



# IHARF

*INDIAN HEAD AGRICULTURAL RESEARCH FOUNDATION*



## 2013 AGRONOMY UPDATE

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IHARF Soil & Crop Management Seminar  
February 5, 2013  
Southey, SK



# Flax Tour 2013



SaskFlax



**IHARF**  
INDIAN HEAD AGRICULTURAL RESEARCH FOUNDATION

Agriculture Demonstration of Practice  
and Technologies (ADOPT)



Saskatchewan  
Real Growth. Real Opportunity.

Canada

# Optimizing Flax Yield

2013 Demos and More



# 2013 FLAX TRIAL OUTLINE

- 1) Flax Varieties
- 2) Seeding Rates & Dates
- 3) Seed Treatments
- 4) Fertilizer Management
- 5) Broadleaf Weed Control
- 6) Response to Fungicide



Canada 



# FLAX ESTABLISHMENT

## SEEDING DATES & RATE EFFECTS

### Seeding Dates

1. **Early May (11<sup>th</sup>)**
2. **Late May (29<sup>th</sup>)**

### Seeding Rates

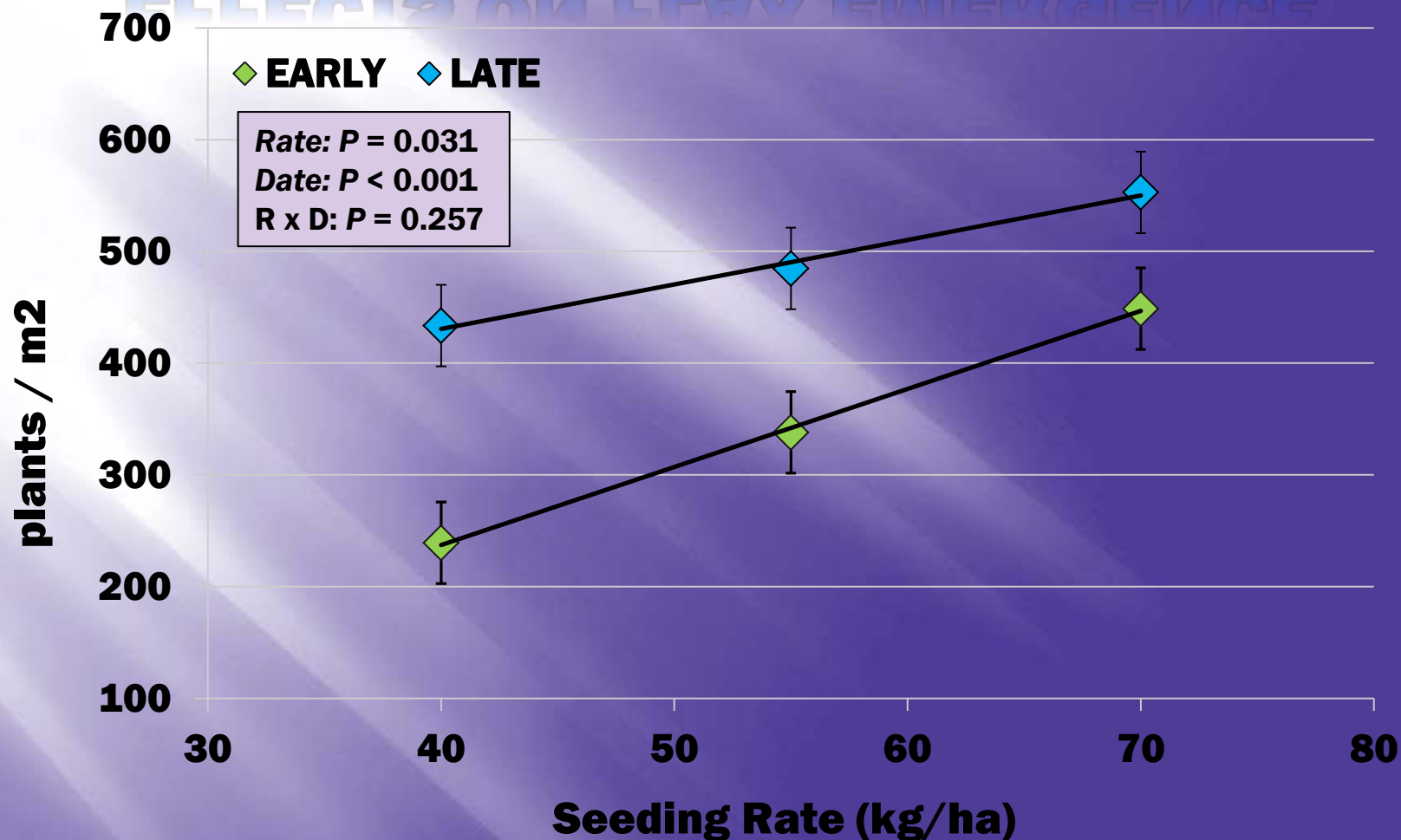
1. **40 kg ha<sup>-1</sup> (35 lbs/ac)**
2. **55 kg ha<sup>-1</sup> (49 lbs/ac)**
3. **70 kg ha<sup>-1</sup> (62 lbs/ac)**





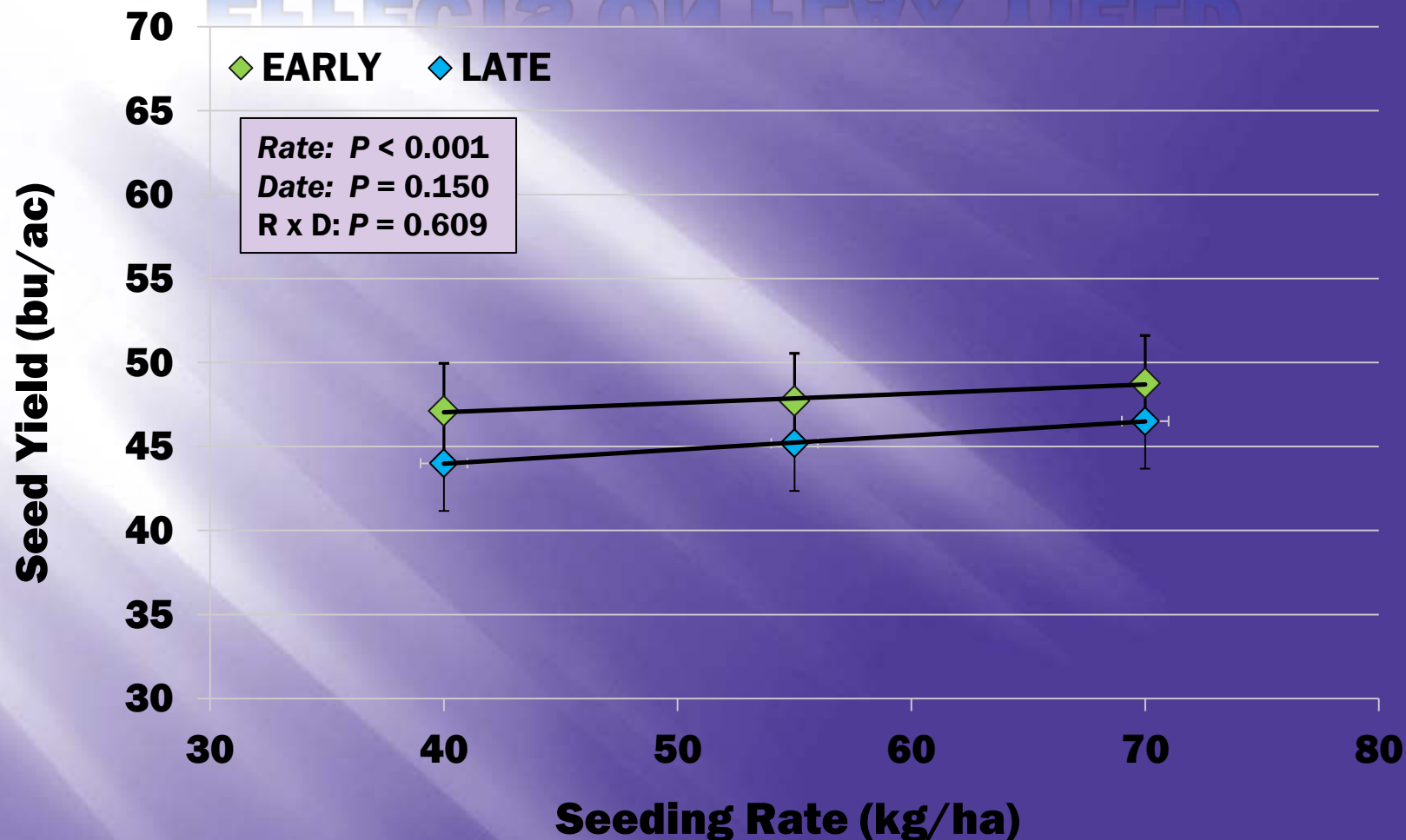
# SEEDING DATES & RATES

## EFFECTS ON FLAX EMERGENCE

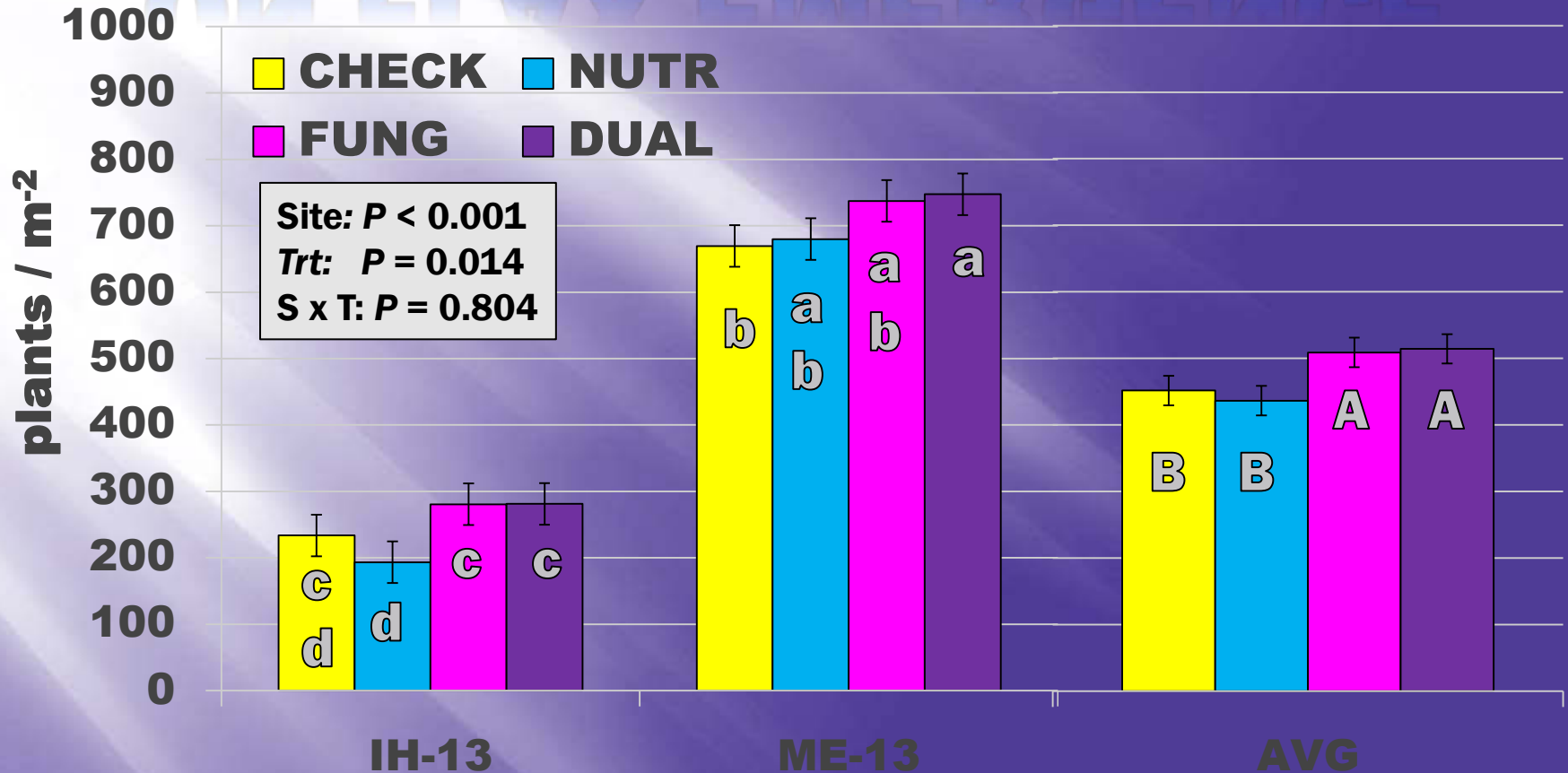


# SEEDING DATES & RATES

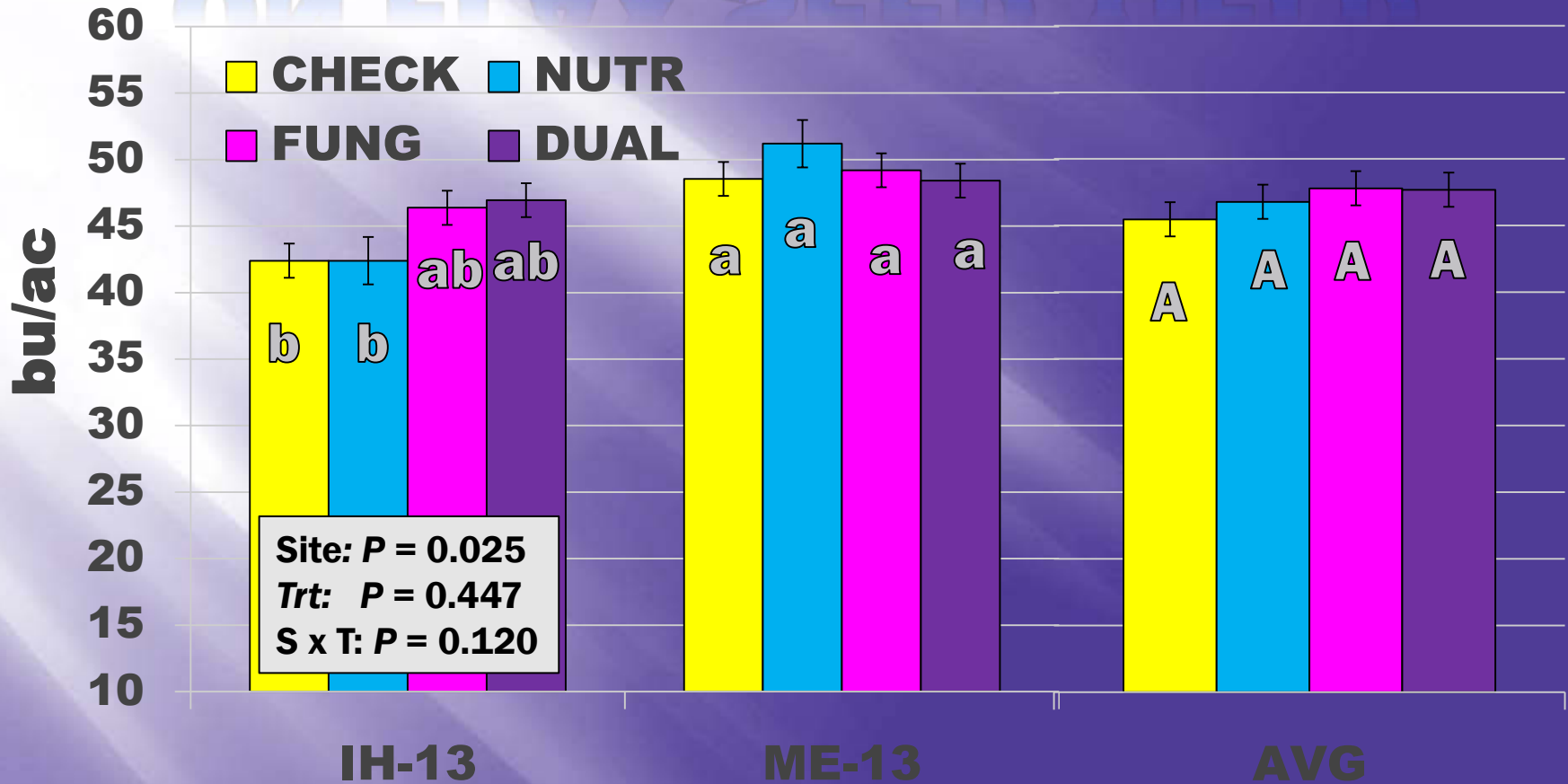
## EFFECTS ON FLAX YIELD



# SEED TREATMENT EFFECTS ON FLAX EMERGENCE



# SEED TREATMENT EFFECTS ON FLAX SEED YIELD





# FLAX FERTILITY DEMO

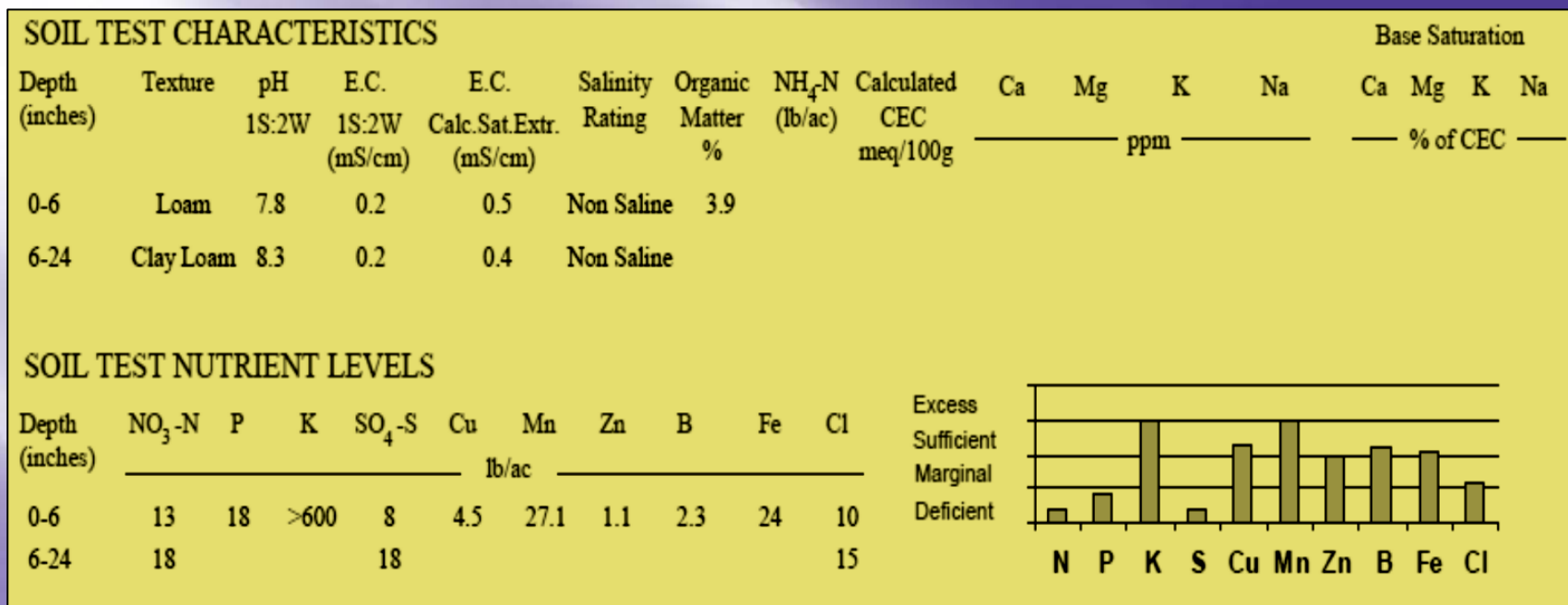
## Indian Head 2013

### Fertilizer Treatments

- |    |           |     |             |    |
|----|-----------|-----|-------------|----|
| 1. | 0-0-0-0   | 7.  | 90-15-0-0   | SB |
| 2. | 45-0-0-0  | 8.  | 90-15-8-8   | SB |
| 3. | 45-15-0   | 9.  | 90-15-0-0   | SP |
| 4. | 45-15-8-8 | 10. | 90-15-8-8   | SP |
| 5. | 45-15-0-0 | 11. | 90-30-0-0   | SB |
| 6. | 45-15-8-8 | 12. | 90-30-15-15 | SB |
|    |           | 13. | 90-30-0-0   | SP |
|    |           | 14. | 90-30-15-15 | SP |

# SITE INFORMATION

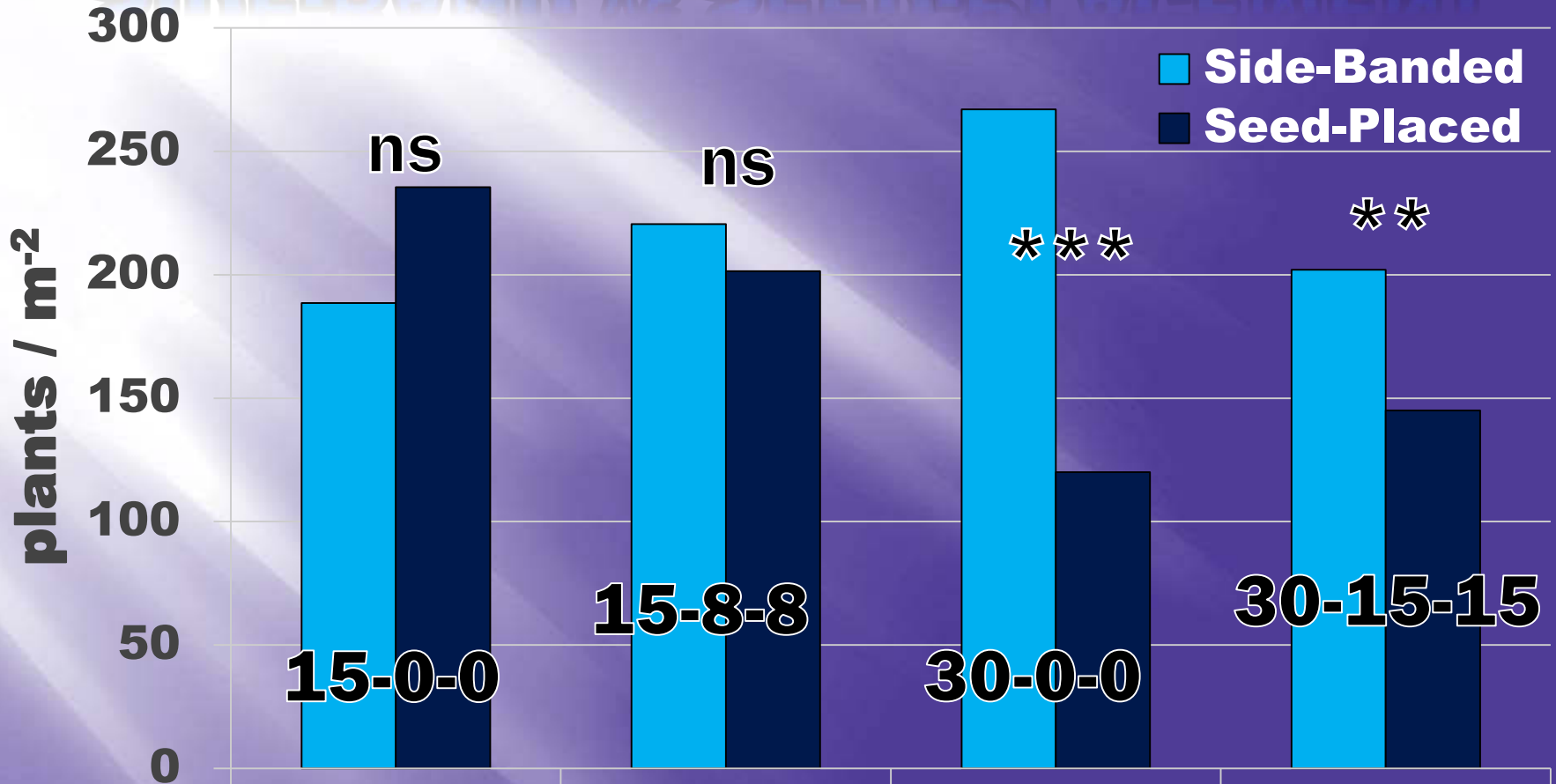
- Field trials located 3 miles NE of Indian Head, SK (R.M. #156)
- Indian Head Heavy Clay, Rego Black Chernozem
- Bethune flax seeded May 11 at 45 lb/ac rate into wheat stubble
- Seeded w/SeedMaster drill on 12" row spacing (6.3% SBU)
- All N side-banded, PKS side-banded or seed-placed





# FLAX EMERGENCE

## SIDE-BAND vs SEED-PLACEMENT



# FLAX SEED YIELD

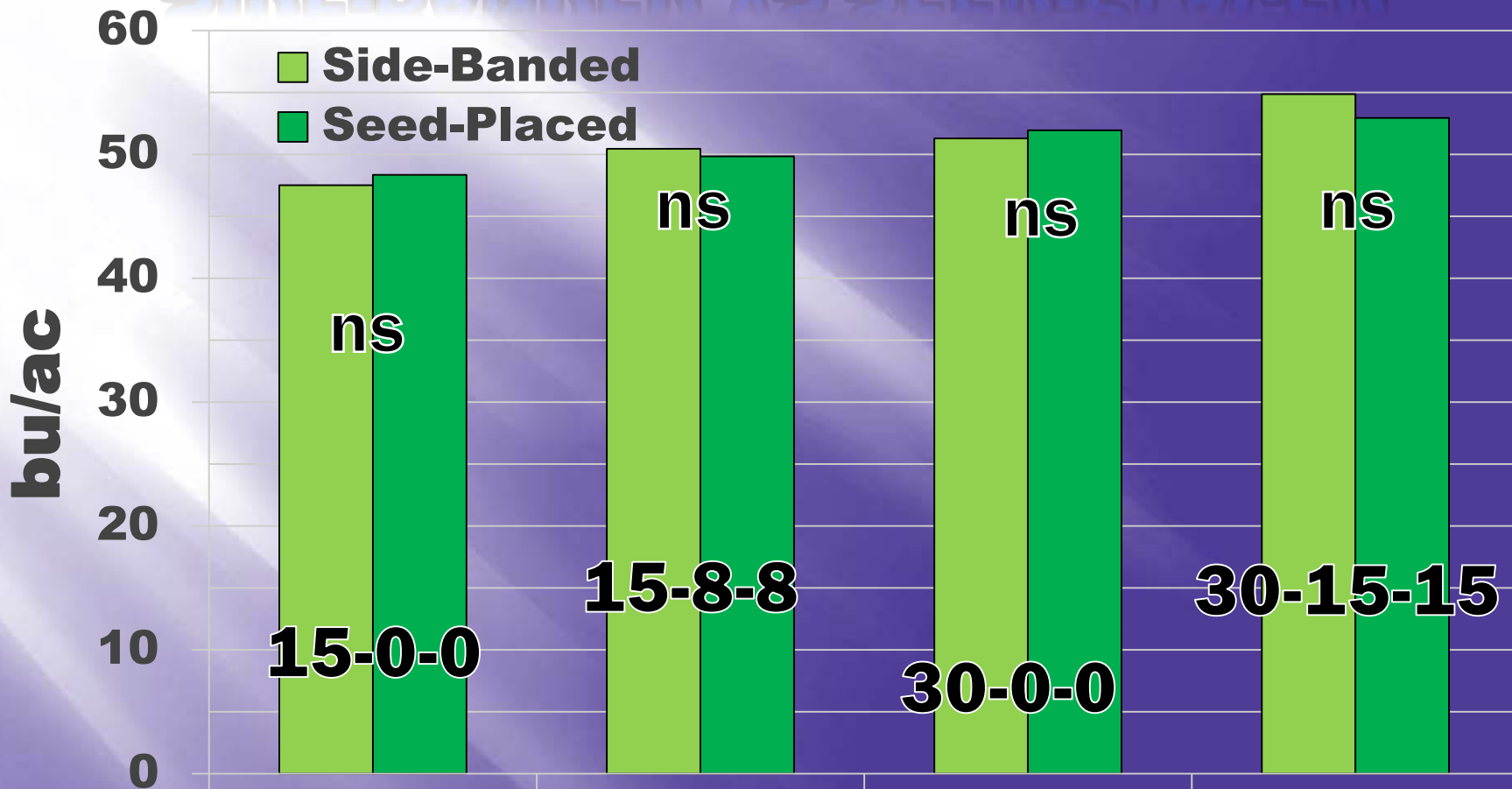
## RATE COMPARISONS





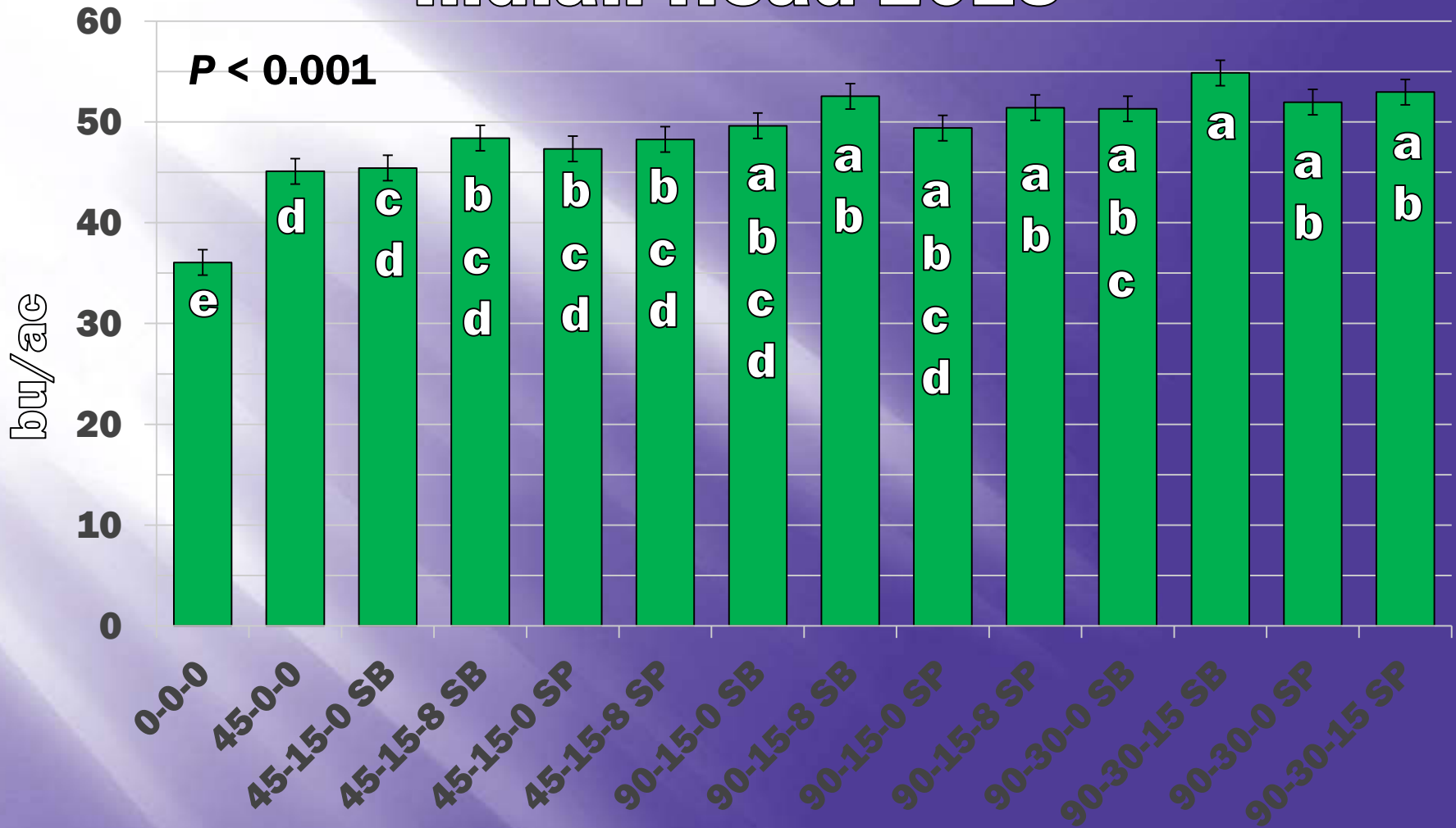
# FLAX SEED YIELD

## SIDE-BANDED VS SEED-PLACED



# FLAX SEED YIELD

## Indian Head 2013



Fertilizer Treatment



# FLAX HERBICIDE DEMO

## Indian Head 2013

### Herbicide Treatments

1. **Check (no broadleaf herbicide)**
2. **MCPA Ester**
3. **Authority (sulfentrazone)**
4. **Authority + Buctril M**
5. **Buctril (MCPA + bromoxynil)**
6. **Curtail M (MCPA + clopyralid)**





# NO HERBICIDE APPLIED

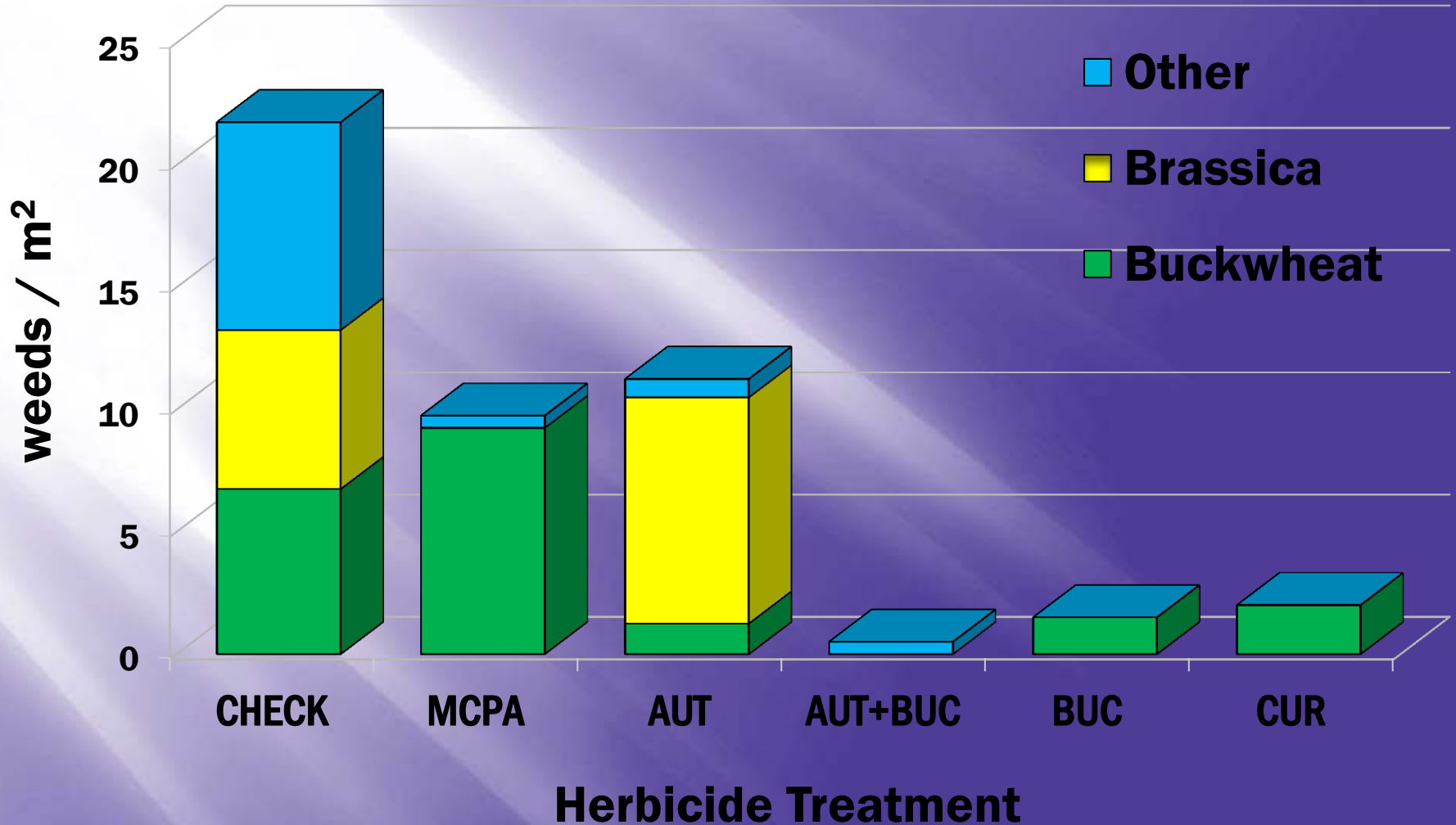
Indian Head 2013 – July 11





# WEEDS PRESENT (#/M<sup>2</sup>)

## Indian Head 2013



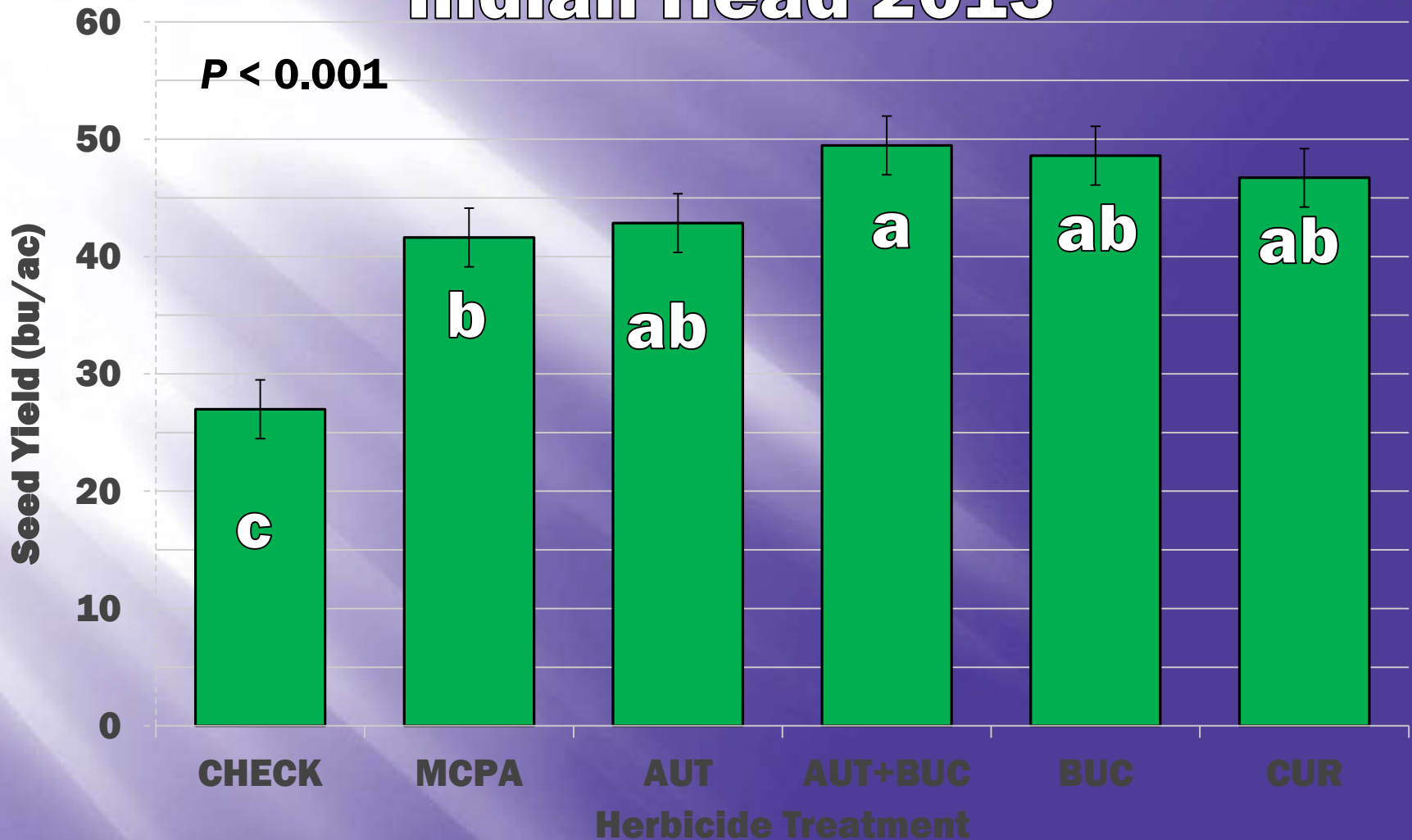
# AUTHORITY + BUCTRIL M

Indian Head 2013 – July 11



# FLAX HERBICIDE DEMO

## Indian Head 2013





# FUNGICIDE EFFECTS ON FLAX YIELD

## Treatments

### 1. Check

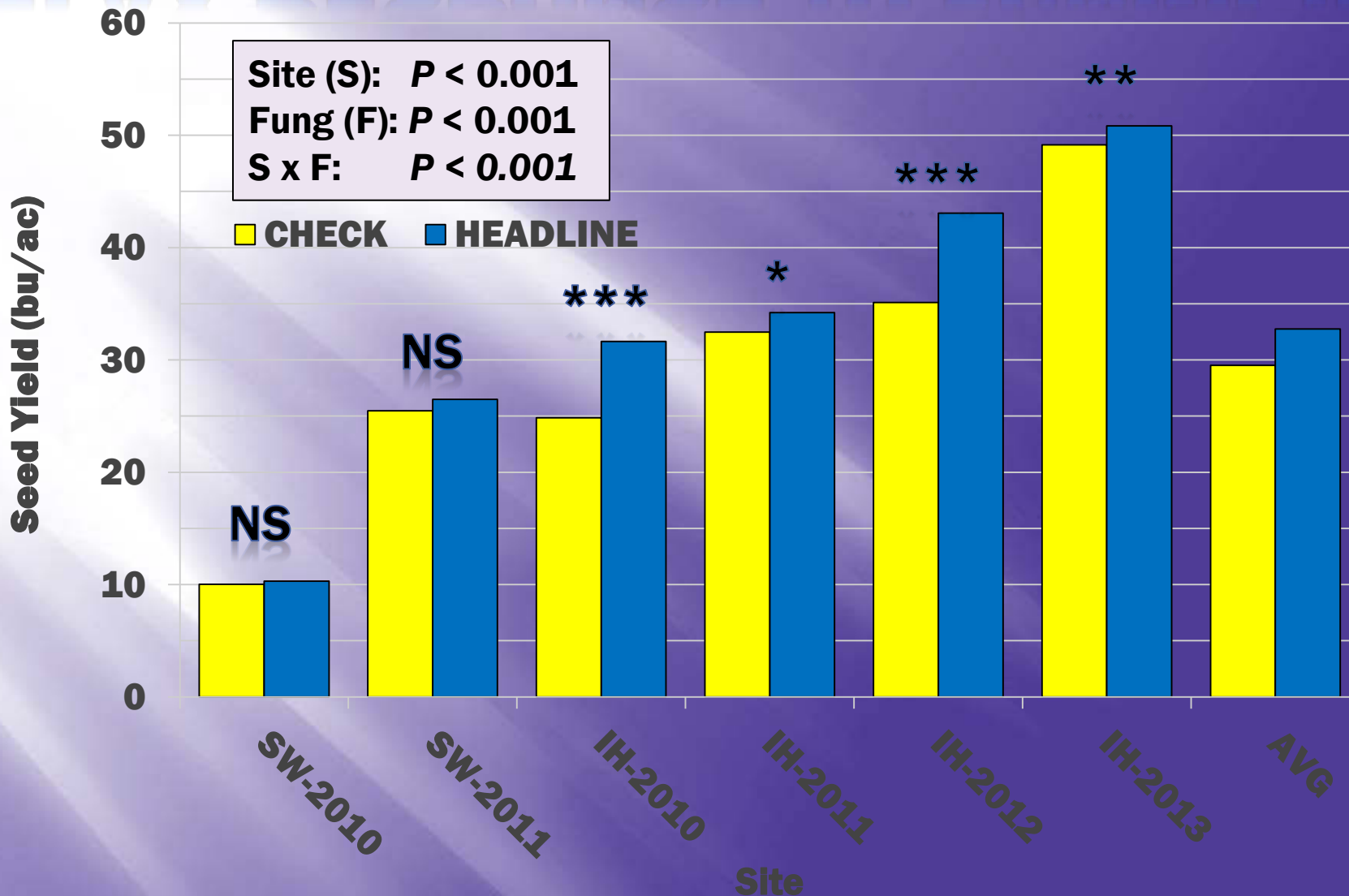
- no fungicide

### 2. 0.16 l/ac Headline

- full bloom



# FLAX RESPONSE TO FUNGICIDE





# VISUAL FUNGICIDE RESPONSE INDIAN HEAD 2010





# FLAX - TAKE HOME MESSAGES

- Do not treat flax as a low input crop & expect consistent top yields
- Plenty of competitive varieties available – buy new seed for 2014
- Seeding early will usually be your best bet but flax seeded in late May should perform well under most conditions
- Flax can respond well to fertilizer applications when residual nutrients are low but will do best in fields with high residual P – limit or avoid seed placement to avoid seedling injury
- Buctril M or Curtail M adequate for general broadleaf weed control – Authority for full-season control of buckwheat & kochia
- Where pasmo is present, Headline application will likely pay for itself & can greatly improve yields when disease pressure is high
- Higher N rates? Seed treatments? Plant Growth Regulators?





# Winter Wheat in a Challenging Year

What worked and what didn't?



September 2012

April 25, 2013





# 2013 Winter Wheat Trials

- 1) Seed Treatments & Seeding Rates (DU)
- 2) N Form, Placement & Timing (ADOPT)
- 3) Foliar Fungicide Applications (DU)



Canada





# Seed Treatments and Rates

## Treatments:

- 1) Unt – 200\* seeds m<sup>-2</sup>
- 2) Unt – 400 seeds m<sup>-2</sup>
- 3) Trt\*\* – 200 seeds m<sup>-2</sup>
- 4) Trt – 400 seeds m<sup>-2</sup>

\* 60-120 lb/ ac seeding rates

\*\* Raxil Pro (325 ml/100kg)

- Tebuconazole (1 gai/100kg), prothioconazole (5 gai/100kg) and metalaxyl (4 gai/100kg)



# June 12, 2013

**Raxil Pro Treated (left) vs Untreated (right)**  
**200 seeds/m<sup>2</sup>**





# June 12, 2013

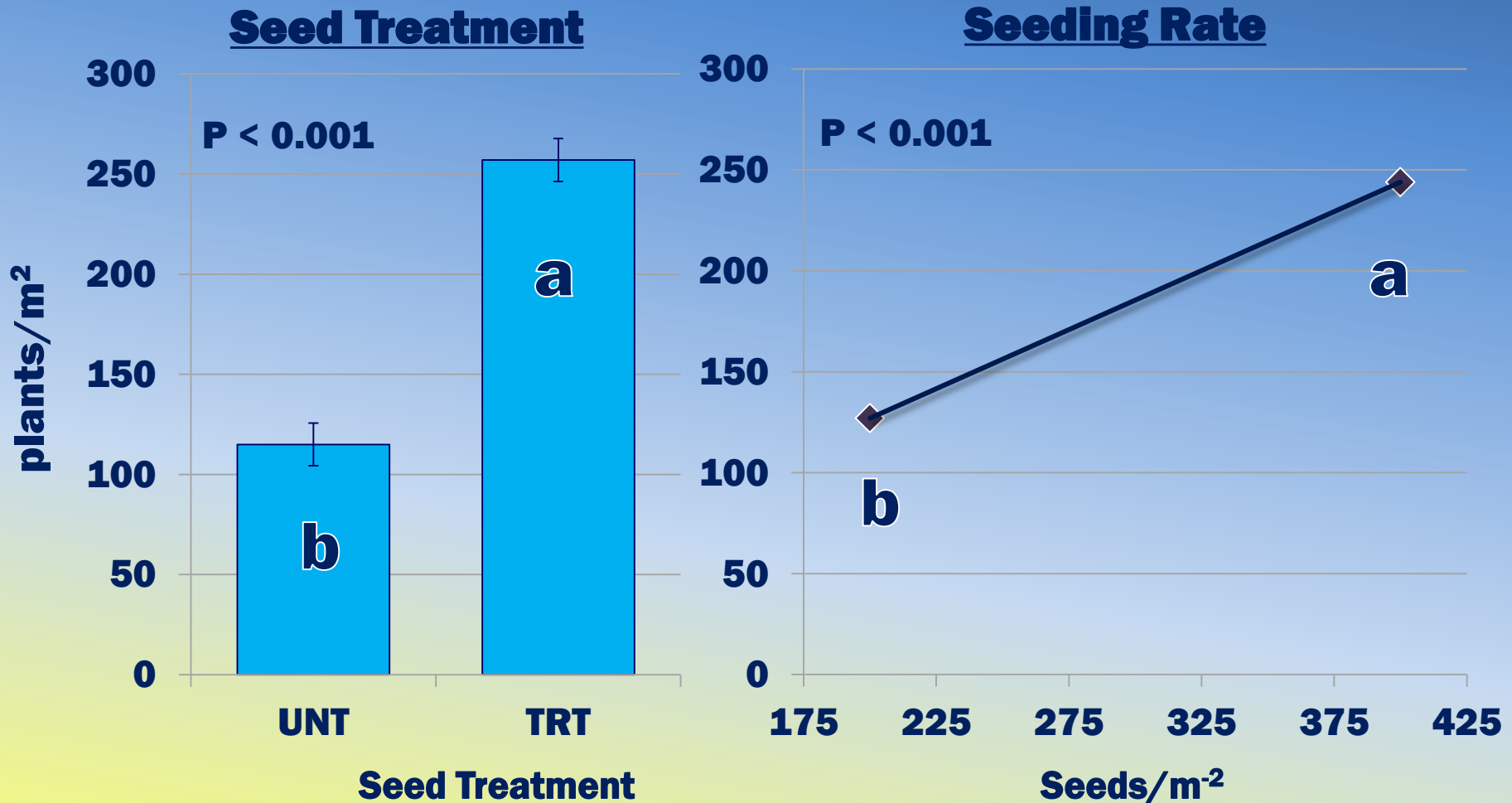
**Untreated (left) vs Raxil Pro Treated (right)**  
**400 seeds/m<sup>2</sup>**





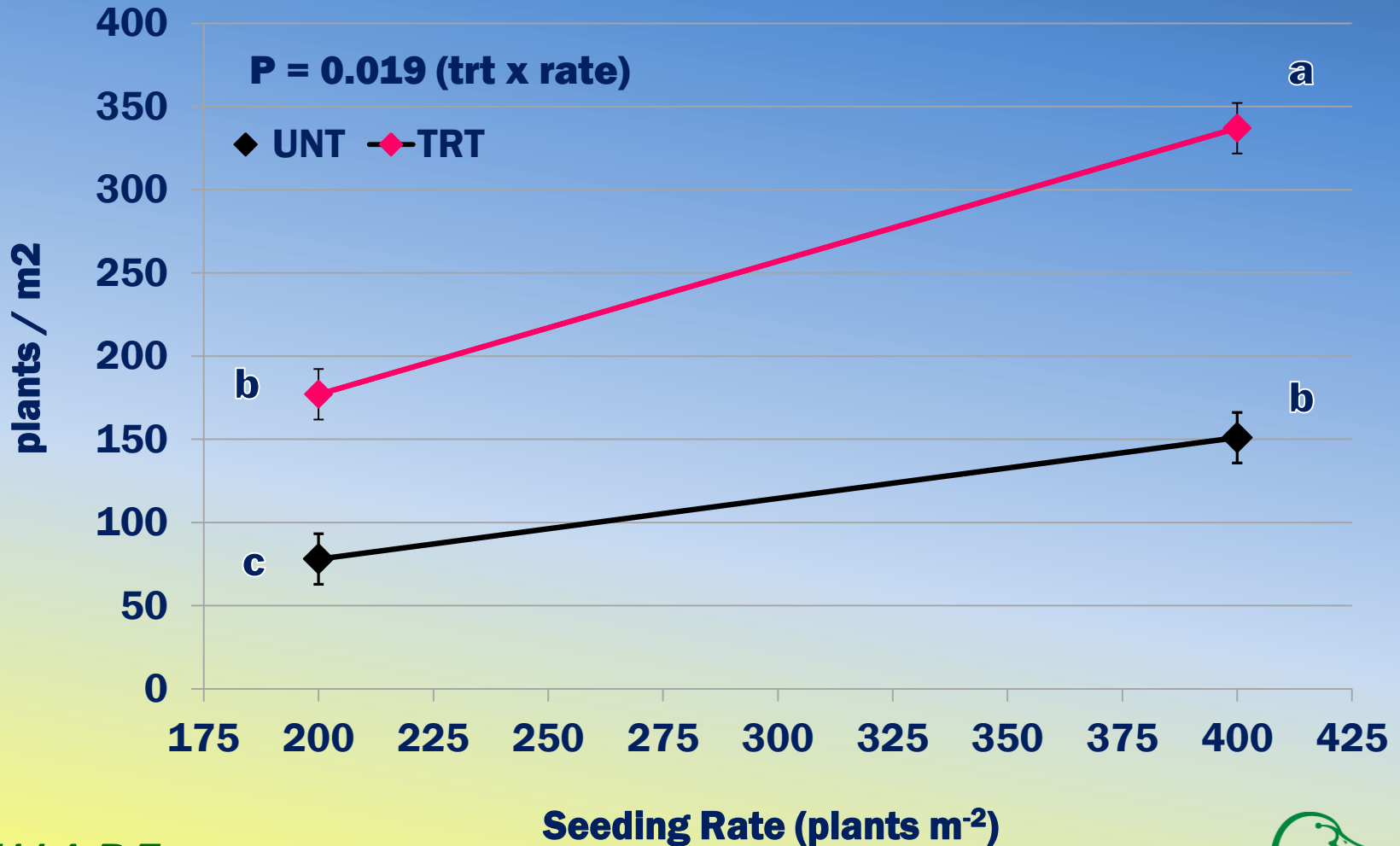
# Seed Treatment & Rates

## Main Effects – Emergence



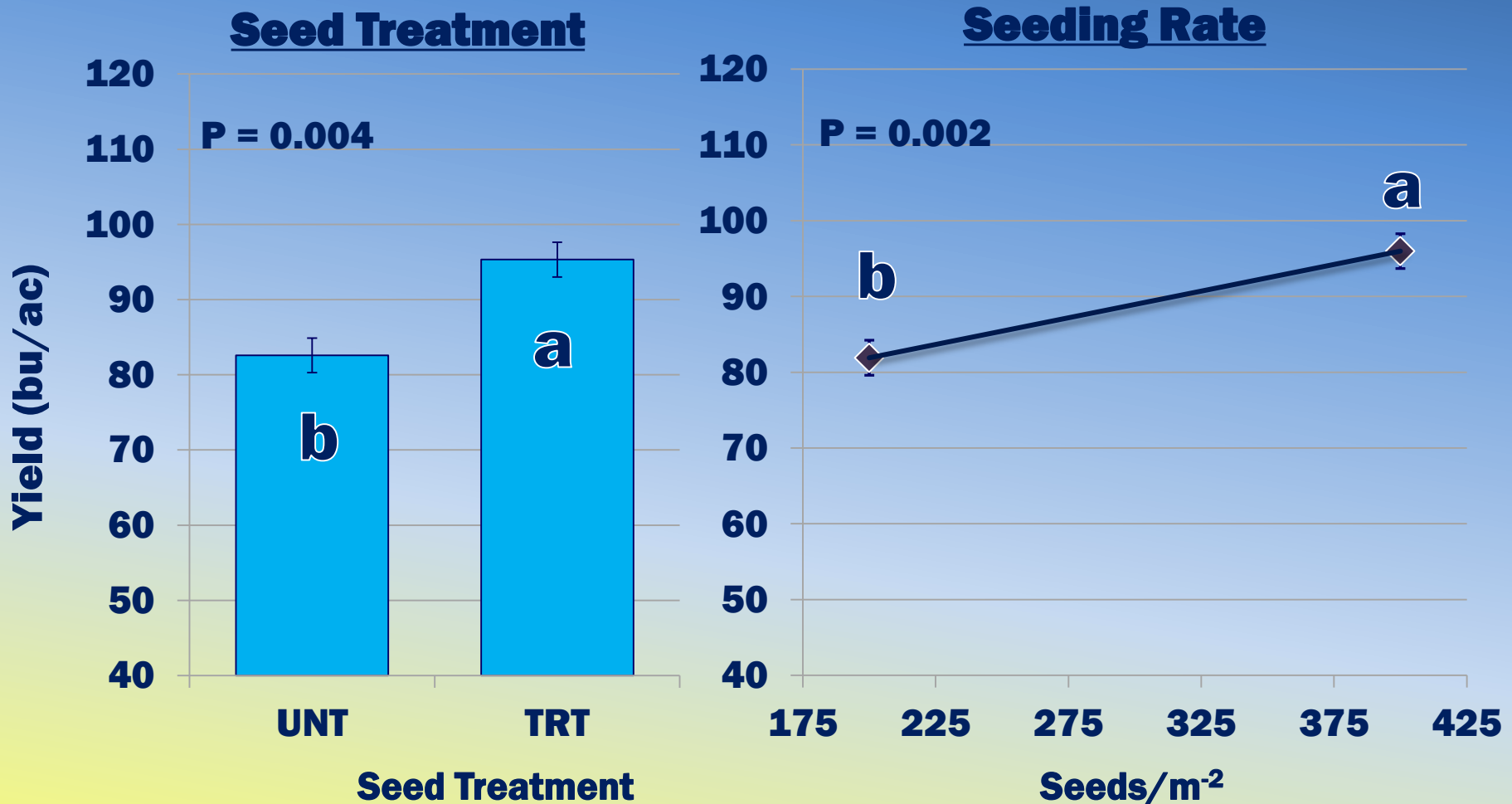
# Seed Treatment & Rates

## Interactions - Emergence



# Seed Treatment & Rates

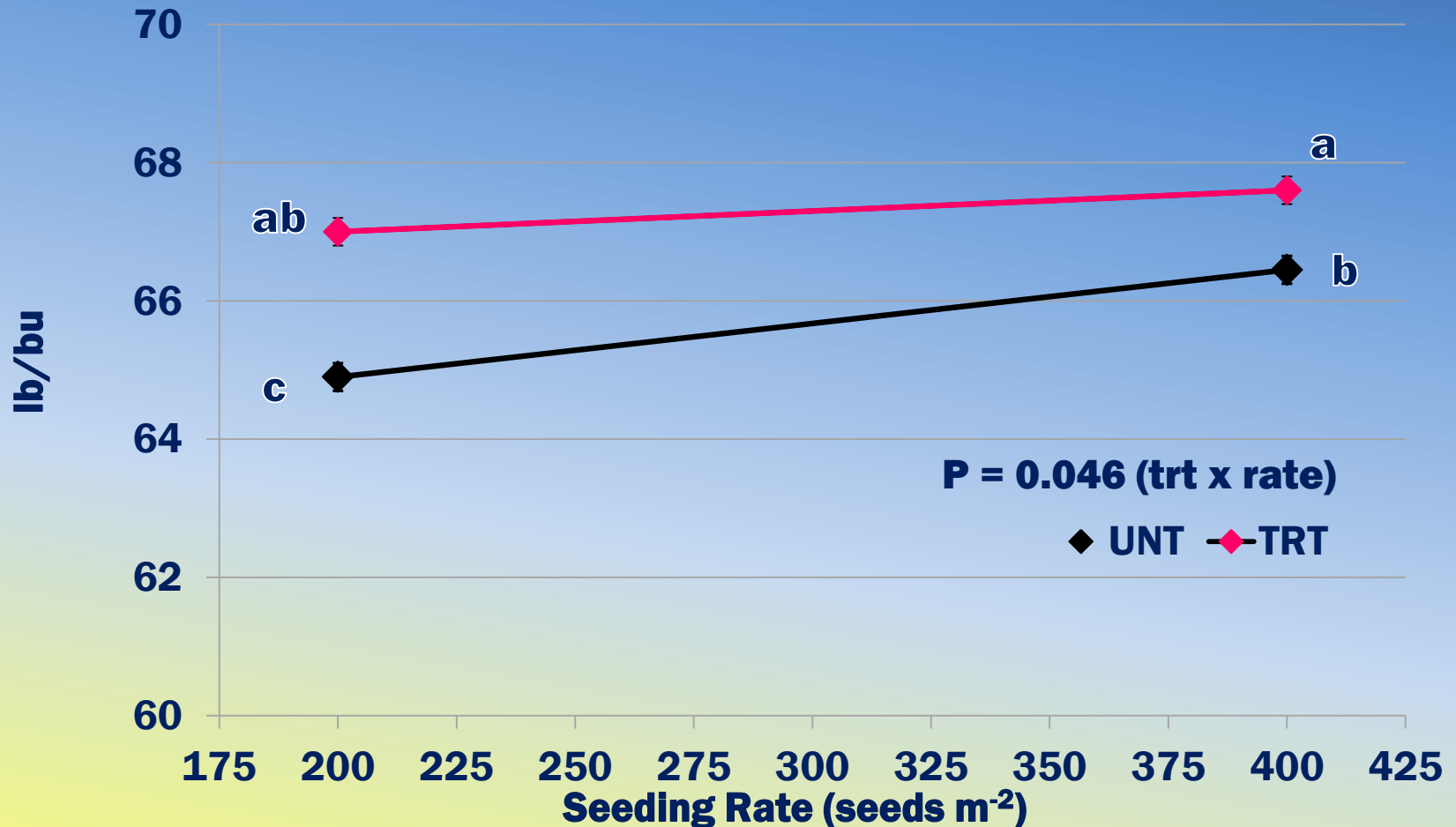
## Main Effects – Yield





# Seed Treatment & Rates

## Interactions - Test Weight



# Nitrogen Fertility Options

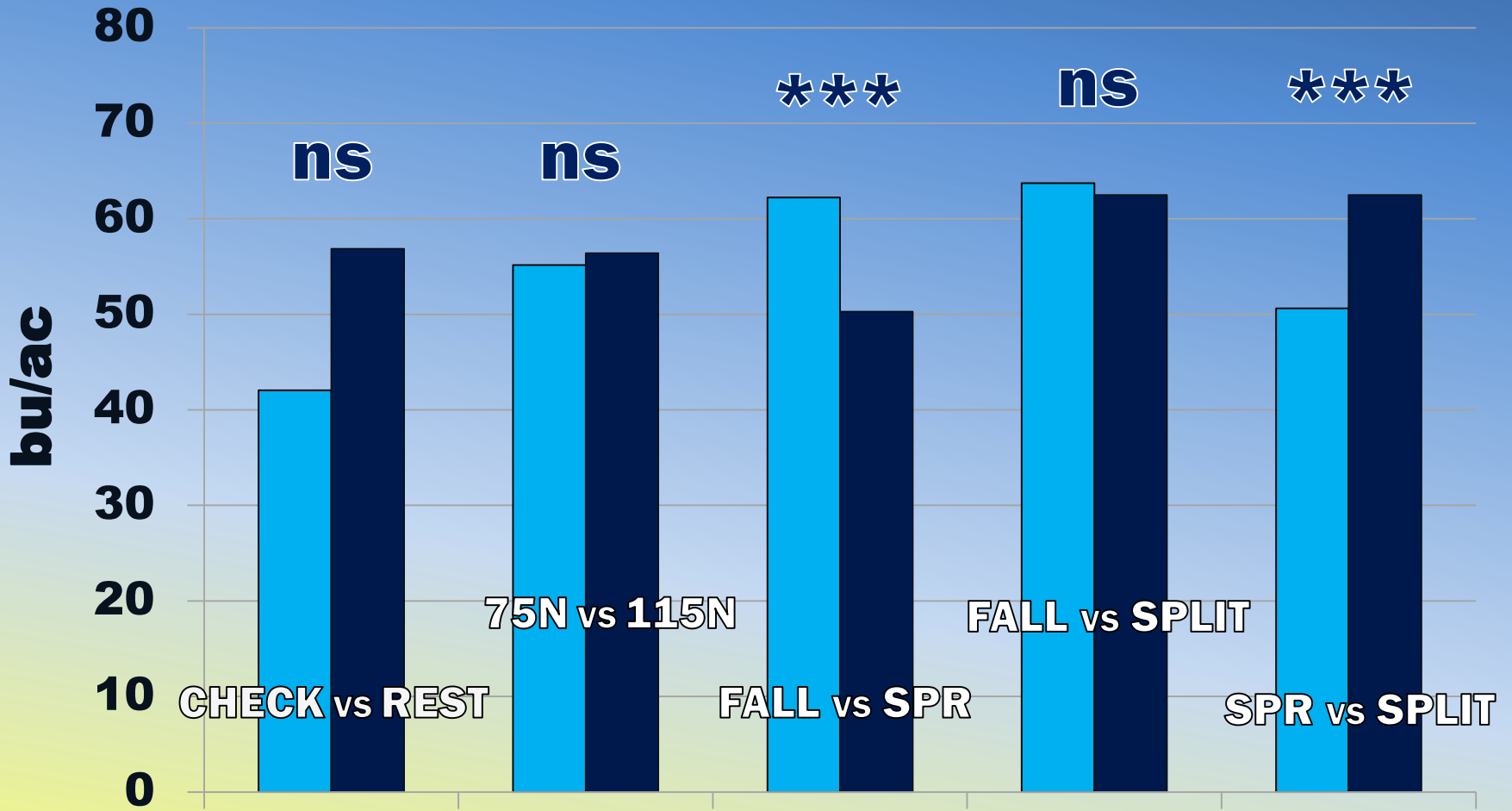
Indian Head 2013

## 23 N fertilizer treatments where:

- 0, 75 or 115 kg N ha<sup>-1</sup> rate
  - Soil test N recommendation was 99 kg N ha<sup>-1</sup>
- Untreated urea, ESN®, Nutrisphere-N® or liquid UAN as N fertilizer source
- N fertilizer either side-banded (at seeding), surface broadcast (early spring) or applied in a split-application (40/60)

# Nitrogen Rate & Timing

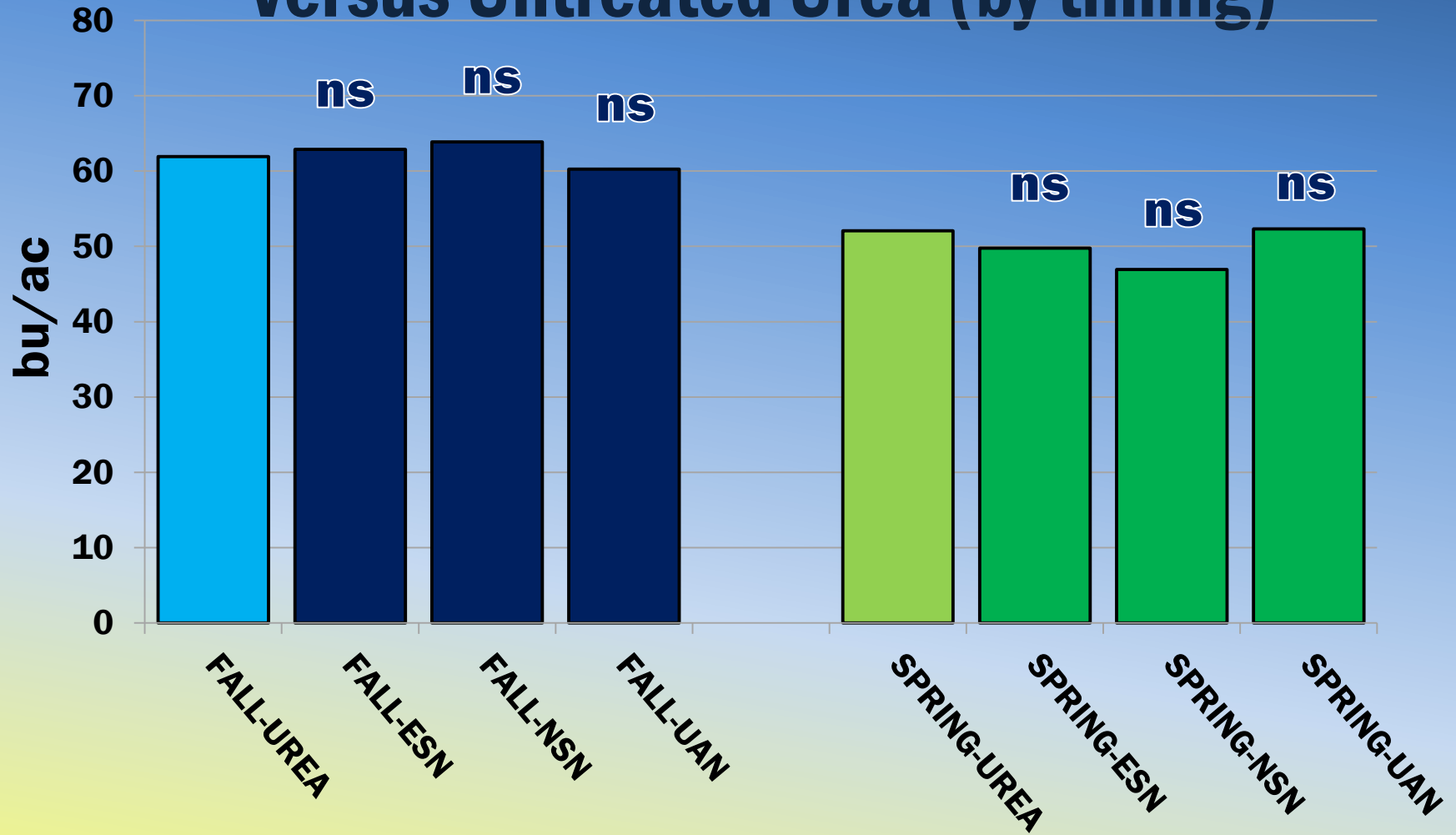
## Effects on Winter Wheat Yield





# Nitrogen Fertilizer Forms

## Versus Untreated Urea (by timing)



# Foliar Fungicide Demo

Indian Head, 2013

## Treatments:

- 1) Check (no fungicide)
- 2) Twinline\* (T1-flag)
- 3) Prosaro\*\* (T2-head)
- 4) Dual (T1 + T2)

\* Pyraclostrobin (65 g/ha) +  
metconazole (40 g/ha)

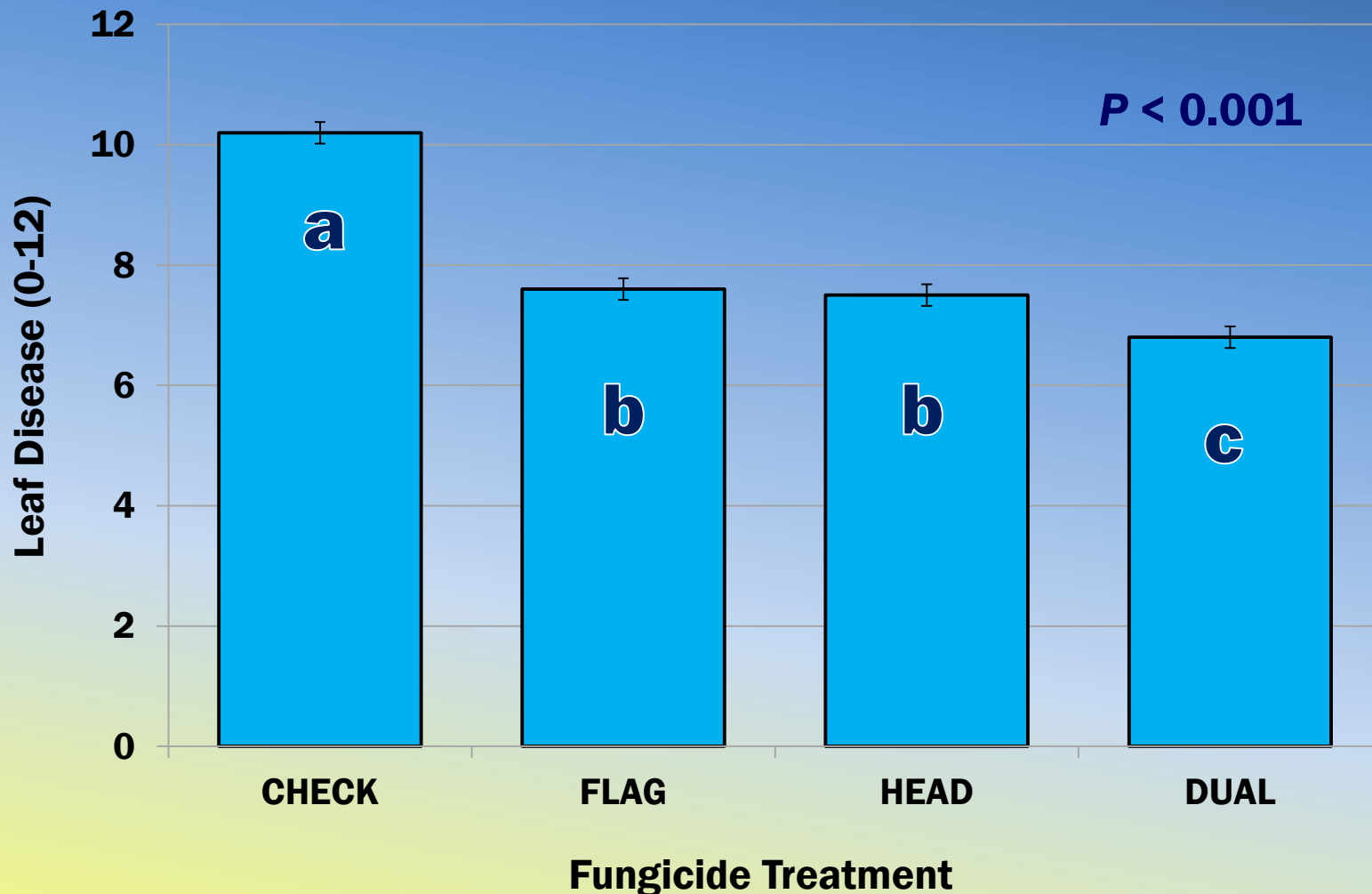
\*\* Prothioconazole (100 g/ha) +  
tebuconazole (100 g/ha)





# Foliar Fungicide Demo

## Effects on Leaf Disease



# July 29, 2013



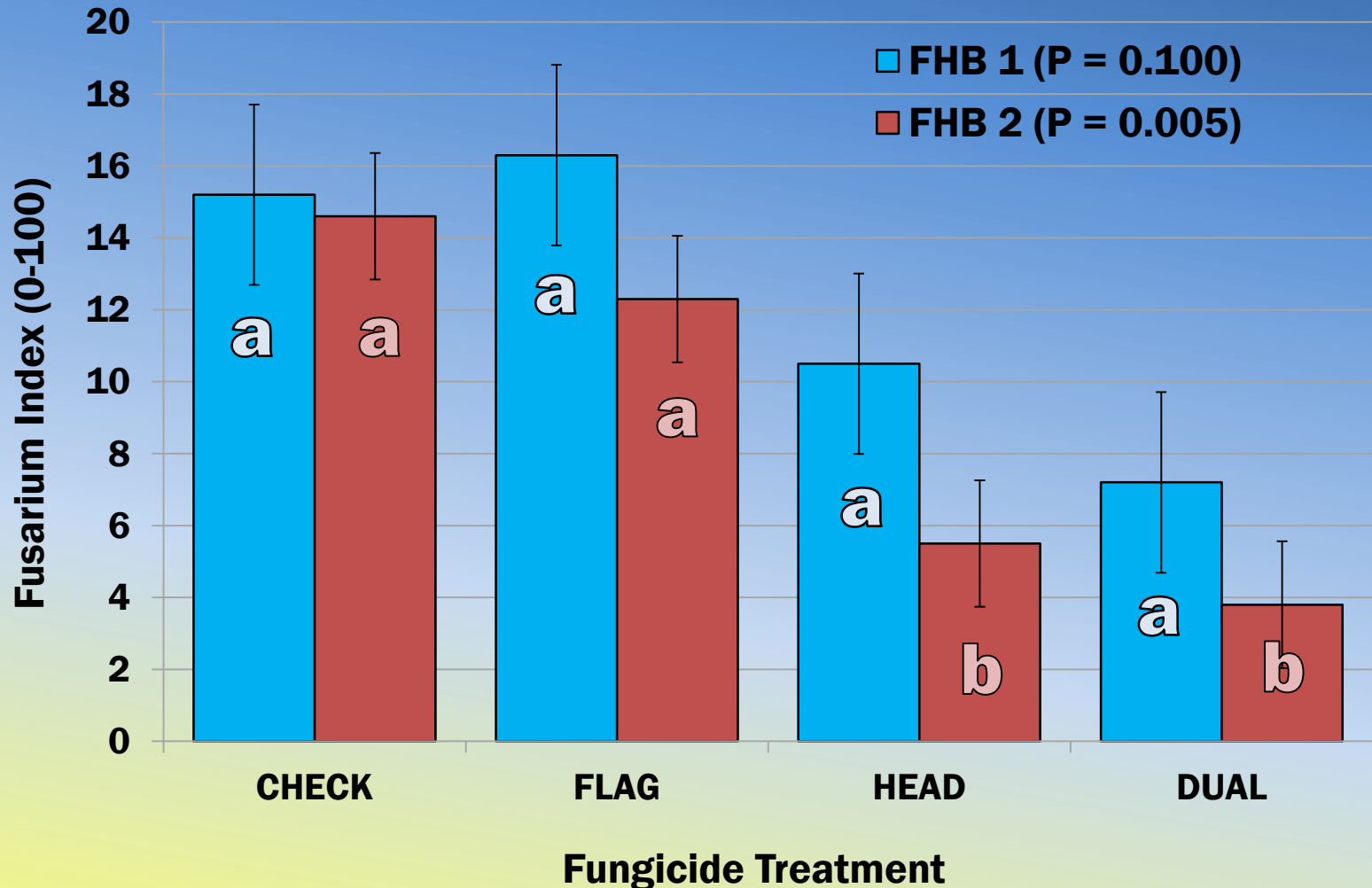
**UNTREATED CHECK**



**FUNGICIDE APPLIED**

# Foliar Fungicide Demo

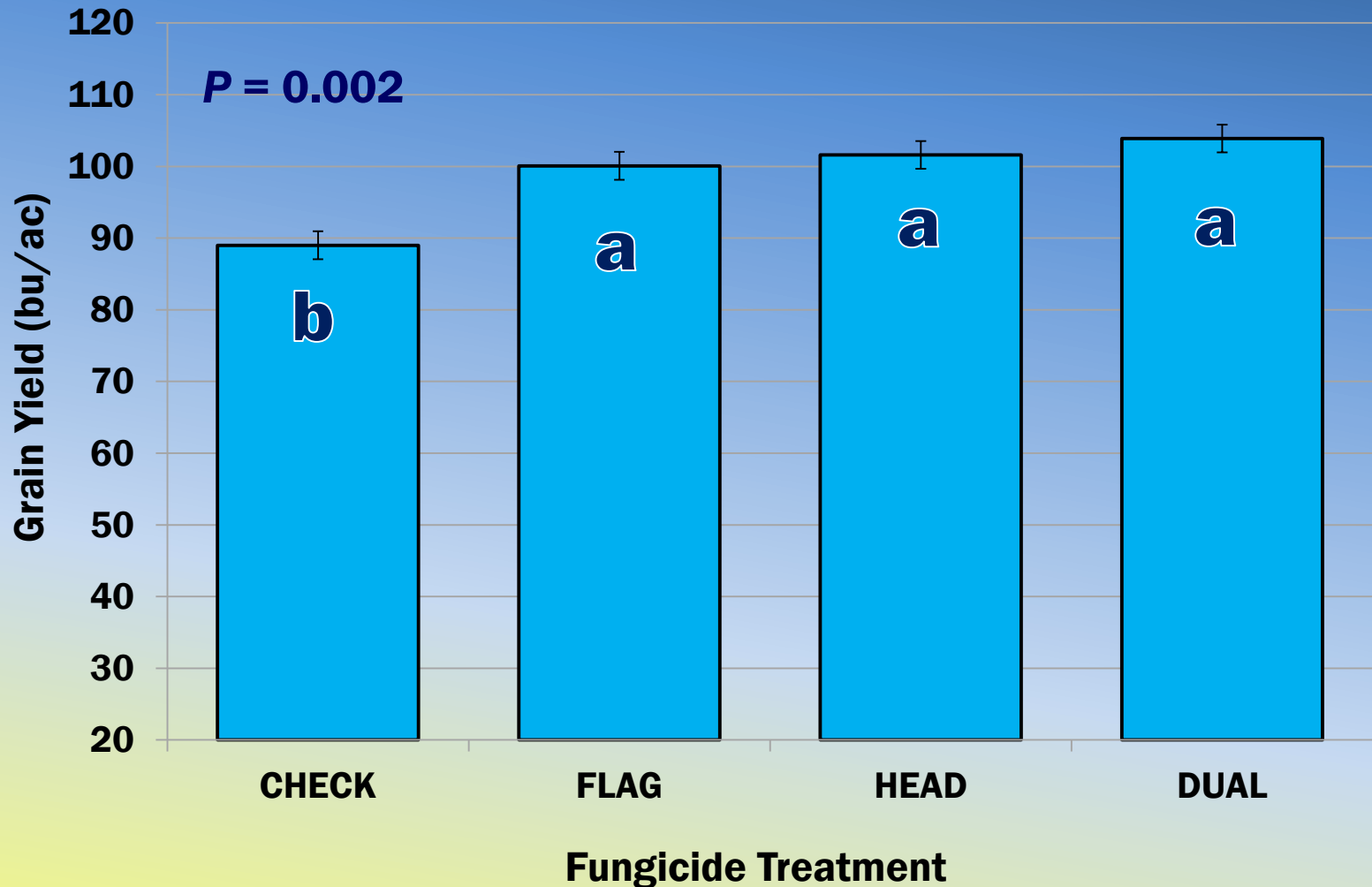
## Effects on Fusarium Head Blight





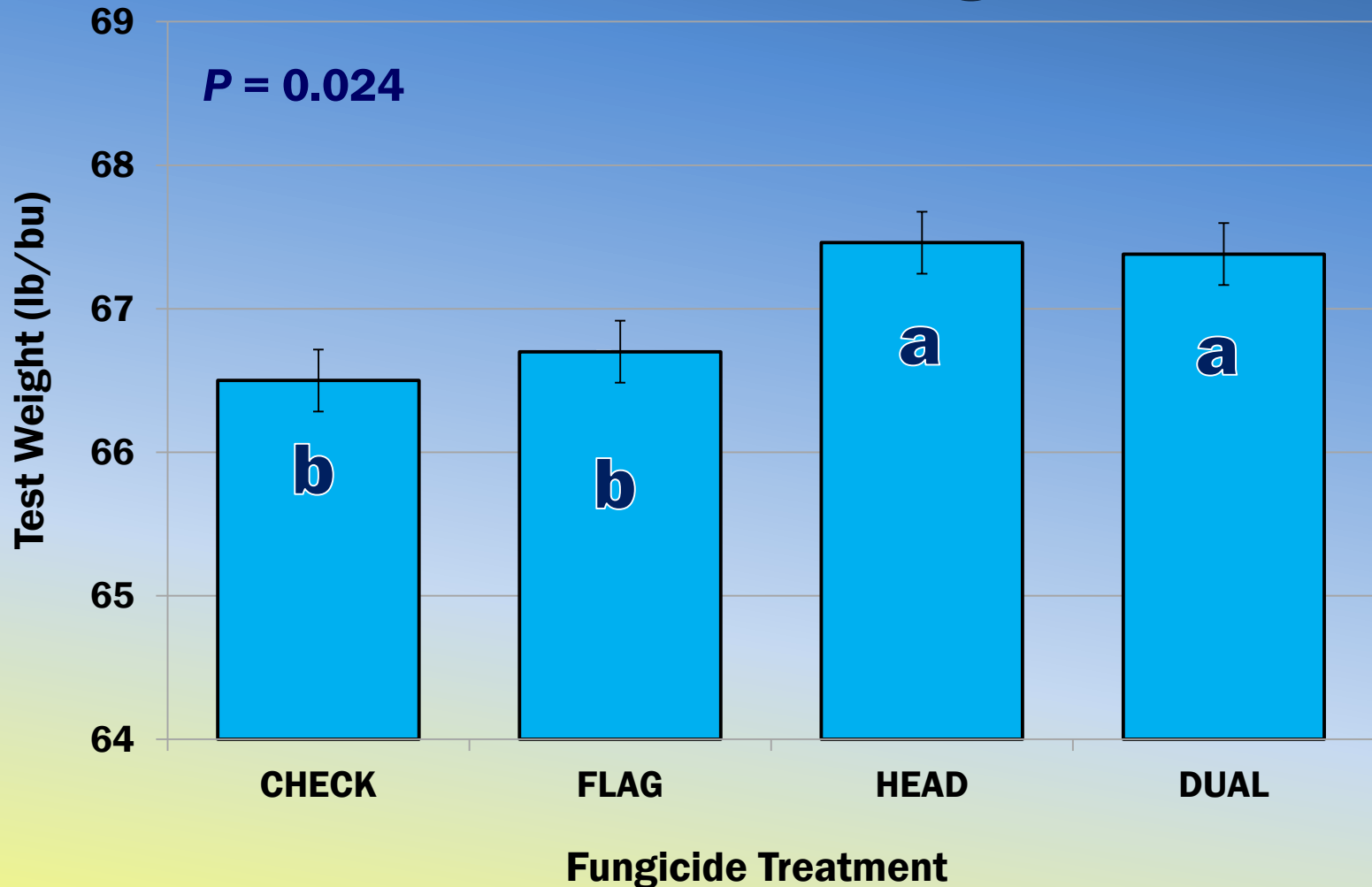
# Foliar Fungicide Demo

## Effects on Grain Yield



# Foliar Fungicide Demo

## Effects on Test Weight



# W. Wheat – Take Home Messages

- Winter wheat that does not emerge in the fall can still vernalize and produce high yields – assess stand establishment May 15-25 to give crop time to recover while still allowing reseeding if necessary
- Consider using seed-applied fungicide, particularly when seeding into very dry soils or potentially when seeding into cold soils
  - Significant benefits are less likely under optimal emergence conditions
- Applying entire N fertilizer requirements at planting still considered a risky practice in SE Saskatchewan but banding a some N can be beneficial particularly under dry conditions (split application)
  - Side-banded ESN blends or Super-Urea for spring broadcast possibly a good fit for winter cereals where potential losses can be high
- Foliar fungicides can effectively protect high yields when disease pressure is moderate to high
  - If leaf disease minor at flag-leaf stage, a single fungicide application at early heading will likely be most economical





# Thank You!



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## CROP MANAGEMENT FIELD DAY – July 22, 2014