Waitea Patch: History, Identification and Control

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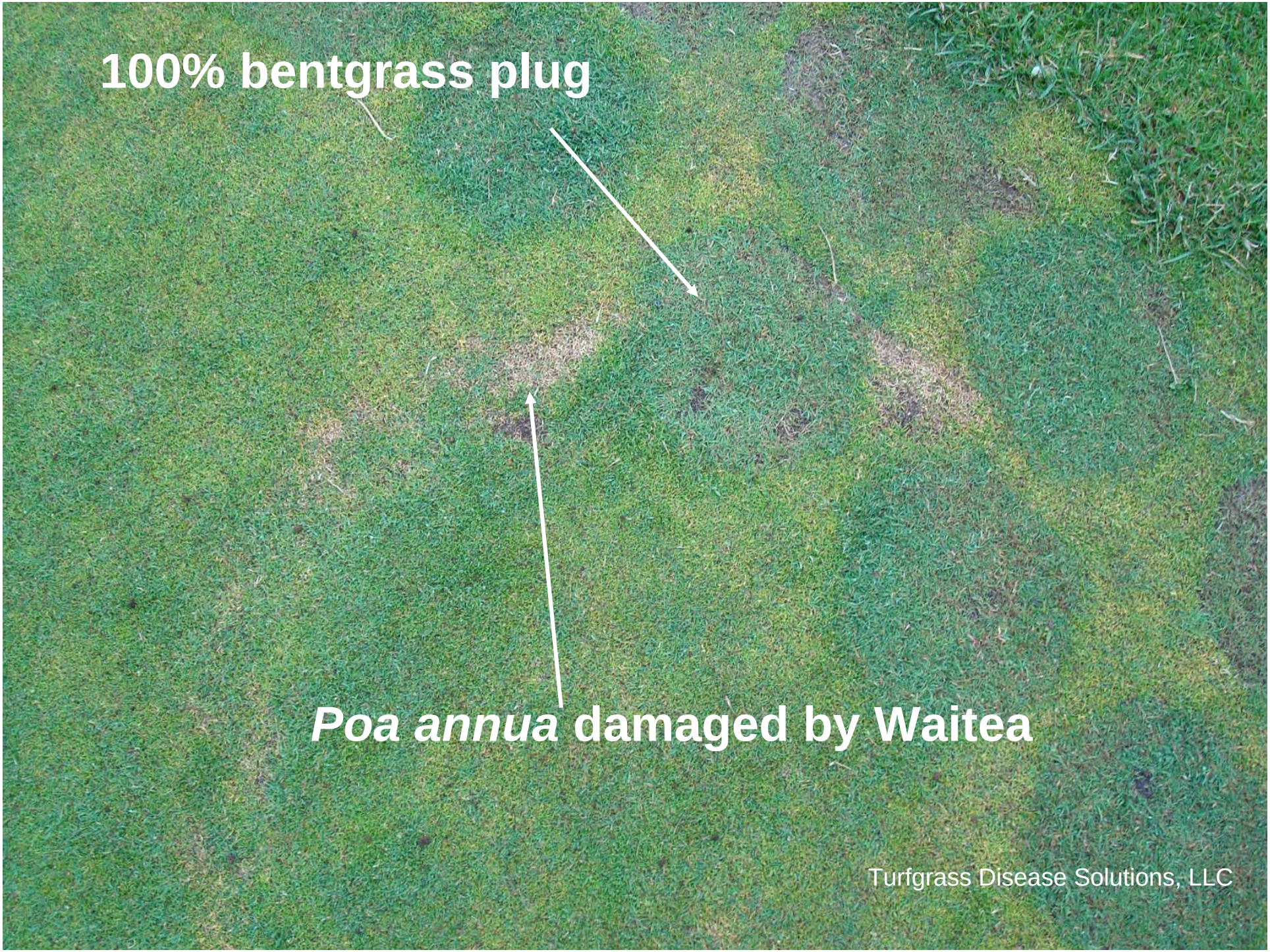
Waitea Patch

- Waitea Story-
  - ‘It just wont subside’
- Introduction of the pathogen biology
- History
- Signs and symptoms
- Control

Waitea Patch

- Causal agent: *Waitea circinata* var. *circinata*
- Common Names: Brown Ring Patch, Waitea Patch, Warm-temperature brown patch
- Hosts: Poa annua and trivialis in US to date
  - In Japan, originally a disease of creeping bentgrass

- Symptoms- on the surface
  - Very close to yellow patch (cool-season brown patch)- only difference is more crescent shape ring
  - Plants initially turn yellow and turn brown to red as disease progresses
  - Affects upper roots, crowns, stems and leaves.
  - Advanced stages will sink into thatch


100% bentgrass plug
Poa annua damaged by Waitea
Turfgrass Disease Solutions, LLC

R. cerealis **autumn 2008**
Poa annua **green**

(Cool Season Brown Patch)

Waitea **Patch autumn 2008**

Poa annua **green**

(Brown Ring Patch)

History of Brown Ring Patch

- This pathogen was first found damaging creeping bentgrass in 1994 in Japan
- Researchers did genetic work to identify the pathogen-same on CBG as *Poa annua*
- Symptoms on creeping bentgrass are very similar to *Poa annua* and *Poa trivialis*.
- This disease first was reported in California in 2003, then Oregon and Wash-2004 and 2005
- 2006 and 2007 went on to be observed in Mid-Atlantic, NE* and Upper Mid-West (MI)**

* Wong and Kaminski. 2007. GCM article

**http://www.ipm.msu.edu/cat07land/l06-01-07.htm#10

Documented 'First Reports' in Mid-Atlantic

- Have been observing different and unusual spring time disease activity in Mid-Atlantic on *Poa annua*
- In December 2007, disease activity was very severe on a *Poa annua* putting green in northern Virginia*
- In spring on 2008, disease activity was noted in Allentown, Pennsylvania * *

* S. Kammerer, P. Harmon, S. McDonald, and B. Horvath. 2008. First report of brown ring patch caused by *Waitea circinata* var *circinata* on *Poa annua* in Virginia. Plant Disease (Accepted)

* * Fidanza, M.A., S. J. McDonald and F. P. Wong. 2009 First report of brown ring patch caused by *Waitea circinata* var. *circinata* on *Poa annua* in Pennsylvania. Plant Disease (Submitted)

What's in a Name?

Disease Common Name	Current Proposed Name (Anamorph)
Brown Patch	*Rhizoctonia solani*
Yellow Patch	*Rhizoctonia cerealis*
Sheath and Leaf Spot*	*Rhizoctonia circinata var. oryzae*
Rhizoctonia zeae	*Rhizoctonia circinata var. zeae*
Brown Ring Patch	*Rhizoctonia circinata var. circinata* (aka Waitea cvc=Teleomorph)

Differences in Disease Activity

Disease Common Name	Optimal Temperature range °F
Brown Patch	*70-90*
Yellow Patch	*50-65*
Sheath and Leaf Spot*	*83-97*
Rhizoctonia zeae	83-97
Brown Ring Patch	**77-86**

* Rare in region. Hosts include most cool-season turfgrass as well as most warm season.

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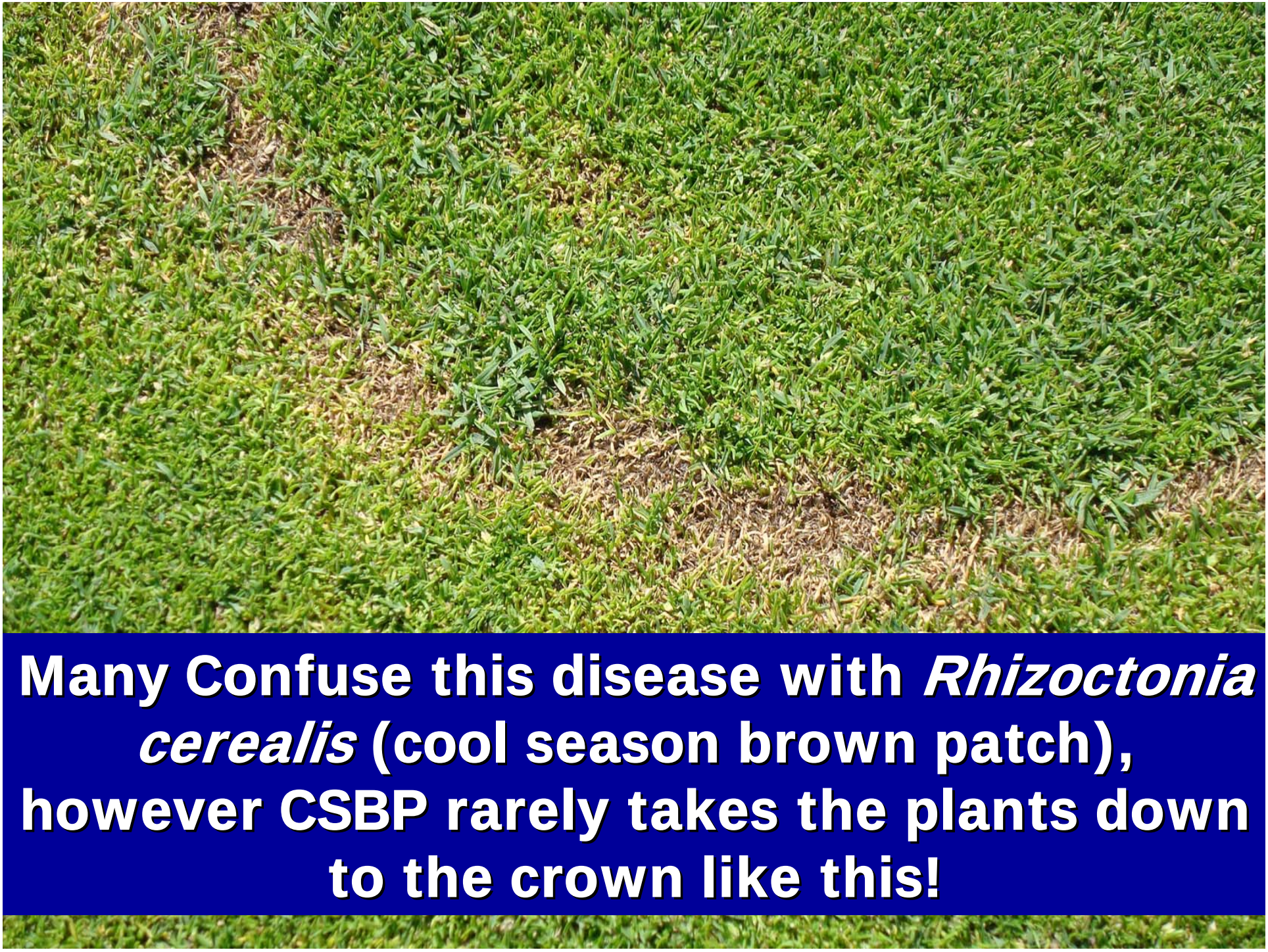
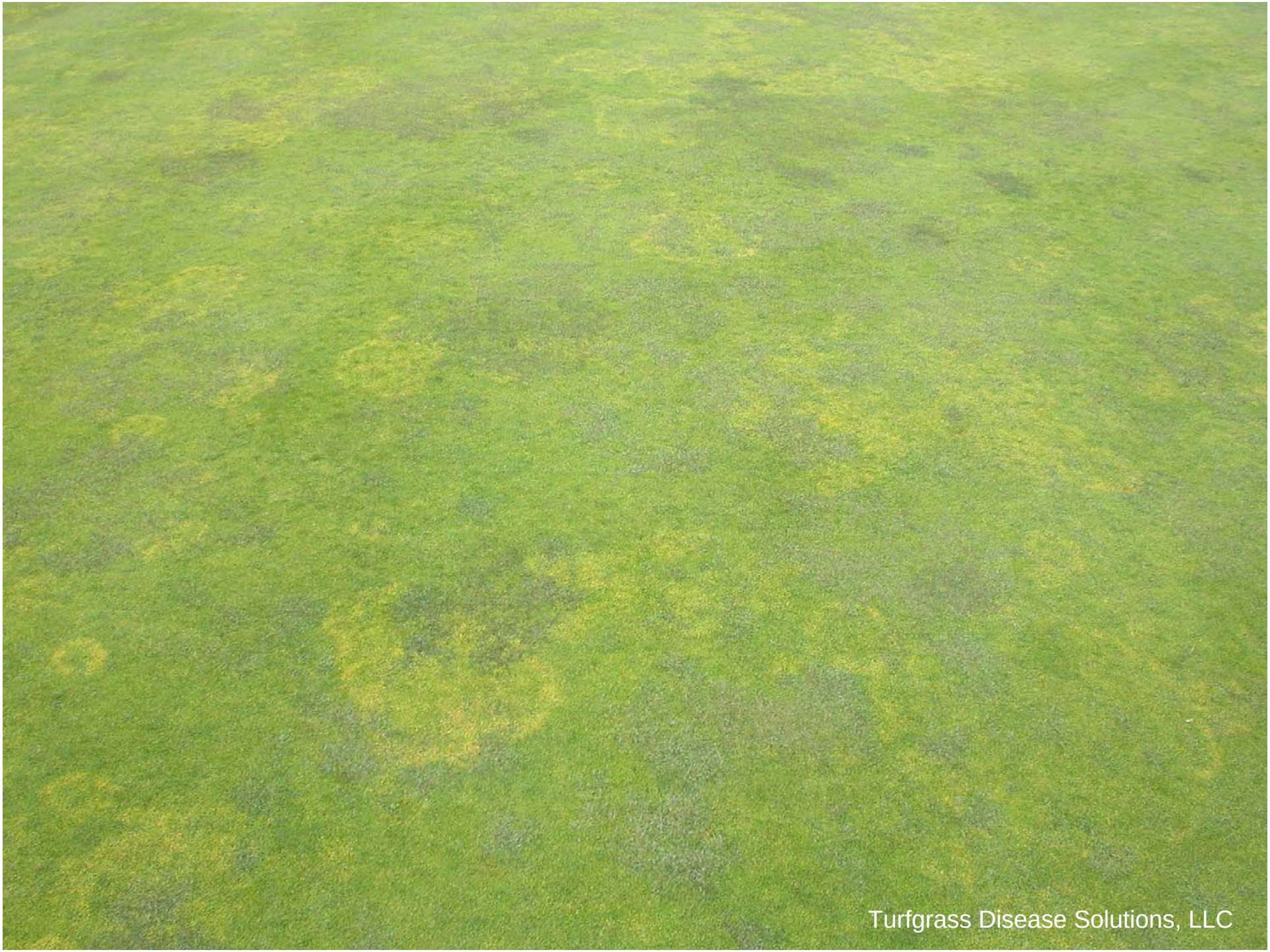


Many Confuse this disease with *Rhizoctonia cerealis* (cool season brown patch), however CSBP rarely takes the plants down to the crown like this!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#13 Green at Reston National

Site Treated with Proxy + Primo on 21 March and 11 April

Native push up green with a soil pH of 6.2.

<65-70% *Poa annua*

On 11 December 2007 following a warm spell some disease activity was noted

Treatments were applied on 8 February, 19 March, and 2 and 29 April 2008

Carrier Volume= 2.0 gallon per 1000 ft2 using 8008 flat fan nozzle

Reston National Golf Course

Reston, VA

Eric Nelson GCS


On the first application
disease had just started
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Strobiluron Chemistry for Preventive Waitea Control, 2008 Reston National

Preventive Treatments	Rates	% Waitea Blighting			
	per 1000 ft^2	19 Mar		2 Apr	
Heritage TL	2.0 fl oz	0.0	e	0.0	c
Compass	0.25 oz	2.3	de	0.0	c
Insignia	0.9 oz	0.0	e	0.0	c
Disarm	0.36 fl oz	0.0	e	0.0	c
Untreated Control		19.0	a	26.3	a

Treatments were applied on 8 February, 19 March, and 2 and 29 April 2008

Disease activity had been noted during spring 2006 and autumn 2007 on this green

Combination Products for Preventive Waitea Control, 2008 Reston National

Preventive Treatments	Rates	% Waitea Blighting			
	per 1000 ft^2	19 Mar		2 Apr	
Concert	5.4 fl oz	1.7	e	0.0	c
Instrata	6.0 fl oz	3.3	cde	0.0	c
Tartan	2.0 fl oz	0.0	e	0.0	c
Headway	3.0 fl oz	0.0	e	0.0	c
Untreated Control		19.0	a	26.3	a

Treatments were applied on 8 February, 19 March, and 2 and 29 April 2008

Disease activity had been noted during spring 2006 and autumn 2007 on this green

Sterol Inhibitor (DMI) Chemistry for Preventive Waitea Control, 2008 Reston National

Preventive Treatments	Rates	% Waitea Blighting			
	per 1000 ft^2	19 March		2 April	
Trinity	2.0 fl oz	1.7	e	0.0	c
Banner MAXX	2.0 fl oz	0.0	e	0.0	c
Tourney	0.37 oz	0.0	e	0.0	c
Untreated Control		19.0	a	26.3	a

Treatments were applied on 8 February, 19 March, and 2 and 29 April 2008

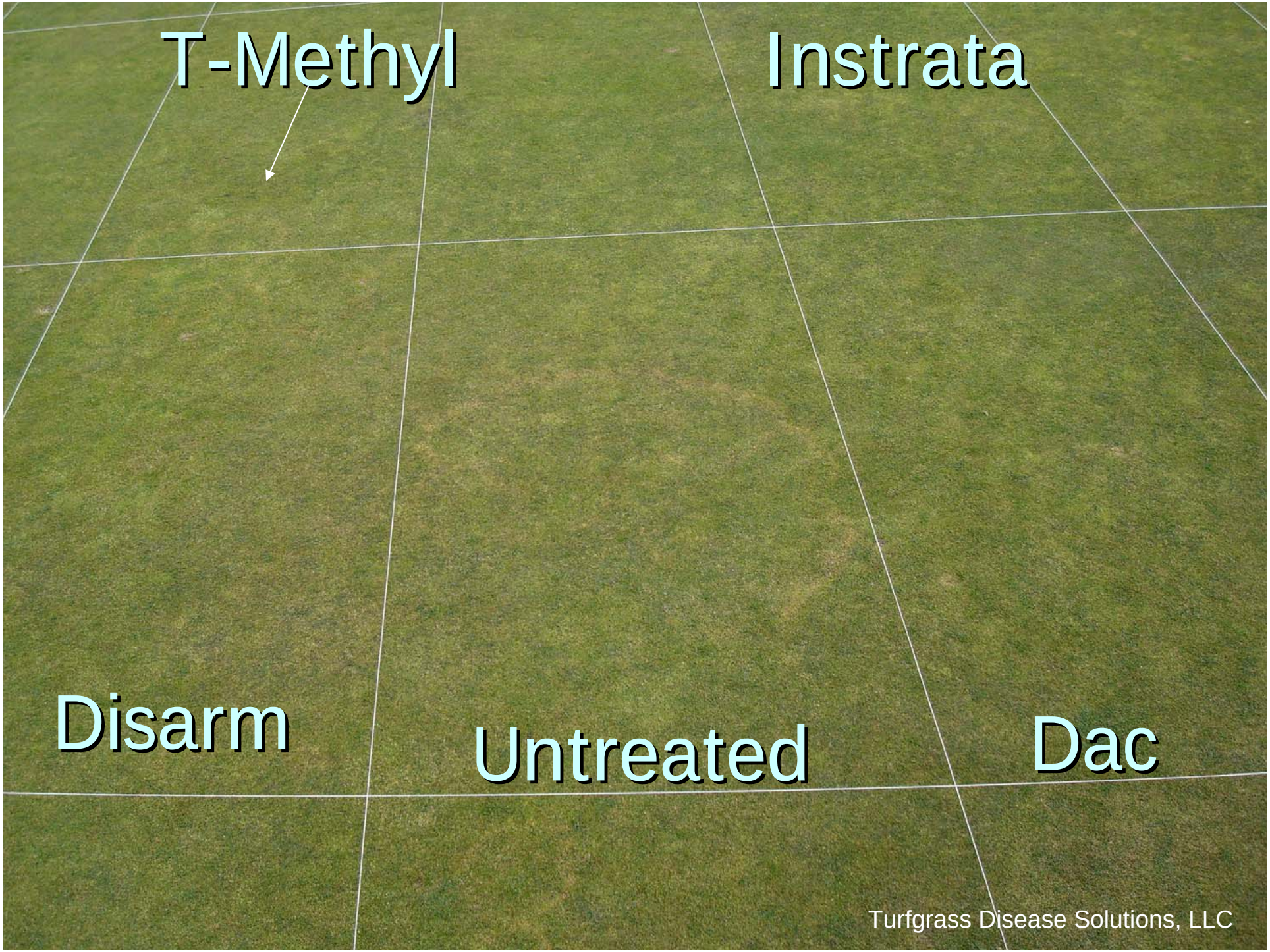
Disease activity had been noted during spring 2006 and autumn 2007 on this green

Other Materials evaluated for Preventive Waitea Control, 2008 Reston National

Preventive Treatments	Rate/1000ft2	% Waitea Blighting			
		19 March		2 April	
26 GT	4 fl oz	3.3	cde	0.0	c
Daconil Ultrex	3.2 oz	1.7	e	0.0	c
Endorse	4.0 oz	0.0	e	0.0	c
ProStar	3.0 oz	0.0	e	0.0	c
PK Plus	6.0 fl oz	10.0	b	2.3	bc
9-0-0 liquid NH_4SO_4	0.125 lb N	7.0	bc	5.3	b
Medallion	0.3 oz	0.0	e	0.0	c
3336 plus	4.0 oz	6.3	bcd	4.0	bc
Untreated Control		19.0	a	26.3	a

Impact of Various spring-time applied fungicides on Poa annua seedhead coverage, 2008

Treatment		% *Poa annua* Seedhead	
		11 April	
Concert	5.4 fl oz	44	c
Instrata	6.0 fl oz	40	c
Daconil Ultrex	3.2 oz	59	ab
Tartan	2.0 fl oz	42	c
Headway	3.0 fl oz	44	c
Trinity	2.0 fl oz	30	d
Banner MAXX	2.0 fl oz	26	de
Tourney	0.37 oz	22	e
3336 plus	4.0 fl oz	56	ab
Untreated Control	-	56	ab


T-Methyl
Instrata
Disarm
Untreated
Dac
Turfgrass Disease Solutions, LLC


Heritage TL 2.0 fl oz/1000ft2
Untreated Control
Turfgrass Disease Solutions, LLC


Plots Receiving Early Spring Applications of
Sterol Inhibitor Fungicides Generally Had better
Color and Less *Poa annua* Seedheads
Turfgrass Disease Solutions, LLC

Summary of Findings

- All chemistries, except Benzimidazoles

(i.e. T- methyl) provided acceptable control on 18-25 day interval

  - Most consistent was strobilurons, combination products

- Curatively
  - Medallion, Endorse, and Sterol Inhibitors
  - Mixing fungicides with ammonium sulfate helps improve
  - Use the heavy hitters when possible

Summary of Brown Ring Patch Control

- Fungicides: The heavy hitters at this point include!
  - Prostar
  - Endorse
  - Combination products like Headway, Tartan, Renown, Disarm C, Concert and Instrata or tank-mixtures
  - Strobilurins
    - Heritage, Insignia, Disarm
  - Contacts
    - Chlorothalonil (Daconil), and Medallion-shorter interval
  - Sterol Inhibitors (DMI)
    - Banner MAXX, Bayleton, Tourney, Trinity, Trition

Brown Ring Patch Control

- Still need additional efficacy data from the field to confirm prelim studies
- Most data is from California and lab trials at this point
- Additional data is also needed on PGR use and fertility before and after activity
  - Prelim results show that N does not seem to to enhance severity as it does with *R. solani*

Summary of Brown Ring Patch Control

- Maintain good fertility after seeing damage to speed recovery
- Possible to skip a plant growth regulator application to help *Poa annua* growth? (can be difficult this time of year with seedheads)
- Make preventive applications on 18-25 day interval if you have had damage from this disease- when weather conditions exist
- N-Source: ammonium sulfate seems best

The Bottom for Waitea

- Persistent disease- under weather conditions favorable for development, a few applications may be needed
- On bentgrass? In Japan already reported
- Keep a look out when temperatures are between 65-84°F
- Cultural practices that promote healthy turf will increase recovery time

Questions?

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