Optimizing Insect Control Technology for 2010

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INTRODUCTION

- Wireworms, springtails, and root maggots are annual threats to sugarbeet in the Red River Valley
- Current granular insecticides have provided good control for 30+ years
- High use of Poncho Beta in 2009
- 2 new seed treatments are registered for 2010:
  - Cruiser 5FS
  - NipsIt Inside (for non-GMO SB ‘til 2011)
- What role can seed trts play in SB insect control?

MULTI-YEAR PERFORMANCE TRIALS:

1. **Root Maggot**
    a. Seed treatments vs. Counter
    b. Dual-insecticide programs:
        – Poncho Beta or Counter + post sprays
        – Poncho Beta + *aggressive* post control
    c. Postemerge granules/liquids

2. **Springtail & Wireworm**

    Seed trts. vs. Counter

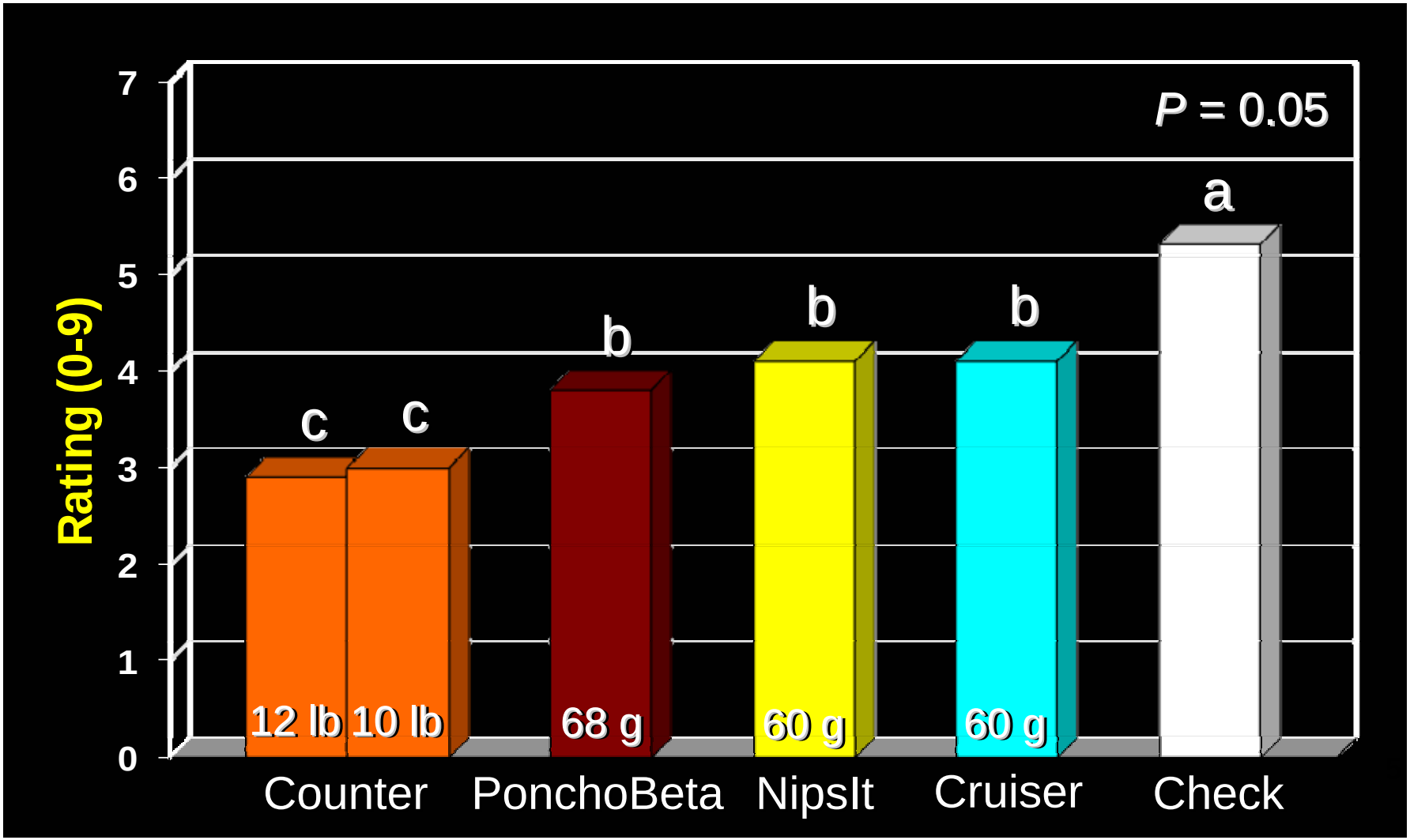
DATA COLLECTION & ANALYSIS

- **Root maggot trials:**
  - **feeding injury (0-9 scale)**
- **Wireworm & springtail trials:**
  - **stand counts**
- **All trials:**
  - **recoverable sucrose yield**
  - **revenue estimates**
  - **combined analysis (2-5 yrs) of all data**

Study 1

SEED TREATMENTS VS. COUNTER

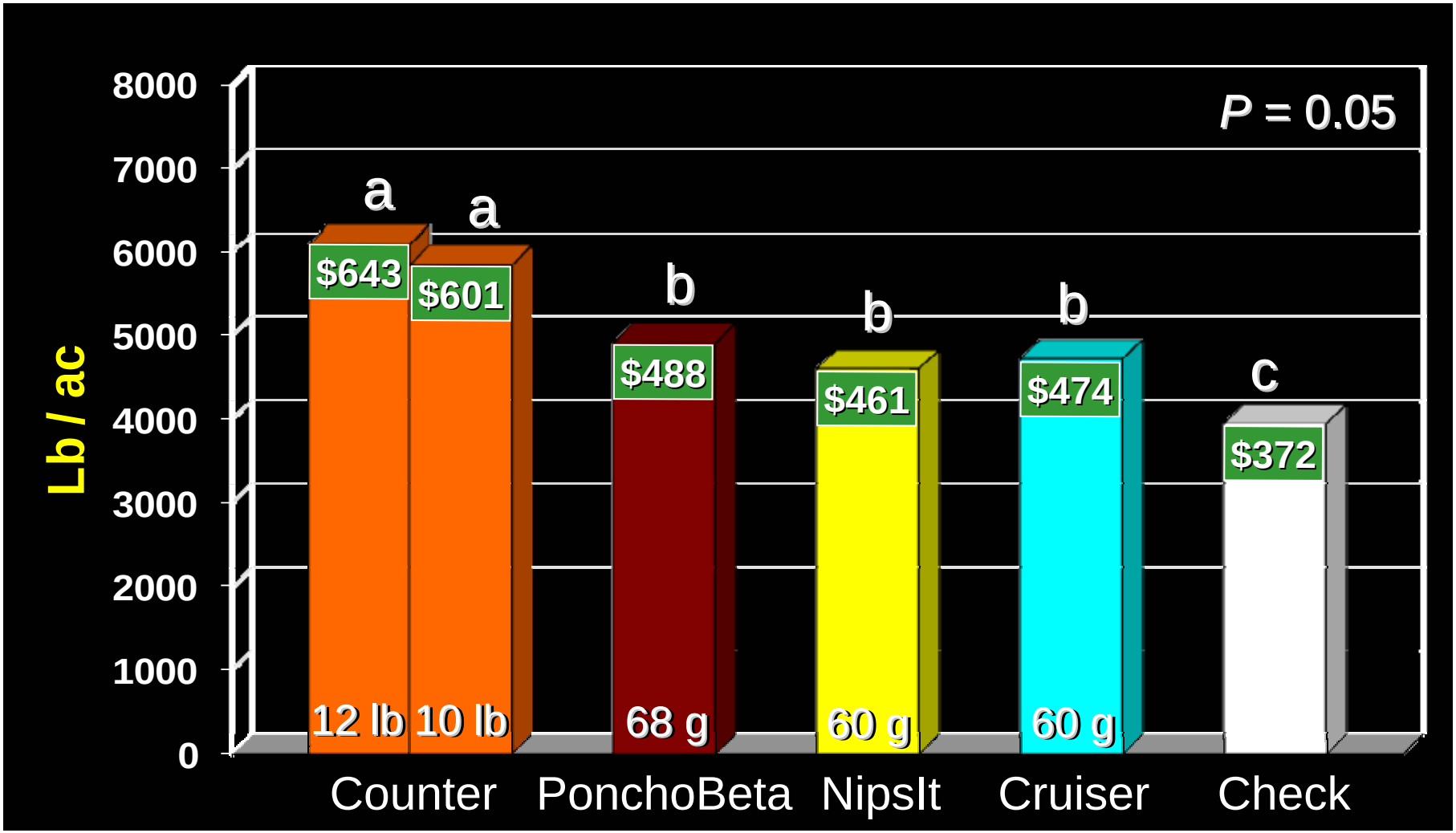
Root Maggot Feeding Injury (2007-2009)



Study 1

SEED TREATMENTS VS. COUNTER

Recoverable Sucrose Yield (2007-2009)



Seed Treatments vs. Counter

Maggot Control - St. Thomas, ND 2007

Cruiser

NipsIt

Poncho Beta

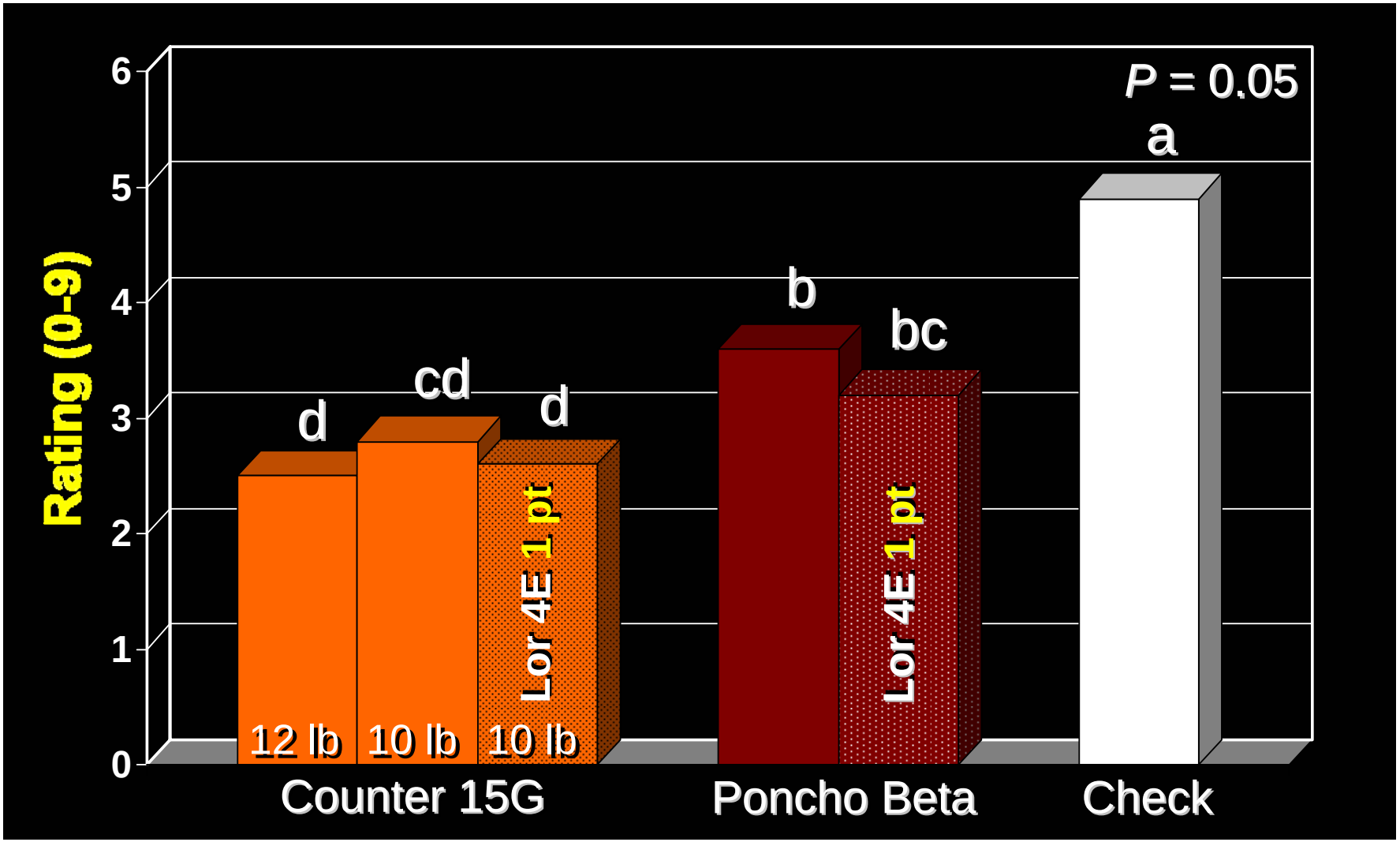
Counter 10 lb

CHECK

Study 2

Counter or Poncho Beta + Post Spray

Root Maggot Feeding Injury (2007-2009)



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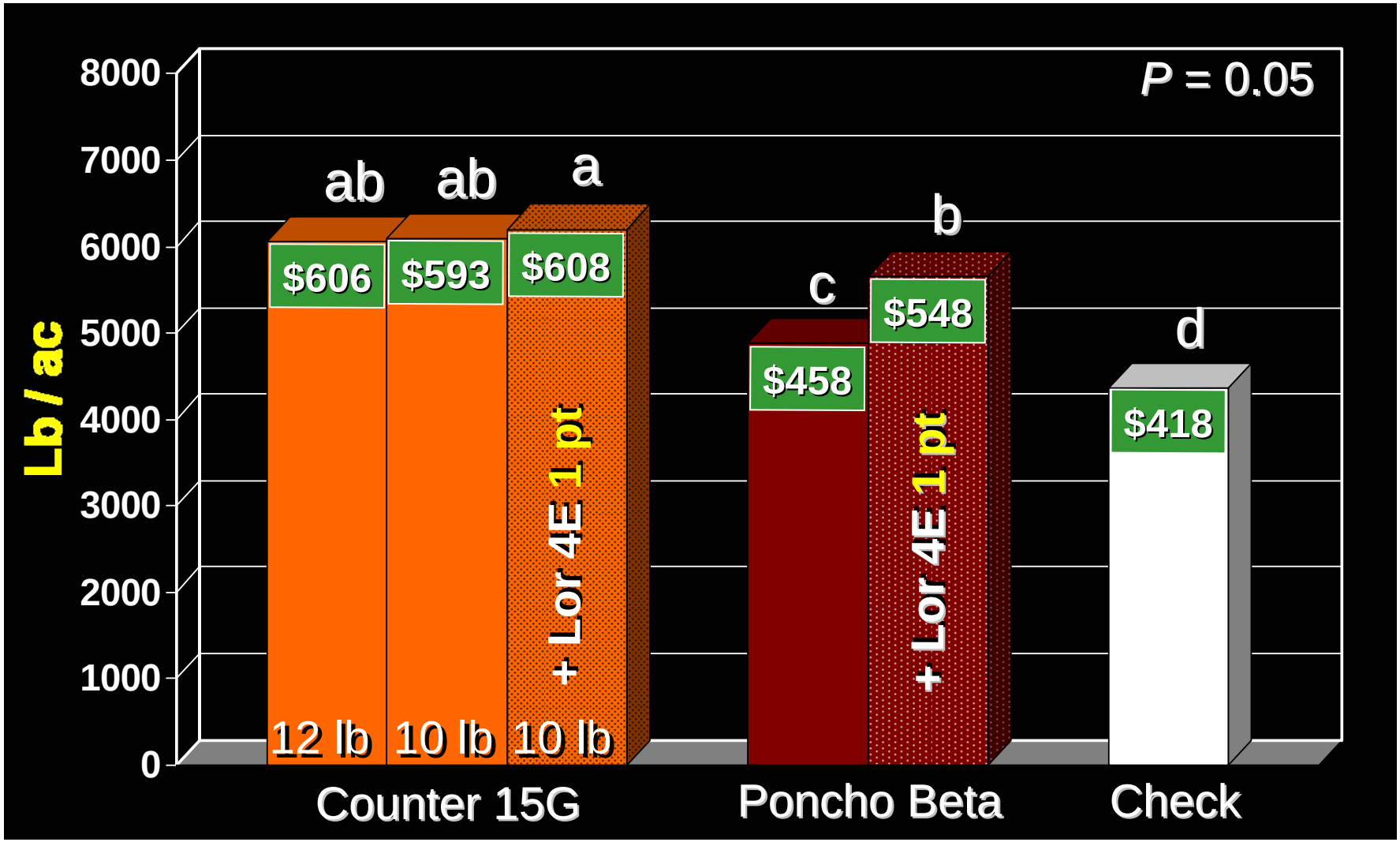


Postemergence Maggot Control
Auburn, ND 2009

Check

Counter 10 lb

Poncho Beta

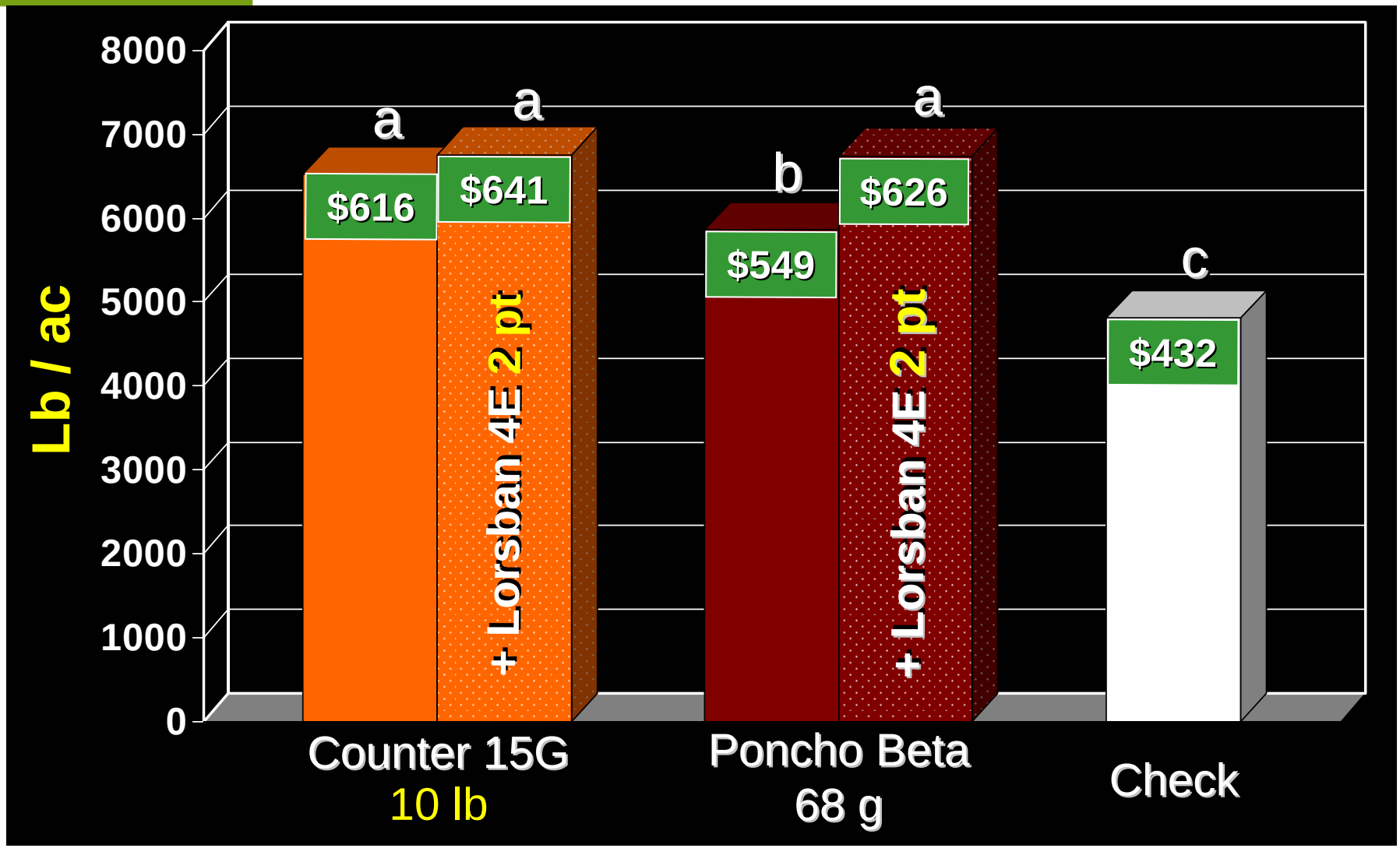
Counter 10 lb +
Lorsban 4E 1 pt/ac

Poncho Beta +
Lorsban 4E 1 pt/ac

Study 3

Benefits of *Aggressive* Postemergence Root Maggot Control (2004-2007)

Sucrose Yield



Postemergence Thimet for Root Maggot Control
5-yr Summary: 2004-2008

Treatment	Product per ac	Placement / timing	Rec. Sucrose (lb/ac)	Revenue /ac
Counter 15G + Thimet 20G	10 lb 7 lb	B 10 d pre-peak B	6915 a	$656
Counter 15G + Thimet 20G	”	B 6 d pre-peak B	6535 a	$619
Counter 15G + Thimet 20G	10 lb 4.9 lb	B 10 d pre-peak B	6930 a	$658
Counter 15G + Thimet 20G	”	B 6 d pre-peak B	6375 ab	$608
Counter 15G	12 lb	B	5912 b	$558
Check	----	-----	4505 c	$409

Lorsban 4E: Single vs. Split Trts. – 5 yrs

Root Maggot Trials, St. Thomas, ND, 2004-2008

Treatment	Product per ac	Placement / timing	Rec. Sucrose (lb/ac)	Rev. /ac
Counter 15G Lorsban 4E + Lorsban 4E	10 lb 0.5 pt 0.5 pt	B 2-4 d pre-peak 7” Post B 2-3 d post-peak 7” Post B	7056 a	$669
Counter 15G Lorsban 4E	10 lb 1 pt	B 2-4 d pre-peak 7” Post B	6517 a	$603
Counter 15G Lorsban 4E + Lorsban 4E	10 lb 1.0 pt 1.0 pt	B 2-4 d pre-peak 7” Post B 2-3 d post-peak 7” Post B	6679 a	$625
Counter 15G + Lorsban 4E	10 lb 2 pt	B 2-4 d pre-peak 7” Post B	6785 a	$636
Check	----	-----	4100 b	$366

SUMMARY – ROOT MAGGOT CONTROL

- All 3 seed treatment insecticides produced large yield increases (compared to check plots)
- Counter: better root protection & yield than any seed treatment (moderate / high maggot pressure)
- Aggressive use of postemergence control tools with seed treatments can result in good maggot control and yield/revenue

Summary – Root Maggot

- **Earlier post Thimet (10 vs. 6 d before peak fly):**
  - **– earlier appl. = higher yield (esp. with 4.9-lb rate)**
  - **– over $37-50 more revenue /ac**
  - **– Key: early is best, BUT timing is flexible**

- **Splitting Lorsban 4E into two sprays: No Signif. Diffs.**
  - **– Two 1/2-pt sprays (numerical increase):**

    539 lb more sucrose & $66/ac more than single 1-pt

- **Tank mixing Lorsban 4E w/ Roundup (data not shown):**
  - **– No crop injury. No less control (not warranted on label!)**

CONCLUSIONS ON SEED TREATMENTS FOR ROOT MAGGOT CONTROL

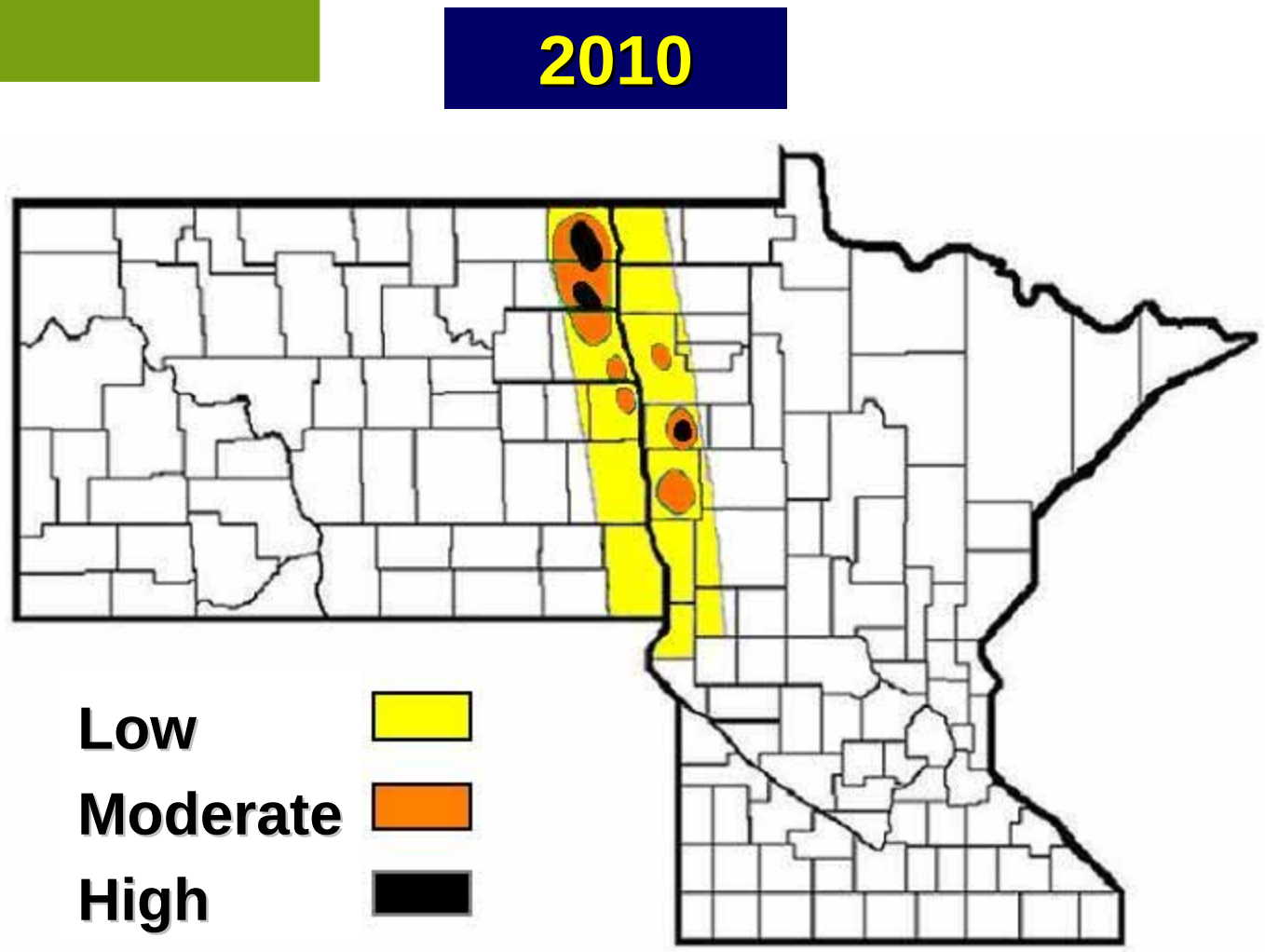
- **Keys to Success:**

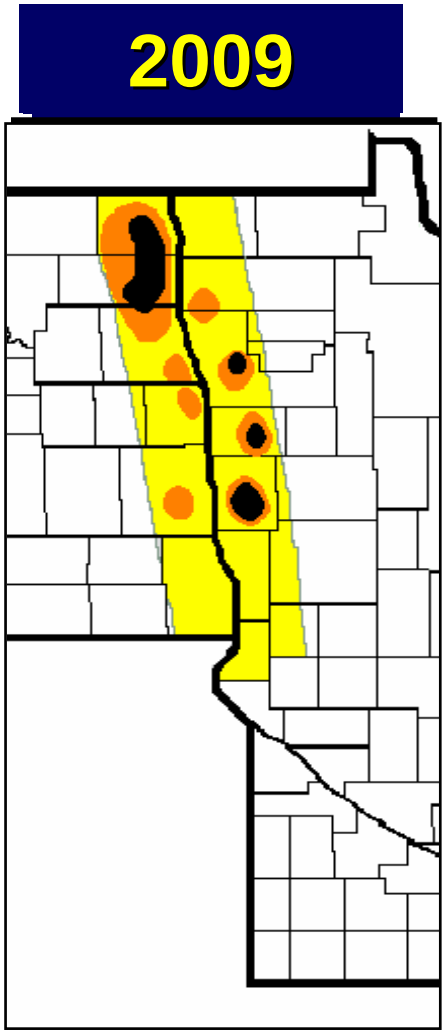
  - vigilance in fly monitoring

  - using postemergence control tools (when needed)

- **Seed treatments should not be used as stand-alone tools for moderate to high SBRM infestations**

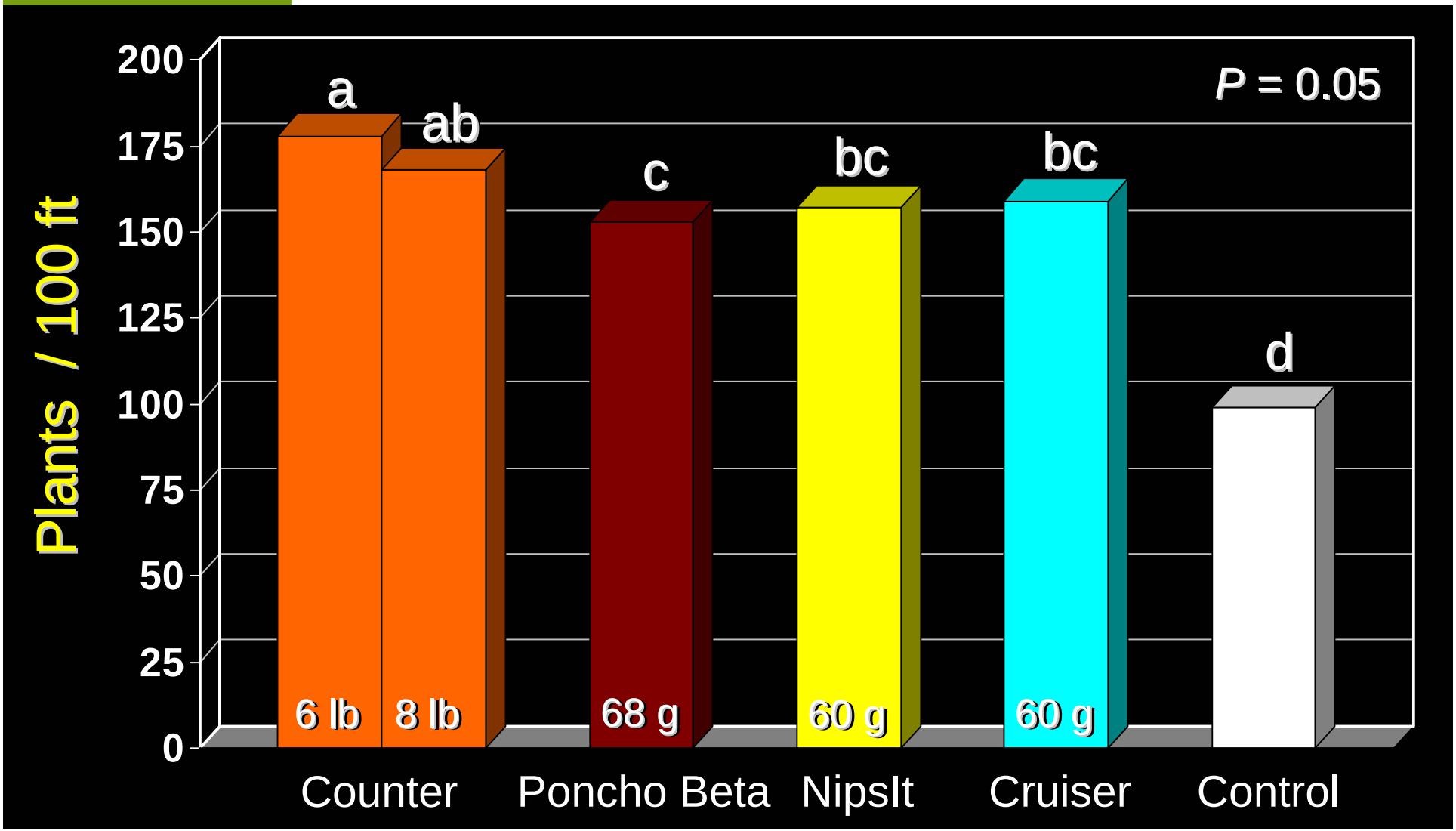
ROOT MAGGOT RISK* FOR 2010



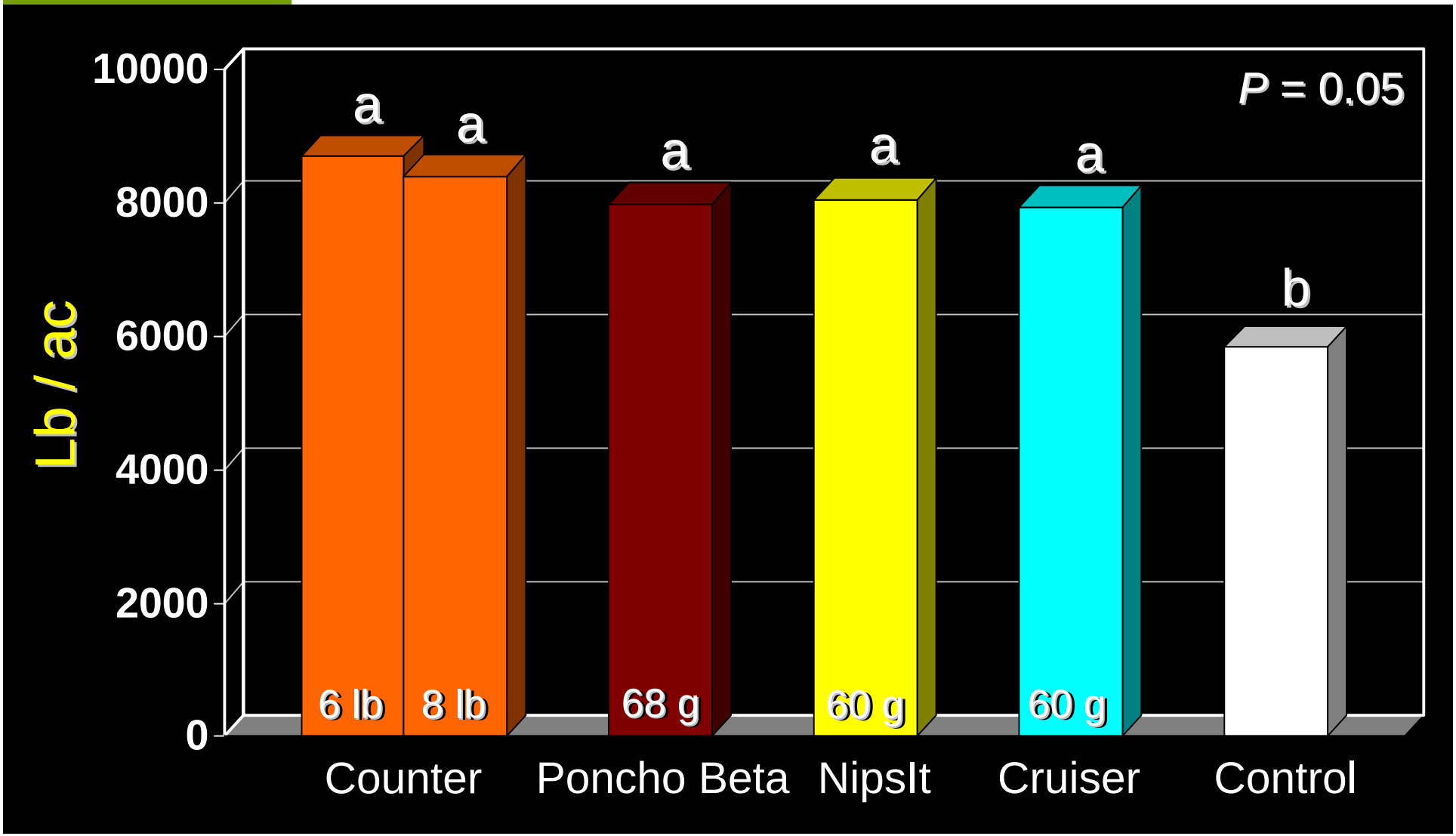


*Based on fly counts & root damage ratings

Springtail Control
Surviving Plants (2006-2008)



Springtail Control
Sucrose Yield (2006-2008)



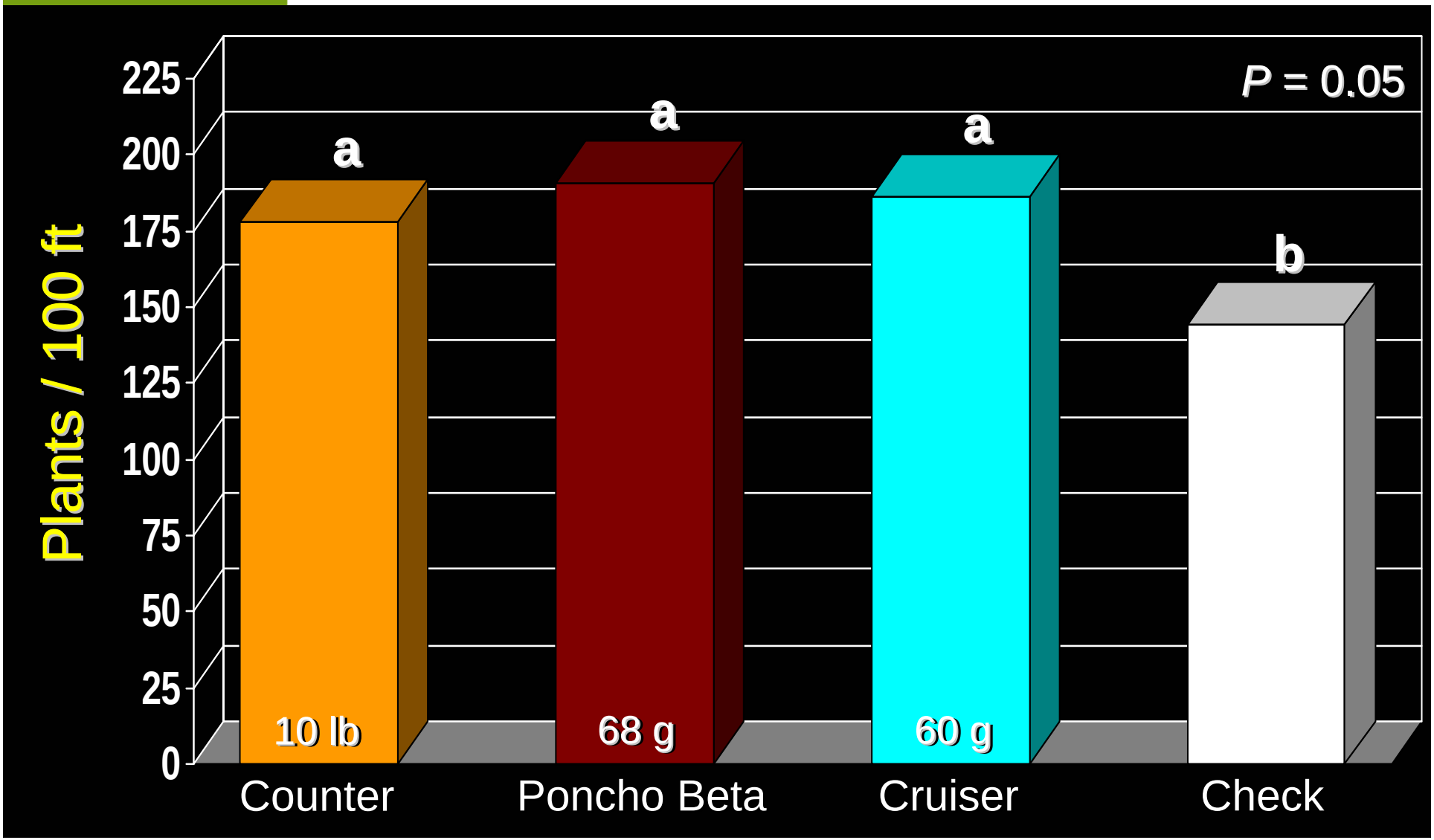
Springtail Plots – Prosper, ND, 2006

CHECK

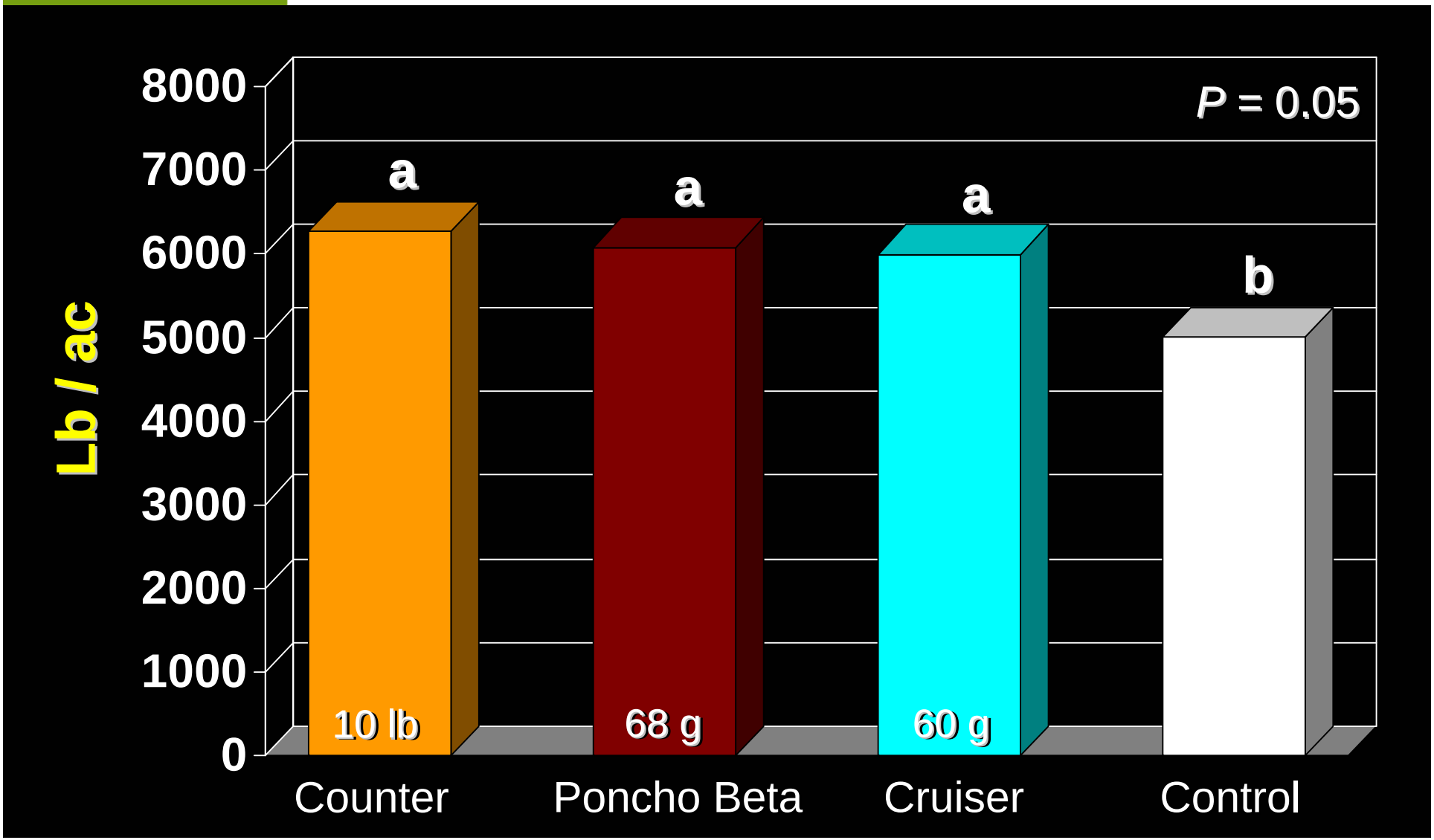
Counter
8 lb BAND

Poncho Beta
68 g

Wireworm Control
Surviving Plants (2004, 2006)



Wireworm Control
Sucrose Yield (2004, 2006)



SUMMARY – SPRINGTAIL/WIREWORM

- All seed treatments provided similar wireworm & springtail control (& yield) to that of Counter 15G
- Seed treatment insecticides appear to be effective at managing these important sugarbeet pests
- Further testing needed on wireworms
  (only 2 yrs of data – help us find more study sites)

Recommendations

- **Counter**

  - Good control of maggot, springtails & wireworms

  - Banding: safer on plants & still controls springtail (wireworm control not as good – use 8 lb or more)

  - Spoon: safest effective placement for wireworm

  - Springtail: 6-8 lb works well (calibration must be precise for rates lower than 8 lb)

Recommendations

- **Lorsban 15G**
  - Excellent on maggot
  - Not good on wireworms or springtails
  - Don't apply Modified In-Furrow (phytotoxic)
- **MustangMAX**
  - good wireworm control (data not shown)
  - springtail control not consistent
  - only "suppression" of root maggot

Seed Treatment Recommendations

- **Moderate to good insect control**
  - **Moderate root maggot control**
  - **Moderate to good wireworm control**
  - **Good springtail control**

Acknowledgments

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Questions?
Photo: J. Boetel