

Bio-Stimulants In Dry Beans

Jemmett Consulting and Research Farm LLC.

Purpose

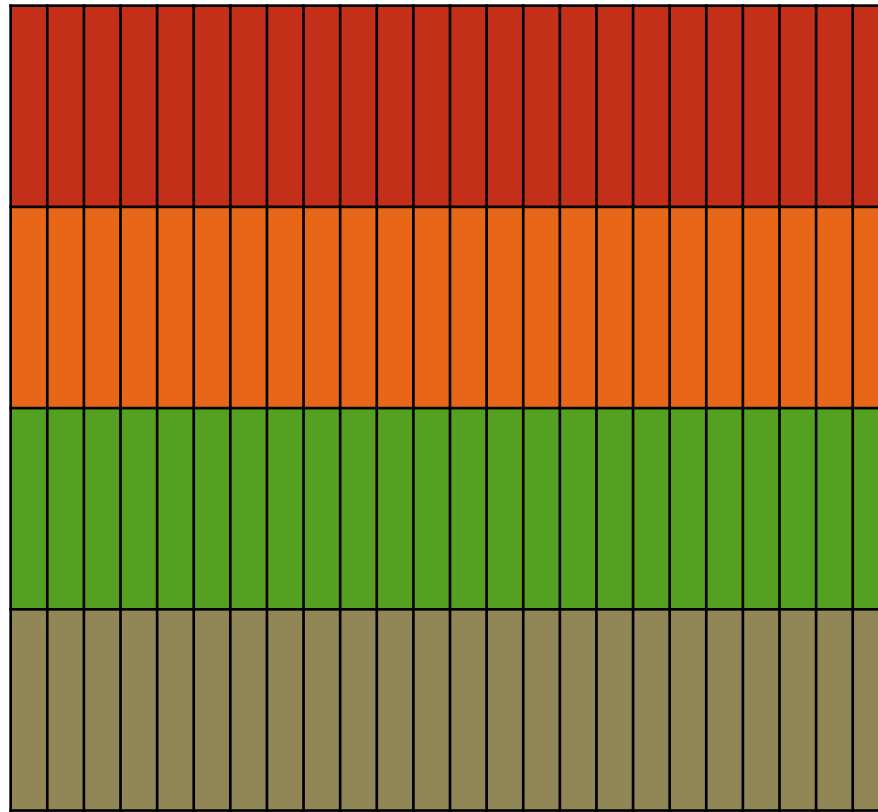
- ▶ Answering grower questions
 - ▶ What are Bio-Stimulants?
 - ▶ Why are Bio-Stimulants needed?
 - ▶ What is the difference between all the products?
 - ▶ Do Bio-Stimulants increase yield, quality, etc.?
 - ▶ So many to choose from, how do I know what is right for my operation?

Introduction

- ▶ Bio-Stimulant types
 - ▶ Plant Food (other than synthetic fertilizers)
 - ▶ Live soil organism addition
 - ▶ Break down nutrients for uptake by the plant
 - ▶ Mycorrhizal root colonization
 - ▶ Soil organism stimulant or food
 - ▶ Promotes natural populations

Trial Design

- ▶ Randomized Complete Block Design (RCBD)
- ▶ 7.33ft (88 inches) x 35ft plot area
- ▶ 4 Replications
- ▶ Trial to be conducted for 3 years



Application Timings

- ▶ (A) Pre plant
- ▶ (B) 100% emergence
- ▶ (C) 30 DAE
- ▶ (D) Pre bloom
- ▶ (E) 100% bloom

Data Collection

% Injury

Stand Counts

Root Lengths

% Nodulation

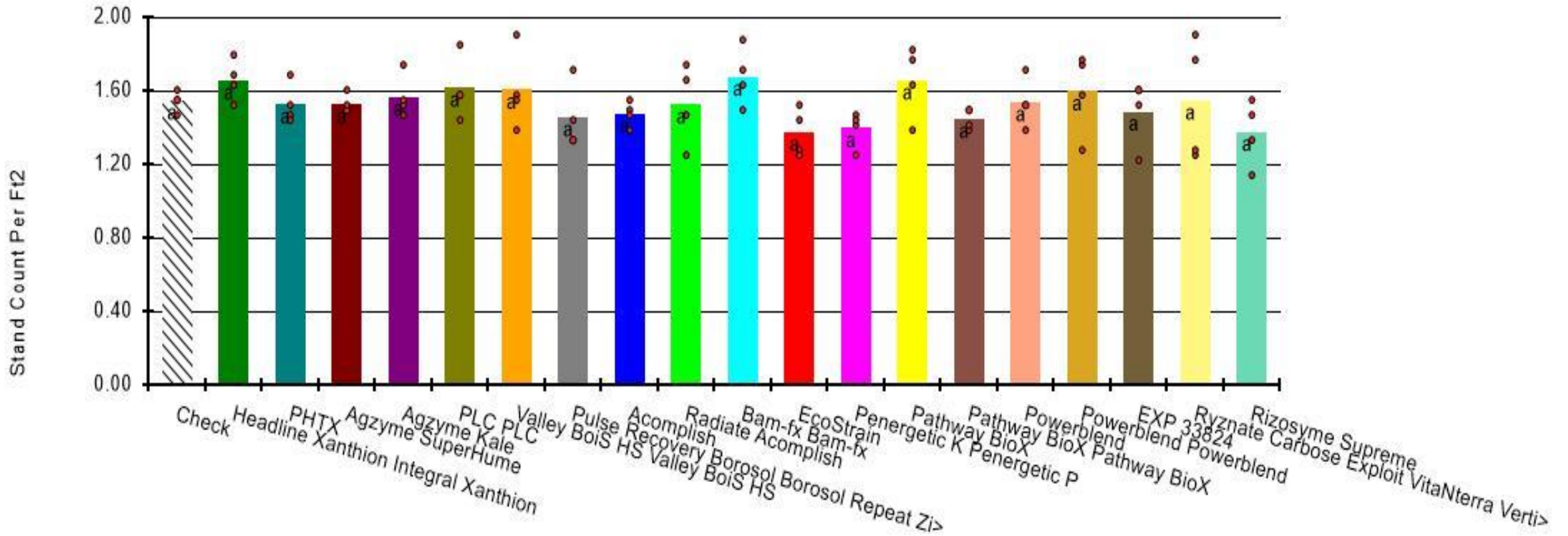
Plant Health

Whole Plant Biomass

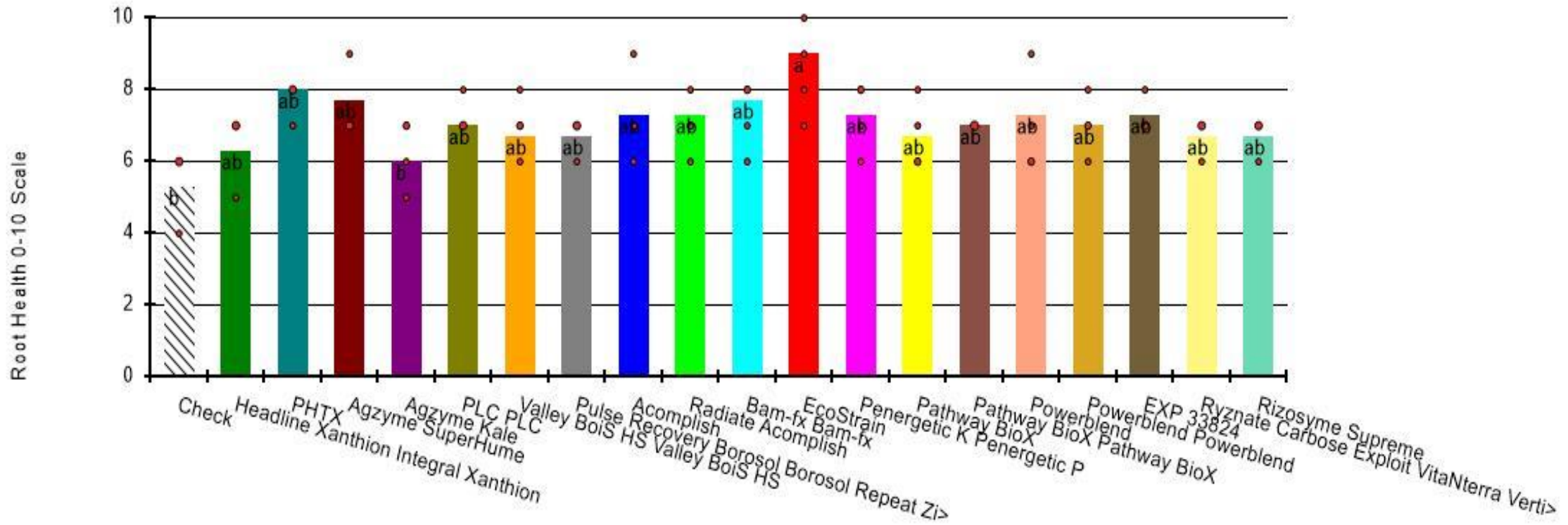
Yield



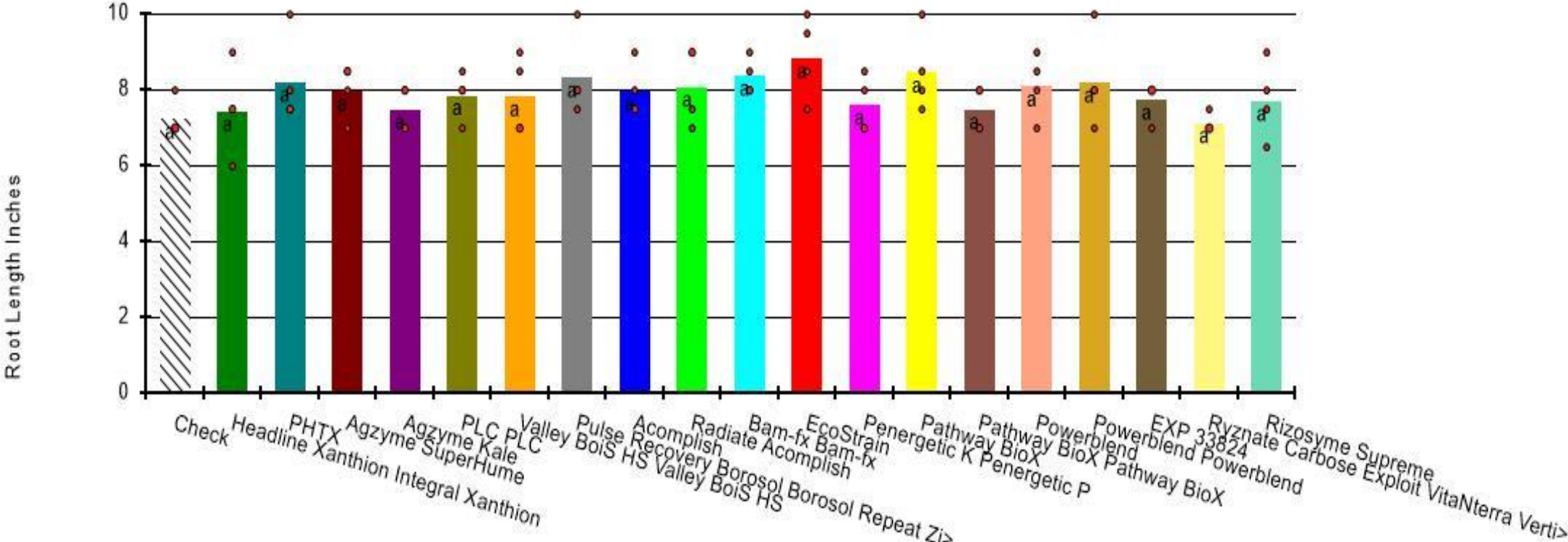
Stand Count



Root Health



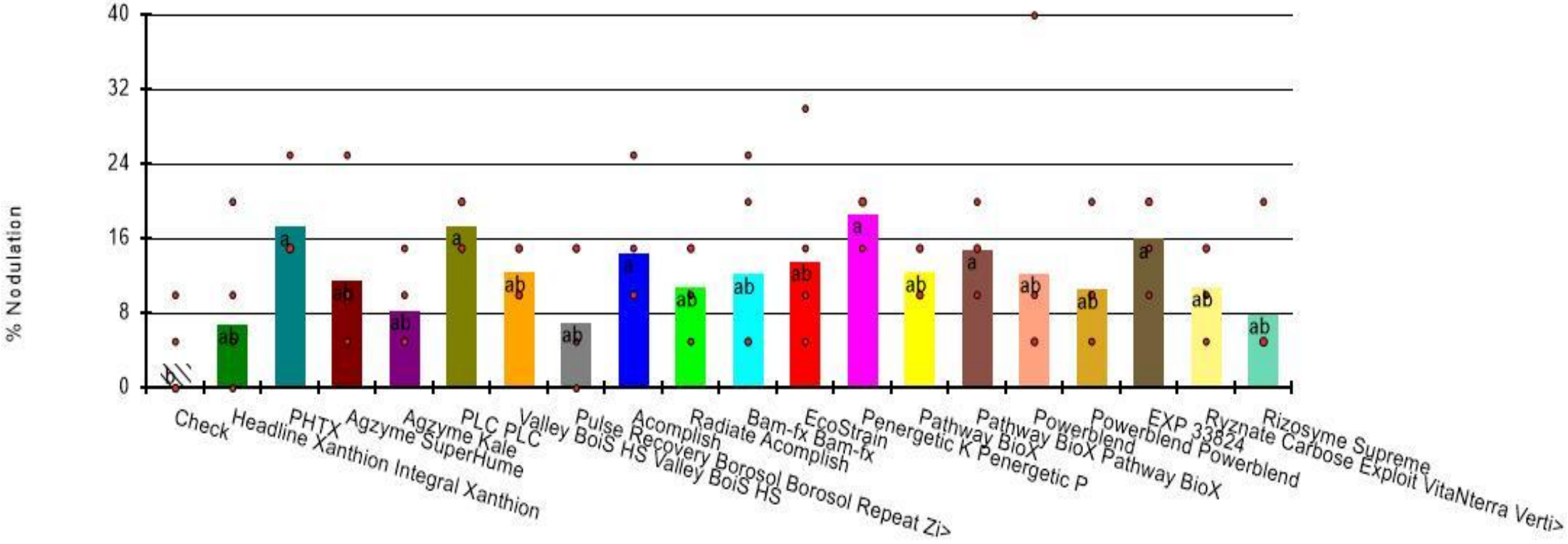
Root Length



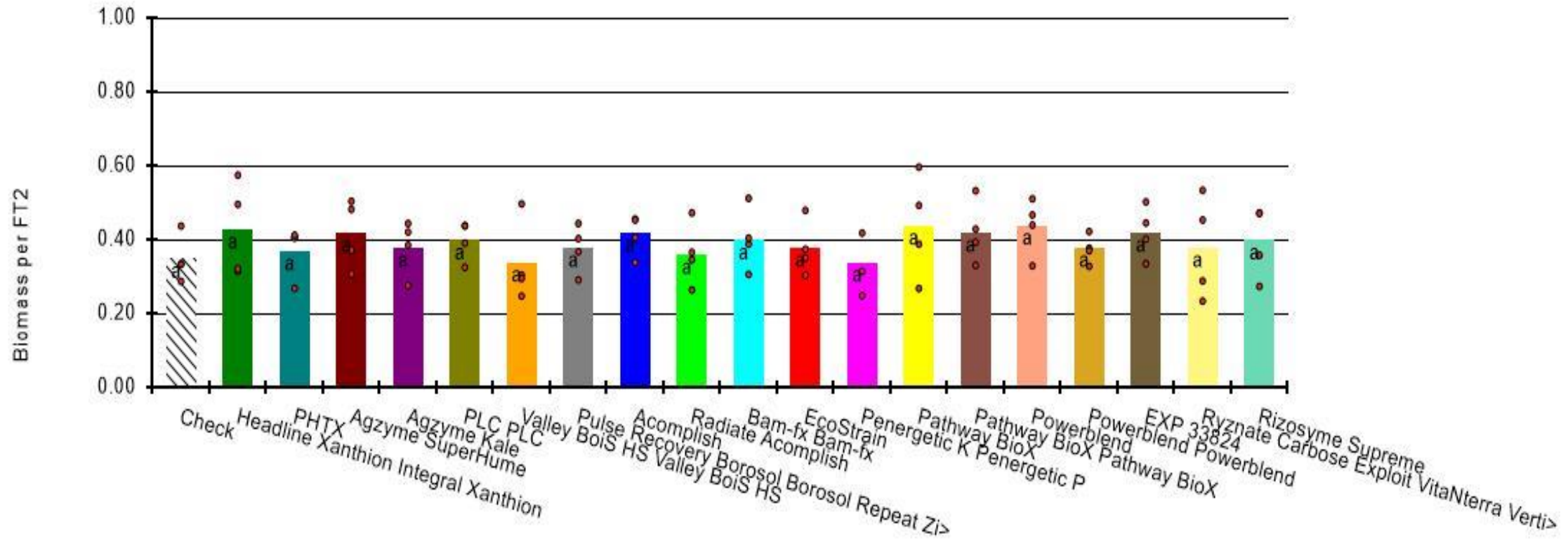
Root Differences



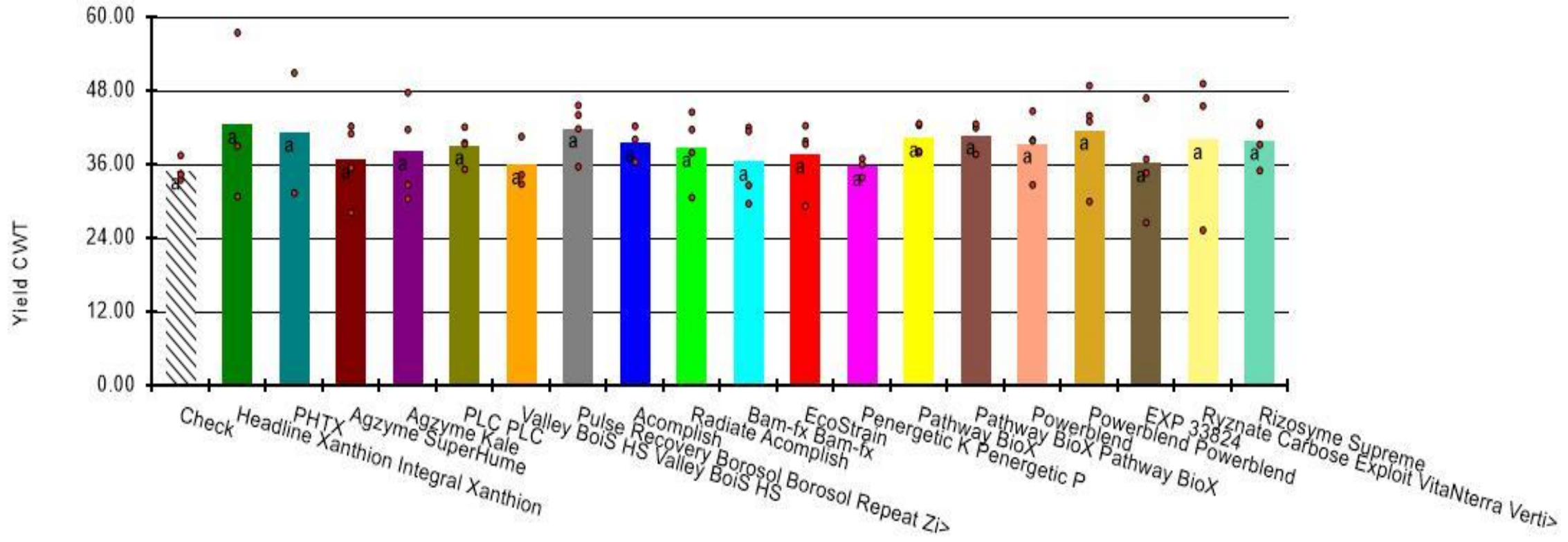
% Nodulation



Biomass



Yield



Conclusion

- ▶ No difference in Stand
- ▶ No injury from chemical applications
- ▶ No visible plant health differences
- ▶ Increase in Root health
- ▶ No difference in Root Length
- ▶ Increase in Percent Nodulation
- ▶ No difference in biomass
- ▶ Can increase yield
 - ▶ Lowest average check
- ▶ Questions?
 - ▶ At what point does it make sense to add a biologic product to your field?
 - ▶ Can I reduce inputs to cover the cost?
 - ▶ What can continued use do for me?
 - ▶ Differences from last year?
 - ▶ Soil and fertility

Modifications

- ▶ Soil Fertility
- ▶ Harvest sample size
- ▶ Root length and Nodulation Sample number
- ▶ Quality and Clean out samples

Questions? Requests?

Thank you to all the cooperators.