Peanut Response to Dicamba (Clarity)

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APRES 2009

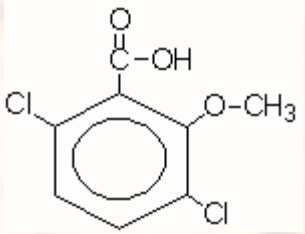
2007 Contaminated 2,4-DB Symptomology

2007 Contaminated 2,4-DB (> 250 ppm or 0.025%)

Lot #	Dicamba (%)	2,4-D (%)
FB-01	0	0.294 0.091 (MCPA)
EC-16	0.170	0.110 0.079 (MCPA)
EC-16	0.198	0.104
EL-31	0	0.011
EL-31	0	0.010
EL-31	0	0.012
CE-04	0	0.006

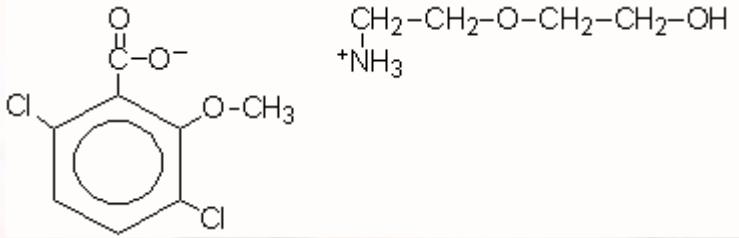
Dicamba-Resistant Crops

- Behrens et al. 2007 Science 316:1185-1188. (Nebraska)



dicamba acid

- Transferred gene from *Pseudomonas maltophila* into tobacco, soybeans, tomatoes



dicamba DGA salt

- Monsanto in hot pursuit

Dicamba Drift on Soybeans

Photo: Purdue University Weed Science

- 14-93% yield reduction (V3)
  - *Anderson et al. 2004 (SD)*
- 15%-22% yield loss (V3); 12-28% yield loss (V7)
  - *Kelley et al. 2005 (IL)*

Objectives

- Determine the influence of Clarity rate and timing of application on peanut yield
- Develop a predictive model for future use

Materials and Methods

- 8 locations across Peanut Belt
  - *GA(2), FL(2), SC(1), NC(1), TX (2),*
- RCB design
- 3 X 6 factorial arrangement
  - *Timing (30, 60, 90 DAP)*
  - *Rate (0, 1, 2, 4, 8, 16 oz/A Clarity)*
- 4 replications
- Weed-free

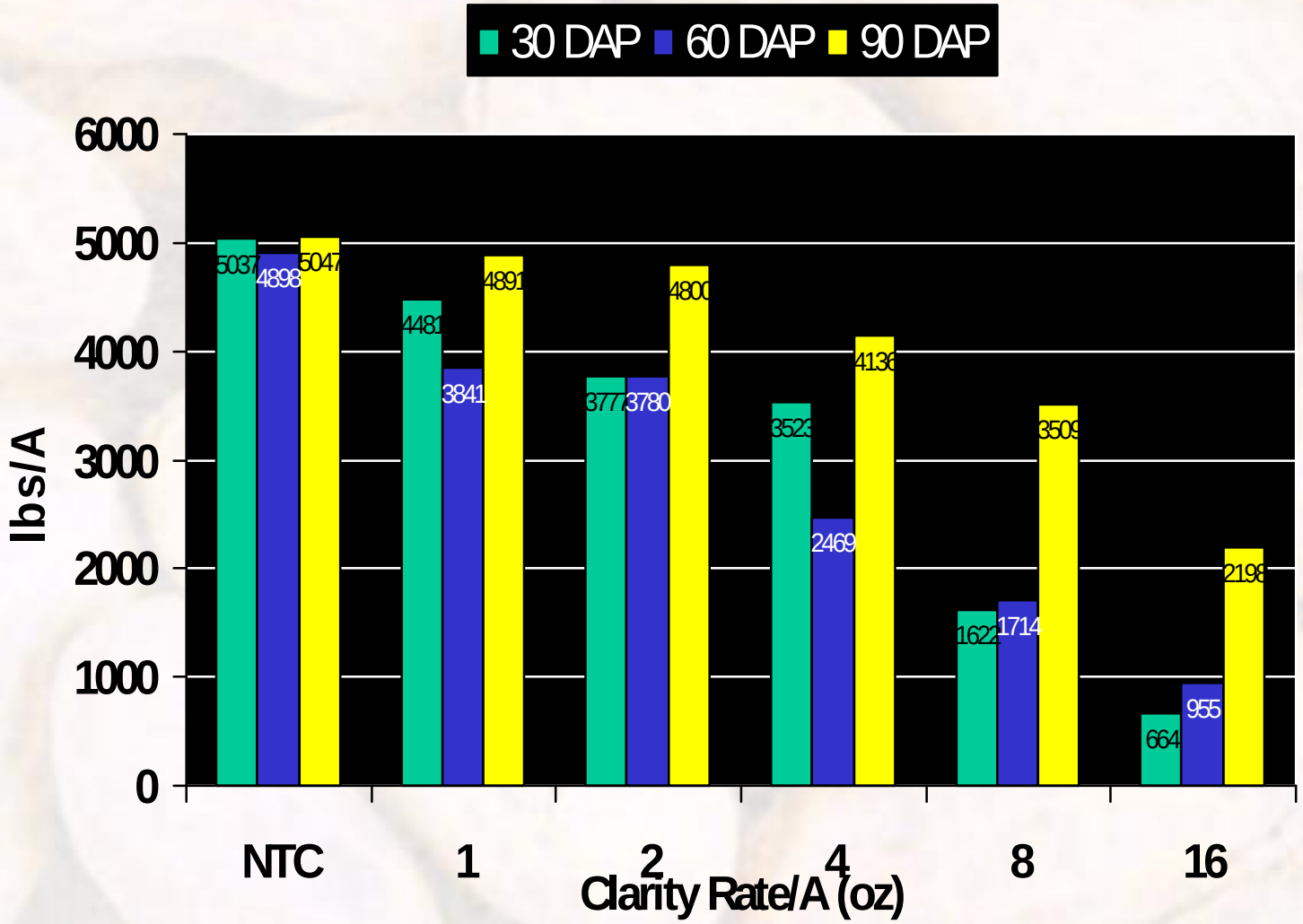
Site Descriptions

State	Location	Variety	Planting Date	Digging Date	Harvest Date	Soil Characteristics			
						OM (%)	Sand (%)	Silt (%)	Clay (%)
FL1	Citra	Georgia Green	April 23	August 25	August 28	0.5	97	1	2
FL2	Jay	Florida-07	May 12	September 19	September 18	2.1	69	16	15
GA1	Ty Ty	AP-3	May 12	September 26	September 29	1.07	94	2	4
GA2	Plains	Georgia-02C	May 13	October 3	October 7	1.0	40	25	34
NC1	Rocky Mount	VA-98R	May 20	October 8	October 14				
SC1	Blackville	Champs	May 19	October 8	October 15				
TX1	Lamesa	Flavor Runner 458	April 30	October 27	November 5	0.40	67	14	19
TX2	Yoakum	Tamrun OL02	June 16	November 3	November 5	1.0	70	16	14

Results

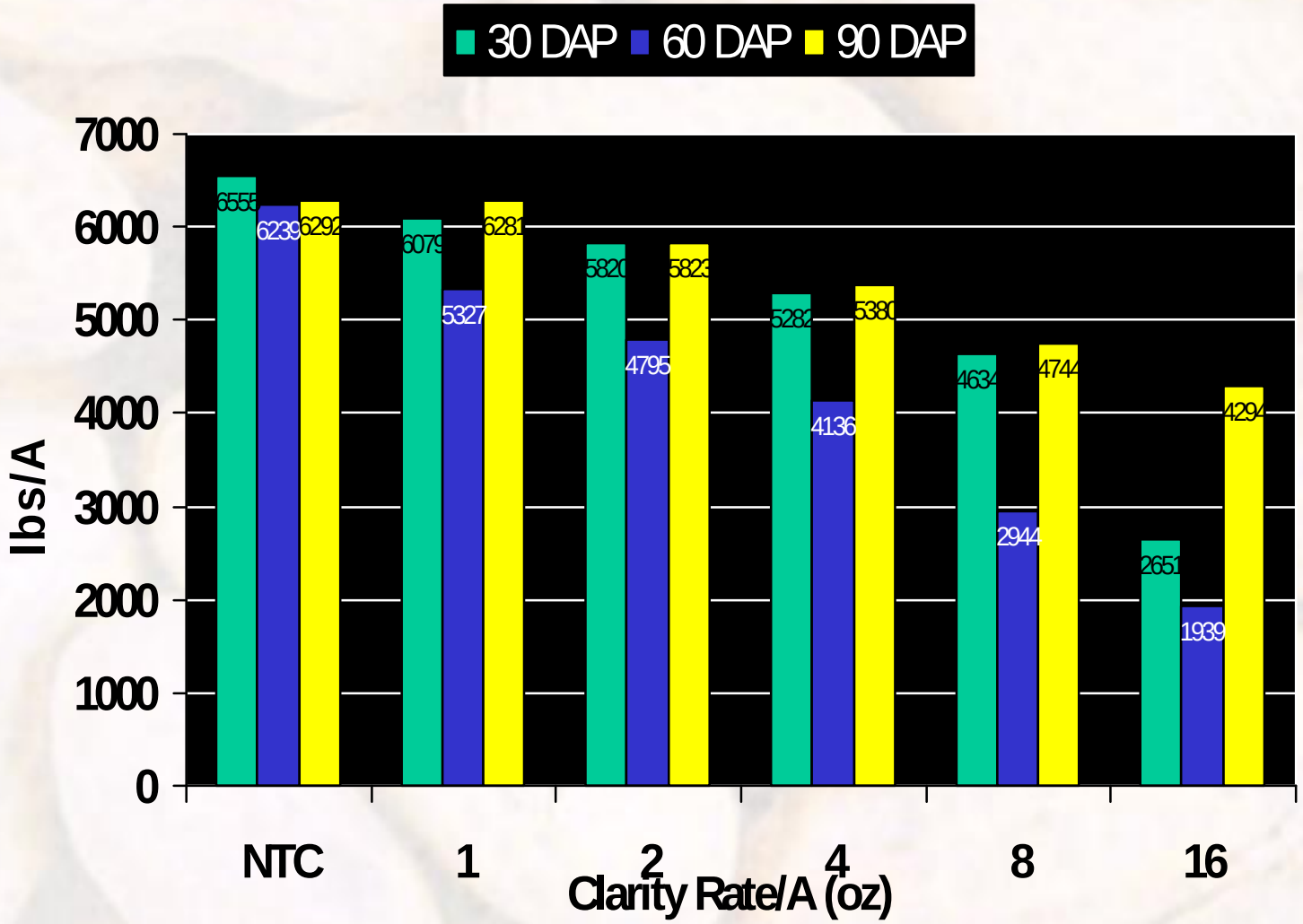
- 5 locations had significant rate X timing interaction
  - *Lamesa, Yoakum, Rocky Mount, Blackville, and TyTy*
- 3 locations had no interaction
  - *Plains, Jay, Citra*
  - *Rate and timing were significant*

Figure 1. Peanut Yield Response to Clarity, Ty Ty, GA (2008).



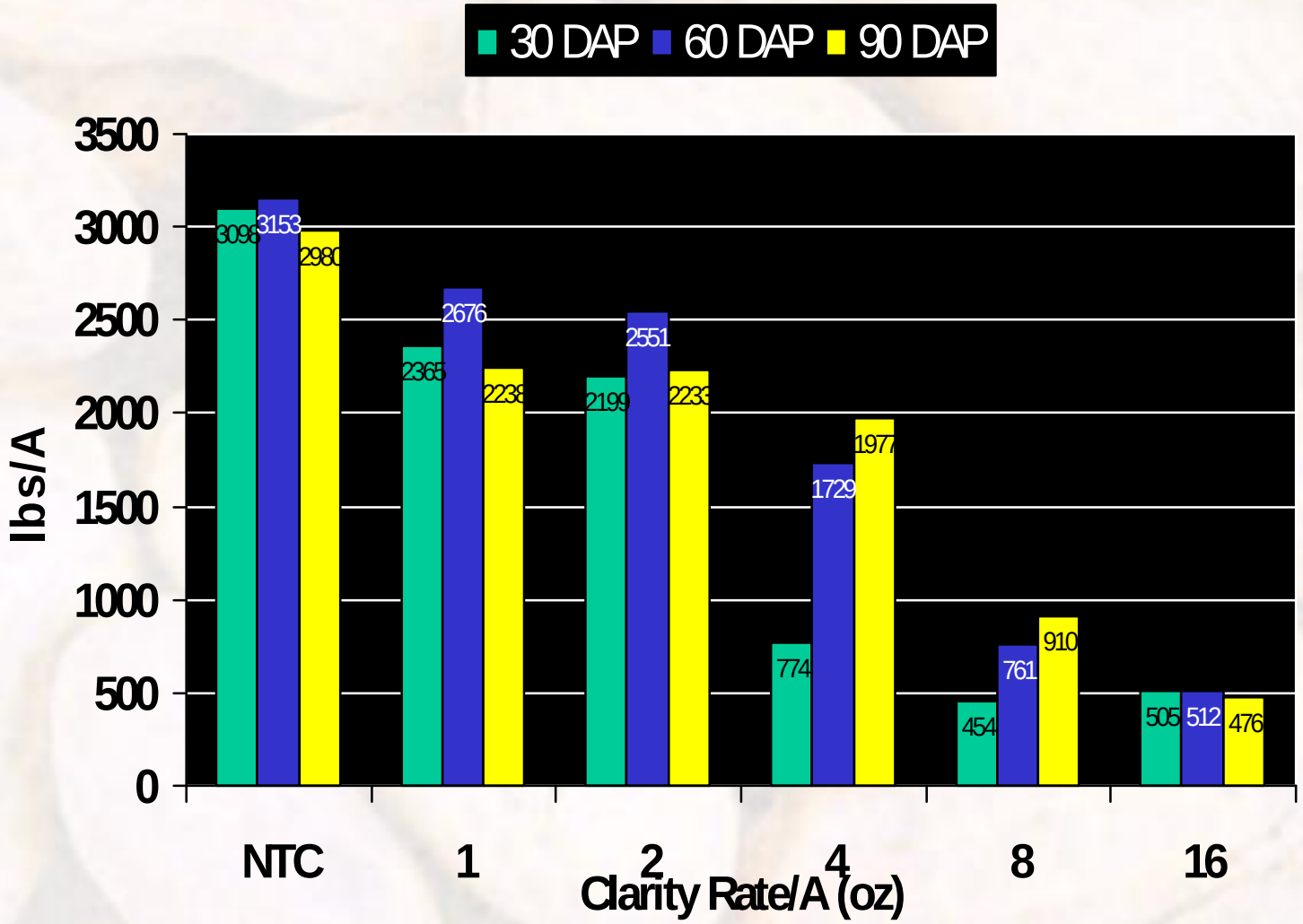
LSD 0.10 = 472

Figure 2. Peanut Yield Response to Clarity, Lamesa, TX (2008).



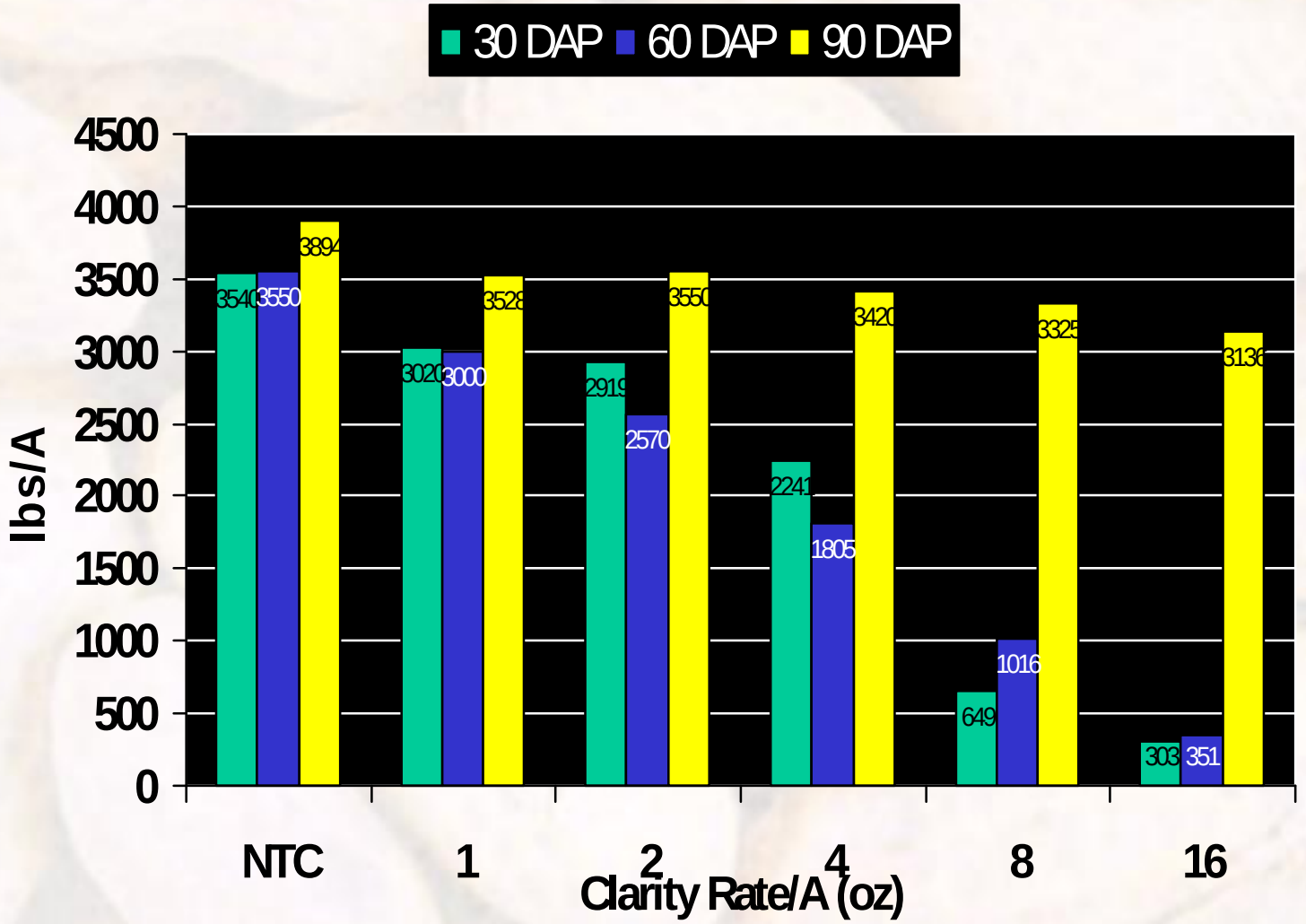
LSD 0.10 = 620

Figure 3. Peanut Yield Response to Clarity, Yoakum, TX (2008).



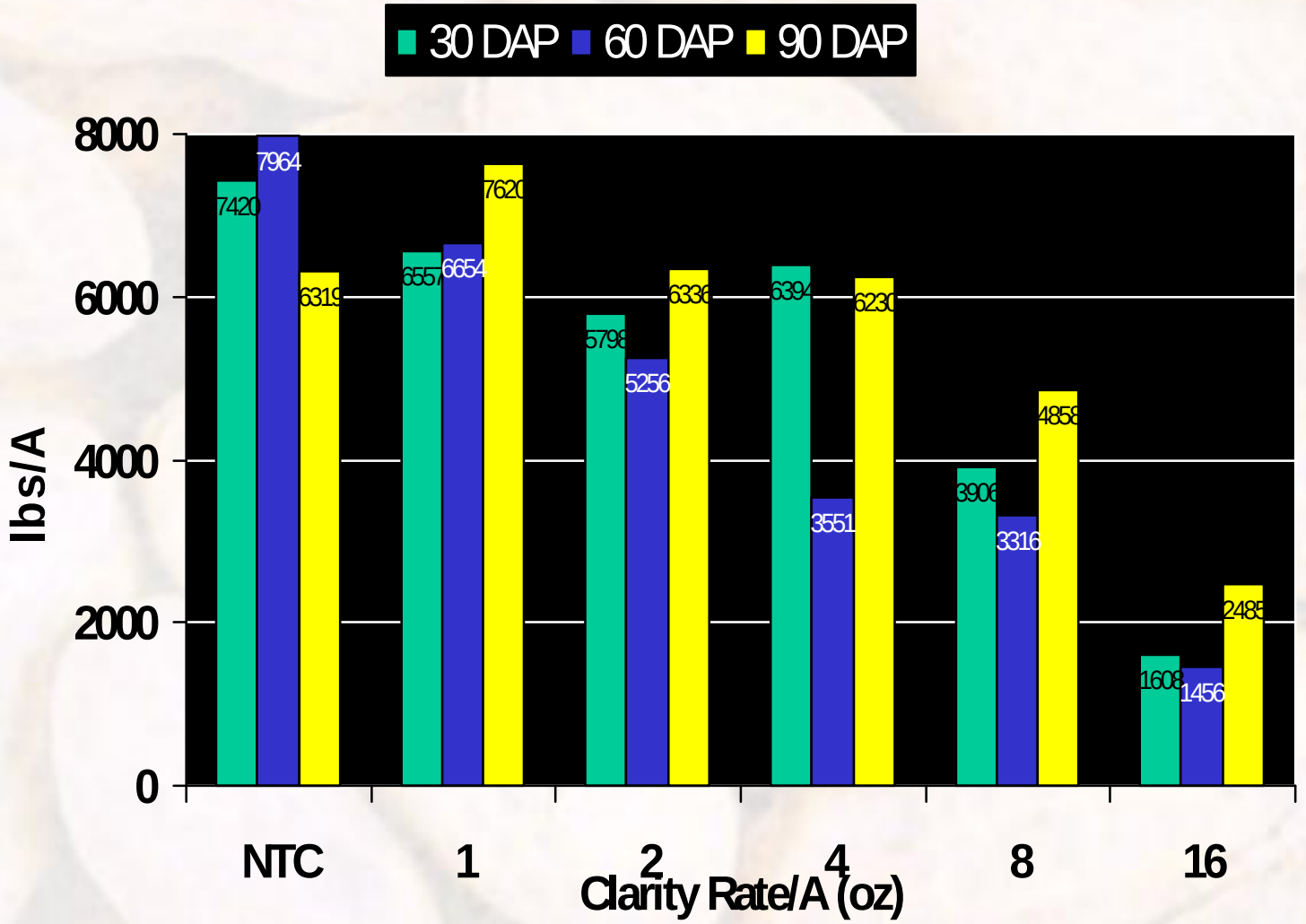
LSD 0.10 = 210

Figure 4. Peanut Yield Response to Clarity, Rocky Mount, NC (2008).



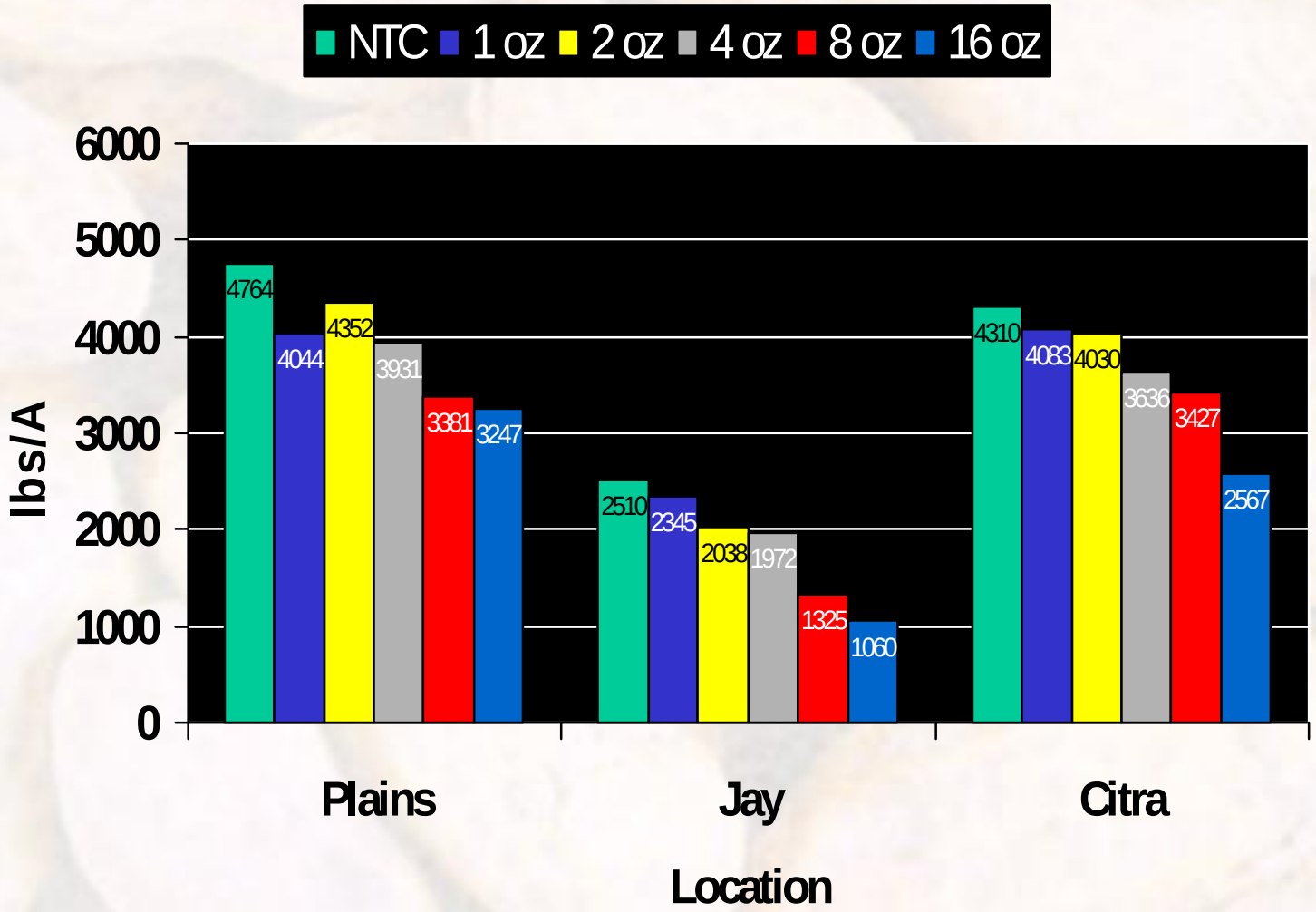
LSD 0.10 = 466

Figure 5. Peanut Yield Response to Clarity, Blackville, SC (2008).



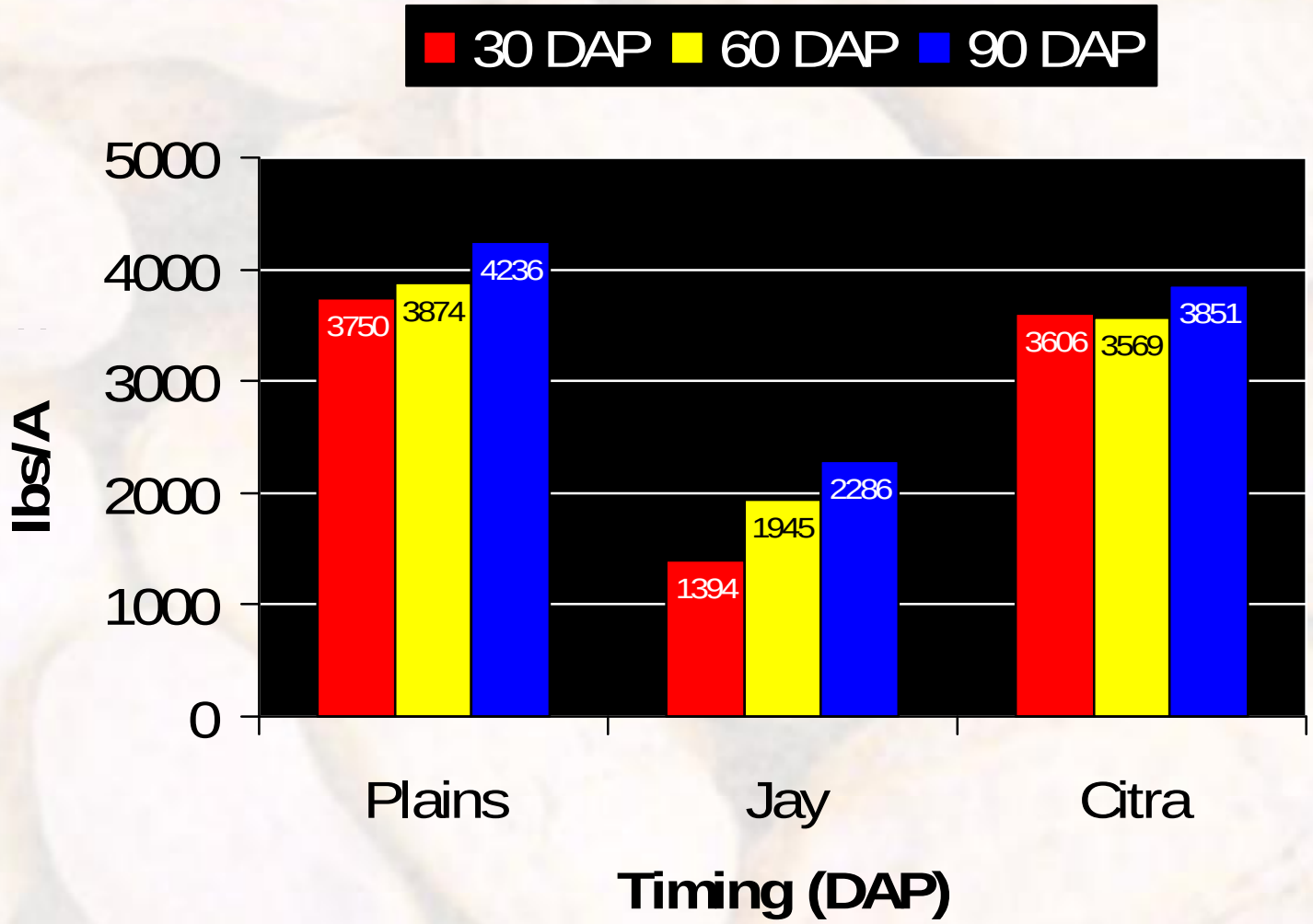
LSD 0.10 = 1208

Figure 6. Peanut Yield Response to Clarity Rate (2008). *(pooled over 3 timings)*



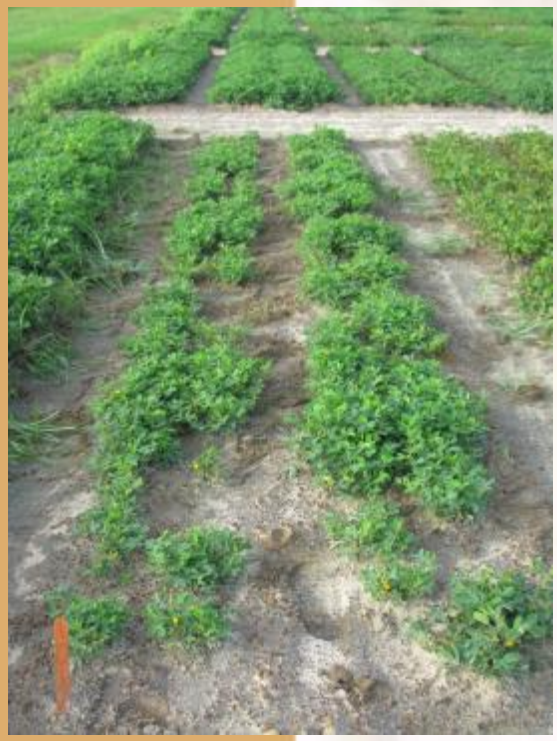
Plains LSD 0.10 = 467
Jay LSD 0.10 = 599
Citra LSD 0.10 = 330

Figure 7. Peanut Yield As Influenced by Clarity Timing (2008). *(pooled over 6 rates)*



Plains LSD 0.10 = 349
Jay LSD 0.10 = 422
Citra LSD 0.10 = 203

Peanut Response to Clarity (dicamba) 4SC @ 16 ozs/A



Applied 30 DAP
(664 lb/A – 87% loss)

Applied 60 DAP
(955 lb/A – 81% loss)

Applied 90 DAP
(2198 lb/A – 56% loss)

Photo 107 DAP
Ty Ty, GA

NTC (4994 lb/A)

Peanut Response to Clarity (dicamba) 4SC @ 8 ozs/A

Applied 30 DAP
(1622 lb/A – 67% loss)

Applied 60 DAP
(1714 lb/A – 66% loss)

Applied 90 DAP
(3509 lb/A – 30% loss)

Photo 107 DAP
Ty Ty, GA

NTC (4994 lb/A)

Peanut Response to Clarity (dicamba) 4SC @ 1 oz/A

Applied 30 DAP
(4481 lb/A – 10% loss)

Applied 60 DAP
(3841 lb/A – 33% loss)

Applied 90 DAP
(4891 lb/A – 2% loss)

Photo 107 DAP
Ty Ty, GA

NTC (4994 lb/A)

Summary

- Increase Clarity rate = increase peanut yield loss
- Increase peanut age = decreased peanut yield loss
  - *Some locations (13/25) 60 DAP more sensitive (R3-R4 stage of growth)*
- Can get significant peanut yield reductions with as little as 1 oz/A Clarity
  - *13% average (0%-low, 25%-high)*
- Growers need to **avoid** contamination/drift problems

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