



New Uses for Regalia: Synergy, Cereals, Soil  
ABIM – October 25, 2011





*We discover, develop, and market effective and environmentally responsible natural products (biopesticides) that fill unmet needs for weed, pest & plant disease management.*

- Products that improve yields and quality in conventional ag compared to chemical-only systems
- Products that lower the cost and increase yields in organic farming
- Products for water treatment and water bodies



## Regalia<sup>®</sup> & Regalia<sup>®</sup> Maxx have an ISR Mode of Action

### **ISR = Induced Systemic Resistance:**

A non-pathogenic inducer (a microbe, extract, etc.) signals the plant to produce Phytoalexins, PR proteins, plant cell strengtheners, etc. that inhibit pathogens.

# Some New Uses:



Synergy

Plant Health



Proven synergistic efficacy with several chemical fungicide groups

Increased yields alone & in combination with leading chemical; higher yield than chemical alone

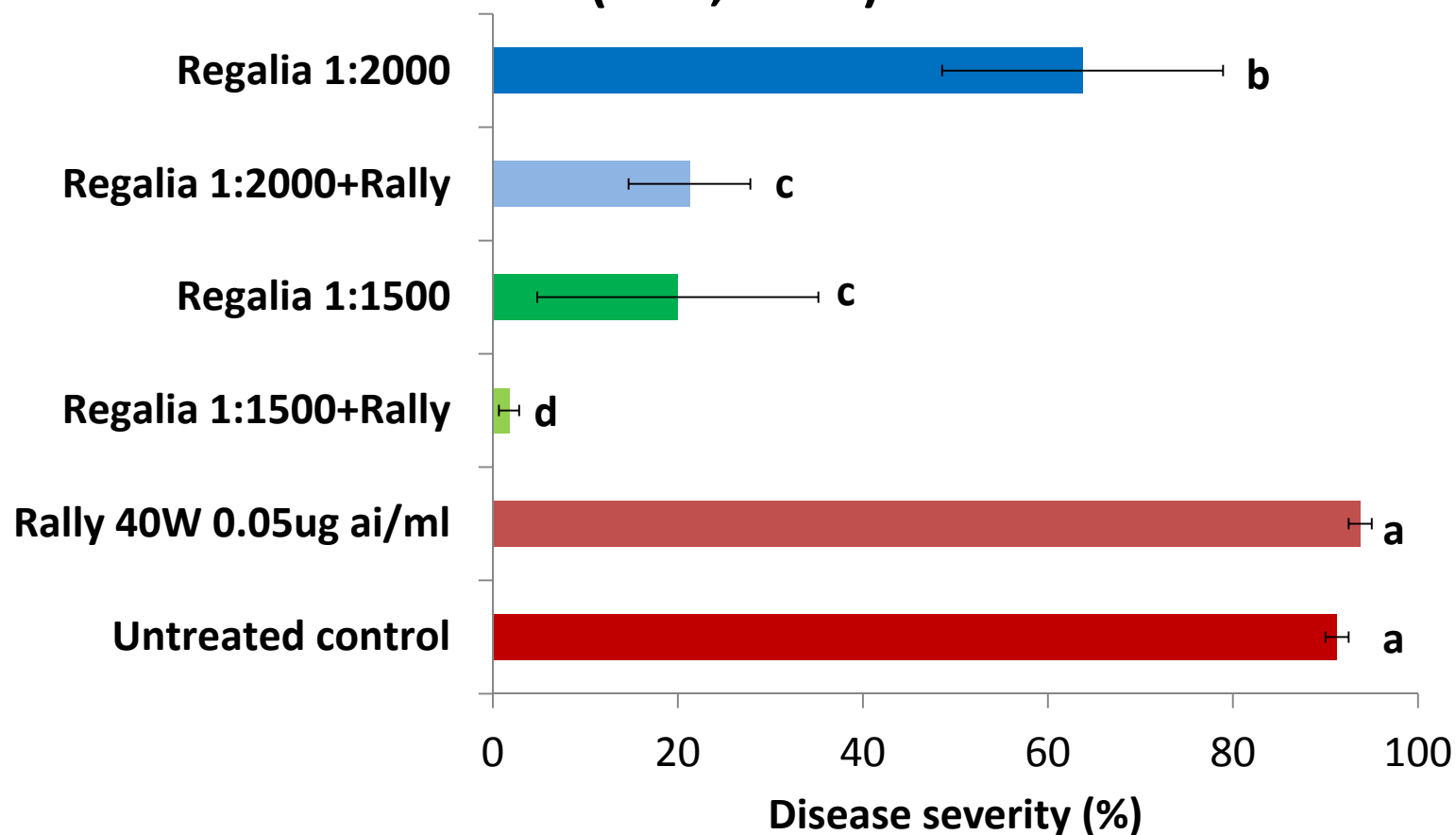
Root Health

Increased root growth & higher yields in many crops



# Example: Synergy with DMI Fungicides

## Control of cucumber powdery mildew (MBI, 2009)



Note: Data are means and standard error. Bars with the same letter are not significantly different with Fisher LSD test at P=0.05 level.



## Regalia has Proven Synergy with the Following Compounds

Active Ingredient	Diseases	FRAC
Myclobutanil	Powdery mildew	3 (DMI)
Propiconazole	Powdery mildew	3 (DMI)
Triflumizol	Powdery mildew	3 (DMI)
Mefenoxam	Downy mildew	4
Azoxystrobin	Powdery mildew	11 (Strobilurins)
Pyraclostrobin	Powdery mildew	11 (Strobilurins)
Trifloxystrobin	Powdery mildew	11 (Strobilurins)
Quinoxifen	Powdery mildew	13
Copper hydroxide	Downy mildew	M
Sulfur	Powdery mildew	M
Cuprous oxide	Downy mildew	M
Acibenzolar-S-methyl	Downy mildew	P



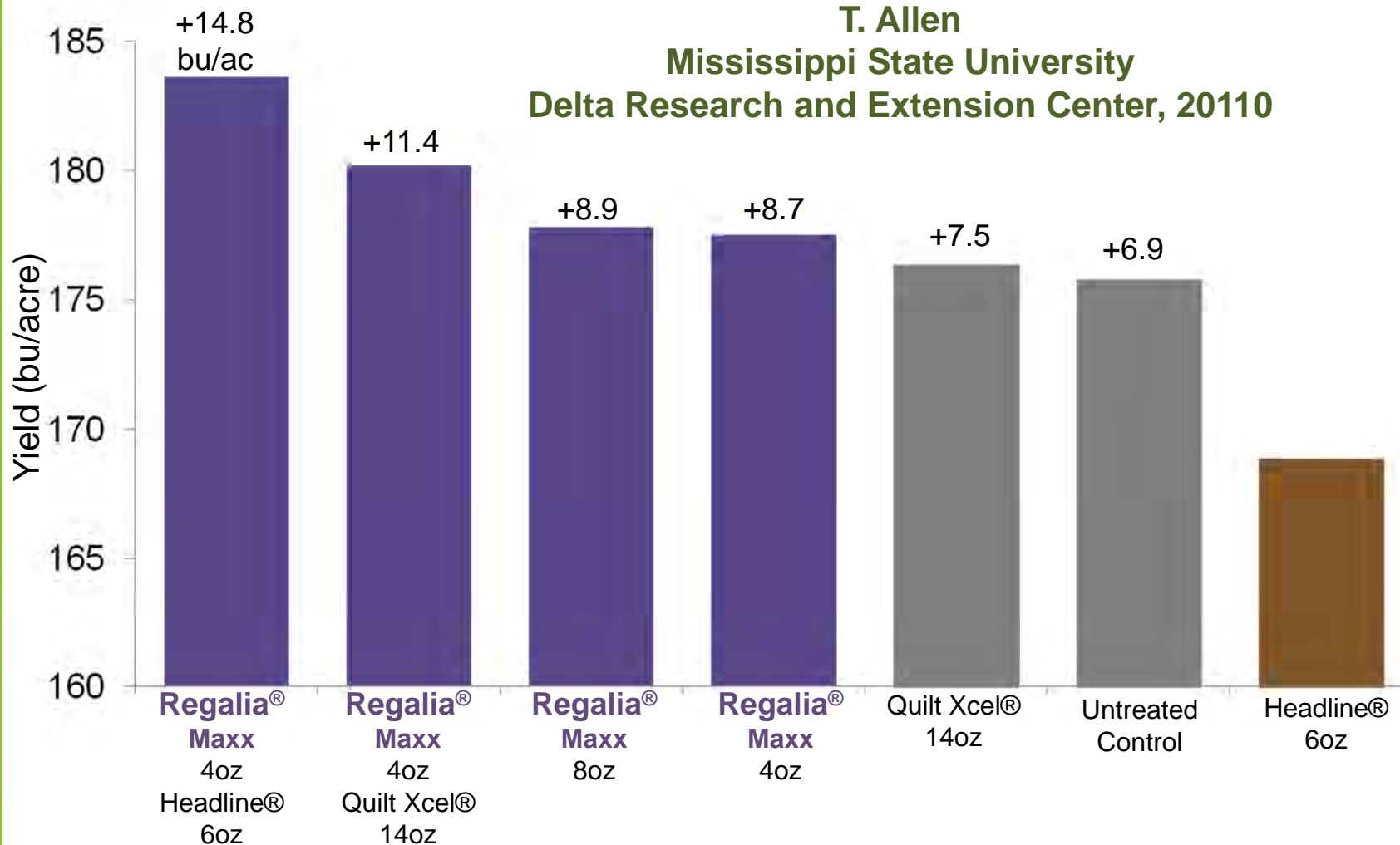
**Regalia® Maxx** plus **Headline®**  
(pyraclostrobin) improves corn yield.



## Corn Yield

T. Allen

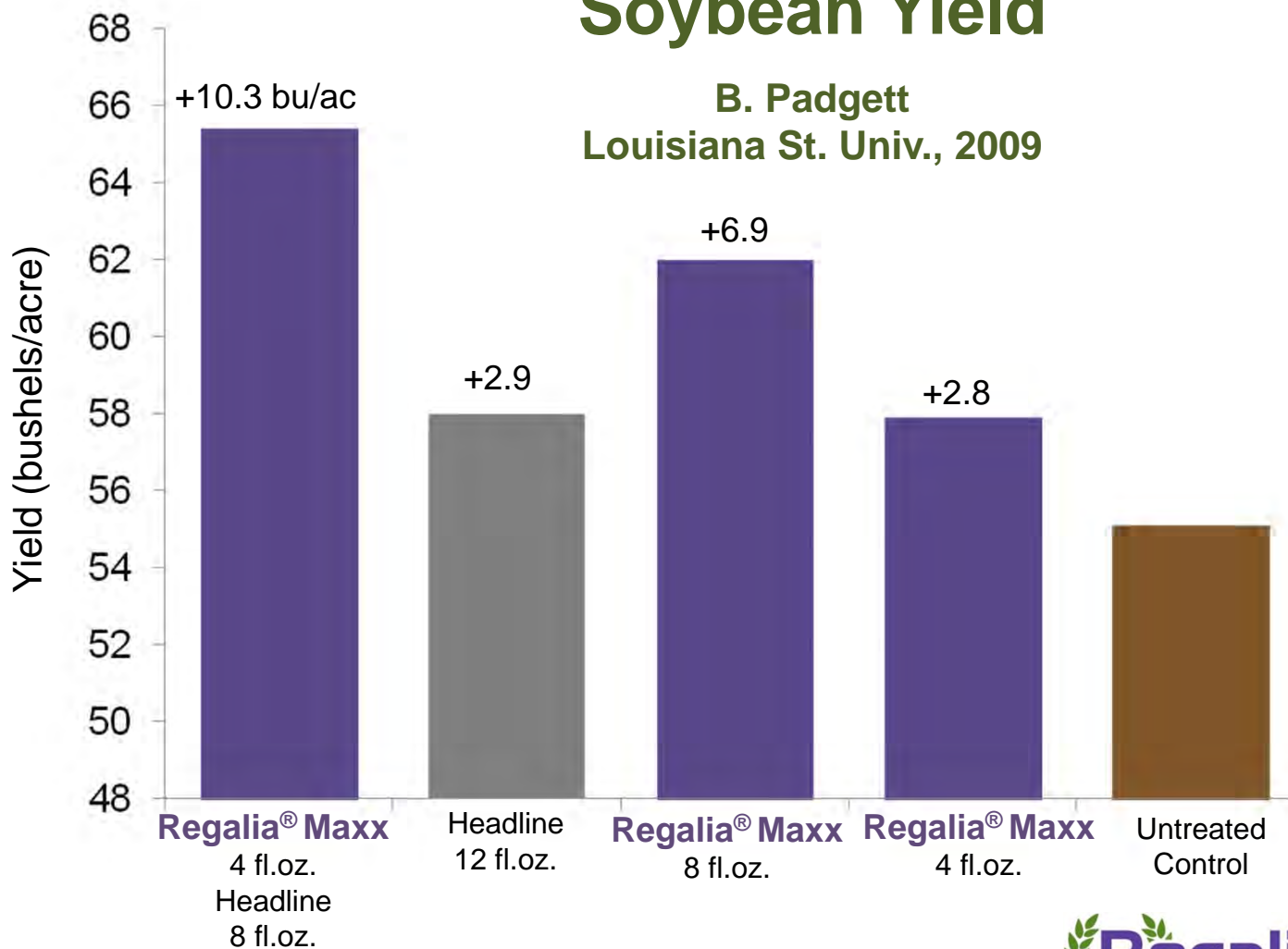
Mississippi State University  
Delta Research and Extension Center, 20110



**Regalia® Maxx** plus Headline® (pyraclostrobin) increases yield more than Headline® alone.

## Soybean Yield

B. Padgett  
Louisiana St. Univ., 2009

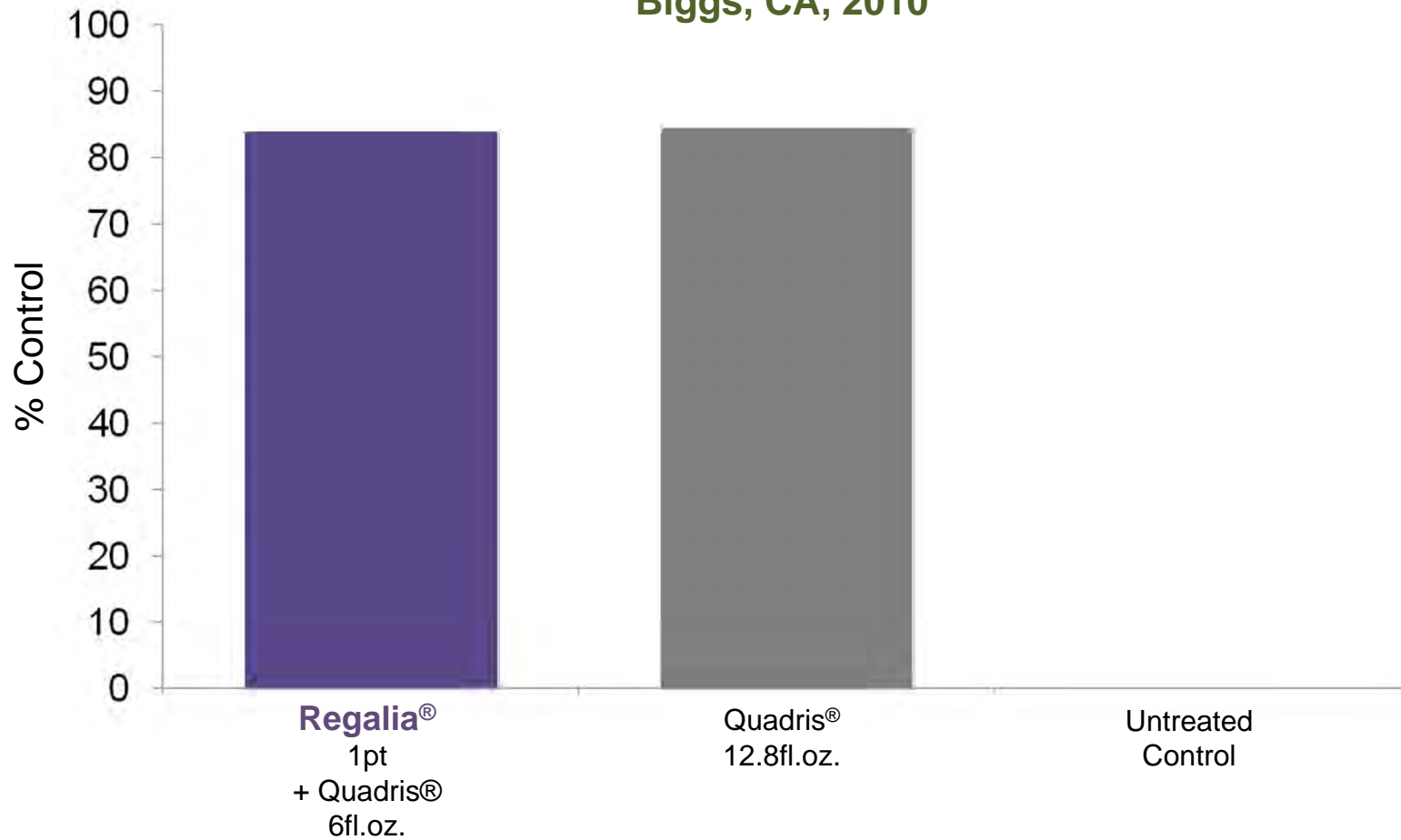




**Regalia®** plus low rates of Quadris® (Azoxystrobin) is as effective as high rates of Quadris alone on rice foliar diseases.

### Aggregate Sheath Spot on Rice

Biggs, CA, 2010



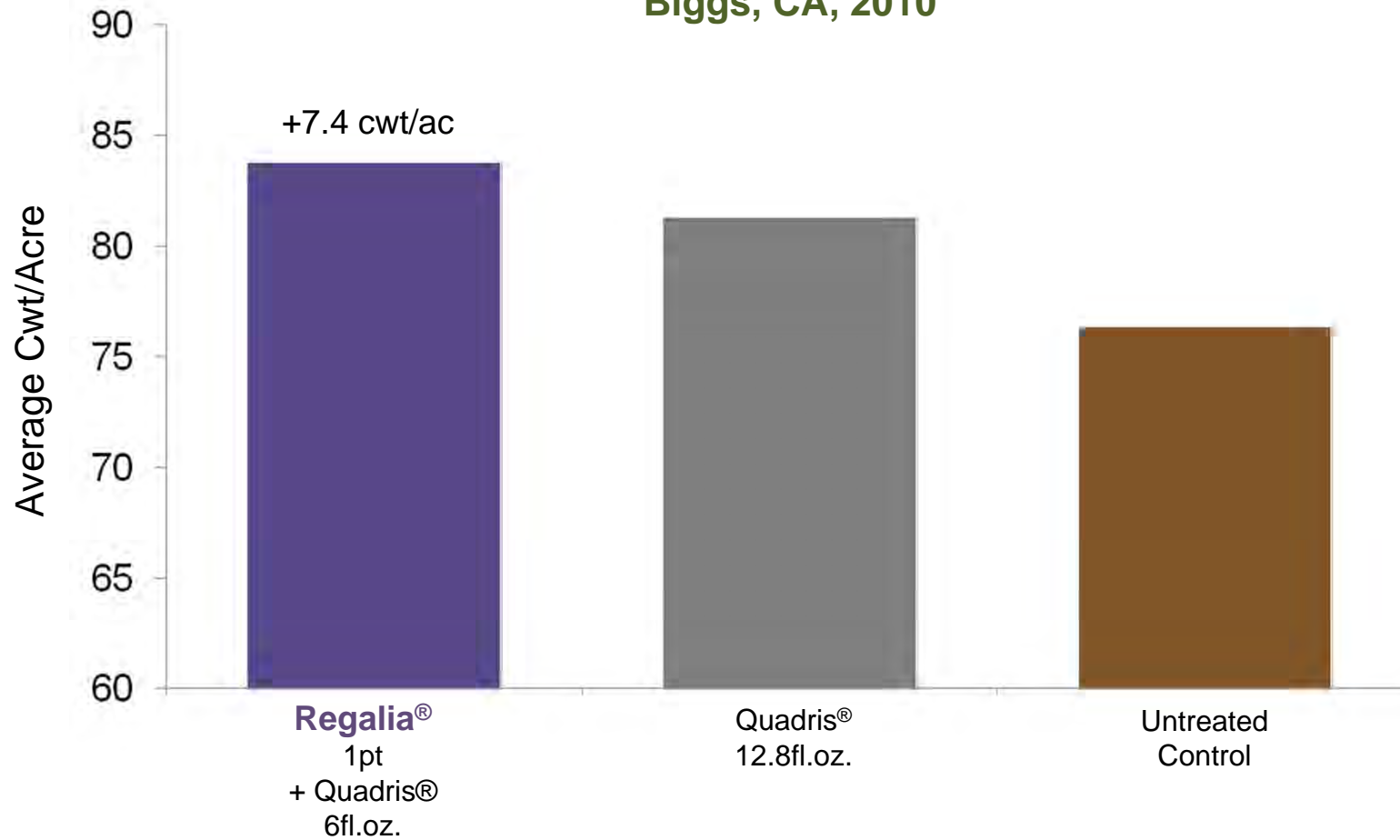
- Aggregate Sheath Spot: *Rhizoctonia oryzae*.



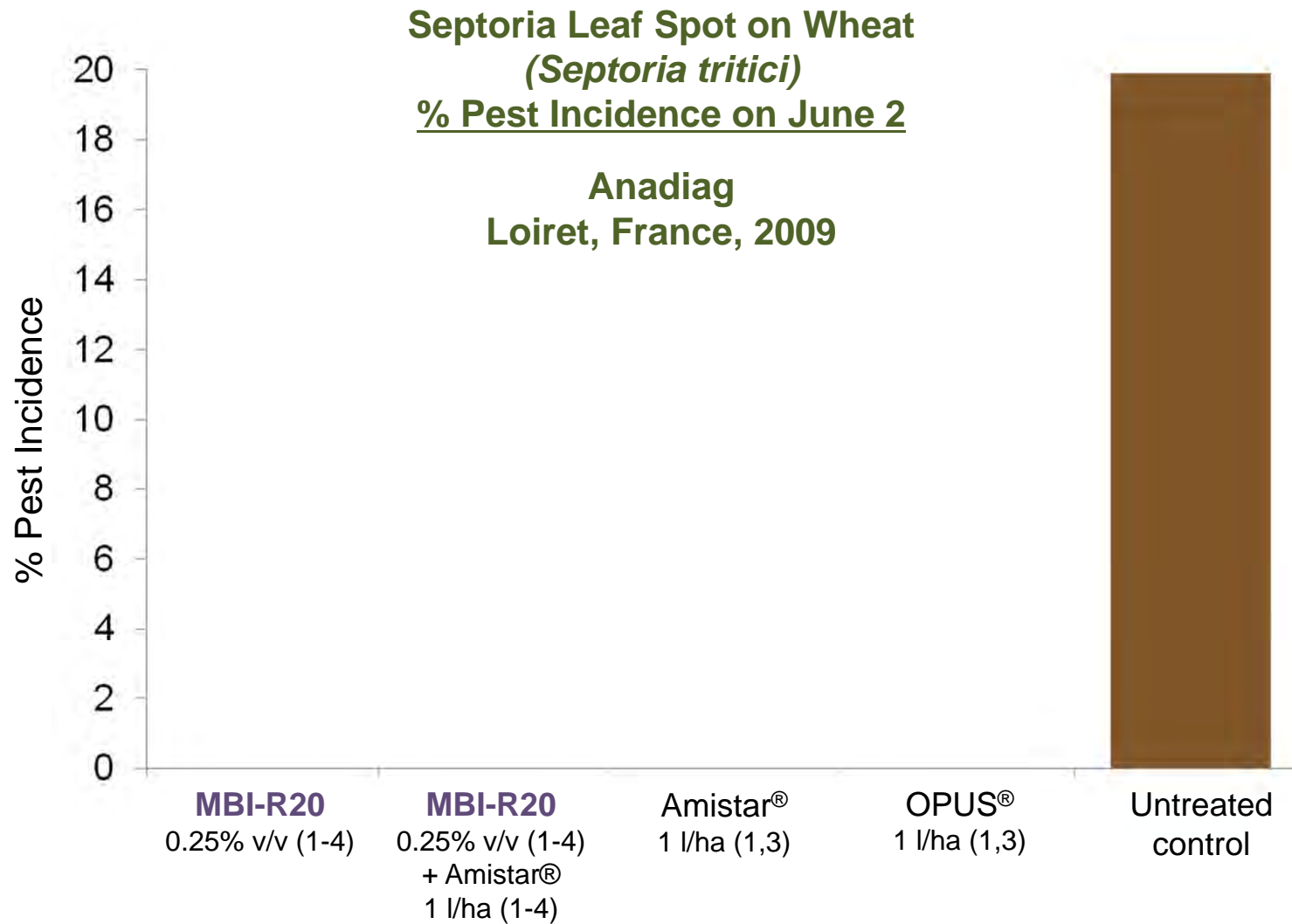
**Regalia®** and Quadris® tank mix program increases yield in rice.

## Rice Yield

Biggs, CA, 2010



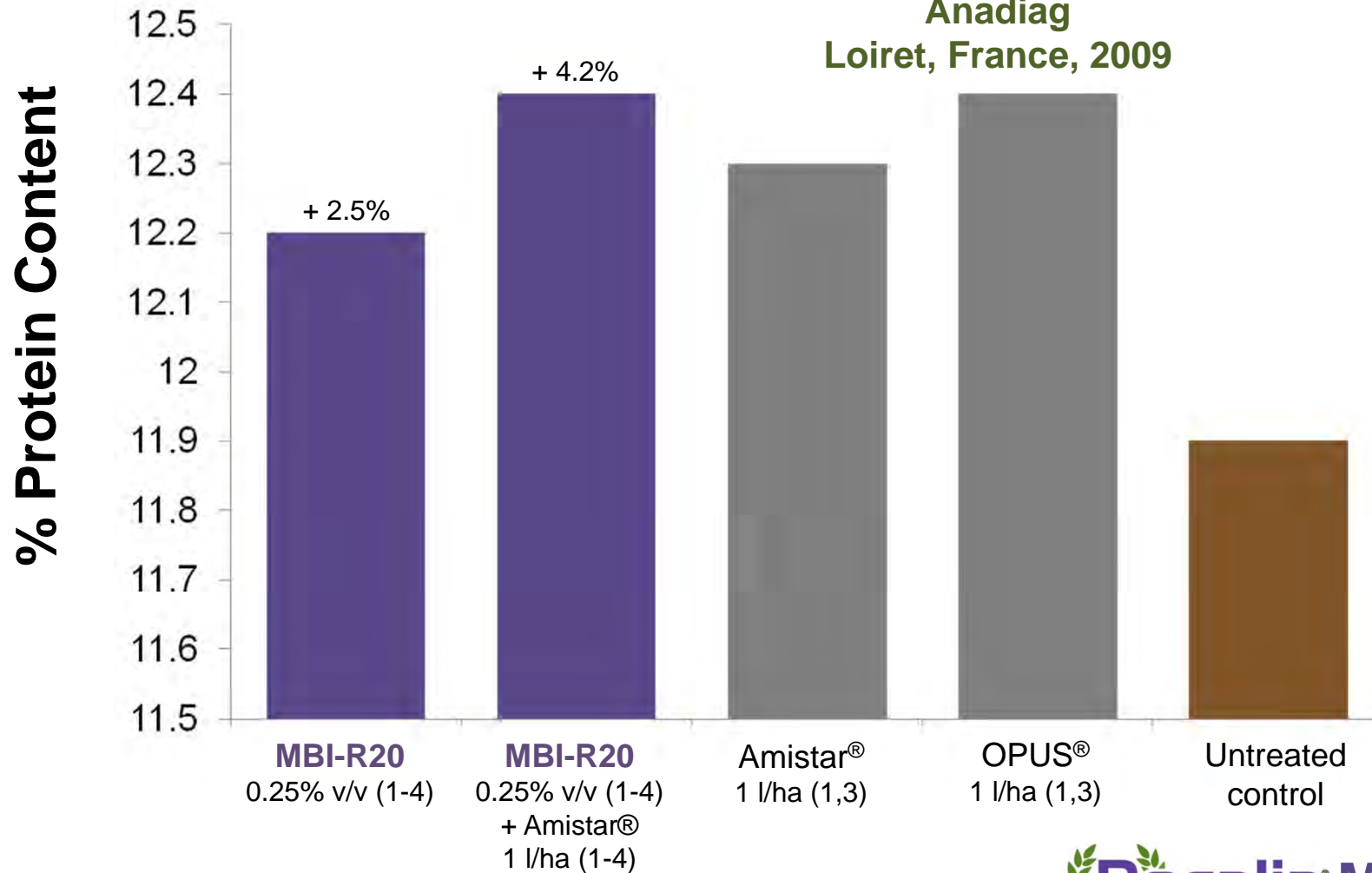
**Regalia® Maxx** controls  
Septoria Leaf Spot on Wheat.



**Regalia® Maxx** increases Protein Content in Wheat.

**Septoria Leaf Spot on Wheat  
(*Septoria tritici*)**

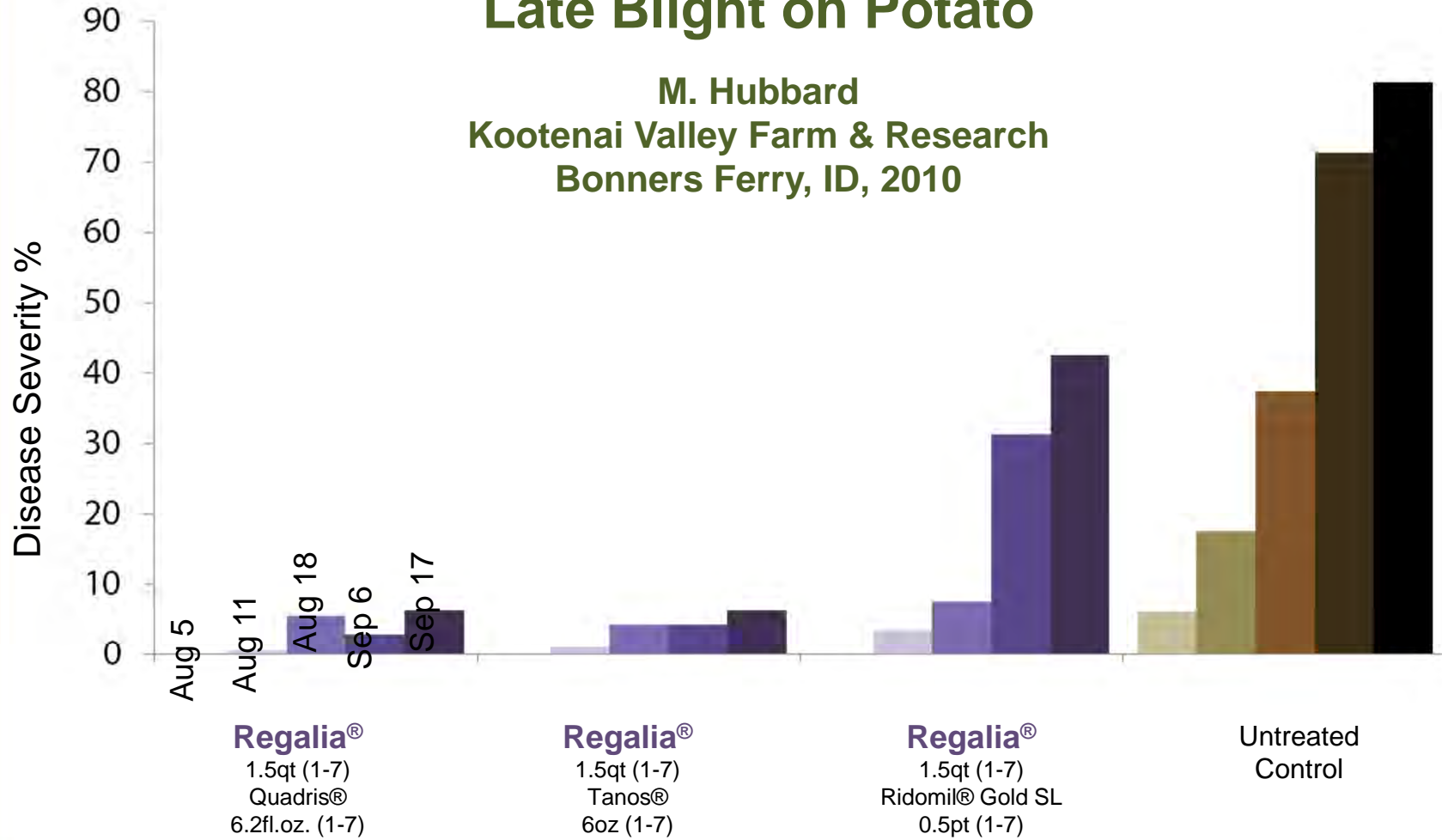
**Anadiag  
Loiret, France, 2009**



**Regalia®** programs control Late Blight and improve yield of top grade potatoes.

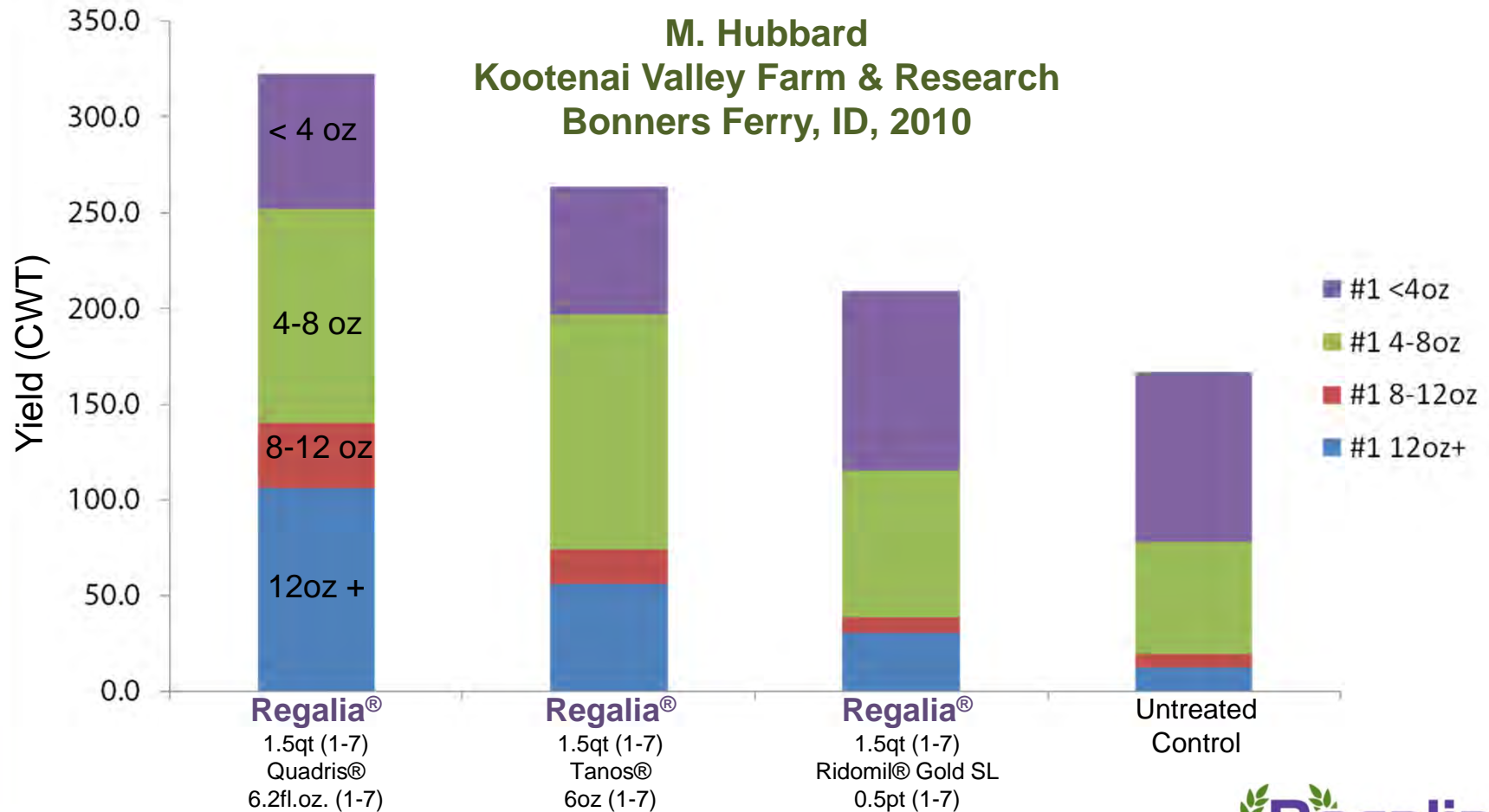
## Late Blight on Potato

M. Hubbard  
Kootenai Valley Farm & Research  
Bonners Ferry, ID, 2010



**Regalia®** programs control Late Blight and improve yield of top grade potatoes.

## Control of Late Blight on Potato Potato Yield & Grade







# **Root Health & Soil Application**

**Regalia®**, applied through drip irrigation, soil drench, in-furrow or pre-plant dip:

- increases total plant weight
- increases root weight
- increases the number of new roots
- improves root quality



# Effect of Regalia® on Strawberry Transplants

Plant City, FL, 2010



**Regalia®**

Biological product

# Effect of Regalia® on Strawberry Transplants

Plant City, FL, 2010



**Regalia®**

Biological products  
combination (2)



# Effect of Regalia<sup>®</sup> on Strawberry Transplants

Plant City, FL, 2010



**Regalia<sup>®</sup>**

Conventional  
products combo

**Regalia®** increases root mass when applied as a pre-plant dip to tomato transplants.



UTC

14 DAT (pre-plant dip)





**Pam Marrone, Founder/CEO**

[pmarrone@marronebio.com](mailto:pmarrone@marronebio.com)

**Chris Hildreth, Sr. VP Commercial Operations**

[childreth@marronebio.com](mailto:childreth@marronebio.com)

**Julie Versman, VP Marketing**

[jversman@marronebio.com](mailto:jversman@marronebio.com)

**www.MarroneBio.com**

**Phone: +1-530-750-2800**