Using Proline® to Control Rhizoctonia Foliar Blight

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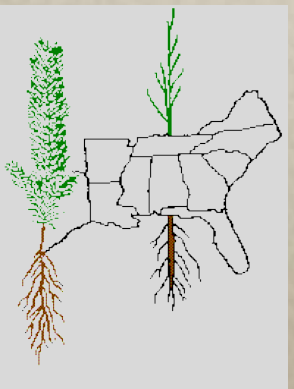


Forest Nursery Seedling Diseases

Fusiform Rust

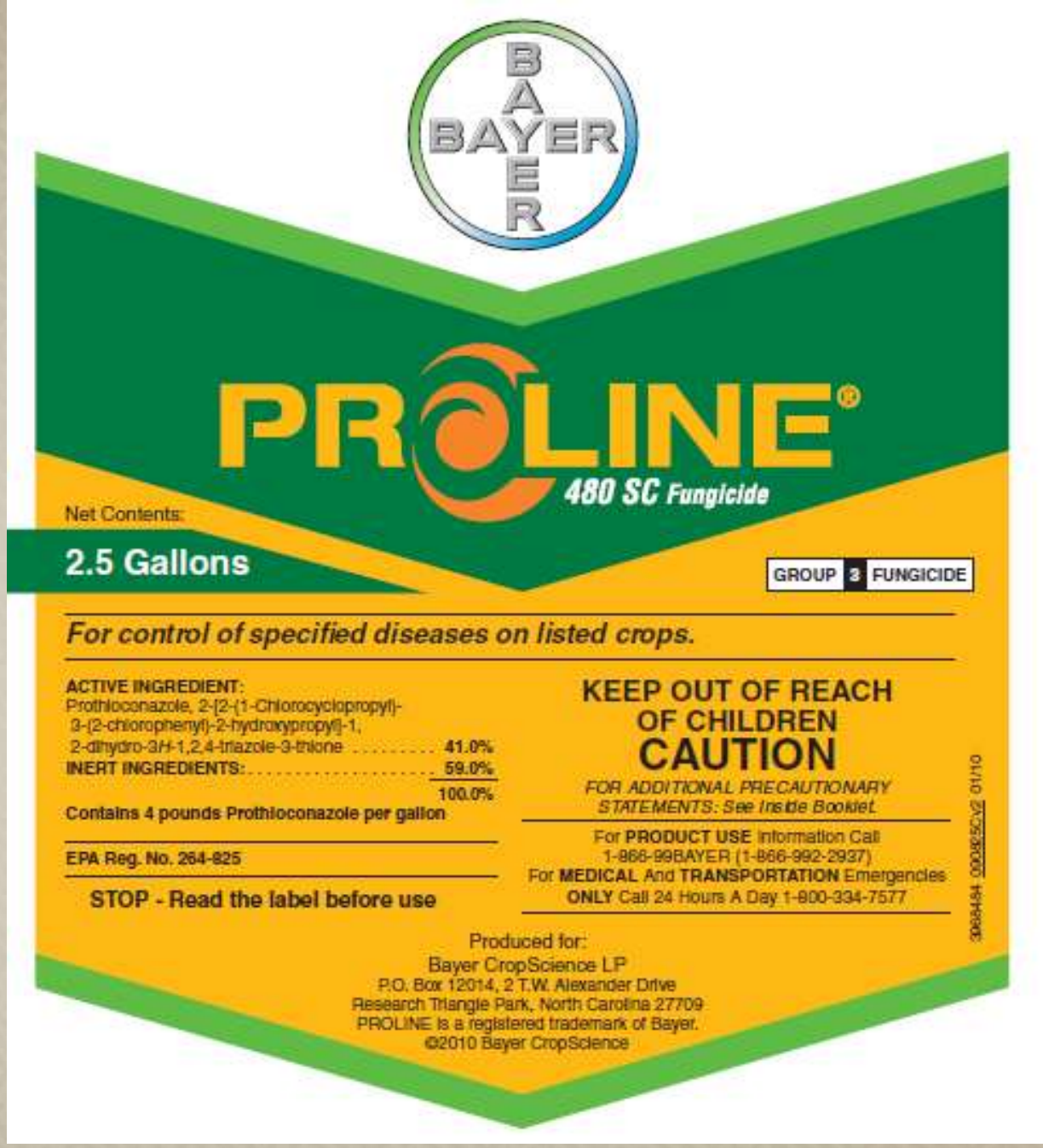
Pitch Canker

Rhizoctonia Foliar Blight

Prothioconazole was introduced at the Brighton Conference in 2002.

Proline® was registered in the USA on March 27, 2007.

Current Registration - Peanuts, Soybean, Wheat, Barley, Beans , Sugar Beets, Rapeseed



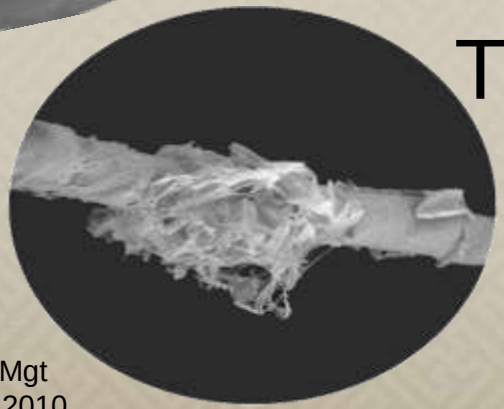
Prothioconazole

- Prothioconazole is xylem and phloem systemic
- Long-term protectant on the leaf surface
- Unique greening effects not seen with other azoles
- Stops fungal appressoria and haustoria formation, mycelial growth and spore formation
- Has shown good fungicidal activity in the control of ascomycetes, basidiomycetes, and deuteromycetes

Prothioconazole

- Inhibits the production of sterols (DMI) in the fungus which eventually results in abnormal fungal growth and death.

Untreated fungal hyphae



Treated fungal hyphae

Dr. Frank P. Wong Cooperative Extension Specialist
University of California

Rhizoctonia Foliar Blight

Rhizoctonia Foliar Blight

- Longleaf & loblolly pine are susceptible
- Within any one nursery – isolated disease foci rather than entire beds
- Disease becomes a problem when:
  1. Seedling canopy closes
  2. Extended periods of free moisture
  3. Average daily temperatures is around 80°F and falling
  4. Worse in 2nd crop year

Rhizoctonia Foliar Blight

- 2008 Fungicides applied every 2 wks beginning ~ July 15.

- 2009 Fungicides applied every 3 wks beginning ~ July 15.

1. Proline® - 41% prothioconazole @ 5.5 fl oz/a
2. Heritage® - 50% azoxystrobin @ 24 oz/a

← Control

Proline® →

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2008 & 2009 Rhizoctonia

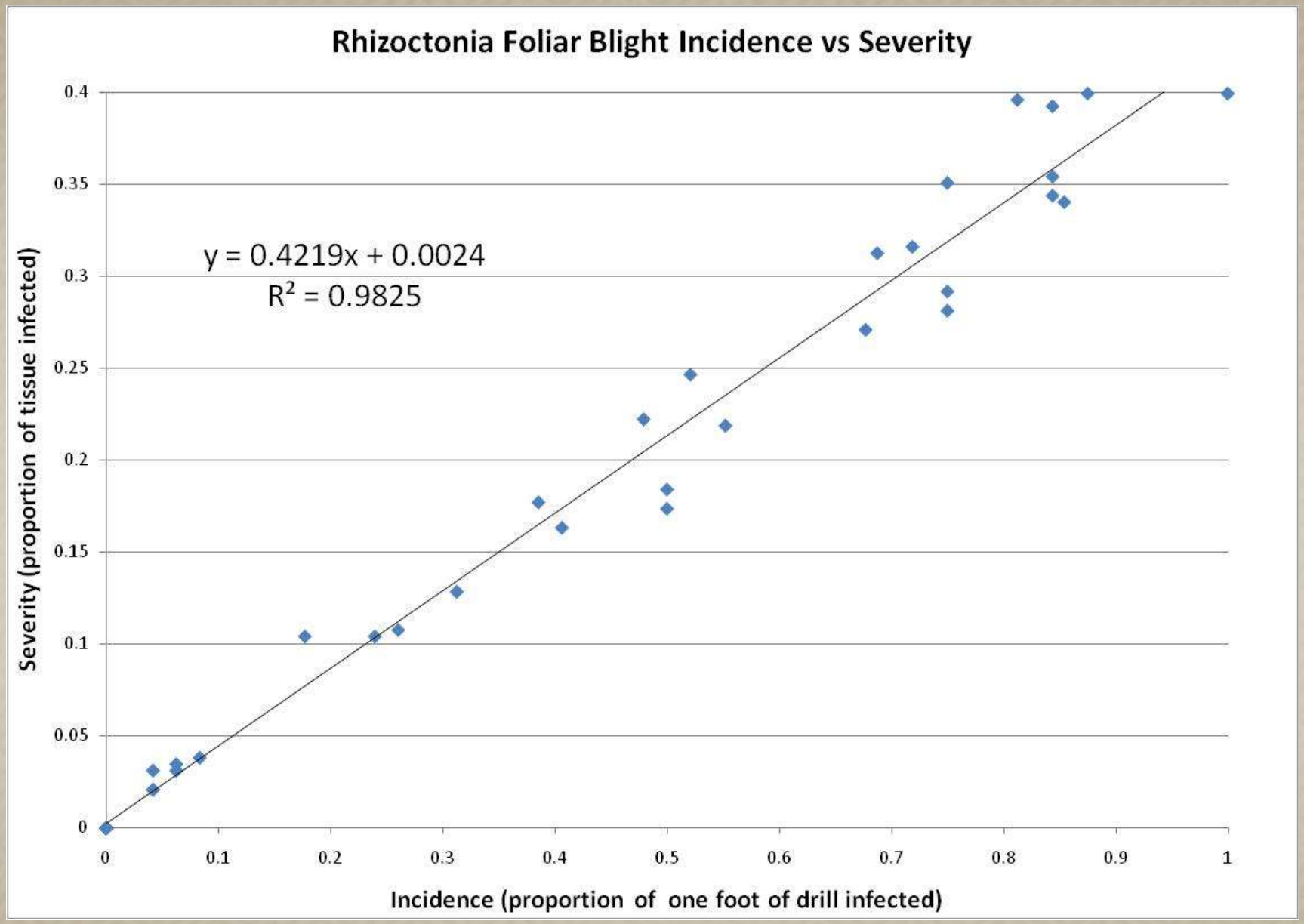
2008
2 wk

TRT	Seedling Density per sq ft	Disease Incidence	Disease Severity	Seedling loss per sq. ft.	Potential Loss per Acre
Control	22.9	0.354	0.182	3	$1,735
Heritage	23.6	0.162	0.083	1.2	$373
Proline	23.7	0.003	0.001	0.01	$0
Prob > F	*0.7762*	*0.0004*	*0.0004*	*0.0031*	-

2009
3 wk

TRT	Seedling Density per sq ft	Disease Incidence	Disease Severity	Seedling loss per sq. ft.	Potential Loss per Acre
Control	16.8	0.509	0.213	3	$2,142
Heritage	20.5	0.344	0.149	2.6	$1,235
Proline	19.7	0.01	0.005	0.05	$1
Prob > F	*0.51*	*0.0008*	*0.007*	*0.0013*	-

Incidence = proportion of bed feet within a 1x4' frame with RFB
Severity = proportion of tissue affected by RFB
Seedlings loss= seedling density x incidence/drill x severity /drill



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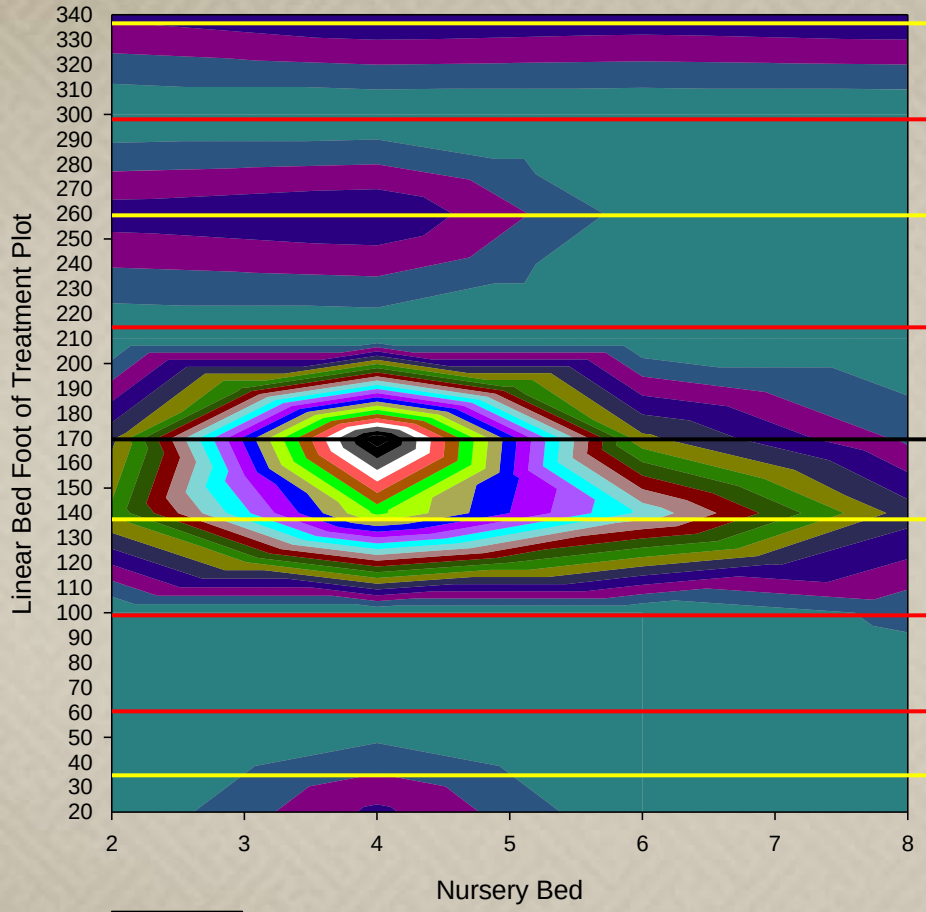
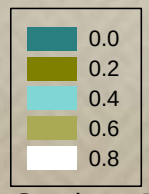
2 week interval

2008 Rhizoctonia Foliar Blight Disease Incidence





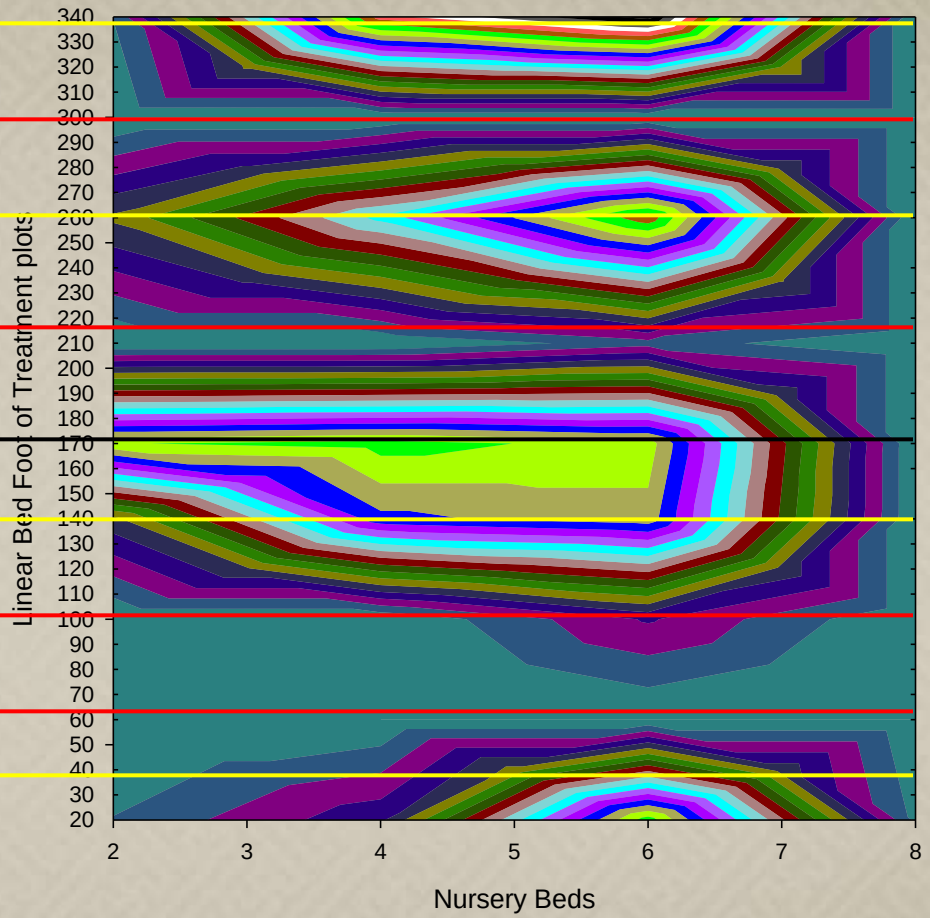
Proline

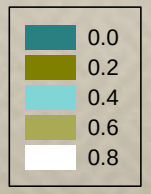
Heritage

Control

3 week interval

2009 Rhizoctonia Foliar Blight Disease Incidence





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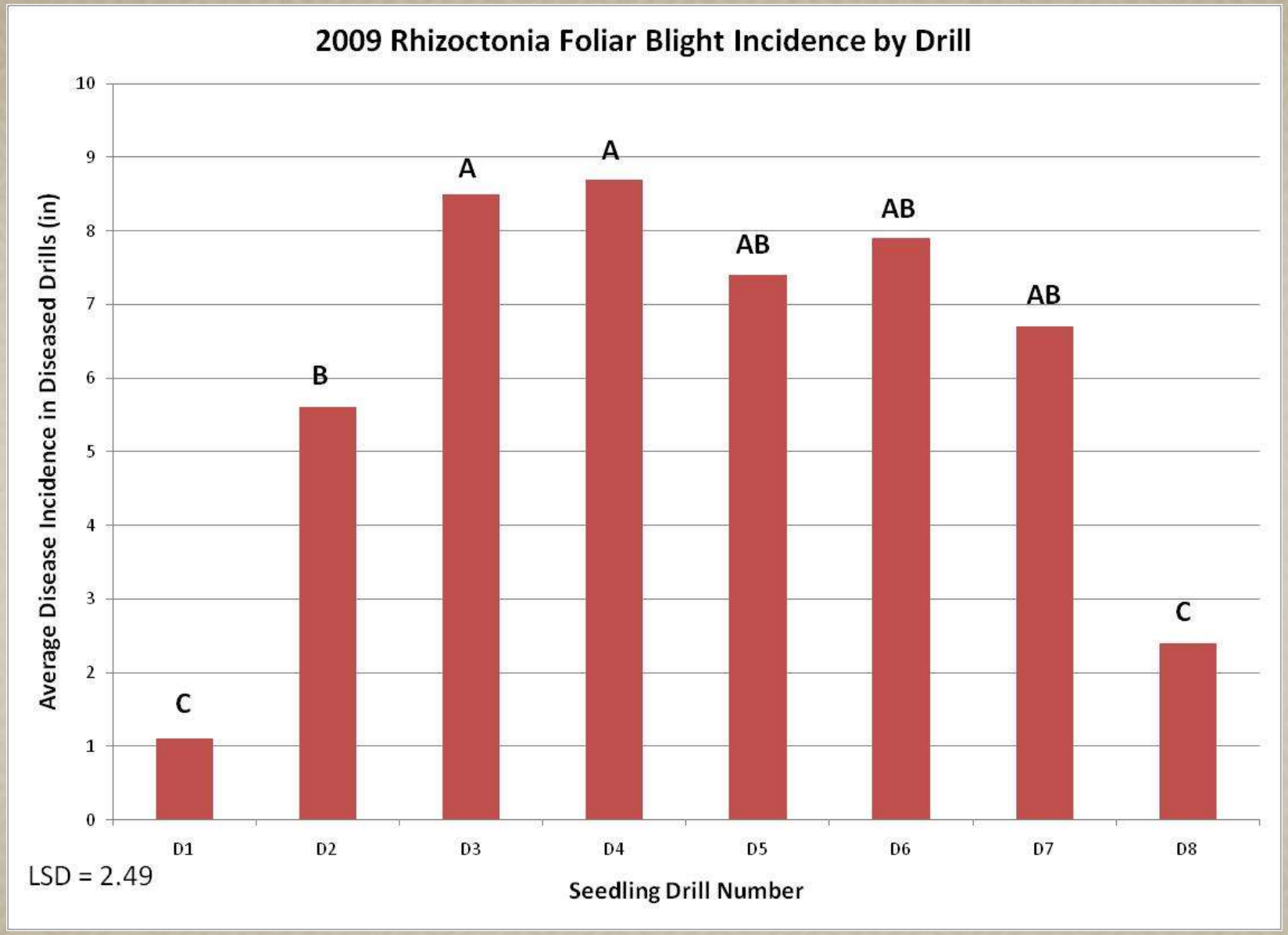

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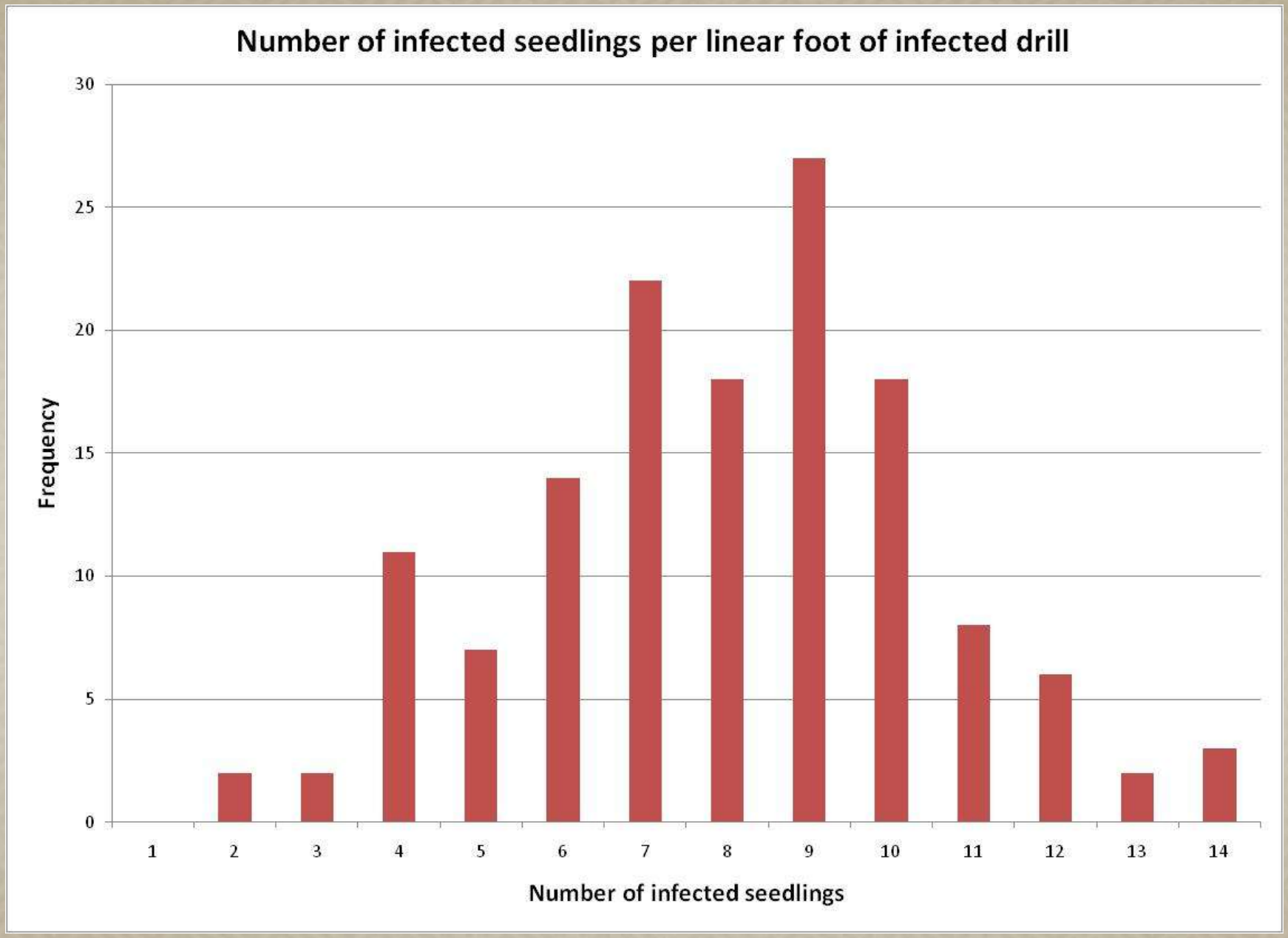

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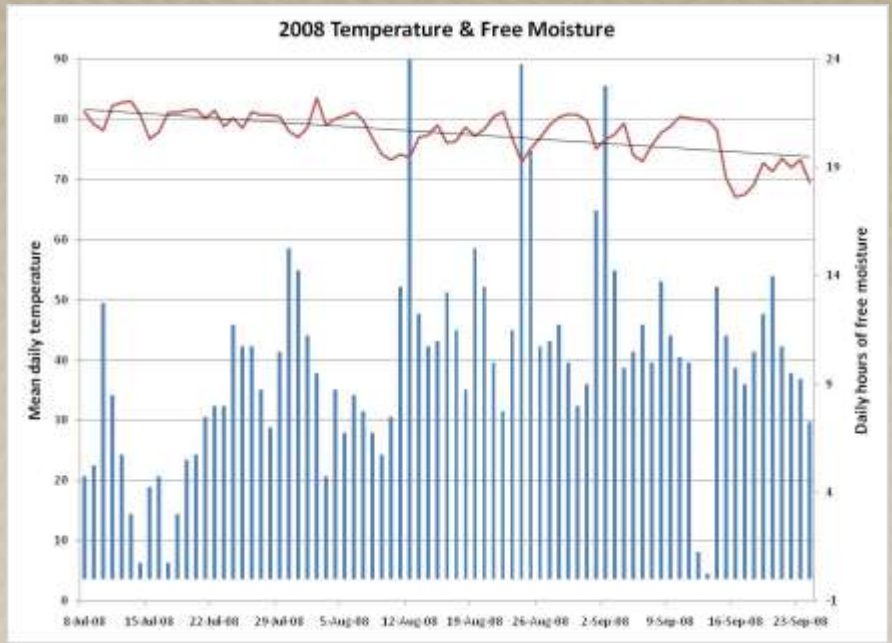
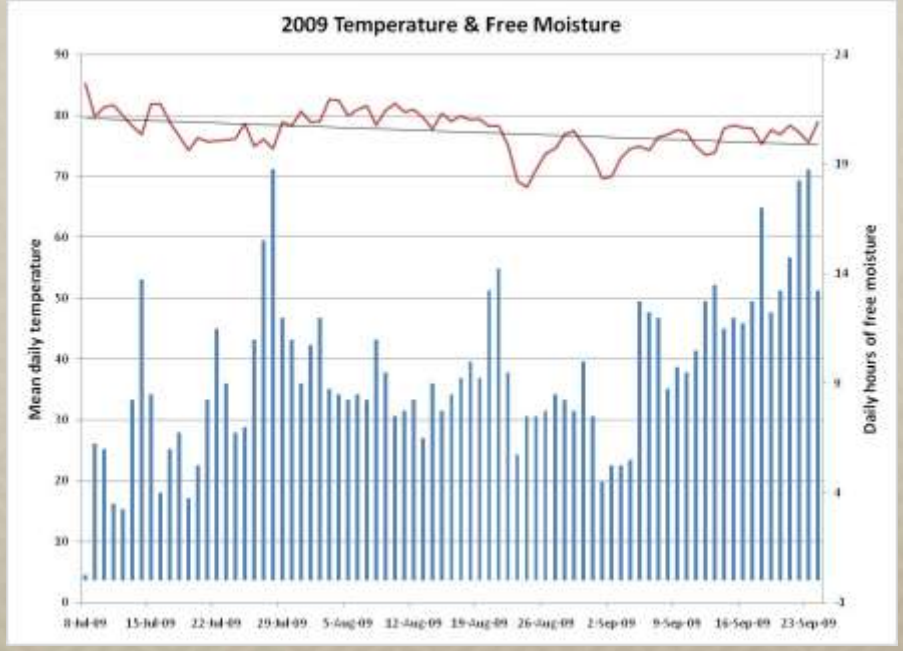
Comparison of Environmental Factors

2008	
Average # of Hours of Free Moisture	9.6
Maximum hours	24
Total # of Hours of Free Moisture	818
Days with Free Moisture	85



2009	
Average # of Hours of Free Moisture	9.5
Maximum hours	19
Total # of Hours of Free Moisture	750
Days with Free Moisture	79

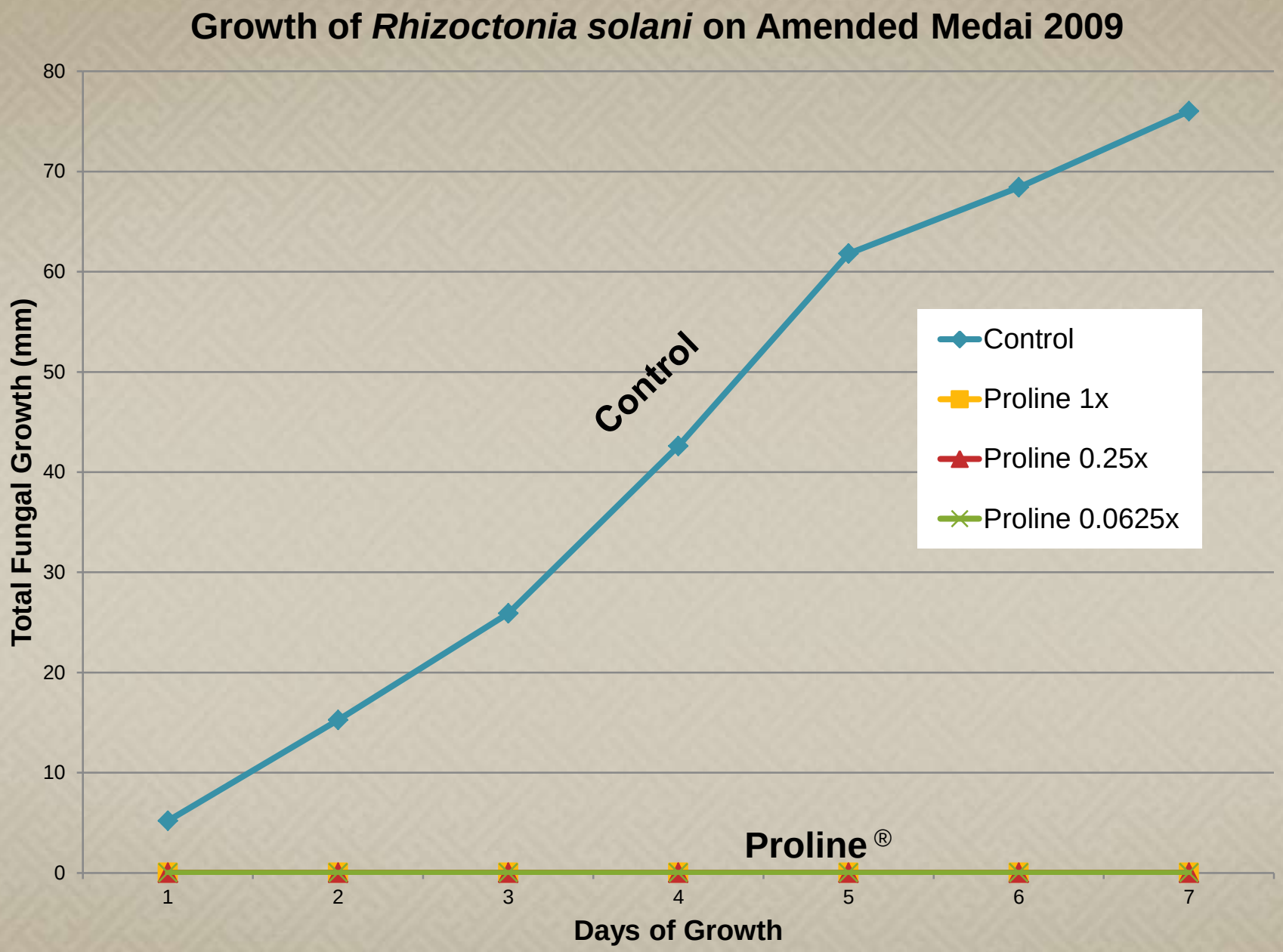


Conclusions

- Temperature and moisture was similar over 2 year period.
- **Heritage®** - Disease incidence increased from 16% to 34% by stretching spray interval time.
- **Proline®** - Disease incidence increased from 0.3% to 1% by stretching spray interval time.

Rhizoctonia

- Lab study
  - *in vitro* fungal growth on amended PDA agar
  - Proline® - 2009 - 3 rates, 1x, 0.25x and 0.0625x label rate
  - 20 plates for each fungicide/rate



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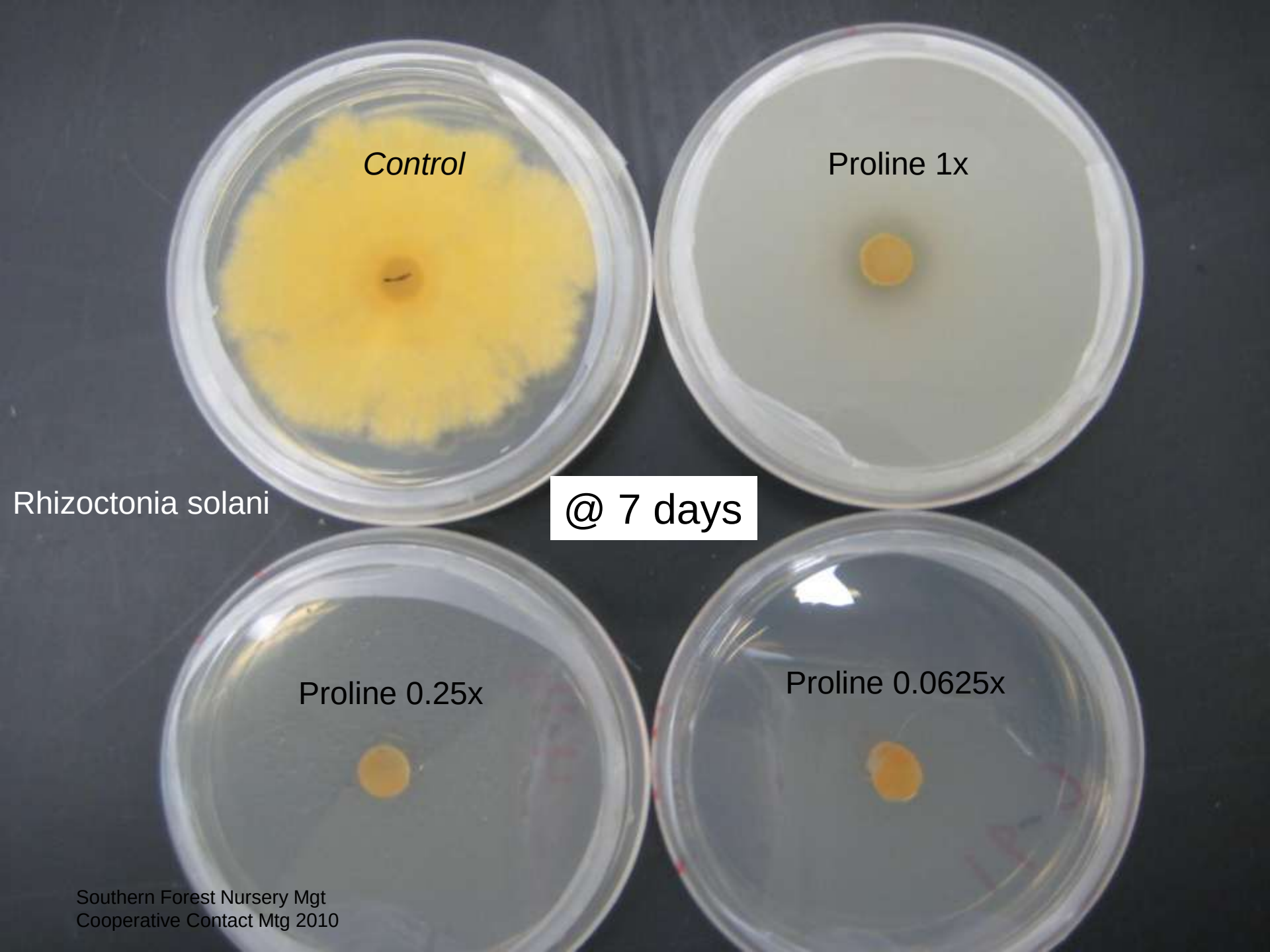

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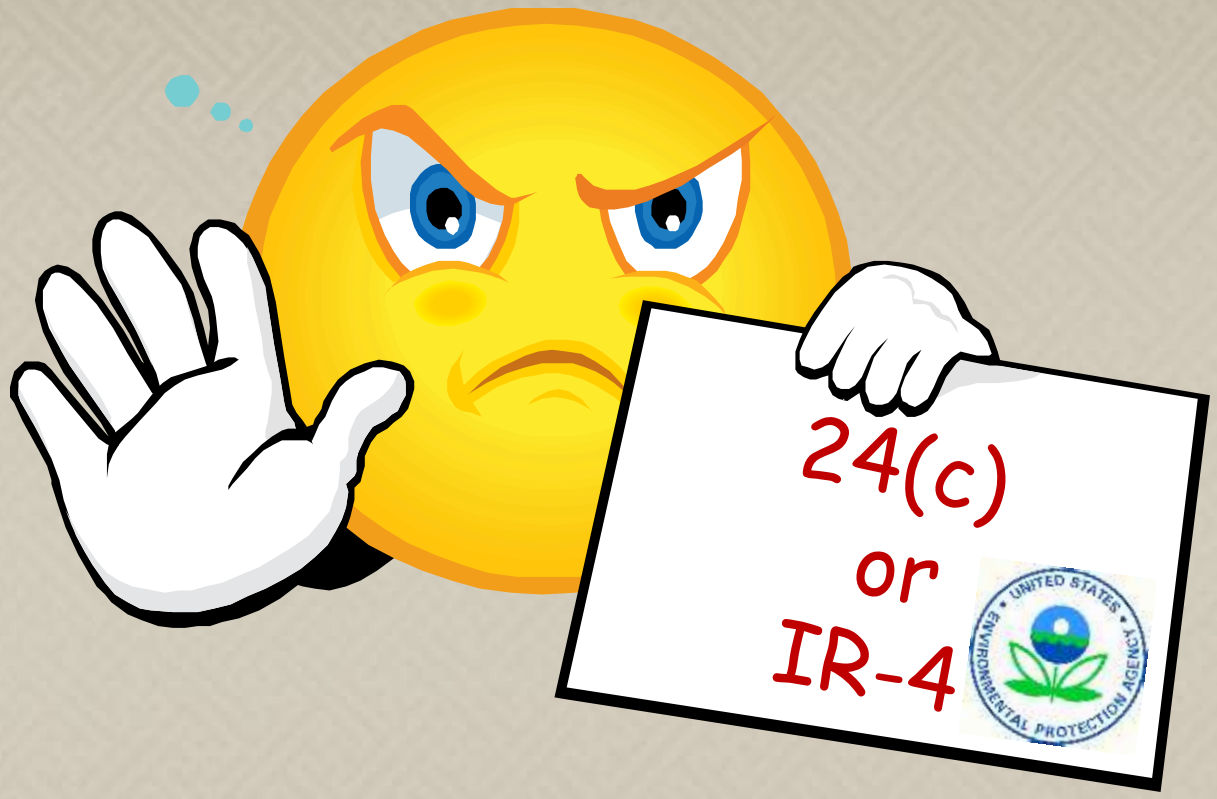
When plug is placed back on unamended media – regrowth occurred

Proline + *Rhizoctonia* = Fungistatic

Registration update



Registration update

It's amazing!

- We were asked by Bayer CropScience to write the label.

- The question became how inclusive do we make our request? Based on our experience and diseases controlled on current label, we felt Proline's application to be broad.

All they can do is say no….

http://www.xiongdudu.com/image/Aladdin_Genie_Lamp/10

Nursery seeds & seedlings of Shortleaf, Loblolly, Slash, Longleaf and other pines and other Conifers and Hardwoods

Bayer CropScience

Document Processing Desk
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S4900
One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202

December 11, 2009

Bayer CropScience
2 T.W. Alexander Drive
P.O. Box 12014
RTP, NC 27709
Phone: (919) 549-2000

Attention: Tony Kish
Product Manager Team 22

Subject: Proline 480 SC Fungicide, EPA Reg. No. 264-825
Prothioconazole Technical Fungicide, EPA Reg. No. 264-824
Application for Use on Nursery Seed and Seedlings of Conifers and Hardwoods

Dear Mr. Kish:

Proline 480 SC Fungicide is currently registered for control of diseases infecting a number of terrestrial food crops. Prothioconazole Technical Fungicide is registered for formulation into end-use products for use on terrestrial food crops. With the enclosed applications, we are proposing to amend the directions for use of Proline 480 SC Fungicide to allow use on nursery seed and seedlings of conifers and hardwoods and to amend the directions for use of Prothioconazole Technical Fungicide to allow formulation into end-use products for this use.

We have determined from the Pesticide Registration Improvement Renewal Act PRIA fee tables effective October 1, 2008, that the category to add an "additional use; non-food; outdoor" is R230 and the fee is $22,827. A check for this amount is being sent to the Agency's St. Louis fee for service box. A photocopy of the check is enclosed. The e-mail address for the company contact is mel.tolliver@bayercropscience.com.

If you have any questions or need additional information, please contact me by phone at (919) 549-2631 or by e-mail at mel.tolliver@bayercropscience.com.

Sincerely,

Melvin K. Tolliver

Melvin K. Tolliver
Registration Product Manager, Fungicides

Registration update

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