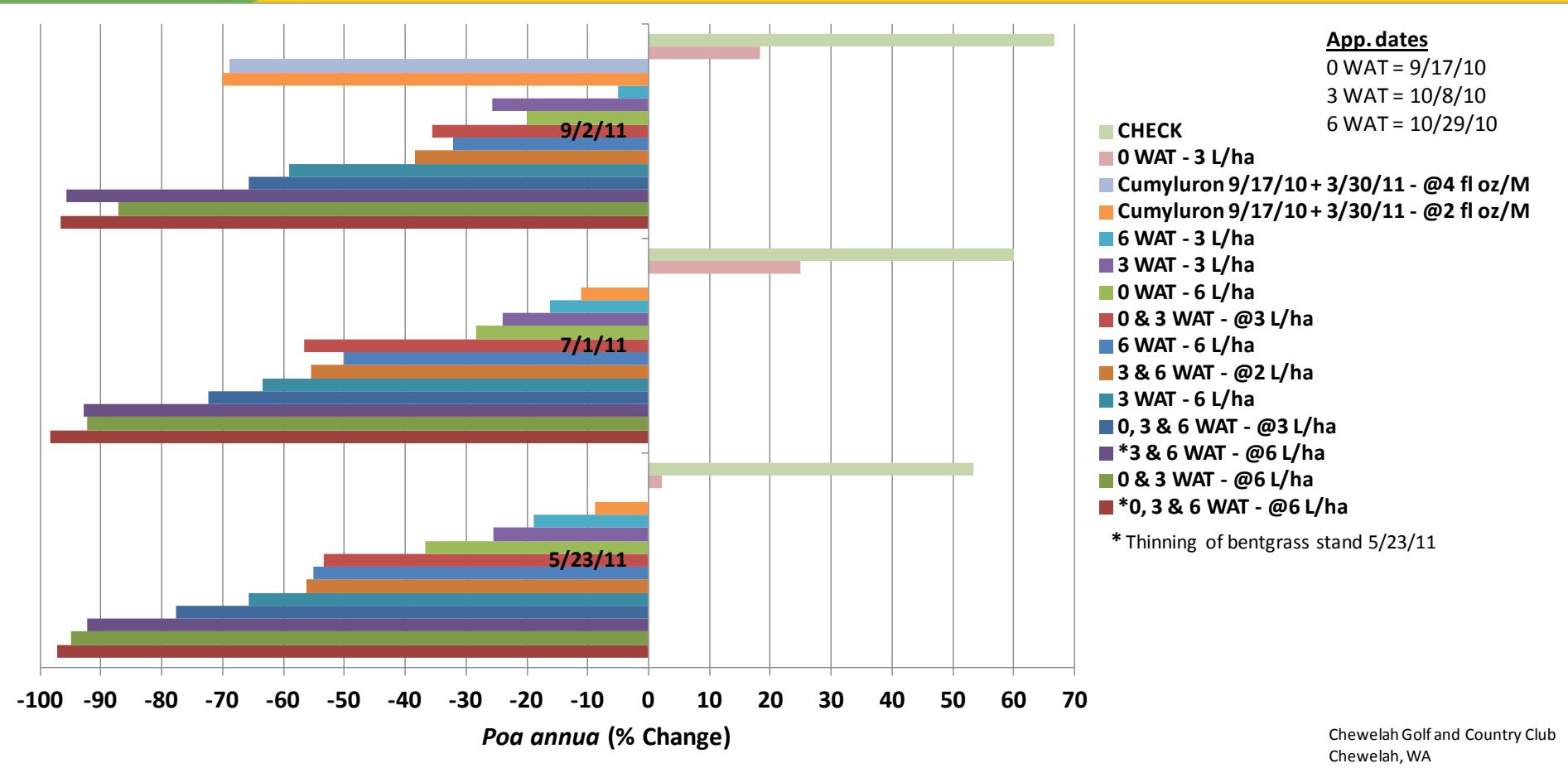
- Fall 2010 applications:
 - Rates
 - 3 and 6 L/ha
(0.94 fl oz/M and 1.88 fl oz/M)
 - Frequency
 - Single applications
 - Multiple applications every 3 weeks



Palouse Ridge Golf Club # 9 green
 Single applications: Sept. 16, Oct. 7, or Oct. 28, 2010
Poa annua counts (#/sq ft): May 25, July 8, and Aug. 19, 2011



***Poa annua* control with multi-year (2011 and 2012), single fall applications of PoaCure at Palouse Ridge GC, Pullman, WA.**



Chewelah Golf and Country Club
 Single and multiple apps.: Sept. 17, Oct. 8, and Oct. 29, 2010
 Rating (% change): May 23, July 1, and Sept. 2, 2011

Chewelah Golf and Country Club

Chewelah, WA

5/23/11

1.3% Poa

-94.9

% change

9/17/10 to

5/23/11

Methiozolin 6 L/ha
App. 9/17 – 10/8/10



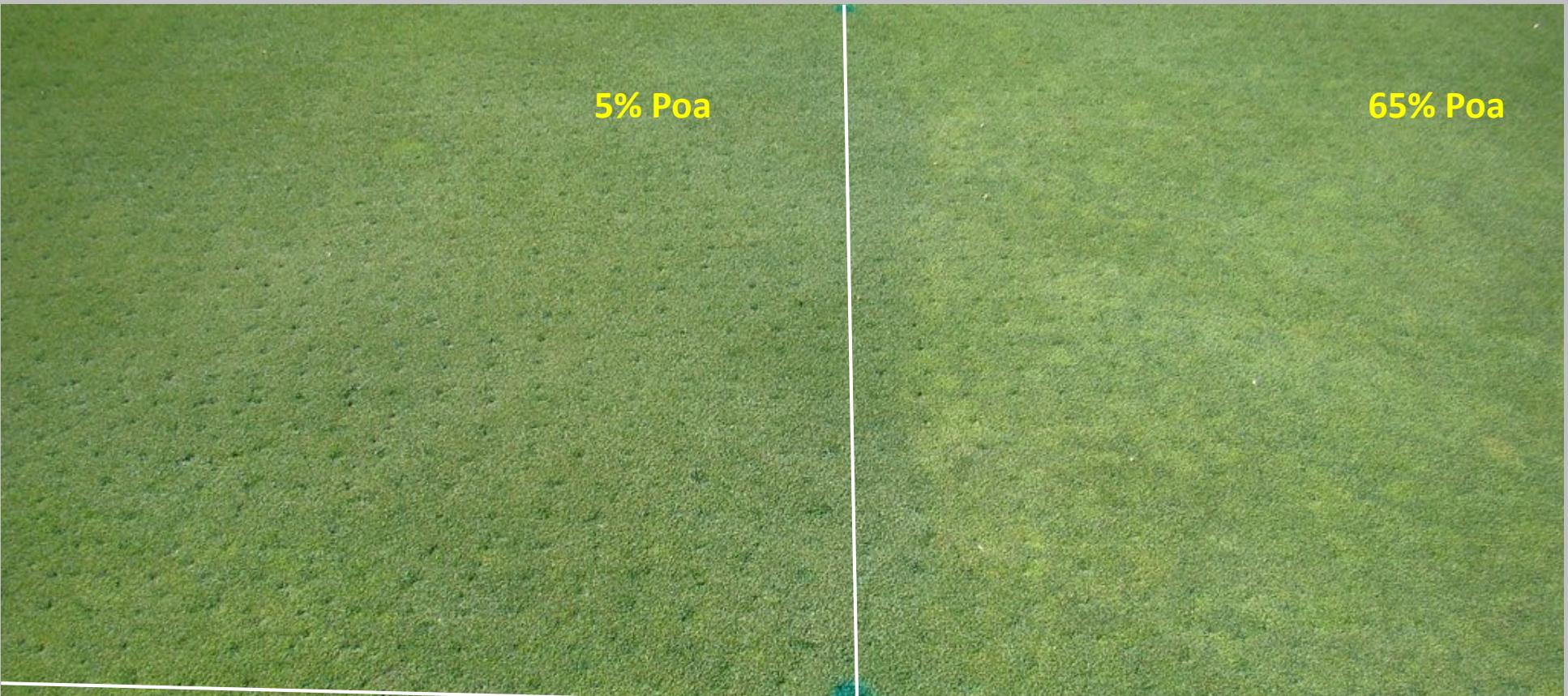
Chewelah Golf and Country Club
Chewelah, WA
5/23/11

31.7% Poa
+53.3
% change
9/17/10 to
5/23/11



CHECK

Poa annua control with PoaCure on bentgrass greens

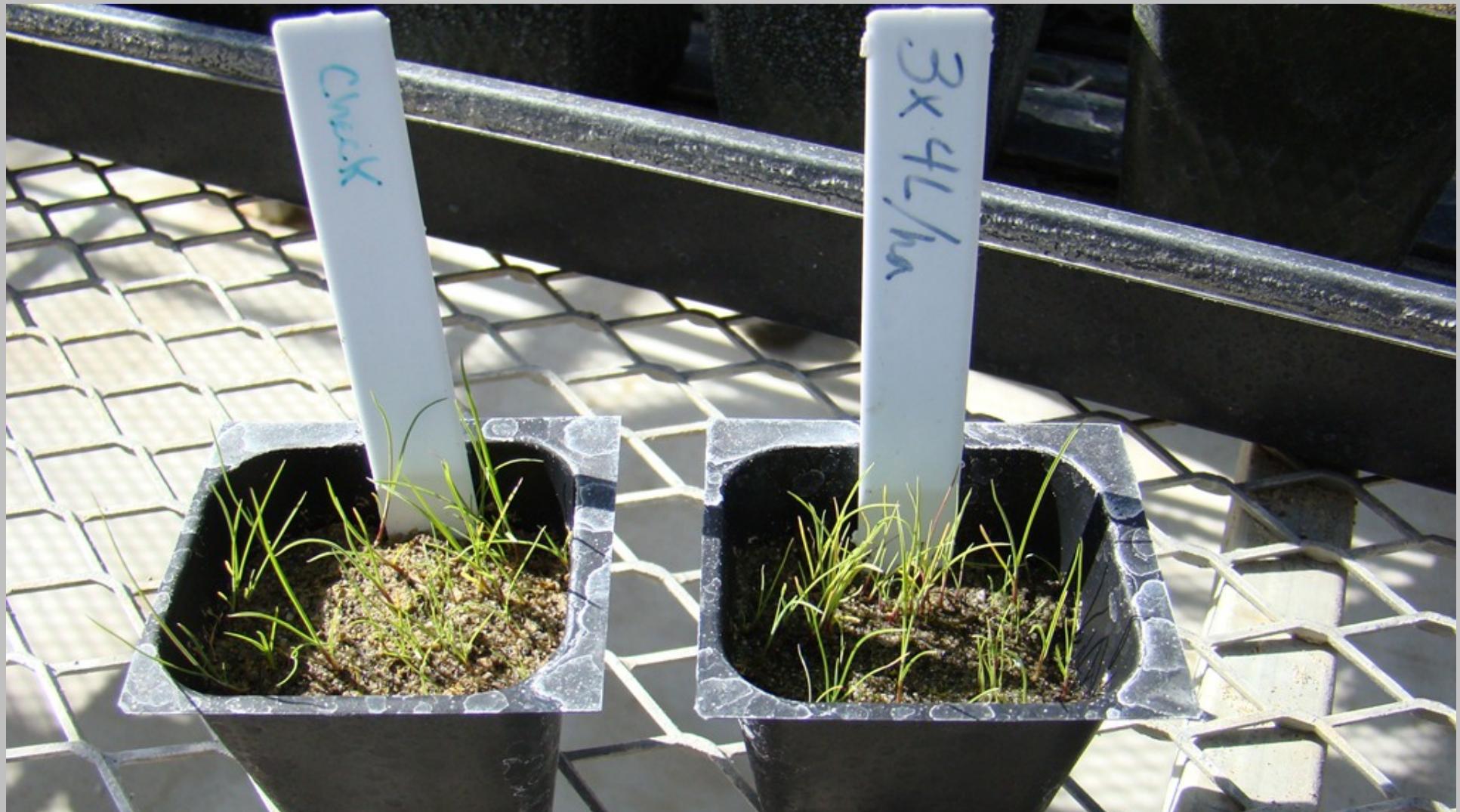


3 applications @1.2 fl oz/1000 ft² (4 L/ha)
at 2 week intervals; Fall 2011

Check

Colfax Golf Course
Picture taken 9-28-12

Sand from a green 6 months following last application of PoaCure



Bentgrass emergence not affected;
4 + 4 + 4 L/ha at 2 week intervals

Methiozolin Residual Soil Activity Study

Material & Methods:

Greenhouse study; winter 2013

Grass species: annual bluegrass, creeping bentgrass, perennial ryegrass, and Kentucky bluegrass

Soil medium: 90% sand and 10% peat moss

PoaCure applied:

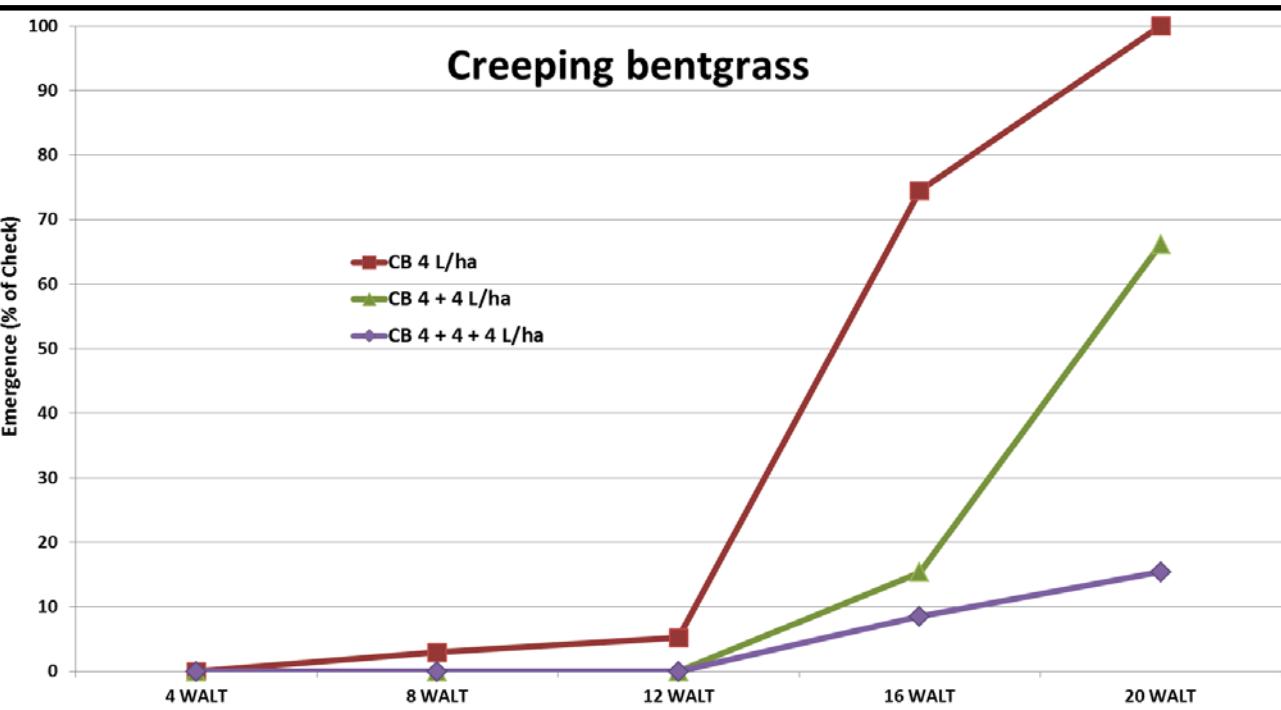
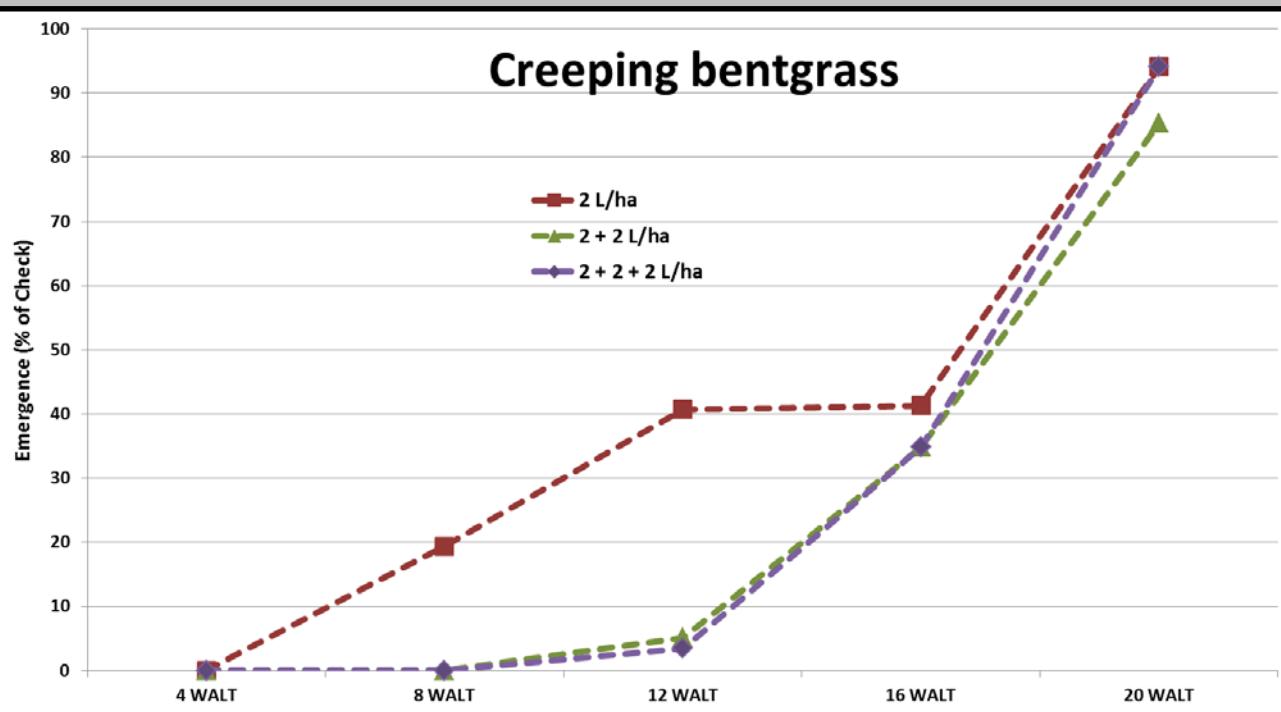
0, 4, 4 + 4, and 4 + 4 + 4 L/ha (2 wk intervals)

2, 2 + 2, and 2 + 2 + 2 L/ha (2 wk intervals); only creeping bentgrass

Seeded 4, 8, 12, 16, or 20 wk after final PoaCure application

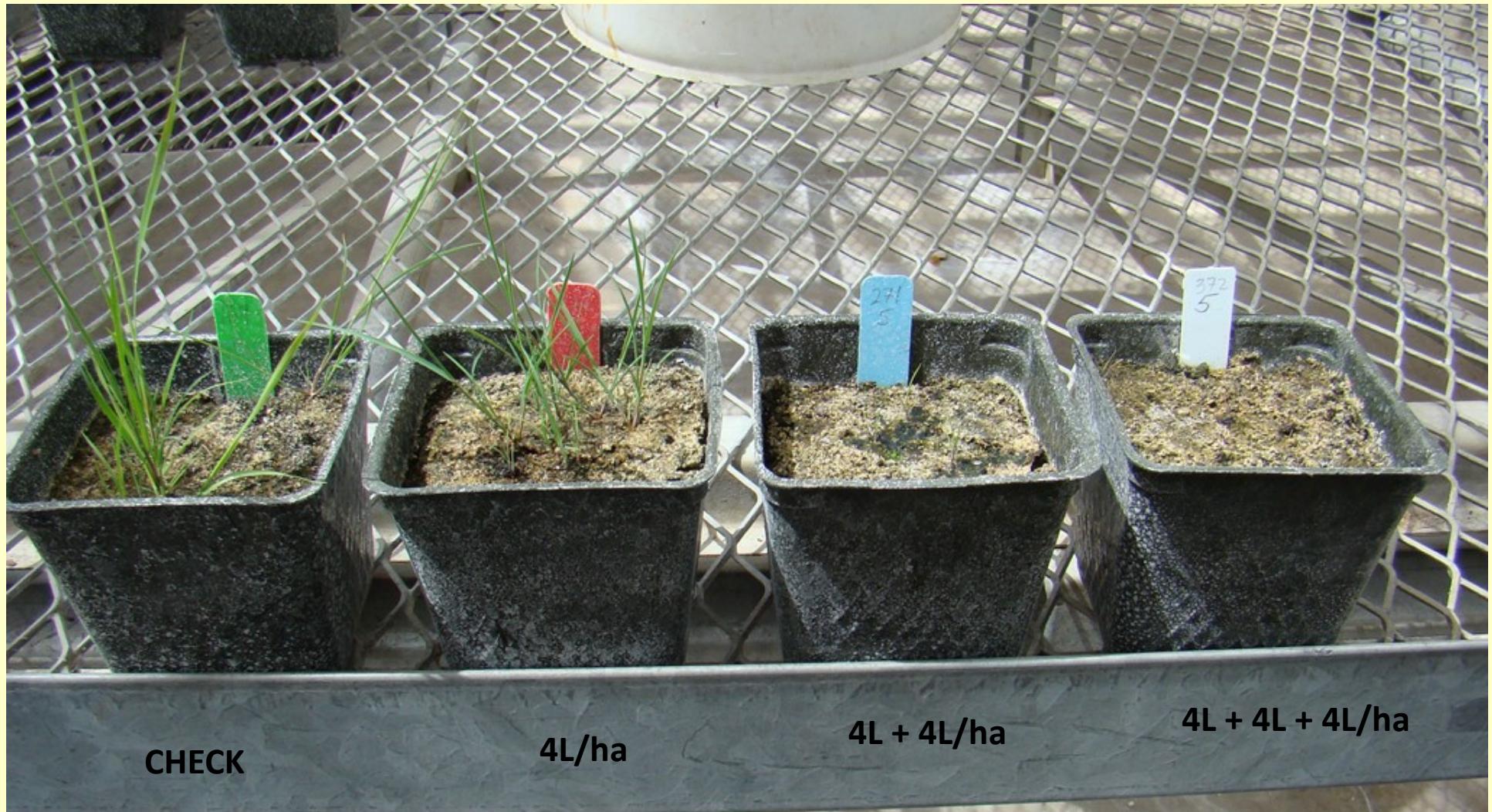
Emergence counts made 1, 2, 3, and 4 wk after each planting

4 wk counts converted to emergence as % of control for graphs



Creeping bentgrass 'T-1' planted 6/27/13 (20 weeks) after last PoaCure application.

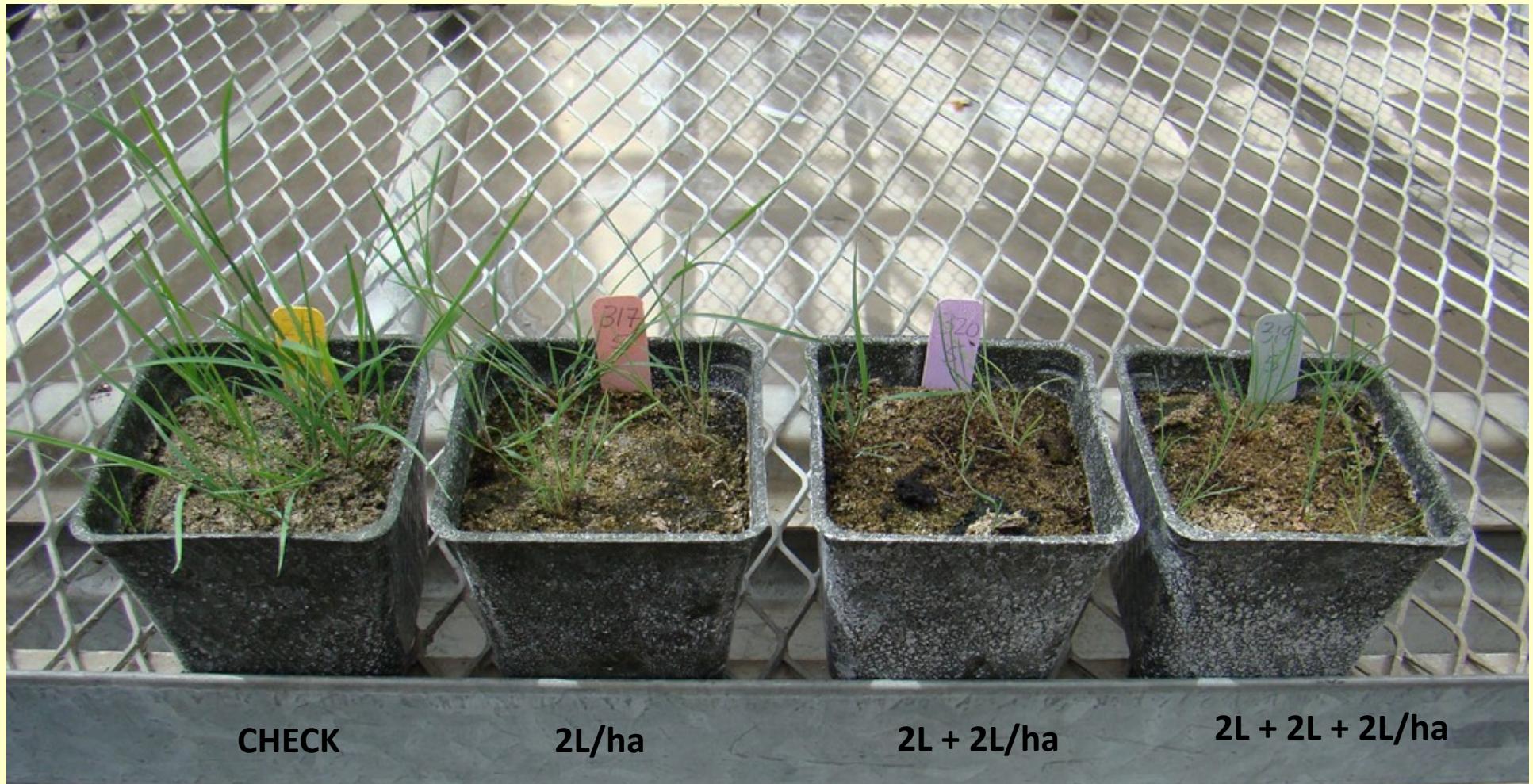
Picture taken at the 4 week emergence count: 7/24/13.



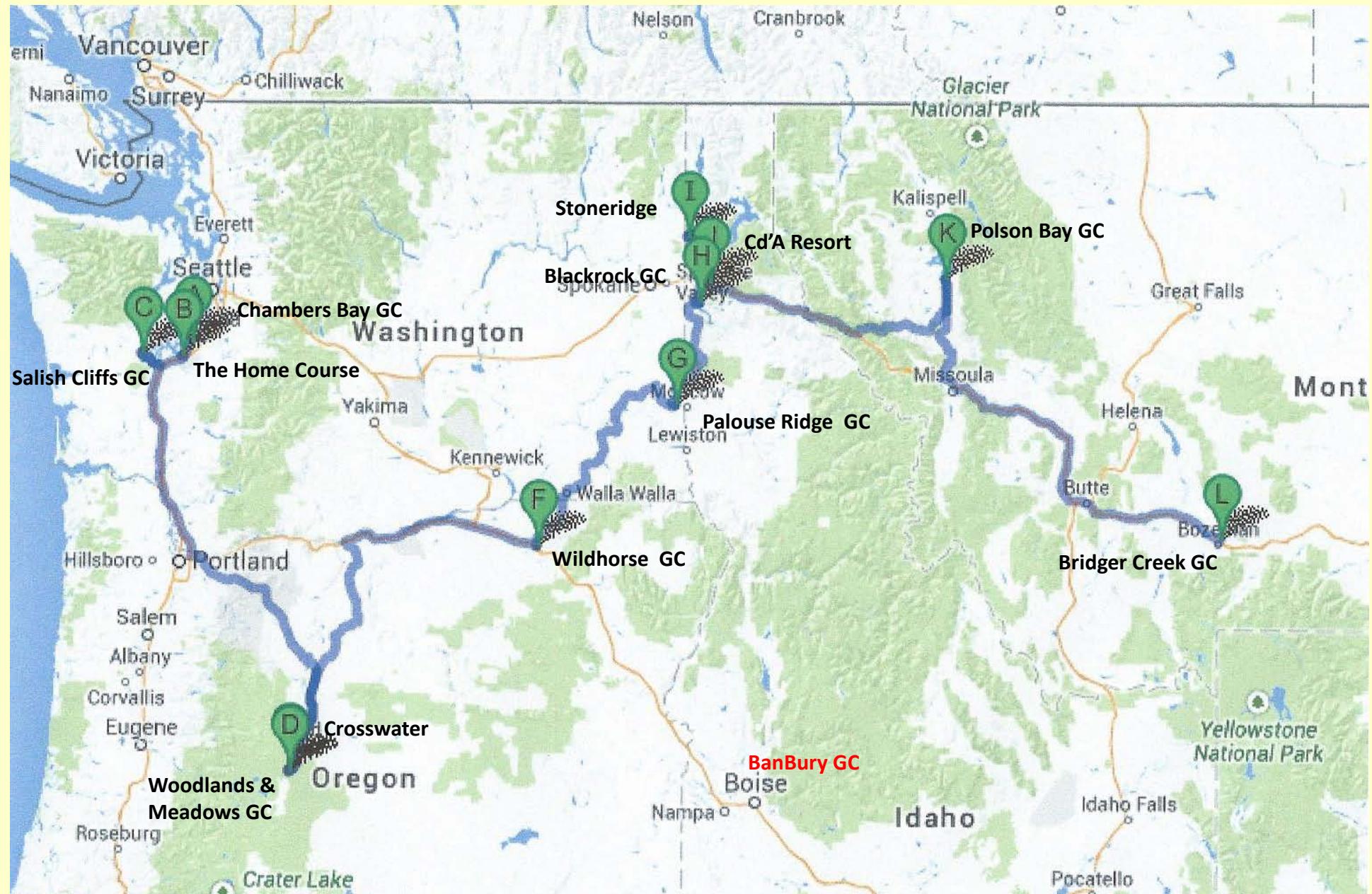
$4 \text{ L/ha} = 1.2 \text{ fl oz/1000 ft}^2$

Creeping bentgrass 'T-1' planted 6/27/13 (20 weeks) after last PoaCure application.

Picture taken at the 4 week emergence count: 7/24/13.

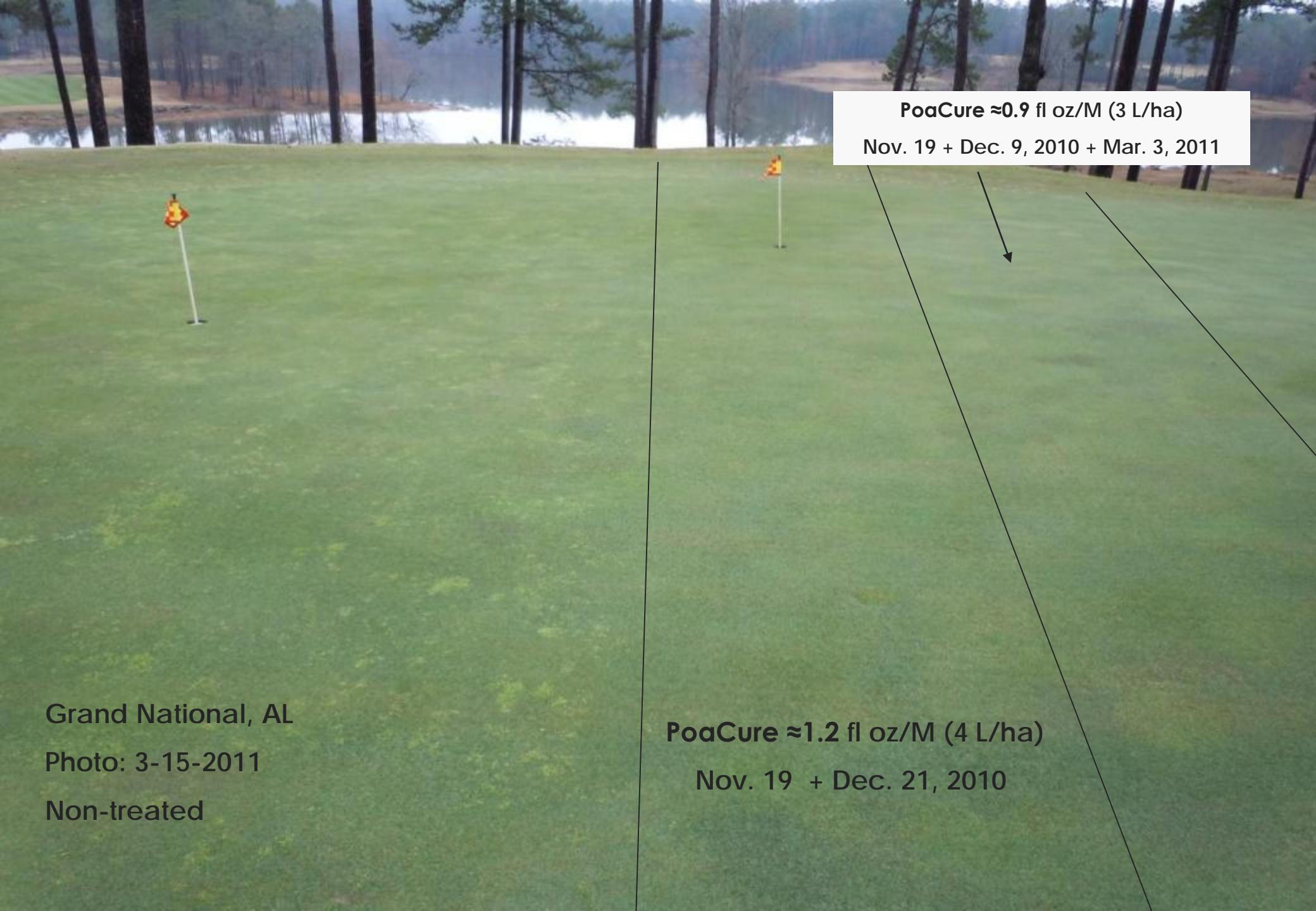


$2 \text{ L/ha} = 0.6 \text{ fl oz/1000 ft}^2$



PoaCure 2012-2013 DEMO Trial PNW Sites

DEMO trial: Greens





Grand National, AL

Photo taken 3-15-2011

PoaCure ≈1.2 fl oz/M (4 L/ha)

3 apps in 2009

Nov. + Dec. + Dec.

North Shore CC , Glenview, IL



Photo taken 6/10/14

Fairways

Pine Ridge Country Club, South Korea



Major story of the 2015 US Open: “*Poa annua* and fescue”



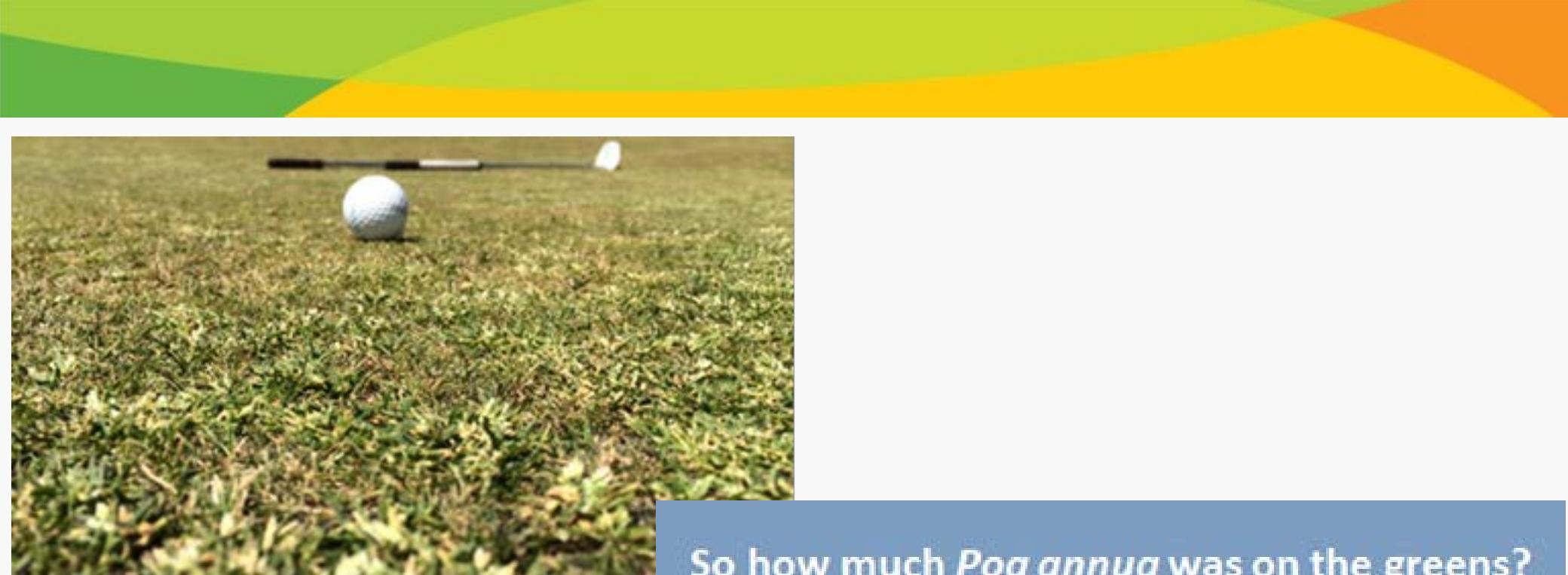
2015 US Open at Chambers Bay, University Place, WA



**PoaCure Demo Trial
Chambers Bay; Oct. 8, 2012**



Chambers Bay; Oct. 8, 2012



So how much *Poa annua* was on the greens?

- Nos. 7, 10 and 13 were pure fescue
- Nos. 2, 3, 4, 5, 8, 11, 14, 16, 17 and 18 – 80% fescue/15% colonial bent/5% or less *Poa annua*
- Nos. 6, 9 – 75% fescue/15% bent/10% *Poa annua*
- Nos. 1, 12 and 15 – 65% fescue/15% bent 30% *Poa annua*



“# 18 green; very little *Poa annua*”

“discoloration not all *Poa*, lots of colonial bent and two fine leaf fescues”

USGA agronomist, Larry Gilhuly, 2015



Chambers Bay #13 Green 3/12/13; 100% fescue for US Open

WSU Disclaimer

“Some of the pesticides discussed in this presentation were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to \$7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. **It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.**”

Questions?

More turfgrass information: **TURF.WSU.EDU**

Updates on PoaCure research from different regions:

- www.moghu.com/en/index
- Twitter @PoaCure, @MoghuUSA

Other questions regarding PoaCure, contact:
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