

# Bio-Stimulants In Dry Beans

Jemmett Consulting and Research Farm LLC.

# Purpose

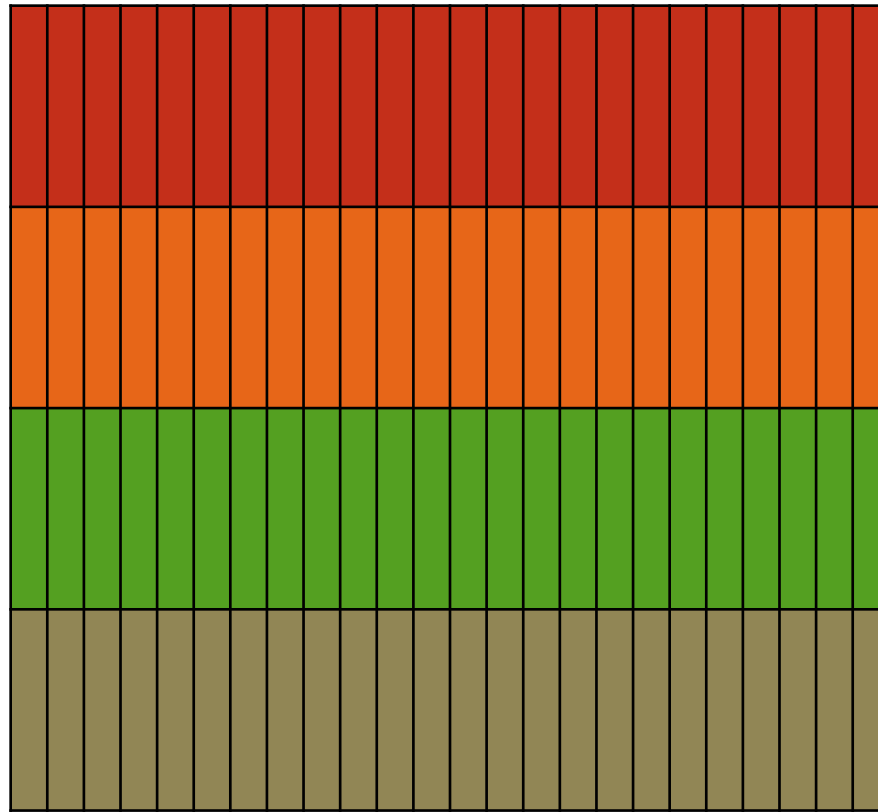
- ▶ Answering grower questions
  - ▶ What are Bio-Stimulants?
  - ▶ Why are Bio-Stimulants needed?
  - ▶ What is the difference between all the products?
  - ▶ Do Bio-Stimulants increase yield, quality, etc.?
  - ▶ So many to choose from, how do I know what is right for my operation?

# 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



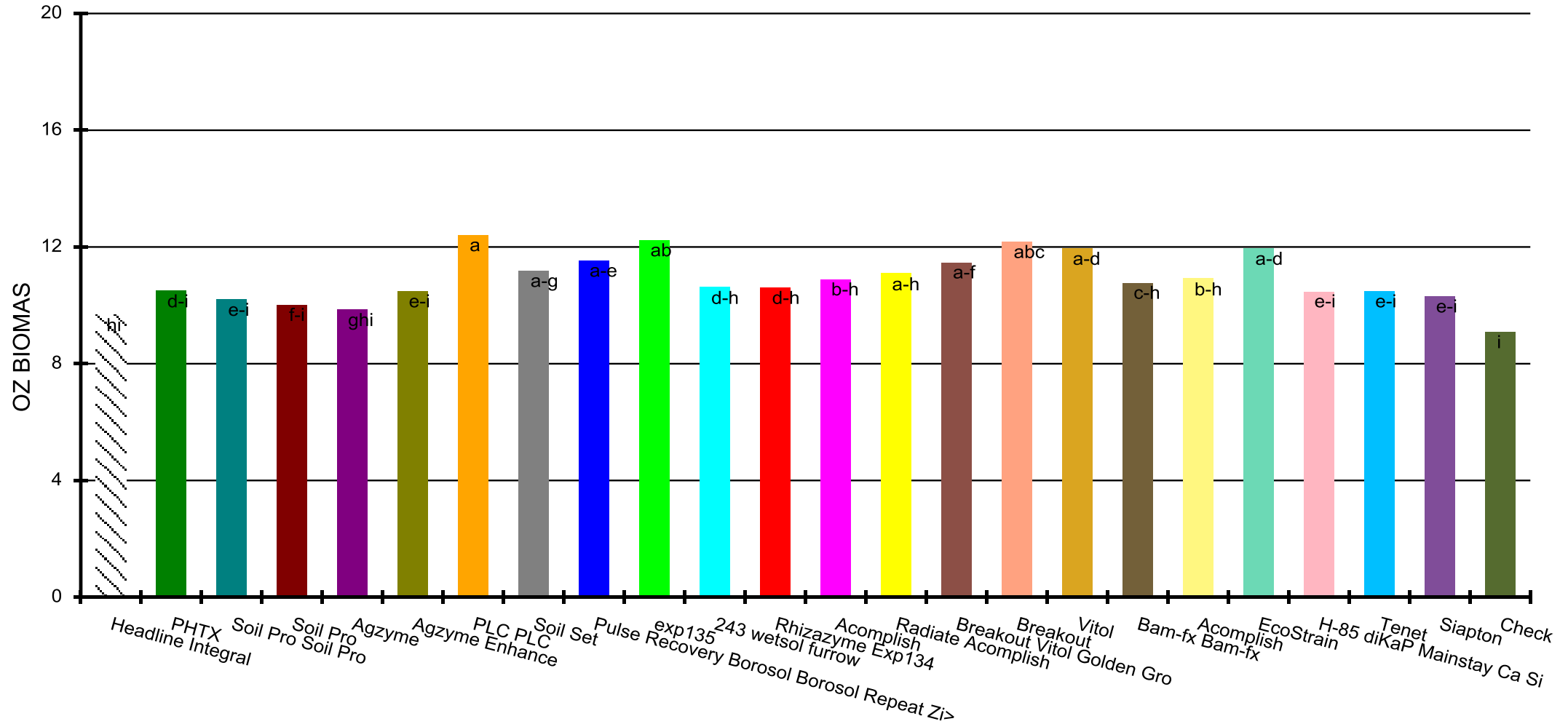
# Application Timings

- ▶ (A) Pre plant
- ▶ (B) 100% emergence
- ▶ (C) 30 DAE
- ▶ (D) Pre bloom
- ▶ (E) 10% bloom
- ▶ (F) 100% bloom
- ▶ (G) Pod fill

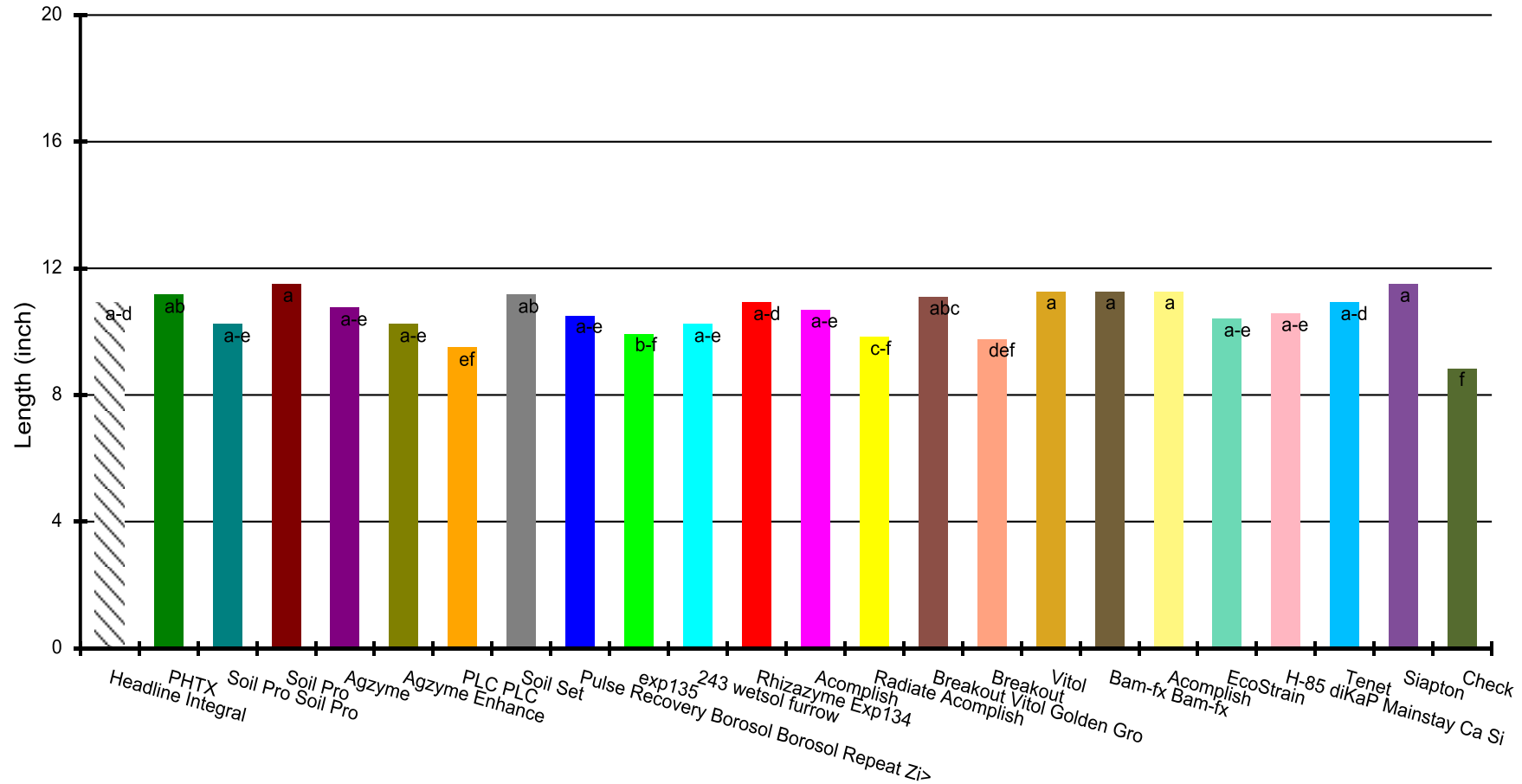
# Data Collection

- ▶ % Injury
- ▶ Stand Counts
- ▶ Root Lengths
- ▶ % Nodulation
- ▶ Plant Health
- ▶ Whole Plant Biomass
- ▶ Yield

# Biomass

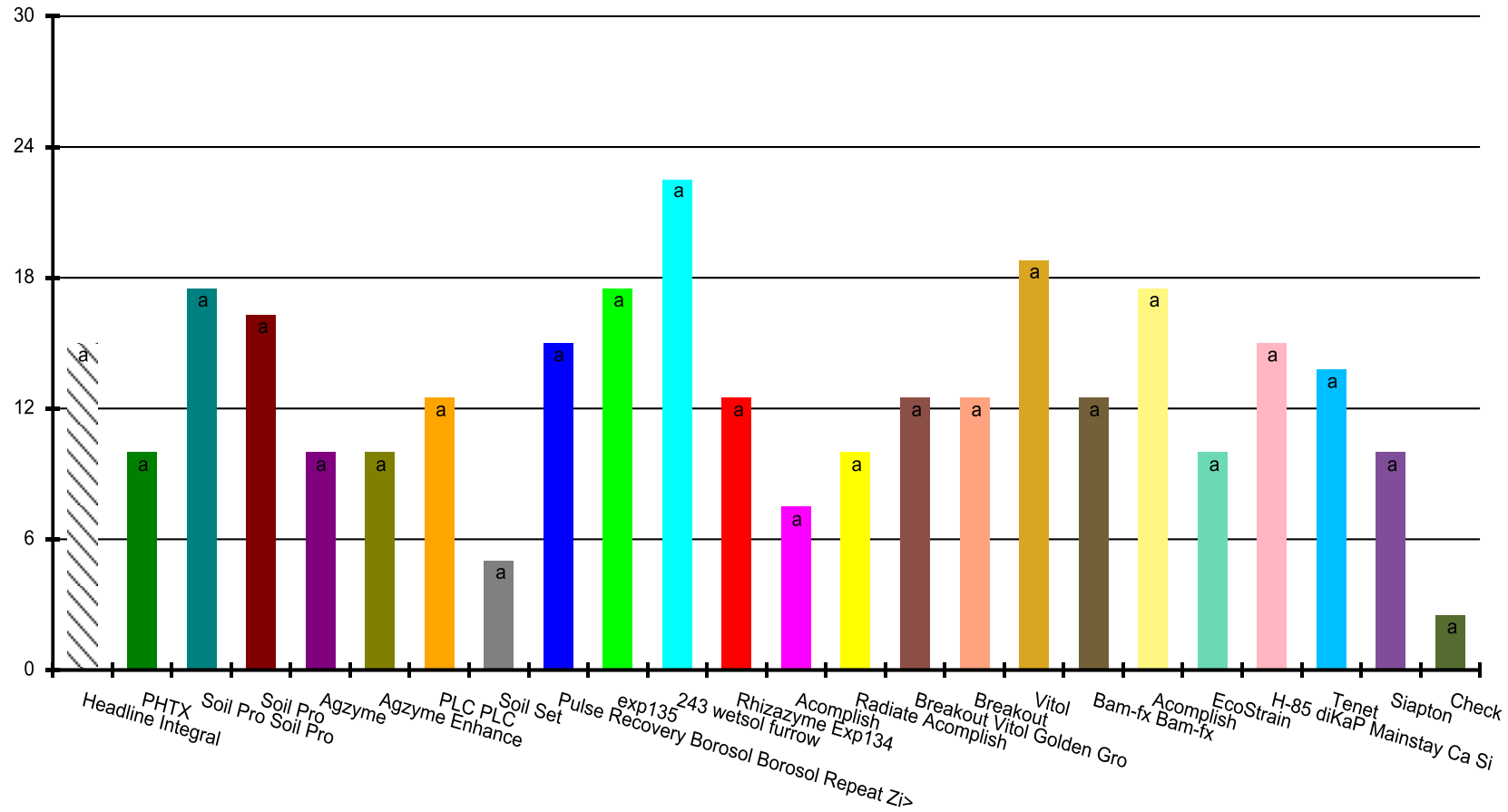


# Root Length

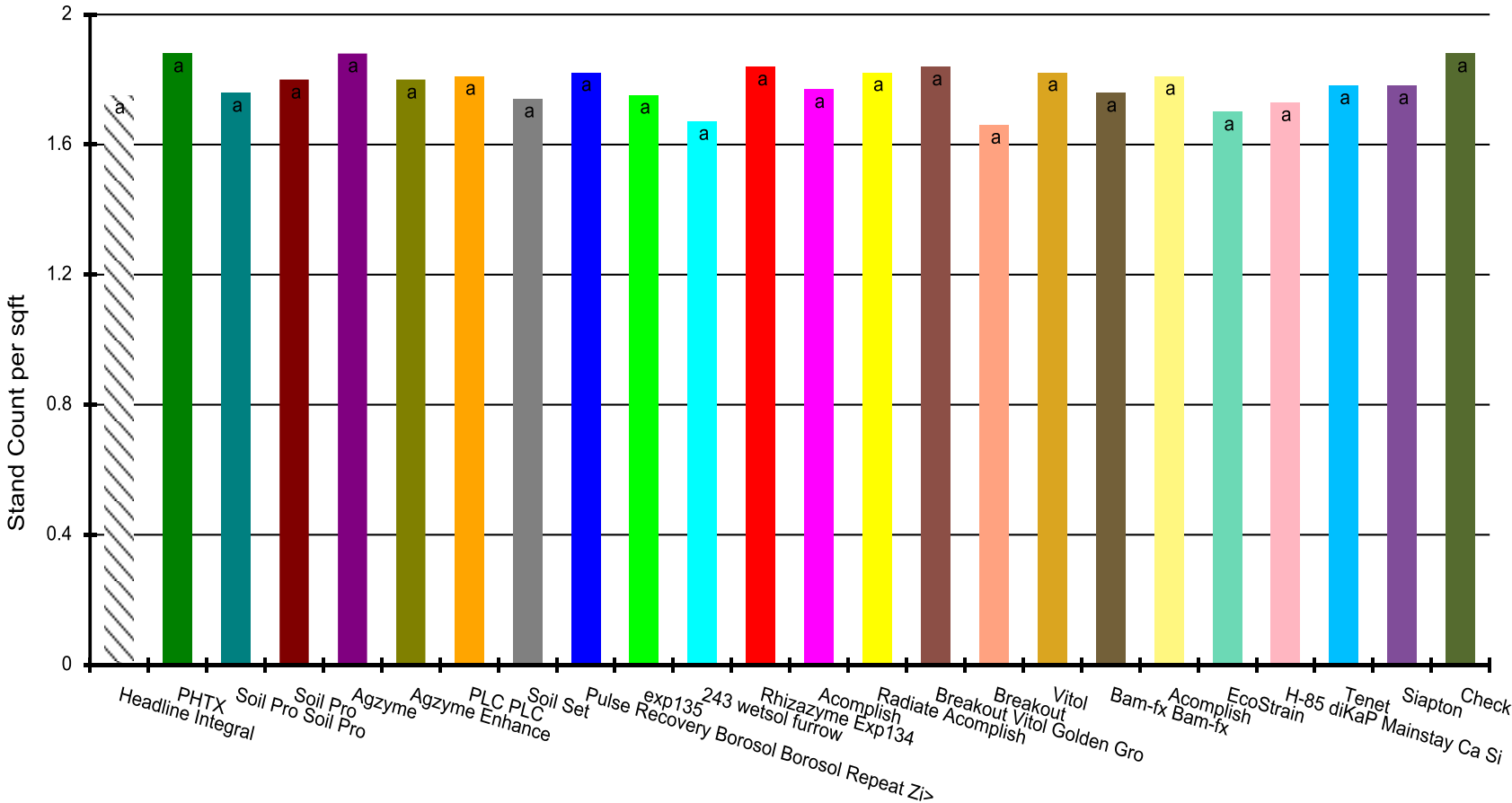




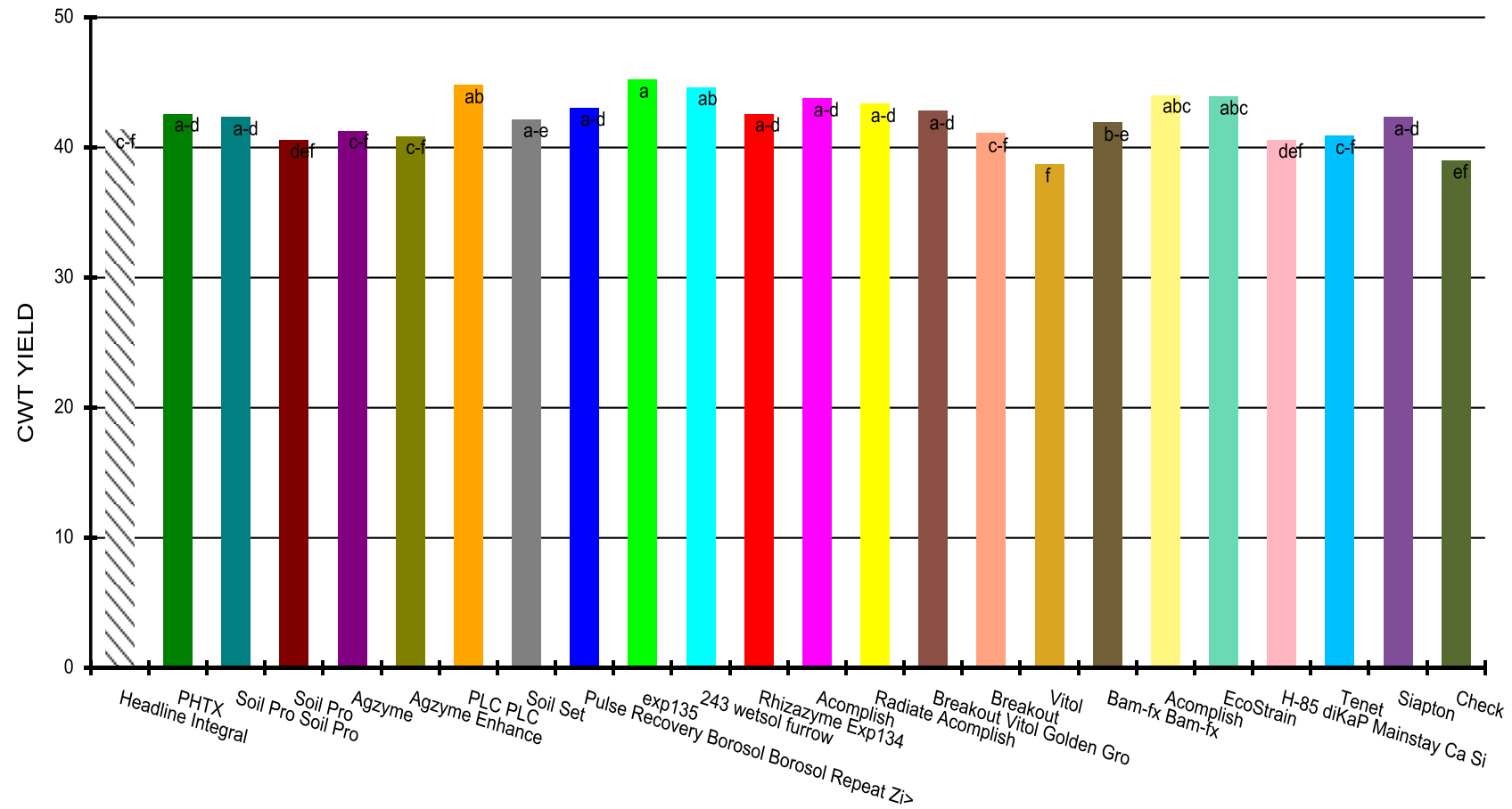
# % Nodulation



# Stand Count



# Yield



# Conclusion

- ▶ Can increase yield
  - ▶ No injury
  - ▶ No visible plant health differences
  - ▶ Possible increase benefit in nodulation
  - ▶ Can Increase in biomass
  - ▶ Increase in Root health.
  - ▶ No difference in Stand
- ▶ 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?

# 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.