2011 Cotton Varieties and Production Issues

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2010 Crop Production Acres

Corn – 530,000

Sorghum – 100,000

Cotton 255,000

Sugarcane – 415,000

Soybeans – 1,045,000

Rice – 530,000

*NASS Planted acres - 2010

Louisiana 2009 and 2010

Planted	Harvested	Yield	Total Production (bu.)
		Cotton	
230,000	224,859	745 (09)	167,520,000 lbs
255,000	250,063	787 (10)	196,800,000 lbs

Total bales reported to USDA Classing office in Rayville (minus out of state bales) divided by LA cotton acres puts the state yield average around 860 lbs lint/A.

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LA Cotton Varieties Planted in 2010

Louisiana		
Total Cotton Acreage		255,000
Stoneville	ST 5288 B2F	24.7%
Deltapine	DP 0949 B2RF	17.5%
Deltapine	DP 555 BG/RR	17.0%
Phytogen	PHY 565 WRF	6.6%
Phytogen	PHY 375 WRF	6.0%
Deltapine	DP 1048 B2RF	5.8%
Phytogen	PHY 485 WRF	5.7%
Stoneville	ST 4554 B2RF	3.2%
Deltapine	DP 0924 B2RF	2.7%
Deltapine	DP 515 BG/RR	1.4%

Source: National Cotton Council

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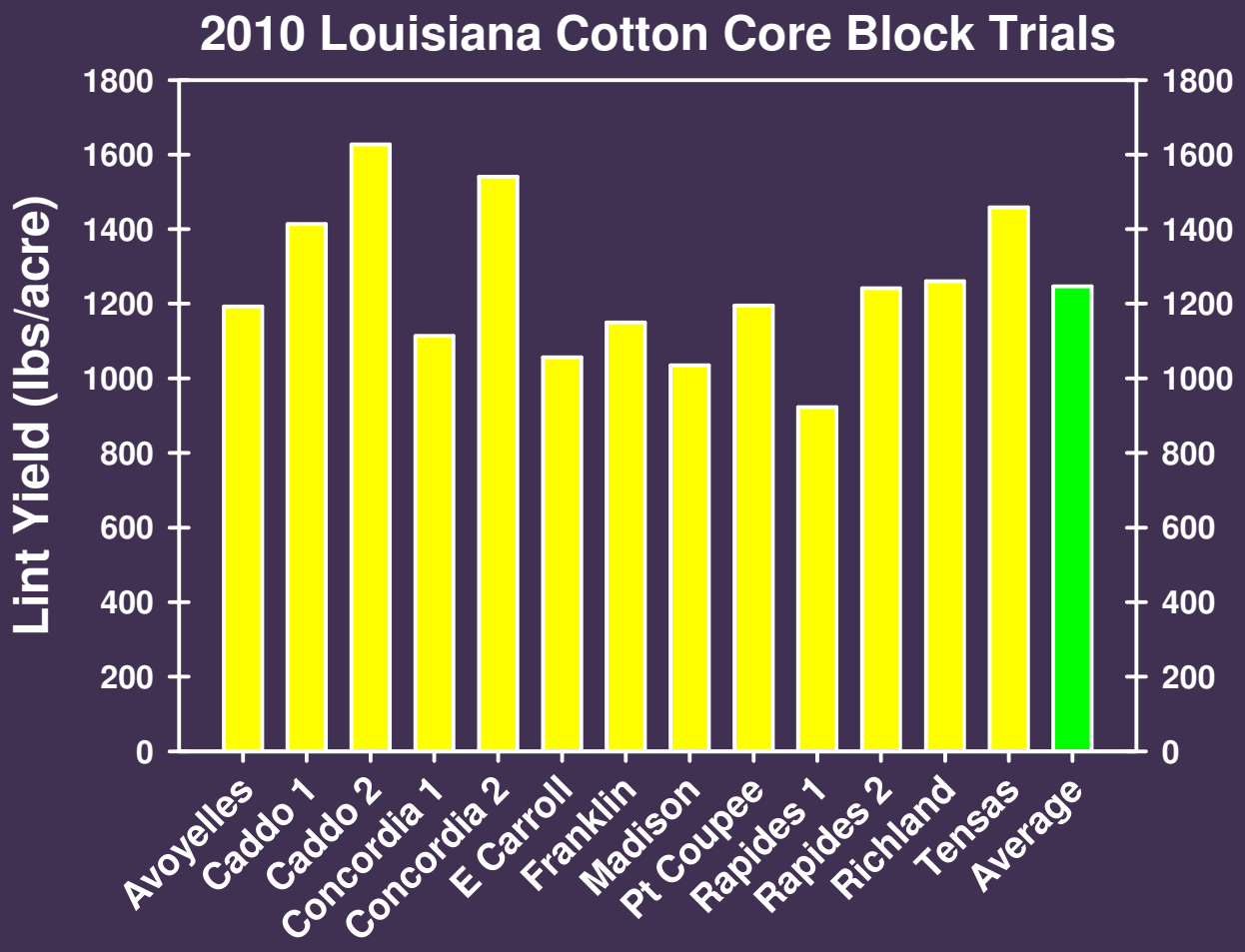
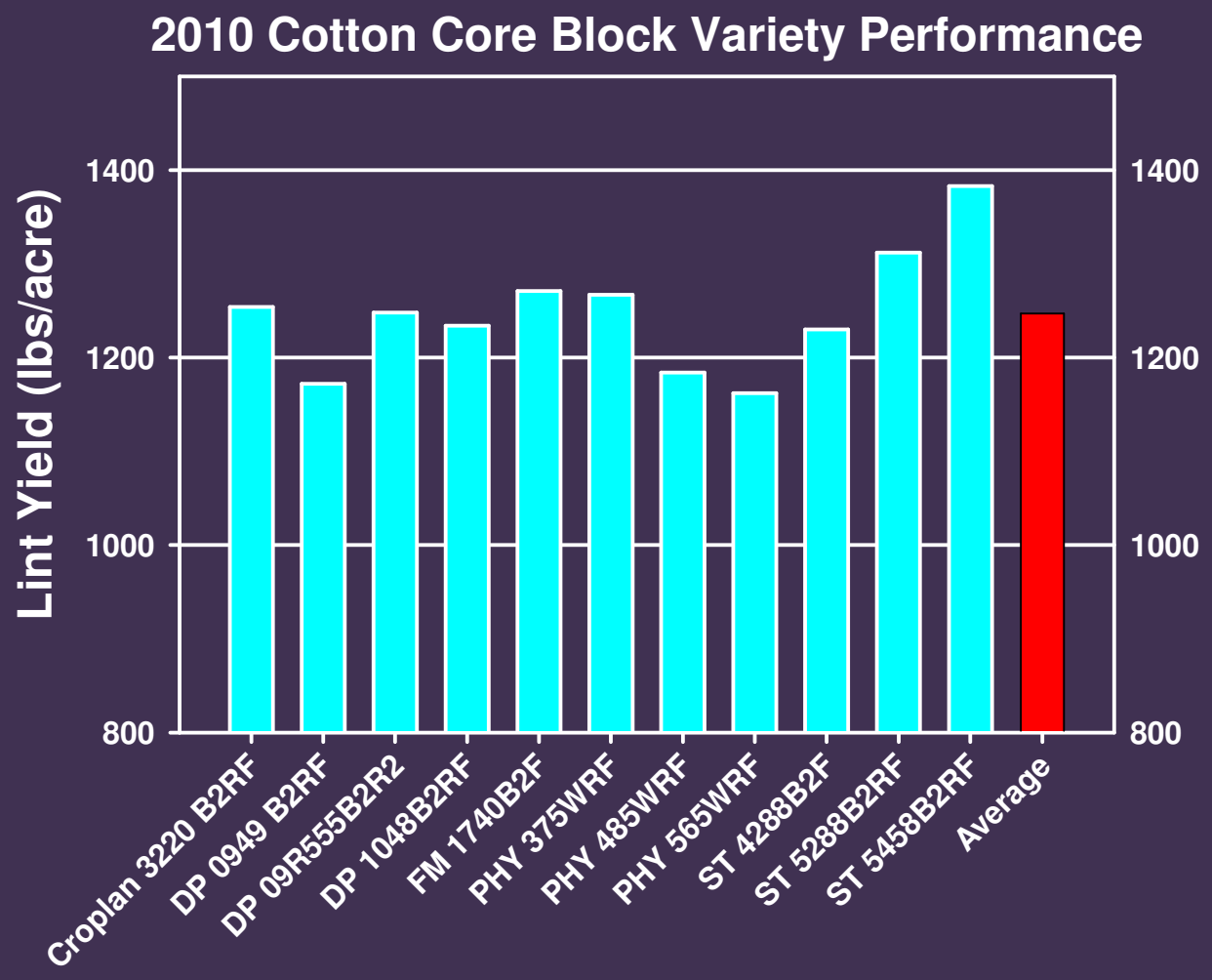
2010 Cotton On-Farm Core Block Trials

- 13 locations
- 11 varieties
- 5 Seed Brand Names
- 4 companies

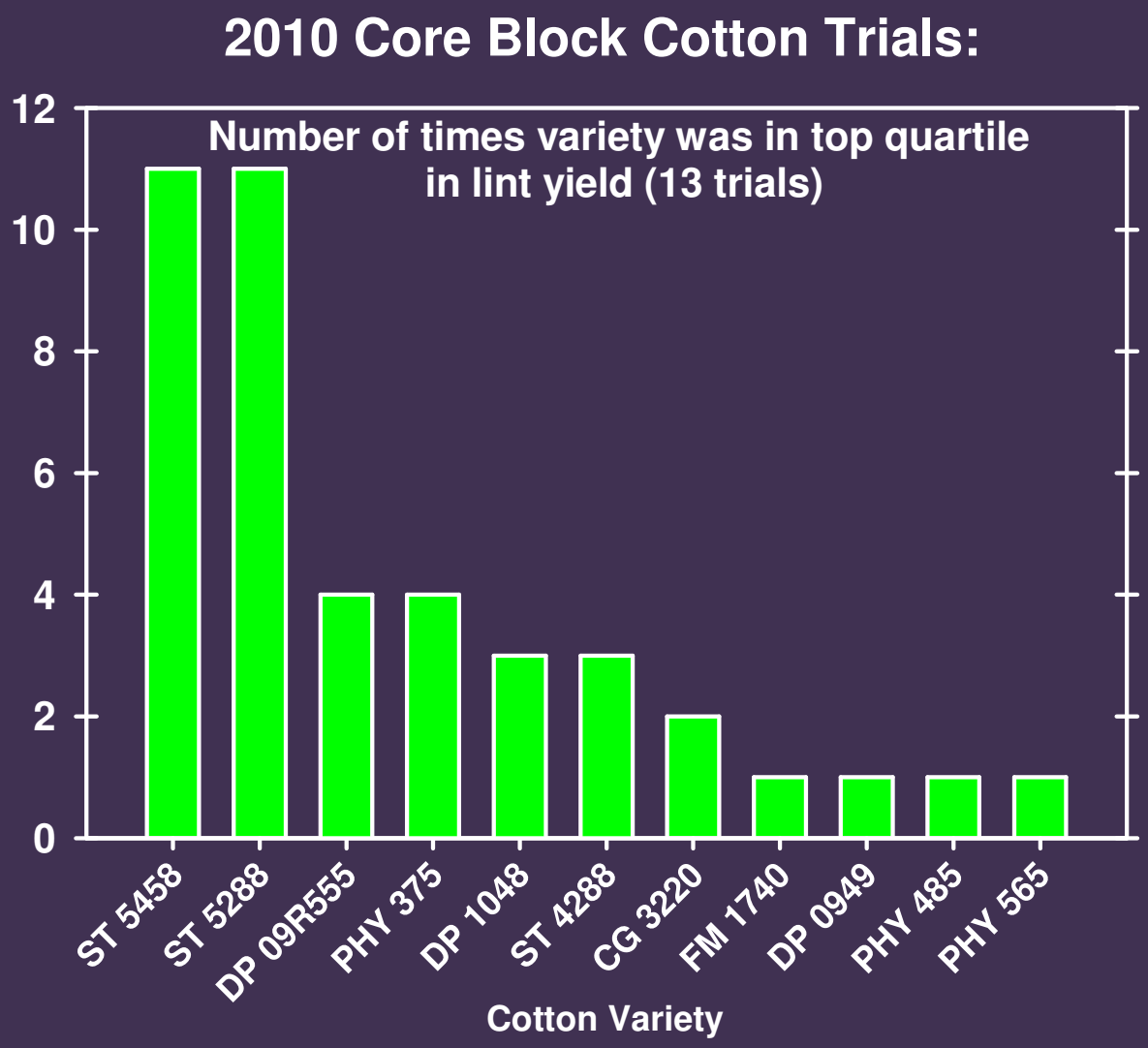
Cotton Core Block Yields



Core Block Variety Yields



Variety Stability Across the State



2010 Top Variety Performers – Core Block and OVTs

Hybrid	Trans-genes	Maturity
CG 3220	B2RF	Early-Mid
DP 0912	B2RF	Early
DP 1133	B2RF	Mid
FM 1740	B2F	Early-Mid
PHY 375	WRF	Early
PHY 565	WRF	Mid-full
ST 5288	B2RF	Mid
ST 5458	B2RF	Mid

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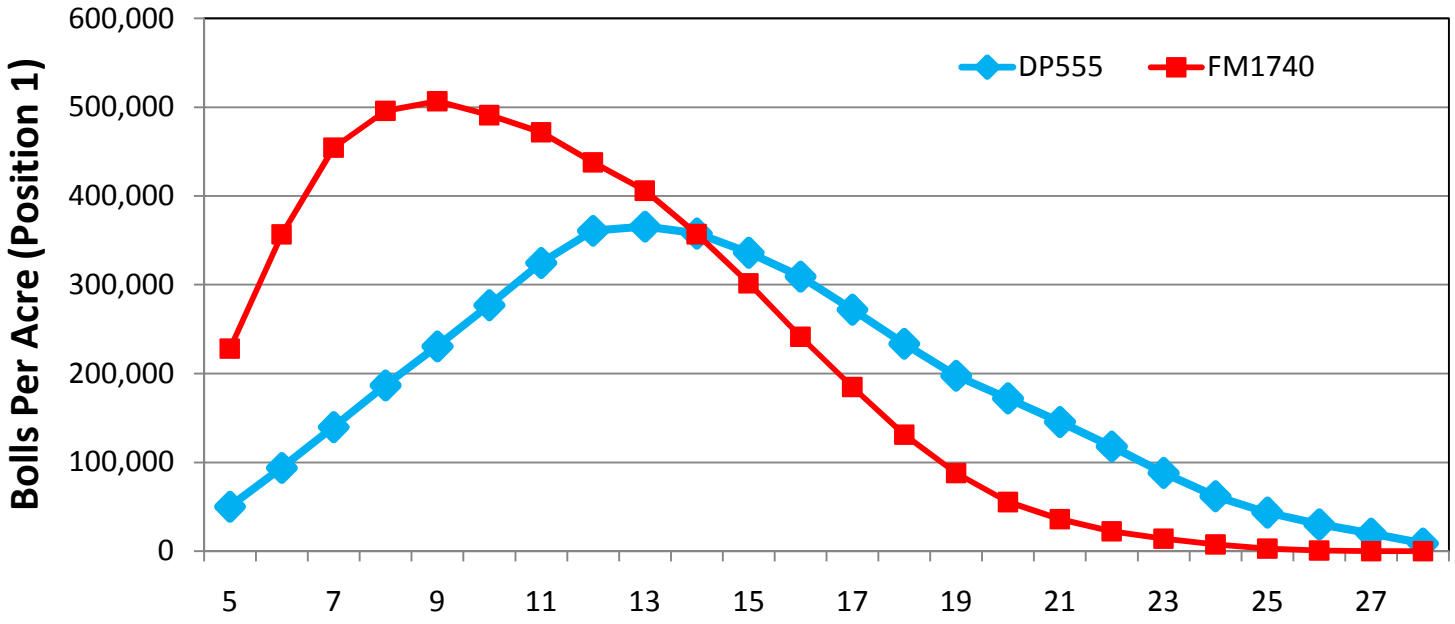
Variety Management

- Peak potassium uptake during 3rd – 4th week of bloom
- Early maturing, fast fruiting varieties



Source: Dr. Jared Whitacre, UGA

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Dow Phytogen – Variety information

Variety	Maturity	Leaf Type	Seedling Vigor	Storm tolerance	Plant Height
PHY 375	Early	Semi-smooth	E	G	Med-tall
PHY 485	Early -Mid	Hairy	VG	G	Tall
PHY 565	Mid - Full	Semi-smooth	G	G	Tall
PHY 367	Early	Semi-smooth	E	G	Med
PHY 499	Early - Mid	Semi-smooth	VG	VG	Tall

- 375: Grows aggressively early until peak bloom, responds well to PGR.
- 485: More aggressive growth than 370 late season, will respond to normal Pix program based on plant growth and environmental conditions, ~4-6 inches taller than 4554.

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Monsanto DeltaPine – Variety information

Variety	Maturity	Leaf Type	Disease Resistance	Storm Tolerance	Plant Height	Positioning
DP 1133	Mid	Smooth	6 3-5	5	Medium	WH
DP 1137	Mid	Smooth	2-3 4-6	4	Tall	WH
DP 1034	Mid	Smooth	3.5 4-6	5	Medium-Tall	WH
DP 1048	Mid-Full	Semi-smooth	3.5 4-6	5	Medium-Tall	Hi
DP 1050	Full	Smooth	4 4-6	5	Tall	Hi
DP 0912	Early	Semi-smooth	5 7	3	Medium	Hi
DP 0935	Mid	Smooth	4 4	6	Medium	Camel
DP 0949	Mid-full	Light-Hairy	5 6	3	Medium-Tall	WH

- Disease ratings: 1 = Excellent, 9 = Poor
- Storm Resistance: 1 = tight, stripper like boll, 9 = loose boll
- Positioning: Hi = High yield env., WH = Workhorse, Camel = Tough env.

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Bayer CropScience – Variety information

Variety	Traits	Maturity	Fiber Quality	Light soils		Medium soils		Heavy soils	
				Dry	Irr	Dry	Irr	Dry	Irr
ST4288	B2F	Early-Mid	**		** ^		* ^		** ^
ST4498	B2RF	Early-Mid	***	* ^	** ^	** ^	** ^^	* ^	** ^^
ST5288	**B2F**	**Mid**	*	** ^	** ^^	*** ^	*** ^^	** ^	*** ^^
ST5458	**B2RF**	**Mid**	*	* ^	*** ^^	** ^	*** ^^	* ^	** ^^
FM4145	LLB2	Early	***	* ^	*** ^^	* ^	*** ^^	* ^	*** ^^
FM1740	**B2F**	**Early**	***		*** ^	* ^	*** ^	* ^	** ^
FM1773	LLB2	Mid	***	* ^	** ^	* ^	** ^	* ^	** ^
FM1845	LLB2	Mid-Late	***	* ^	** ^	* ^	** ^^	* ^	** ^^

- **Performance: (*=Good, **=Great, ***=Excellent)**
- **Manage with Stance Plant Growth Regulator: (^=Light, ^^=Moderate, ^^^=Aggressive)**

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Where do you see the fit?

Light ground

Medium ground

Heavy ground

Dryland

Irrigated

Highest Yield Potential

Variety Management

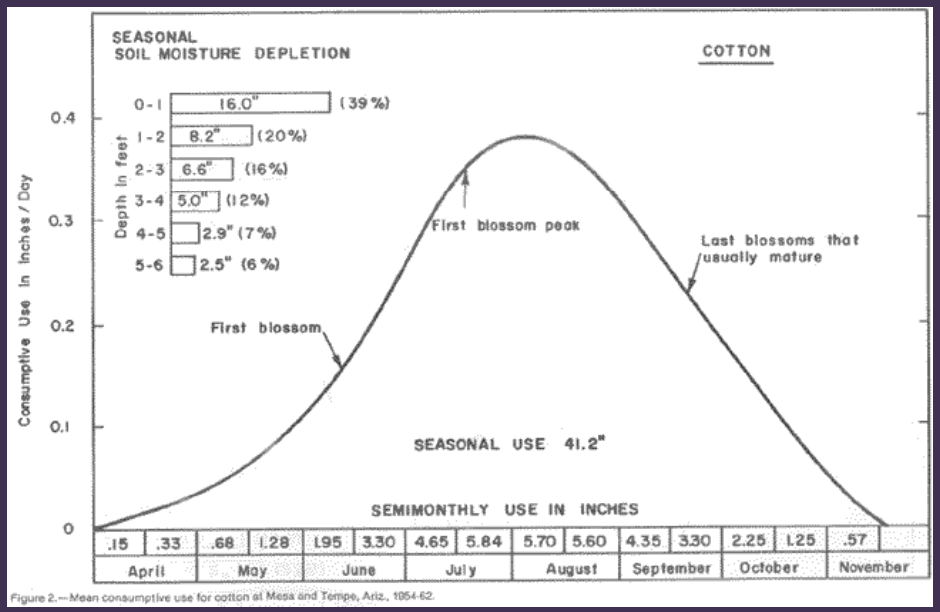

Figure 2.—Mean consumptive use for cotton at Mesa and Tempe, Ariz., 1954-62.

- Nitrogen – don't push to vegetative
- Rooting – good pH is critical
- PGR – look at maturity, plant height, and soil depth
- Potash, etc. available early on

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Planting Date

- Plant cotton from:
  - Late April to Mid-May
- In most years, the end of May is the last date for maximum yield potential
- J. Cotton Science. 2008. May 1 Planted cotton yielded 2061, May 21 planted cotton yielded 1495 (Faircloth, Alexandria, 2005)

Location	Planting Date	Lint %	Lint Yield
Va/NC	Early	42.9	973
	Late	43.0	987
	LSD(0.05)	NS	NS
LA	Early	41.2	2061
	Late	41.0	1495
	LSD(0.05)	NS	397

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Plant Populations

2 to 3 plants per row foot

Seed size varies (3,700 – 5,800 seed per lb.)

Be sure to ask for Cool Germination Test Results (Vigor)

>80% = Excellent; 65-80% = good; 50-65% = Acceptable, Plant under good conditions; < 50% = Poor

Location	Population (Plants/ft 38" rows)	Lint %	Lint yield
Va/NC	1.6	43.0	815
	2.7	42.9	864
	3.8	43.0	933
	LSD(0.05)	NS	80
LA	1.7	41.1	1630
	2.8	41.1	1638
	5.1	41.2	1480
	LSD(0.05)	NS	144

Source: J. Cotton Science. 2008

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Foliar Diseases

Materials and Methods

- Small plot research
  - RCBD – 4 replications
- 15 Locations, 3 Years (’08-’10)
- Participating states (Year):
  - Arkansas (2008, 2010)
  - Georgia (2009)
  - Mississippi (2008, 2009 (2), 2010)
  - North Carolina (2009)
  - Oklahoma (2010)
  - Tennessee (2008, 2009, 2010)
  - Texas (2008, 2009, 2010)

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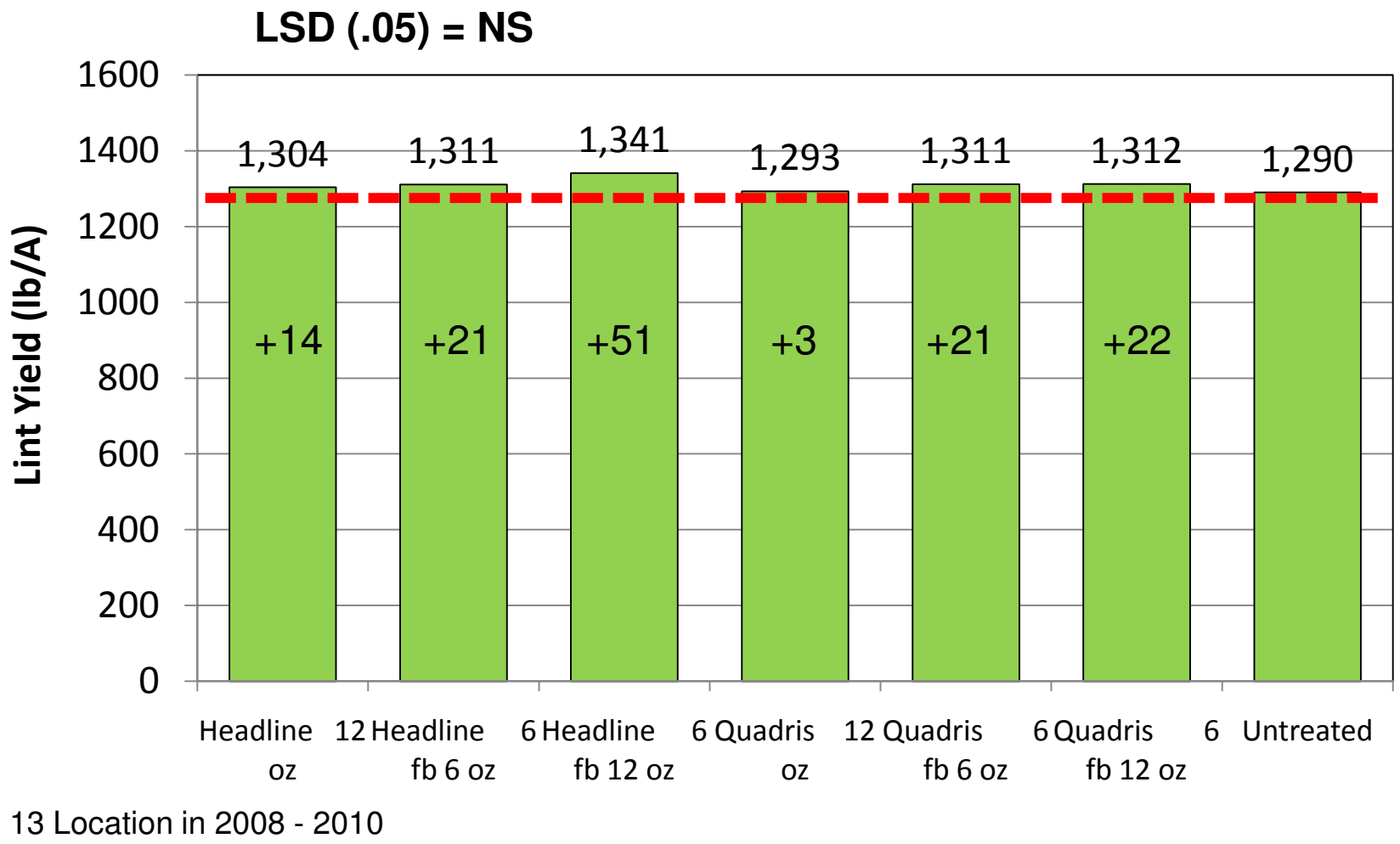
Treatments

Common Name	Trade Name	Application Timing	Application Code	Application Rate	Application Rate
				kg ai ha^{-1}	oz prod ac^{-1}
Pyraclostrobin	Headline™	1st Bloom	A	0.11	12
		1st Bloom	A	0.11	6
		14-21 DAA	B	0.11	6
		1st Bloom	A	0.11	6
		14-21 DAA	B	0.22	12
Azoxystrobin	Quadris™	1st Bloom	A	0.11	12
		1st Bloom	A	0.11	6
		14-21 DAA	B	0.11	6
		1st Bloom	A	0.11	6
		14-21 DAA	B	0.22	12

Lint Yield – Numerical Responses



13 Location in 2008 - 2010

Questions

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Farmers Matter

- Over 300 Million People in the U.S.A.
- Over 6.89 Billion People in the World
- 2.2 Million U.S. Farmers (less than 1%)
- 1.3 Million < $10,000 farm revenue
- 600,000 < $250,000 farm revenue
- 300,000 > $250,000 farm revenue

- USDA Secretary Vilsack to AFB, Jan. 10, 2011

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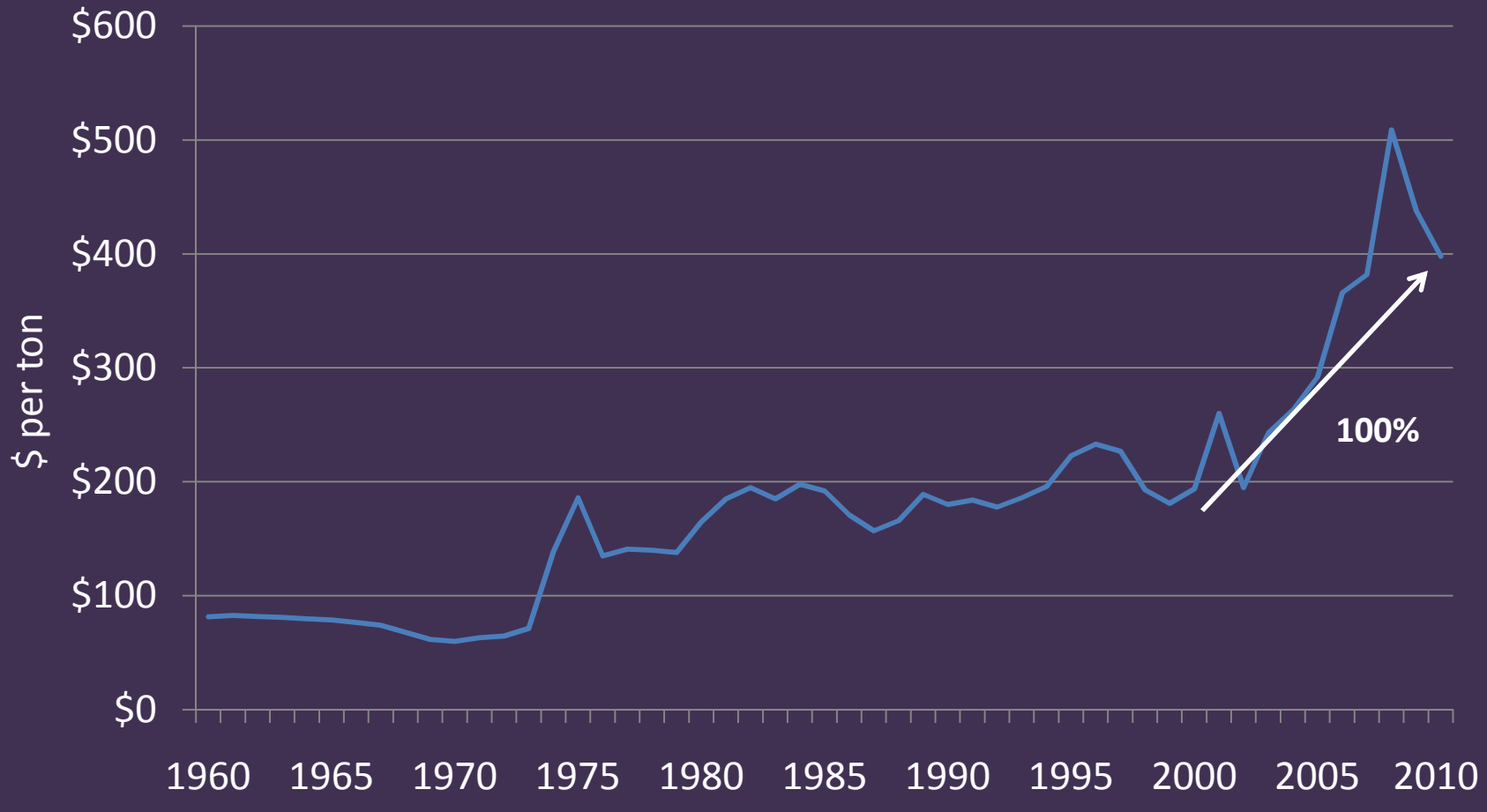
Price of Nitrogen



http://www.ers.usda.gov/Data/FertilizerUse/

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Nitrogen Requirement

- 15 Kg/100 Kg of lint (75 lb/bale)
  - Miley and Oosterhuis (1989)
- Average recommendations
  - 56 lb/bale
  - Nichols (1996)
- Residual N must be a component of a overall N fertilization program. Boquet (1995)

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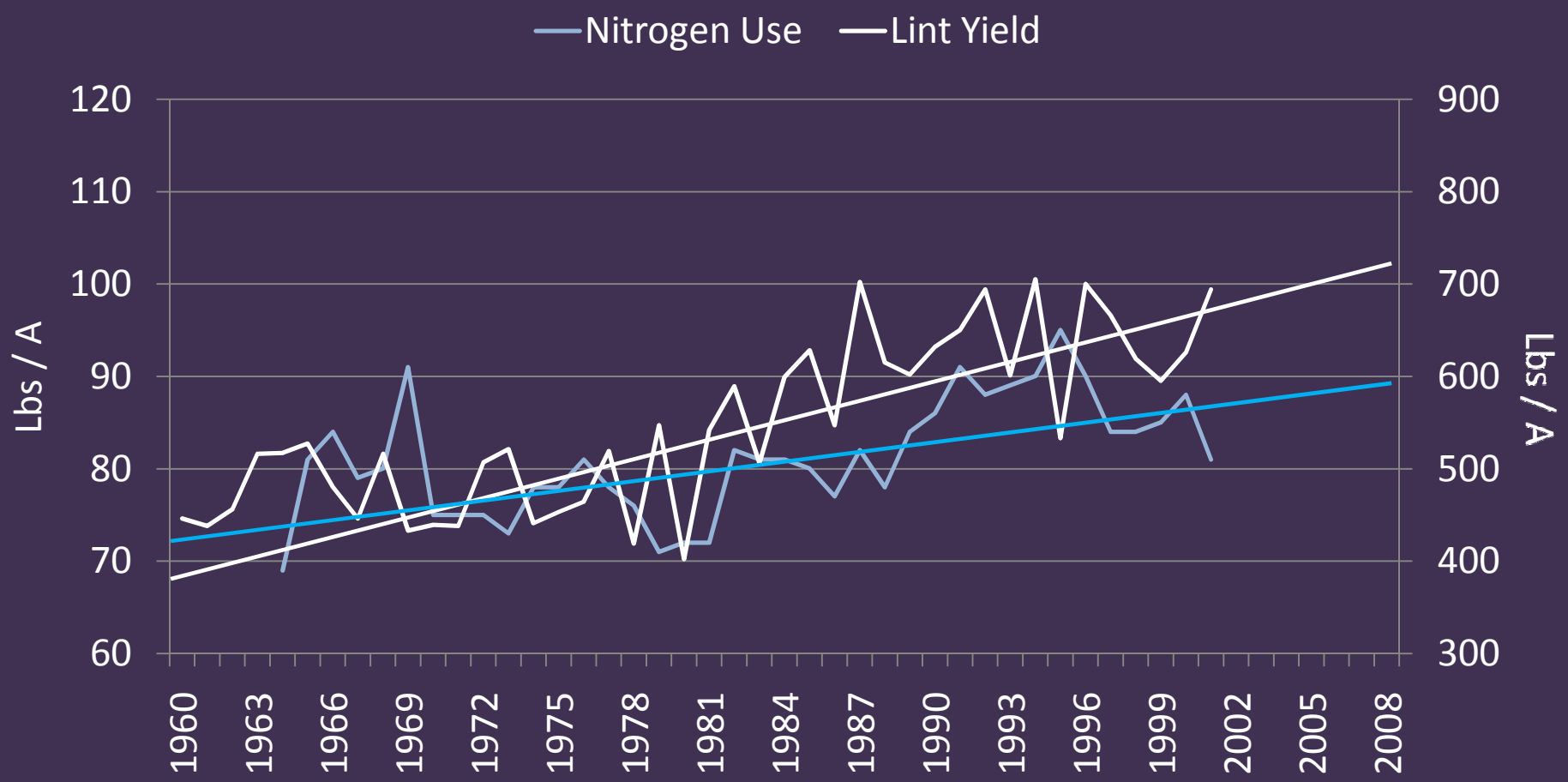
Nitrogen Use



http://www.ers.usda.gov/Data/FertilizerUse/
http://www.nass.usda.gov/index.asp

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Excess Nitrogen

Agronomically harmful effects:

- Increase leaf area index, leaf size, vegetative branching, stem length, number of nodes, internode length, and increased boll number

- Rank growth, less light penetration, fruit shed, boll rot, insect and disease problems, crop production chemical coverage, delayed maturity, difficult defoliation, and reduced harvest efficiency

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Experimental Design

- Randomized Block Design (RBD) with a Factorial arrangement of treatments with four replicates.
- 3 varieties (based on seed size)
- 4 N rates (0, 40, 80, 120)
- 4 replications = 48 experimental units

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Materials and Methods

End of Season Data Collection

- Gin Turnout, Lint yield, micronaire, fiber length, fiber strength, uniformity, and color grade

- Seed Index, weight 100 seed from 3 seed subsamples for each plot

- N concentration of seed after harvest and ginning.

Locations

• AZ	Randy Norton	Clay Loam
• AR	Tom Barber	Silt Loam
• KS	Stu Duncan	Sandy loam
• MS	Darrin Dodds	Loam
• NC	Keith Edmisten	Sandy Loam
• OK	J.C. Banks	Clay Loam
• SC	Mike Jones	Loamy Sand
• TN	Chris Main	Silt Loam
• TXCS	Gaylon Morgan	Silty Clay Loam
• TXLB	Randy Boman	Clay Loam

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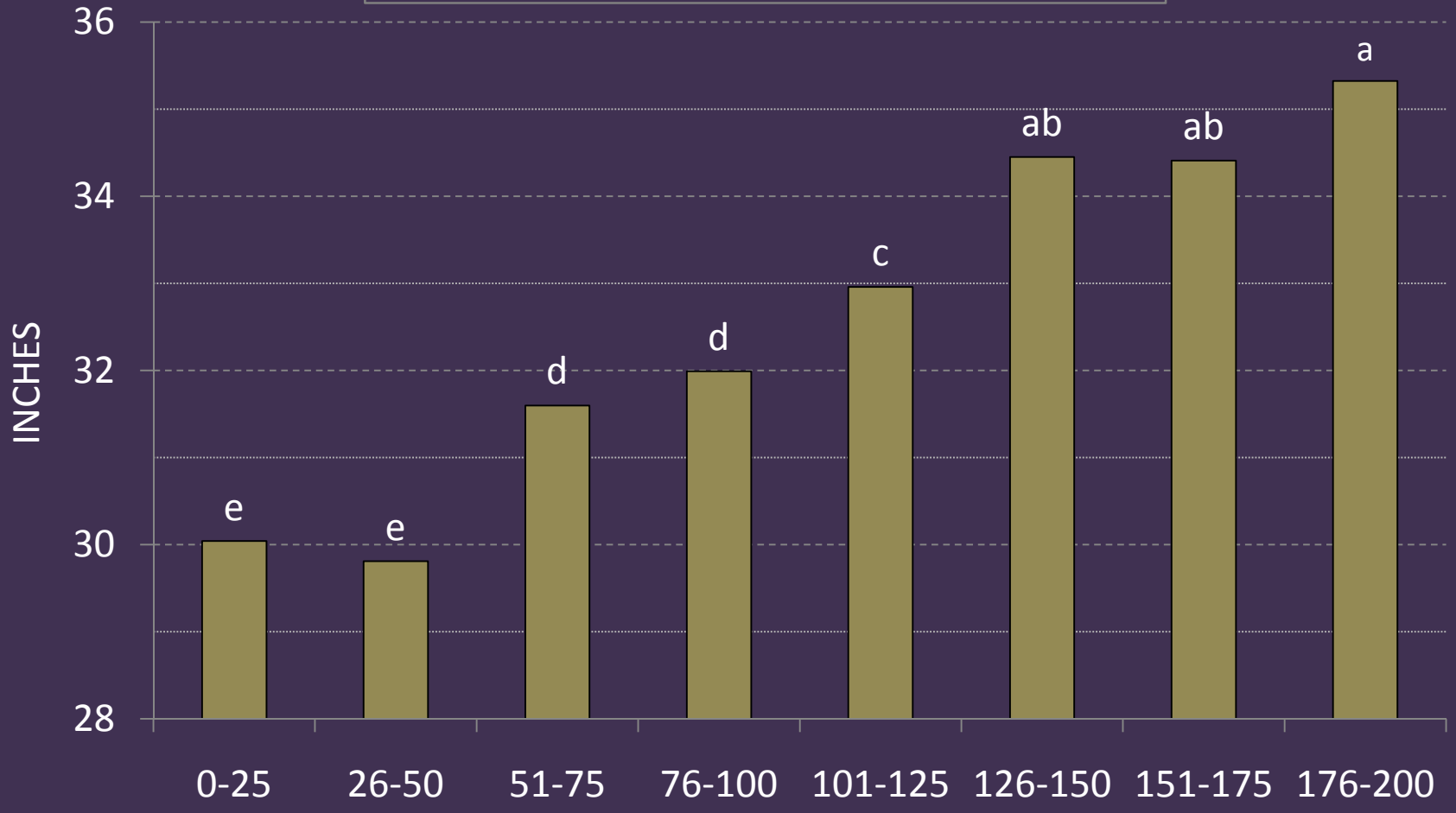
Final Plant Height

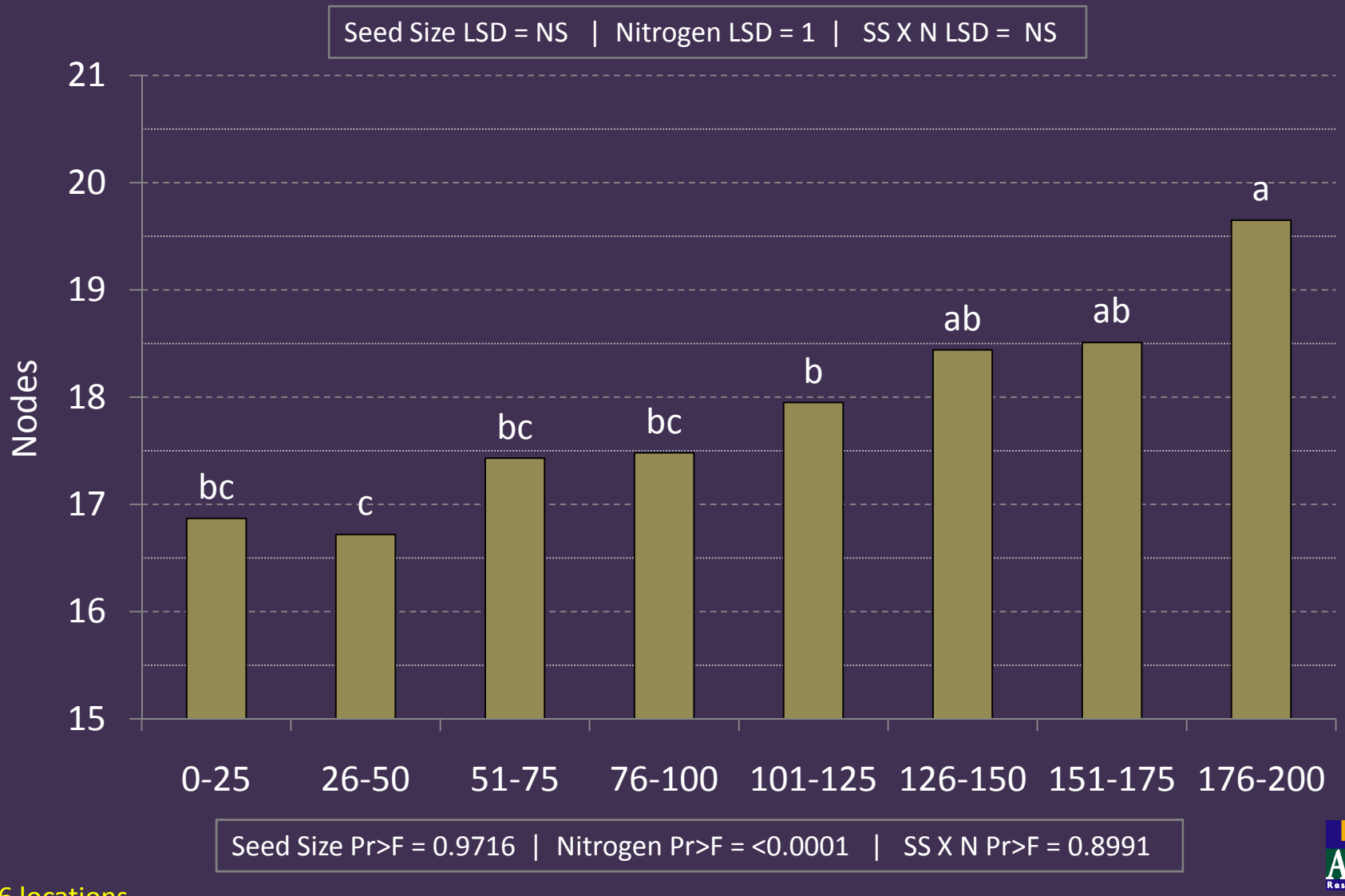
Seed Size LSD = 1 | Nitrogen LSD = 1 | SS X N LSD = NS



Seed Size Pr>F = 0.0001 | Nitrogen Pr>F = <0.0001 | SS X N Pr>F = 0.5499

16 locations

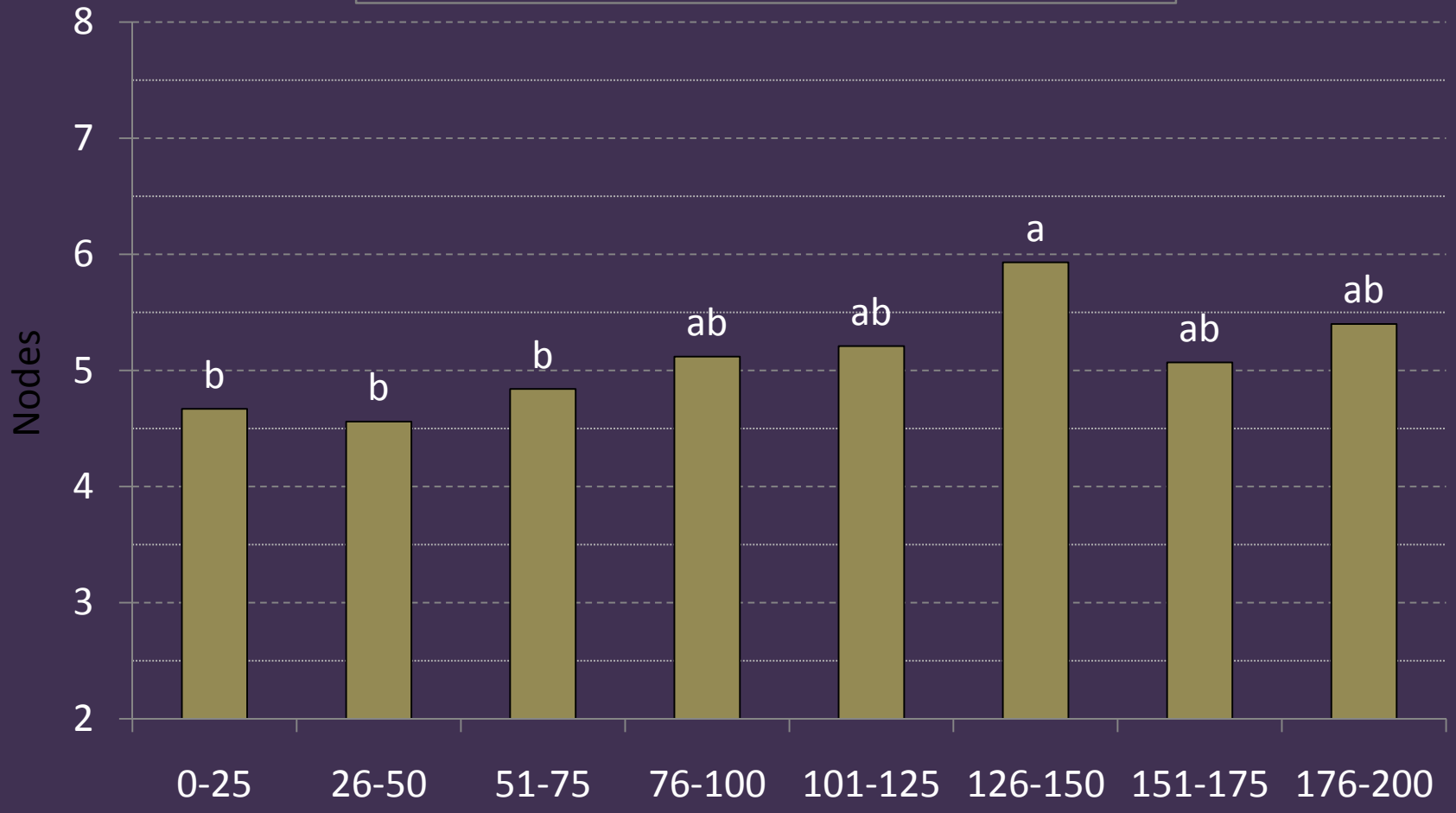
Total Plant Nodes



16 locations

Maturity - NACB

Seed Size LSD = NS | Nitrogen LSD = 1 | SS X N LSD = NS

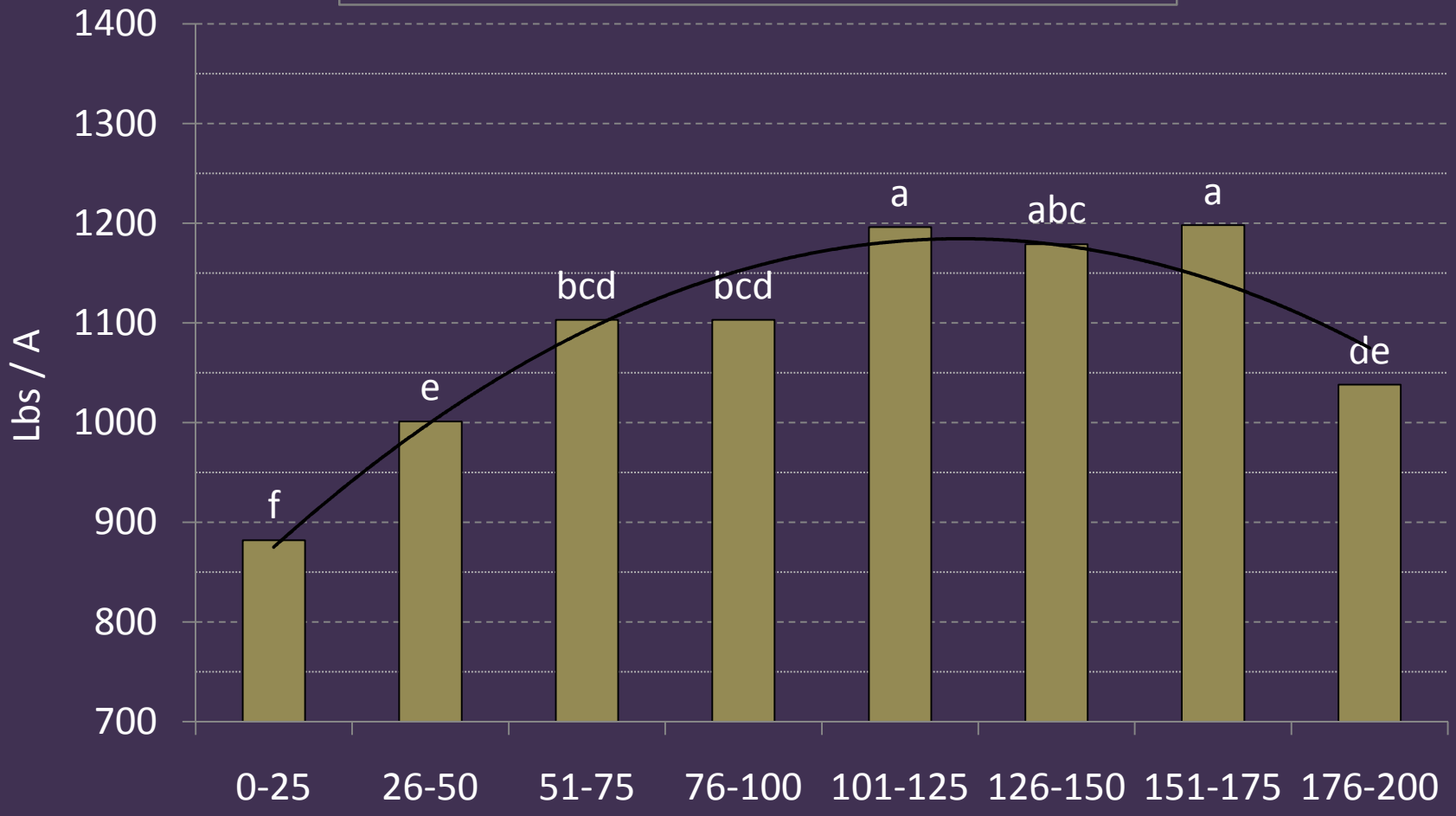


Seed Size Pr>F = 0.3742 | Nitrogen Pr>F = <0.0001 | SS X N Pr>F = 0.2571

16 locations

Lint Yield*

Seed Size LSD = NS | Nitrogen LSD = 95 | SS X N LSD = NS

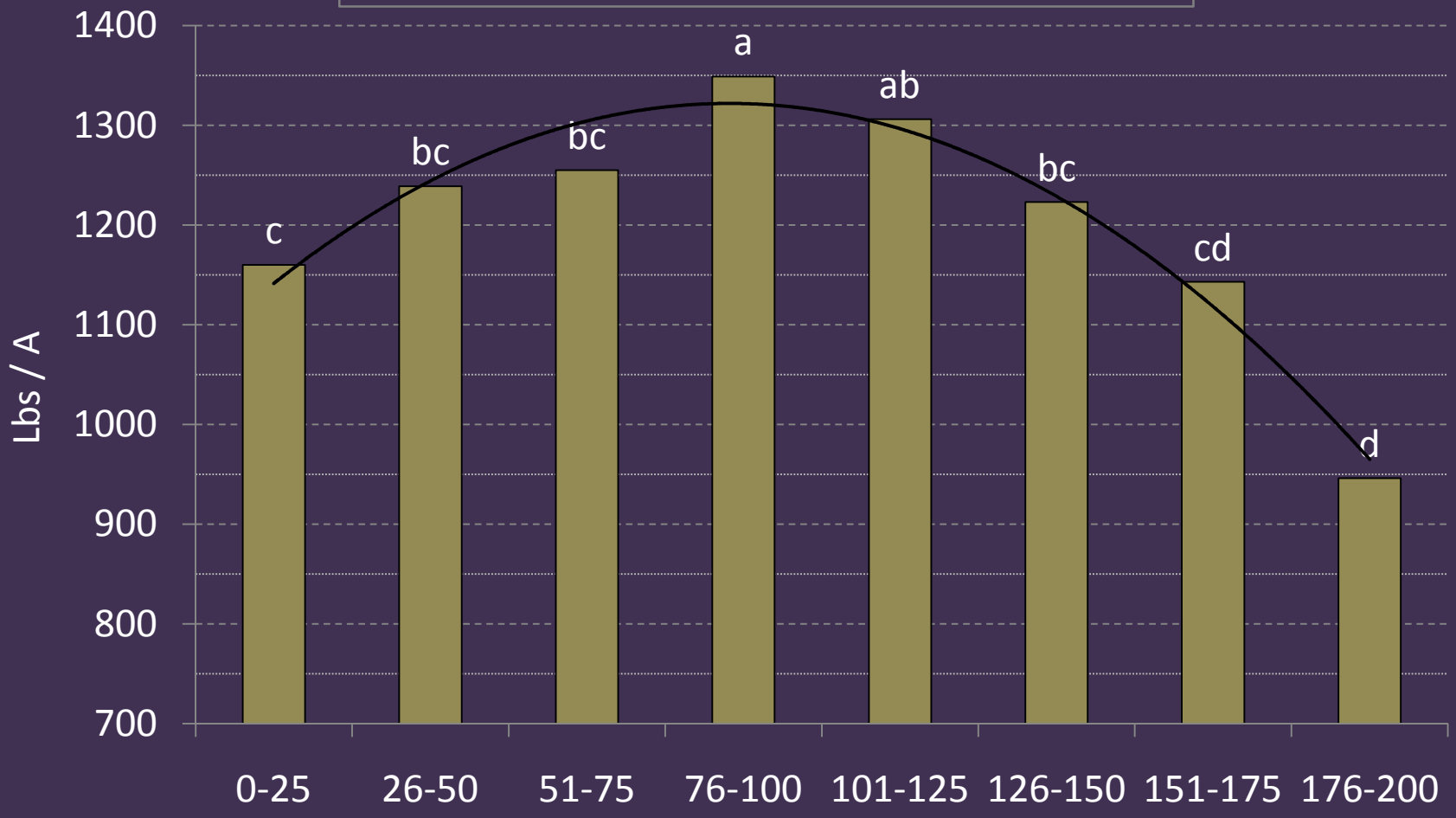


Seed Size Pr>F = 0.1236 | Nitrogen Pr>F = <0.0001 | SS X N Pr>F = 0.6700

*Nitrogen responsive locations only (8 locations)

Lint Yield*

Seed Size LSD = NS | Nitrogen LSD = 137 | SS X N LSD = NS



Seed Size Pr>F = 0.3430 | Nitrogen Pr>F = <0.0001 | SS X N Pr>F = 0.8280

*16 locations

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