



The Ratoon Rice Crop: Agronomic and Fertility Research

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Introduction

- SW Louisiana & Texas Gulf Coast climate
 - Long season
- *Ratoon* - 2nd crop
 - *Re-growth from 1st crop stubble*
 - “ratoon”, “stubble”, “second crop”
- *1/3 of 1st crop yield*
 - *Higher profit margin*
- *Lower input costs*
 - *Irrigation, harvest, drying*
 - *90 lb N/A*
 - *Other chemicals limited*



General Recommendations

- Plant early
 - March 20
- Try to harvest no later than Aug. 15
- Avoid excessive N applications or stubble management
 - delays maturity



When not to ratoon

- Remember 1st crop conditions effect ratoon crop
 - Disease and insect pressure
 - Death of tillers – prevent regrowth
- Red rice
 - Reduce yield and quality
 - may want to avoid ratoon crop to prevent germination of red rice seed
- Did you harvest under dry conditions?
 - muddy soil leads to heavy rutting

Plant Growth Regulator

ProGibb[®] 40%

Water Soluble Granule



For Organic Production

ACTIVE INGREDIENT:

Gibberellin A₃ 40.0% w/w

OTHER INGREDIENTS 60.0% w/w

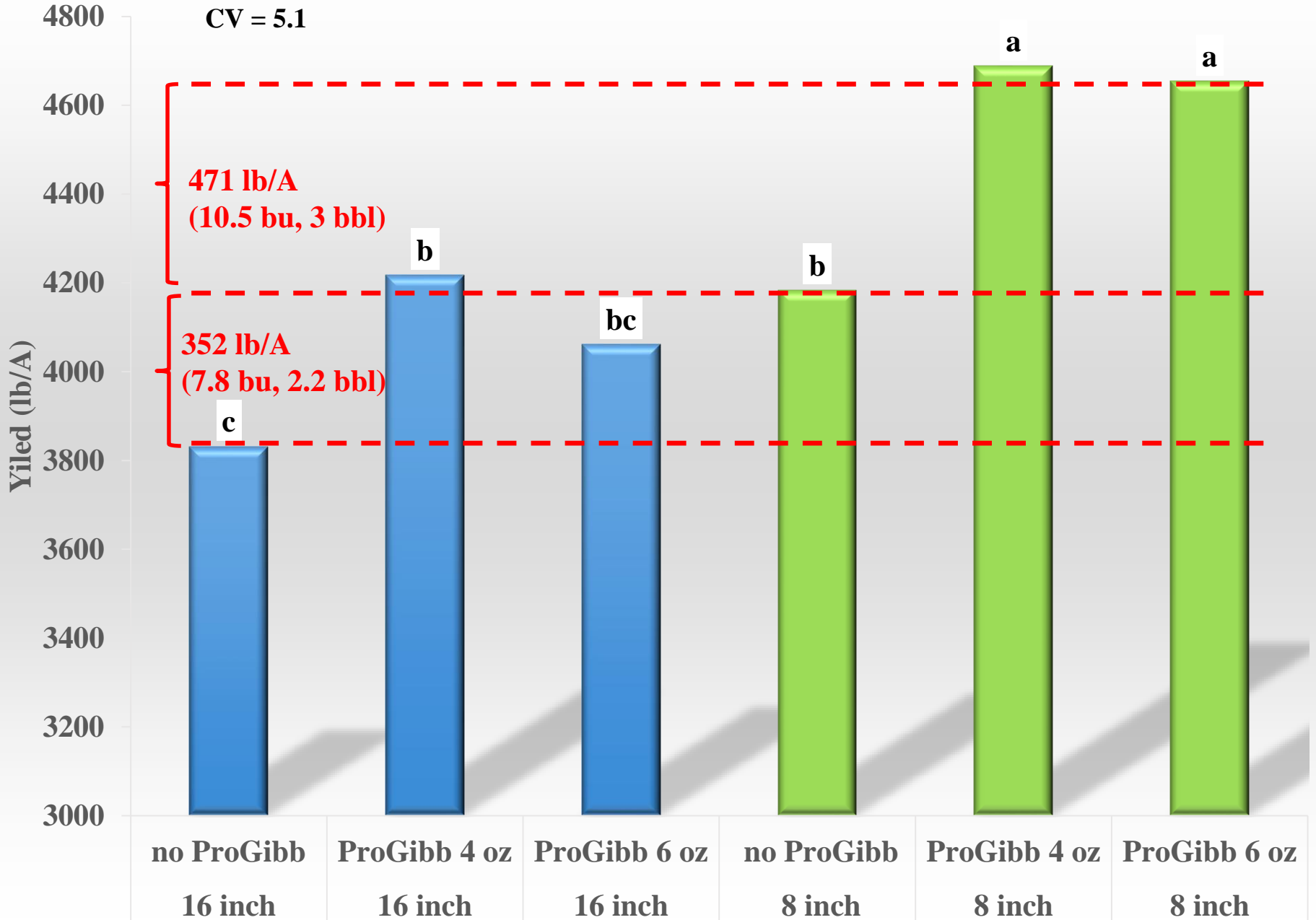
TOTAL 100.0% w/w

Rice	To promote main culm and tiller panicle extension resulting in improved pollination and seed yield.	3 - 8 GRAMS A.I 7.5 - 20 grams product 0.3 - 0.7 ounces product	Make a single application between split-boot and 100% panicle heading. Heading applications to the first crop also has been observed to accelerate re-growth of second crop rice.
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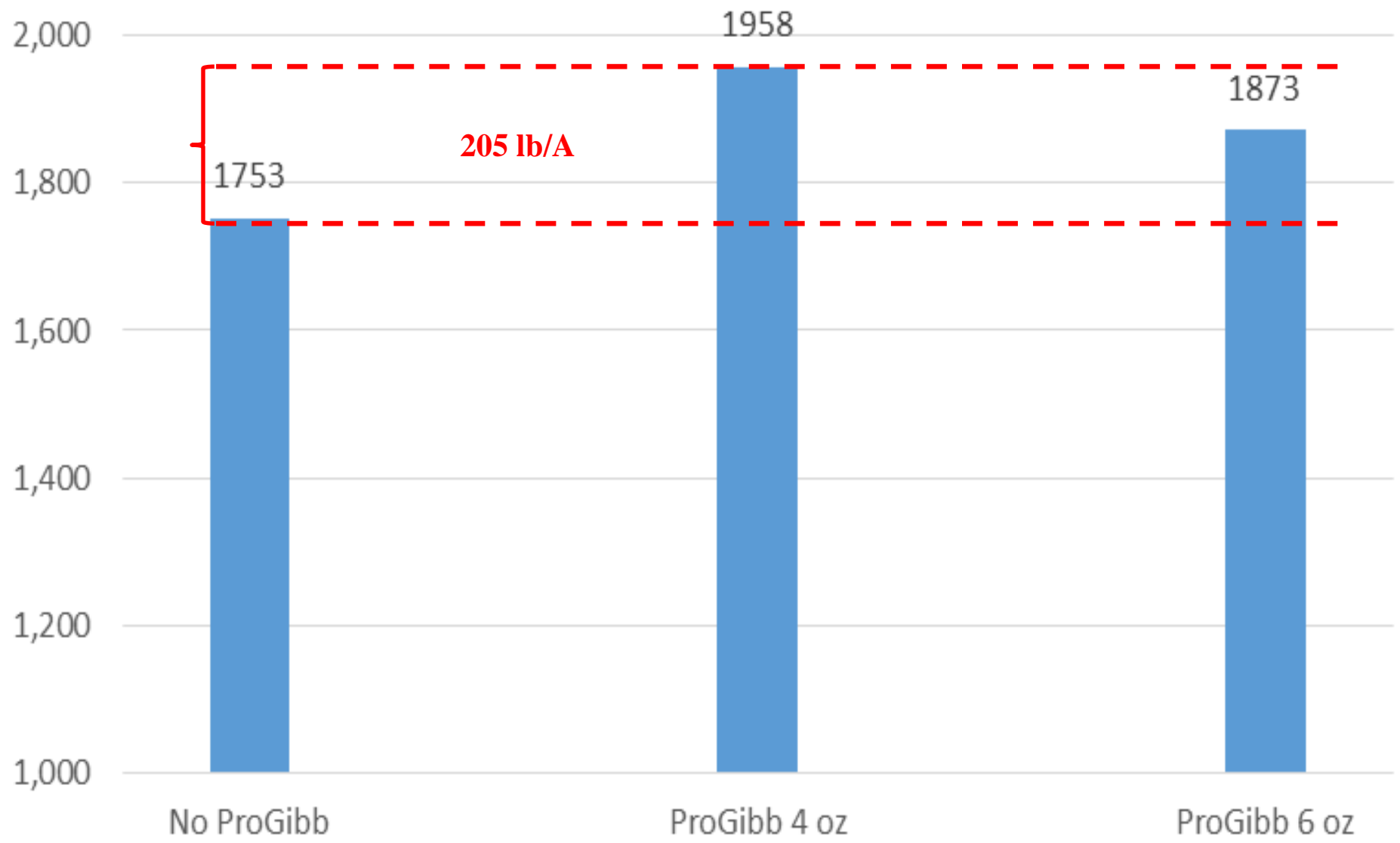
Yield

LSD = 329

CV = 5.1




Evaluation of ProGibb on application at softdough on ratoon yields (Crowley, 2016)



What is the optimum N rate for the ratoon crop?



- 90 lb/A (in most years for all varieties and hybrids)
- Reduce N rate after Aug. 15
 - 6 lbs N per day (conservative)

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1. When is the best N fertilizer application timing?
 2. Can you split N applications to improve yields and NUE?

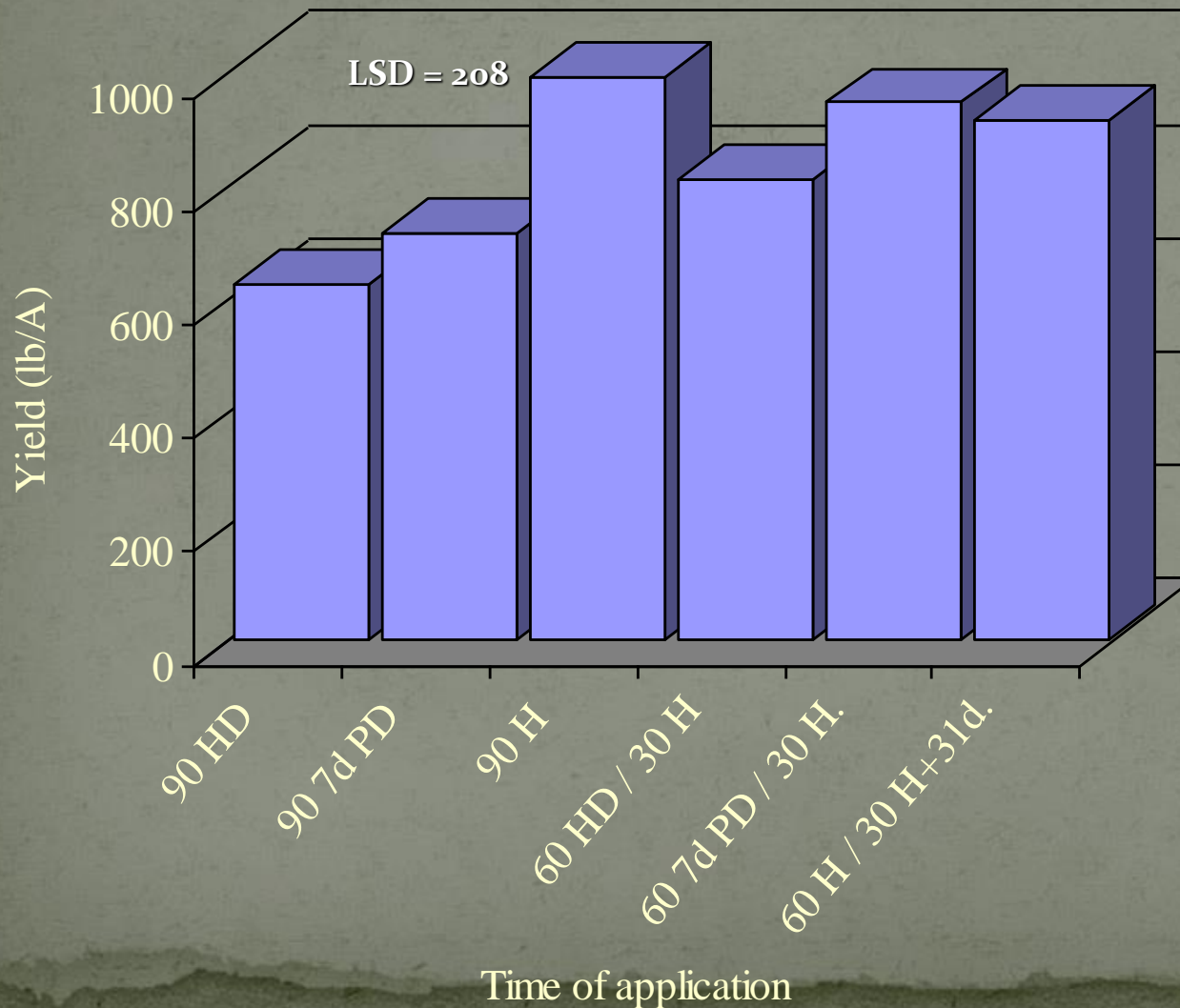
N time of application study

90 lb/N A:

- 1) Heading (HD)
- 2) 7 day pre-drain (7d PD)
- 3) Harvest (90H)
- 4) 60 HD + 30H
- 5) 60 7d PD + 30 H
- 6) 60H + 30 @ 31dPH



Effect of time of N application on Trenasse ratoon yield



Splitting ratoon N applications and early ratoon N applications do not provide any advantage over the one time harvest N application.

Do you need additional P for the ratoon Crop?

What is the optimum timing and rate?



Nutrient Requirement by Rice

Nutrient	Removal, lb/bu
N	0.45
P ₂ O ₅	0.28
K ₂ O	0.18

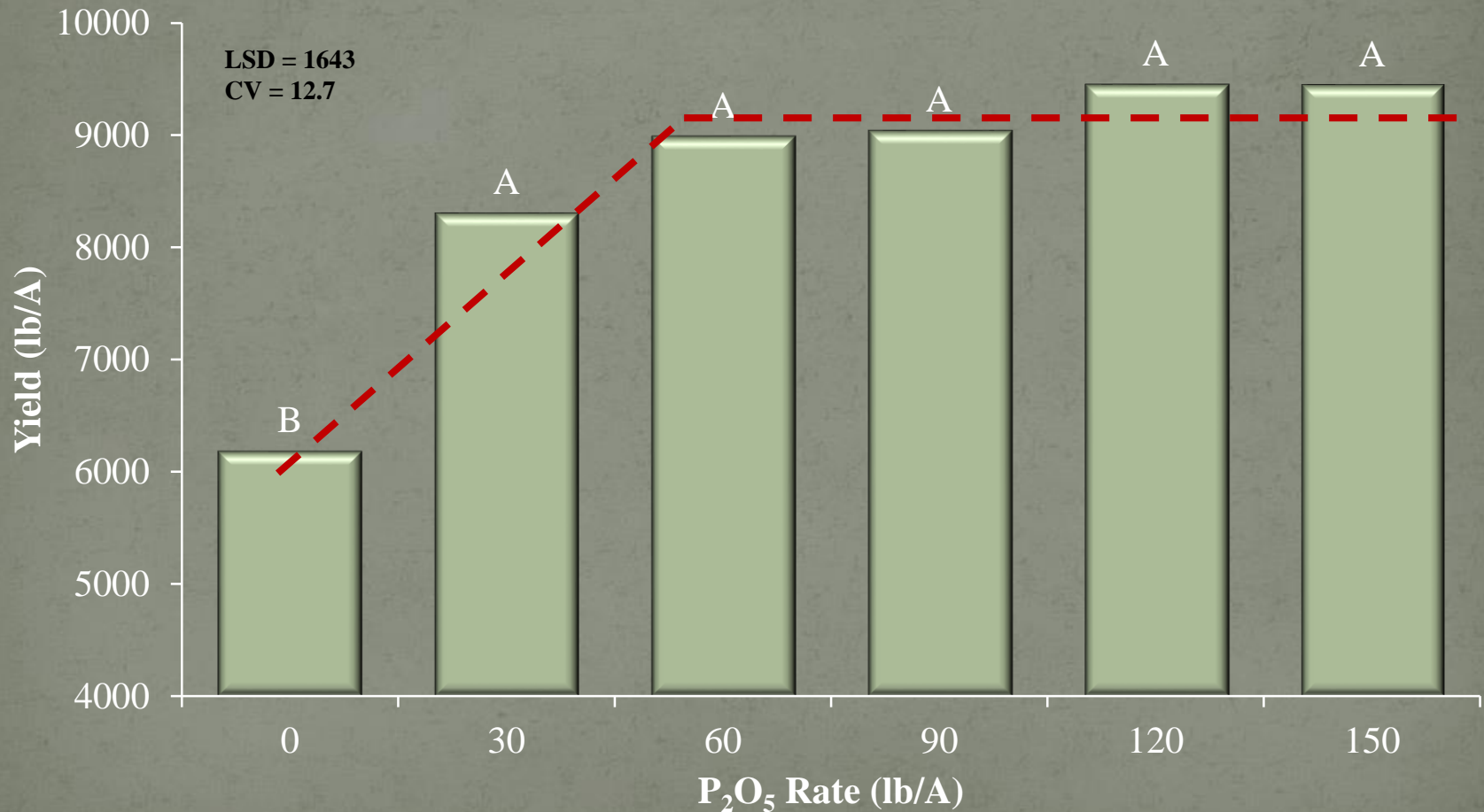
Nutrient	Uptake, lb/bu
N	0.72
P ₂ O ₅	0.39
K ₂ O	1.08

So, a 200-bu (9,000 lb/A or 56 bbl) rice crop will take up 78 lb P₂O₅

(70% grain ≈ 55 lb/A; straw ≈23 lb/A)

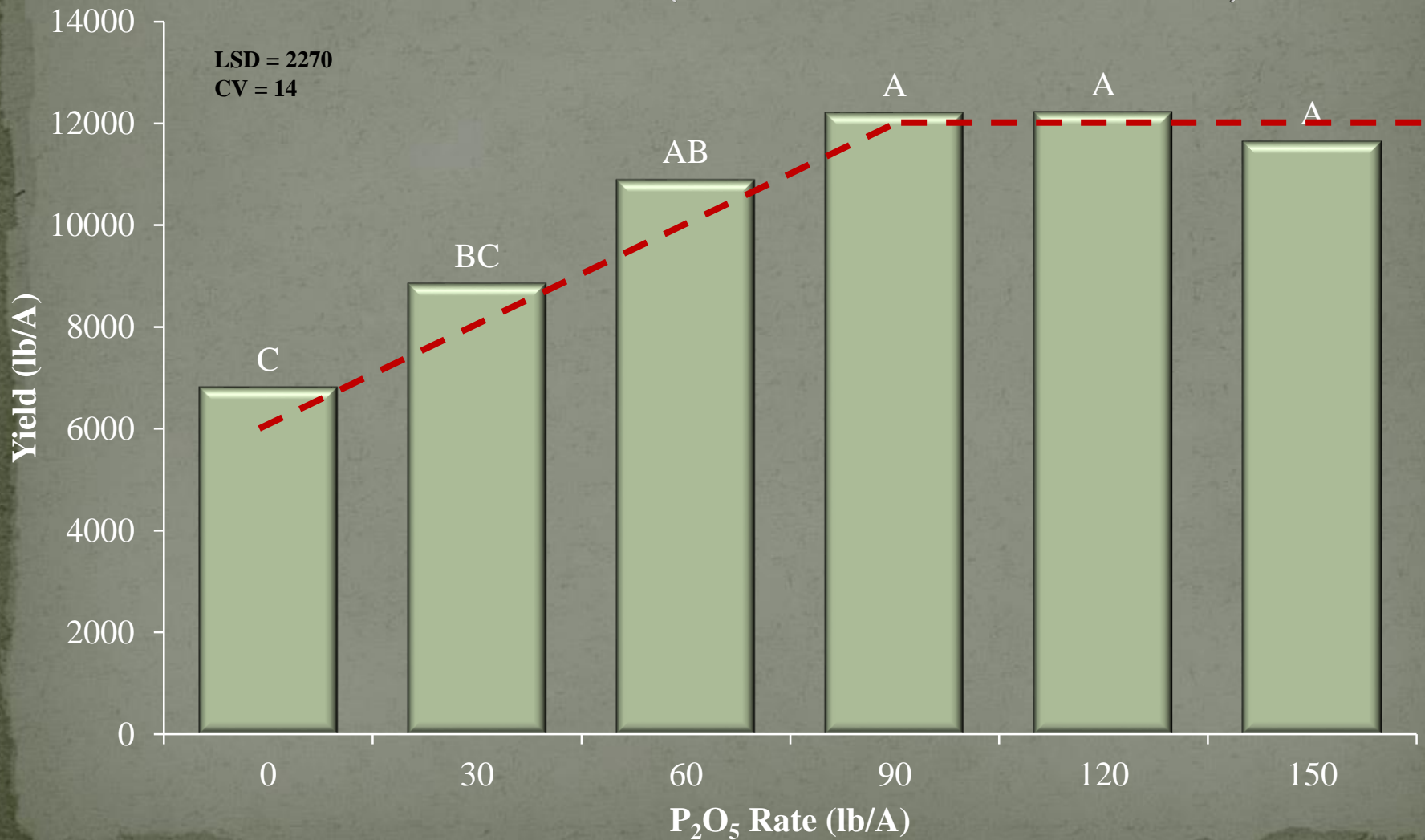
Evaluation of P Rate

Miller Bro. Farms – Egan, LA (2011).



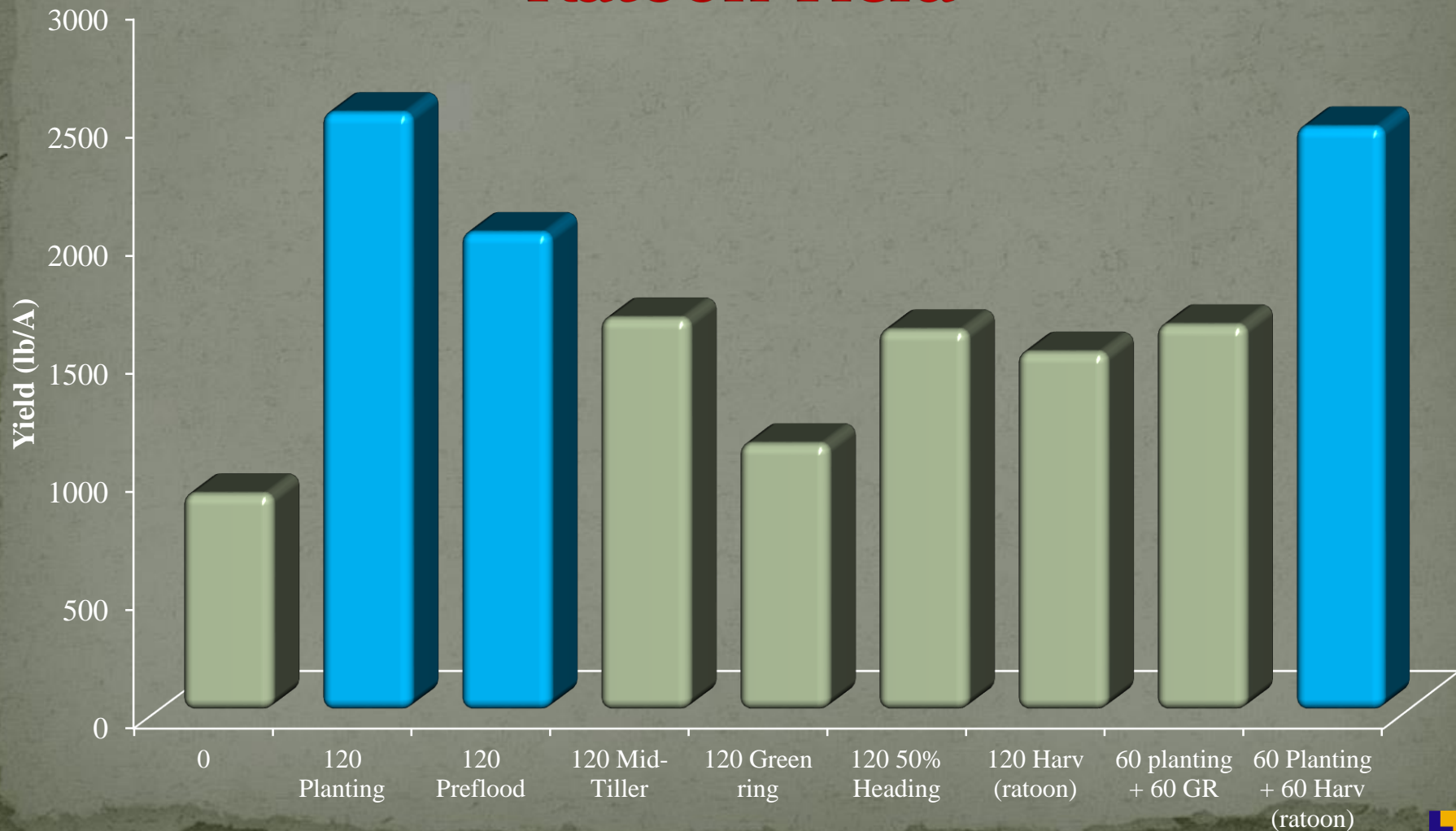
Evaluation of P Rate

Total Yield (Main + Ratoon)



Evaluation of P Fertilizer Timing on Yield Miller Bros. Farm – Egan, LA (2011).

Ratoon Yield



Ratoon Stubble Management

Fungicide application did not improve yield or reduce incidence of Cercospora



Standard (16")

Low Harvest (8")

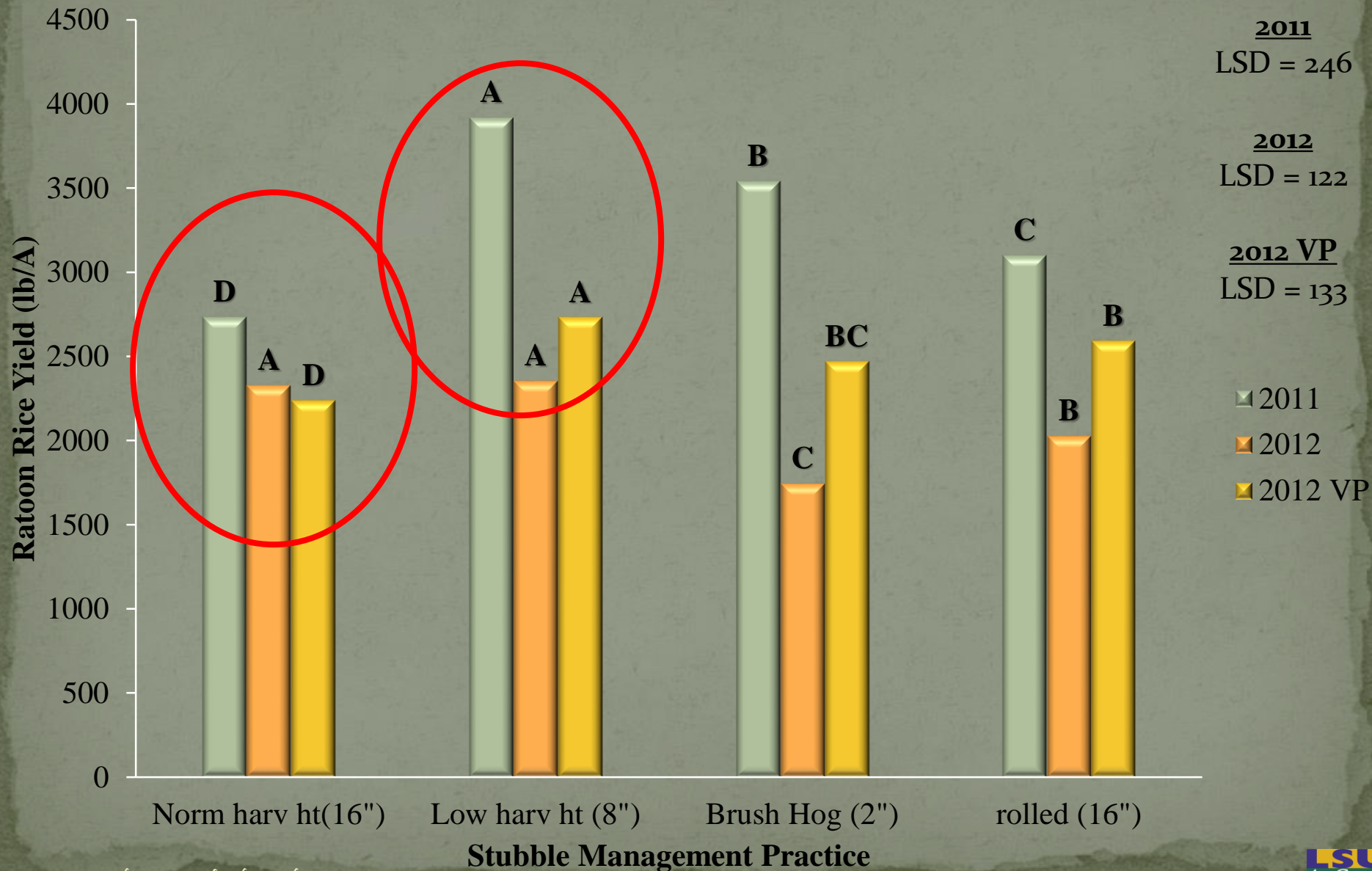
Bush Hog (2")

Rolled

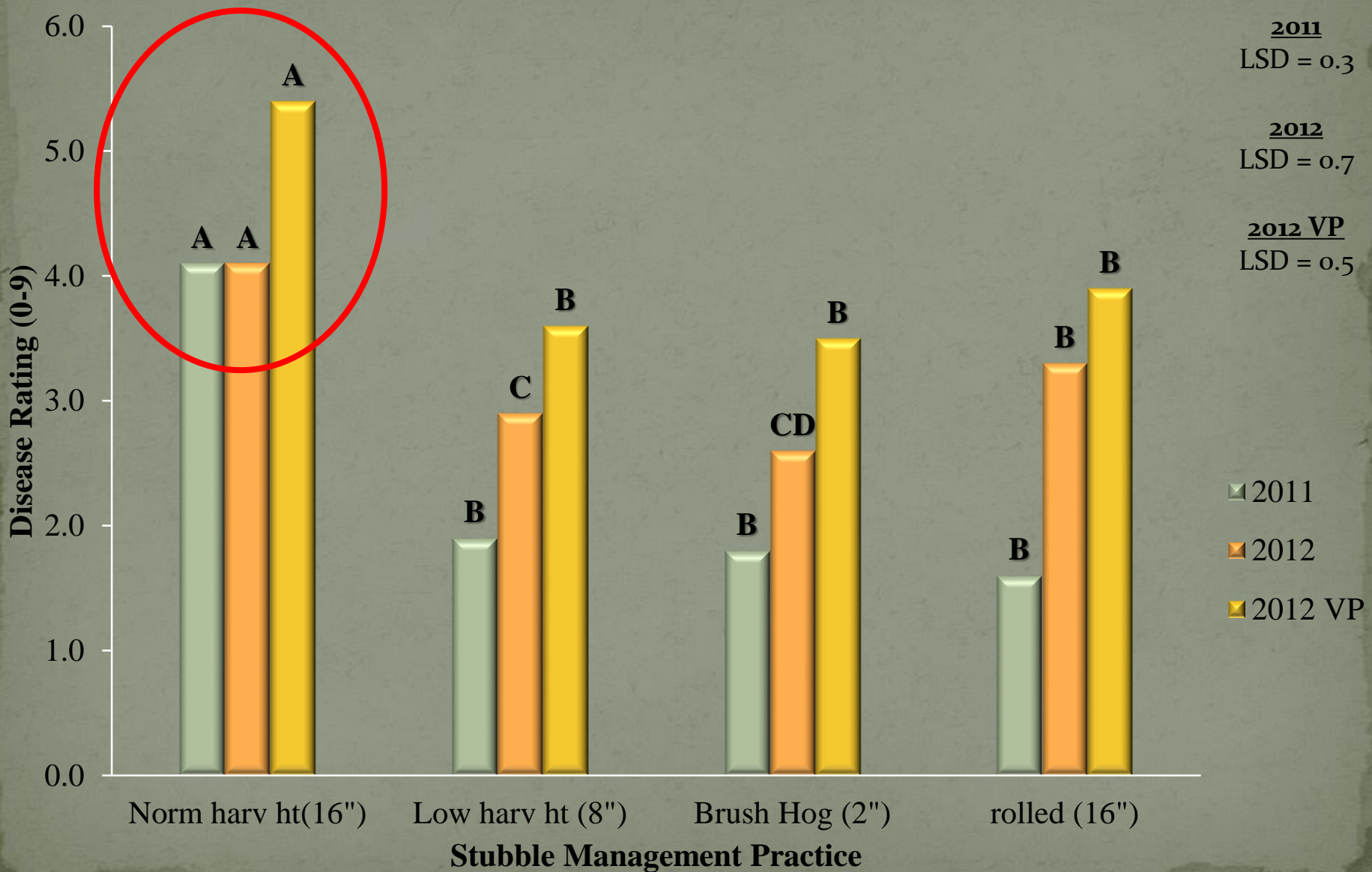
CL₁₃₁ and Catahoula

Quilt XL (21 oz, 4WAH)

Effect of Stubble Management on Yield



Effect of stubble management on Cercospora



What does stubble management do to agronomics?

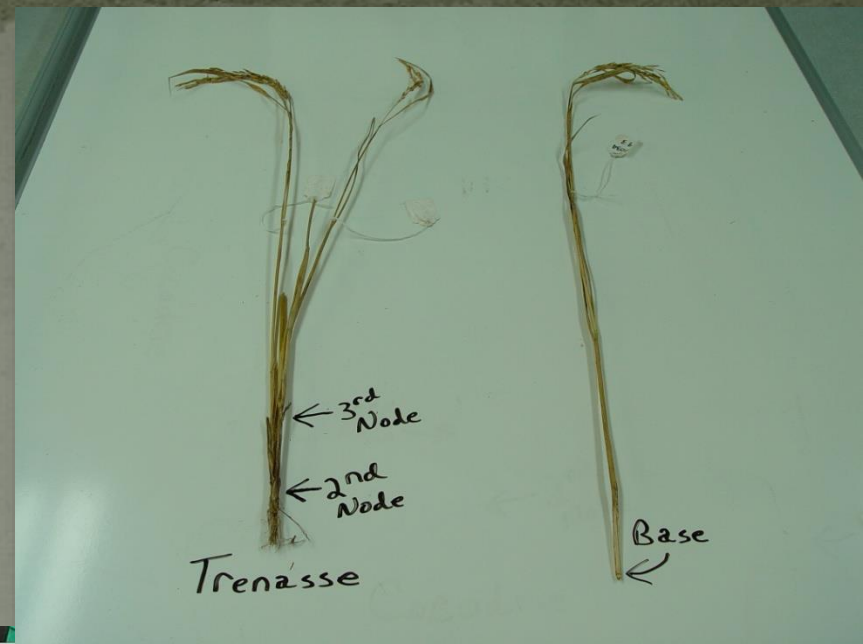
(8" vs. 16")



- ◎ Every panicle tagged
 - 3 m linear section
 - Tagged each week
 - beginning at 3 weeks after harvest (3WAH).
 - 3WAH – 10WAH
 - Ratoon harvest @ week 13

◎ Tagged samples were hand harvested:

- Panicle # / week
- Wt. of panicle / week
- Point of origin
 - Axial node
 - Basal node
- Summary data 2006
- Each week 2007

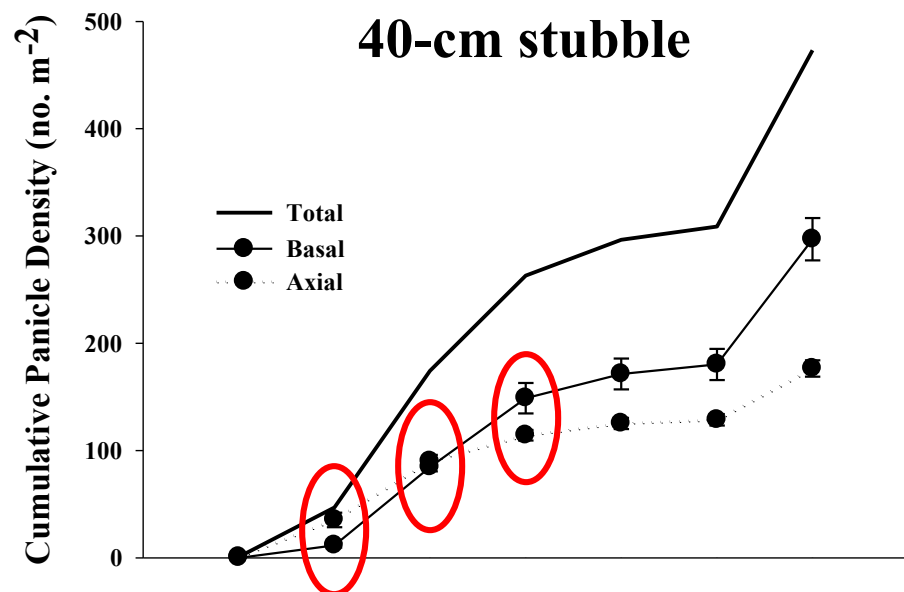


Cumulative ratoon panicle emergence of Trenasse (pooled over years)

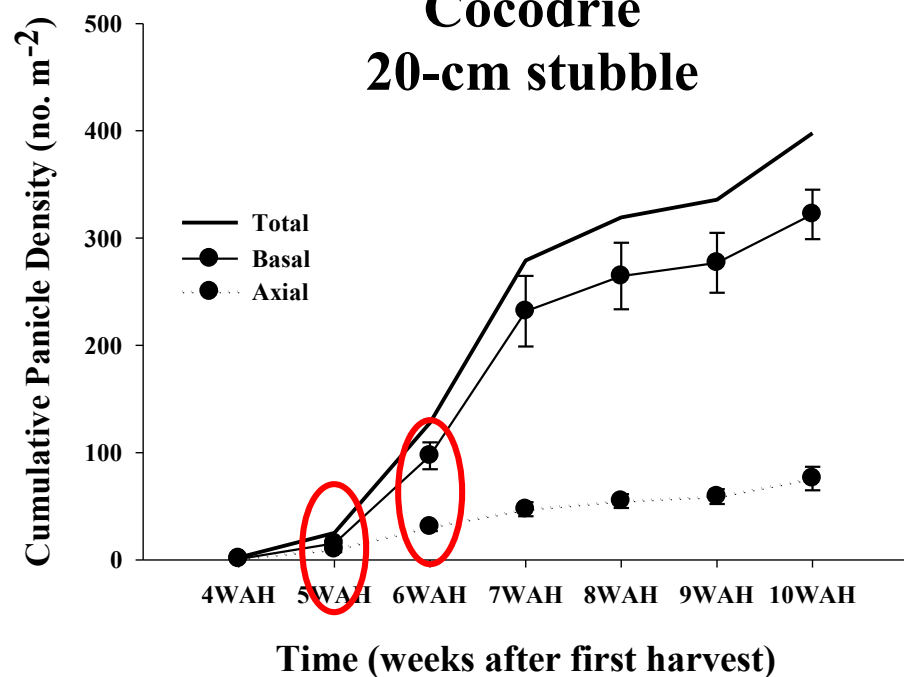


2007
Panicle emergence was also differentiated by panicle origin on a weekly basis

Cocodrie 40-cm stubble



Cocodrie 20-cm stubble



If the 40cm stubble treatment produced more total panicles than the 20cm treatment
Why did the 20 cm treatment produce a significant yield advantage?



Axial and Basal Panicle Weights (pooled over years)

- Axial

	F	P
Variety (V)	0.4	0.53
Stubble Height (SH)	2.9	0.09
V x SH	0.1	0.78

- Basal

	F	P
Variety (V)	2.3	0.13
Stubble Height (SH)	39.2	<.001
V x SH	0.4	0.55

	Axial	Basal
Stubble Height	g panicle ⁻¹	
20 cm	0.4	0.9
40 cm	0.5	0.7
LSD	0.2	0.1

Conclusions

- Stubble management practices
 - delay maturity
 - force regrowth from lower/crown nodes
 - Increase uniformity (grain quality)
 - Increases yield (in high yielding years)
 - Reduces Cercospora incidence