Cotton Varieties and Management

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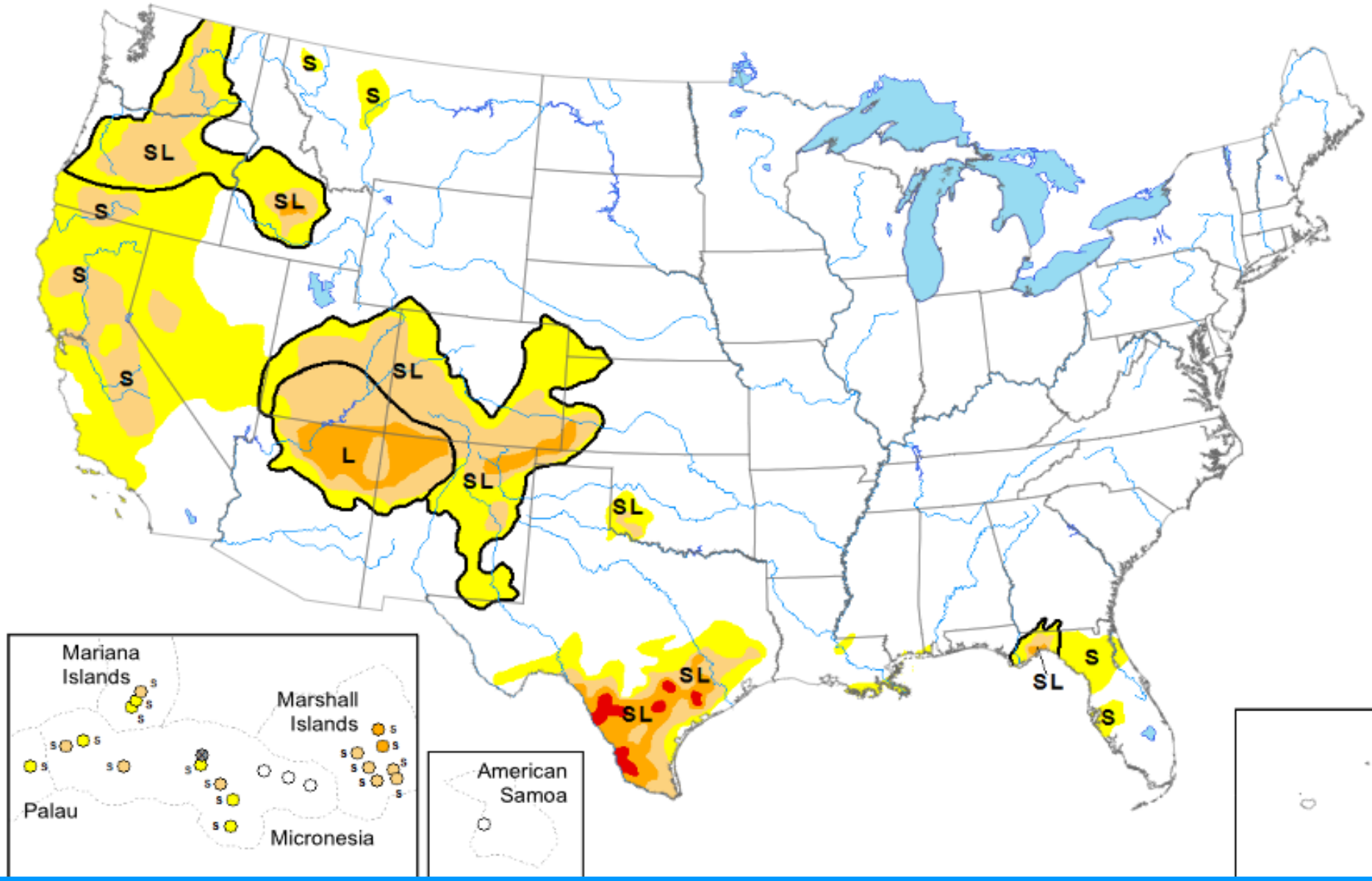
UNIVERSITY of FLORIDA

Map released: February 27, 2020

Data valid: February 25, 2020



2019 Costs of Improper Variety Selection: $0.65/lb

Variety Selection Error	Range of costs	Average Cost
Top vs Bottom variety (Largest Error)	$115 to $487 per acre	$186
Top 3 vs the others	$49 to $231 per acre	$92
Above vs Below AVG	$54 to $231 per acre	$92
Statistically Highest group vs others (Smallest Error)	$59 to $371 per acre	$117

Improper Variety Selection could've cost FL growers over $11 mil. if you use $92/A on 120,000 acres when choosing among only best varieties of each brand. (Look across all brands and choose what's right for you)

On Farm Variety Performance Trials in The SE

Variety	Candler DRY	Tift (41) DRY	Midville DRY	Turner DRY	Athens DRY	Appling DRY	Atkinson DRY	Mitchell DRY	Toombs DRY	Bulloch IRR	Bacon DRY	Colquitt (Expo) IRR	Colquitt (Davis) IRR	Colquitt (Perryman) IRR	Berrien IRR	Worth IRR	Brooks IRR	Telfair DRY	Jeff Davis IRR	Pulaski IRR	Plains IRR	Grady DRY	Cook IRR	Early IRR	Midville IRR	All Loc. Avg.
DG 3615 B3XF	464	468	***640***	***713***	***819***	606	***1,025***	665	883	1,081	***1,149***	***1,308***	***1,530***	***1,384***	***1,474***	***1,408***	***1,628***	1,189	***1,497***	***1,530***	***1,693***	1,280	***1,783***	***1,864***	***2,071***	1,206
DP 1646 B2XF	***564***	***652***	562	***824***	***755***	***808***	811	***924***	***1,106***	***1,223***	***1,190***	1,068	1,278	***1,354***	***1,381***	***1,390***	***1,392***	1,370	***1,491***	***1,453***	***1,533***	***1,548***	***1,547***	***1,784***	1,605	1,185
PHY 400 W3FE	***615***	***598***	540	***797***	***747***	***794***	***878***	***932***	***1,123***	967	***1,266***	***1,301***	1,225	1,301	1,294	***1,487***	1,336	***1,508***	1,340	***1,464***	***1,479***	***1,671***	1,415	***1,576***	1,599	1,170
ST 5471 GLTP	***583***	***590***	553	***763***	***794***	***766***	***896***	***864***	991	1,122	1,018	1,027	***1,299***	***1,357***	1,207	1,338	***1,365***	1,369	1,363	***1,607***	***1,505***	***1,867***	***1,606***	***1,629***	***1,646***	1,165
DP 1851 B3XF	***540***	***673***	576	***683***	671	***798***	842	***946***	***1,129***	***1,138***	***1,146***	***1,158***	1,210	***1,456***	***1,336***	***1,392***	1,282	***1,431***	***1,409***	***1,520***	1,433	***1,647***	1,446	***1,660***	1,498	1,161
DP 1840 B3XF	498	***639***	***629***	607	***762***	685	***946***	***943***	***1,023***	***1,175***	***1,350***	1,041	***1,397***	1,255	***1,323***	1,296	1,337	***1,491***	***1,437***	1,414	1,406	1,433	1,474	1,349	1,590	1,140
ST 5600 B2XF	***525***	499	***622***	622	670	***835***	775	***851***	943	1,102	***1,177***	***1,206***	1,209	1,308	***1,456***	***1,383***	1,308	***1,412***	***1,394***	***1,451***	1,416	1,398	1,456	1,513	1,464	1,120
PHY 500 W3FE	476	459	558	600	***731***	720	***955***	***906***	986	***1,163***	1,055	***1,158***	1,267	***1,369***	1,230	1,259	1,284	***1,581***	1,388	***1,449***	1,439	1,387	1,474	1,368	***1,709***	1,119
CG 19XG9B3XF	503	503	538	597	625	651	812	715	999	***1,209***	1,083	1,108	1,213	1,269	1,263	1,322	***1,419***	1,317	1,346	1,227	***1,542***	1,419	***1,495***	***1,659***	***1,683***	1,101
NG 5711 B3XF	432	***580***	***589***	536	682	***848***	***888***	797	962	***1,164***	1,057	1,109	***1,377***	1,158	***1,361***	1,256	1,303	1,372	1,341	1,299	1,369	1,265	1,384	1,491	1,535	1,086
NG 3930 B3XF	507	532	545	***703***	673	682	667	789	***1,026***	1,020	887	1,043	1,191	1,196	1,151	1,216	1,122	1,195	1,308	1,345	1,224	1,394	1,269	1,357	1,359	1,016
Trial Average	**519**	**563**	**578**	**677**	**721**	**745**	**863**	**848**	**1016**	**1124**	**1,125**	**1,139**	**1291**	**1,310**	**1,316**	**1,341**	**1343**	**1,385**	**1,392**	**1,433**	**1,458**	**1,482**	**1,486**	**1,568**	**1,615**	

*Bold Italic font indicates above trial average lint yields, grey shaded cell indicates lint yield among top 3 of 11

**Contact your local UGA County Extension Agent for more information on variety performance and selection.

Whitaker & Freeman, 20

Table 11. Cotton Lint Yield and Fiber Quality Means Across 9 Farm Locations in South Alabama.

2019

Locations: Baldwin (2), Covington, Elmore, Escambia, Geneva, Lee, and Macon (2) Counties.

VARIETY	Rank	Lint Yield (lbs/Acre)	Lint Turn-Out (%)	Leaf	Mic.	Length (in.)	Strength (g/tex)	Uniformity (%)
DP 1646 B2XF	1	1104	39.46%	3	4.5	1.17	30.3	82.2
PHY 400 W3FE	2	1082	39.91%	3	4.4	1.13	32.0	82.3
ST 5600 B2XF	3	1062	37.96%	4	4.9	1.13	31.6	82.0
DP 1851 B3XF	4	1043	38.32%	3	4.5	1.13	32.4	83.0
NG 5007 B2XF	5	1035	38.14%	3	4.5	1.11	28.6	82.1
NG 4936 B3XF	6	1032	37.13%	3	4.5	1.16	30.3	83.2
ST 5471 GLTP	7	1025	37.04%	3	4.5	1.11	31.2	81.9
DP 1840 B3XF	8	1022	37.66%	3	4.5	1.15	31.2	82.2
ST 5818 GLT	9	1008	36.97%	3	4.4	1.13	30.6	81.8
PHY 480 W3FE	10	997	37.61%	4	4.3	1.11	30.9	83.0
NG 5711 B3XF	11	983	37.81%	3	4.4	1.16	31.2	82.2
PHY 500 W3FE	12	974	37.80%	4	4.1	1.11	32.9	82.3
AVERAGE:		1031	37.98%	3	4.5	1.13	31.1	82.3

AL Extension On-Farm Cotton Variety Performance-South 2018

VARIETY	RANK	LINT YIELD (LBS/A)	LINT TURN-OUT (%)	MICRONAIRE	LENGTH (IN.)	STRENGTH (G/TEX)	UNIFORMITY (%)
PHY480W3FE	1	1178	36.5%	4.2	1.20	33.6	84.0
DP1646B2XF	2	1174	40.5%	4.1	1.22	30.5	81.8
ST5471GLTP	3	1174	39.0%	4.1	1.18	31.7	81.7
NG5007B2XF	4	1171	37.5%	4.1	1.18	32.4	82.4
DP1840B3XF	5	1157	39.2%	4.4	1.14	28.6	81.7
NG5711B3XF	6	1138	38.8%	4.2	1.18	30.6	82.5
PHY430W3FE	7	1123	39.2%	4.1	1.16	31.3	82.3
ST5818GLT	8	1101	39.6%	4.2	1.11	31.0	82.1
ST6182GLT	9	1058	39.2%	4.2	1.15	29.9	82.5
DP1851B3XF	10	1054	37.6%	4.1	1.14	30.5	81.4
PHY330W3FE	11	1034	37.7%	4.1	1.17	31.2	82.1
DG3445B2XF	12	1004	41.4%	4.3	1.13	29.0	81.2
AVERAGE:		**1114**	**38.9%**	**4.2**	**1.16**	**30.9**	**82.1**

Jay cotton trial 2019

Brand/Variety	Seed Cotton Yield (lbs/A)	Lint at 40% lbs/A
ST 5818GLT	3750	1500
ST 4550	3556	1422
DP 1646	3413	1365
CG 3885	3264	1306
ST 6182GLT	3158	1263
PHY PX3B07	3111	1244
ST5471	3071	1228
PHY350	3063	1225
CG9608	3045	1218
DP1916	2979	1192
CG 19XG9B3XF	2894	1158
DP1851	2869	1148
PHY480	2853	1141
ST5600	2850	1140
DP1840	2840	1136
PHY580	2535	1014
PHY PX5D28	2484	994

L. Johnson

Jefferson County, 2019 Cotton Trial

Variety	Lint lbs/A	Turnout
ST 4550 GLTP	634	41.53
DP 1840 B3XF	633	38.18
CG 3885 B2XF	612	39.97
DP 1646 B2XF	607	36.24
DP 1851 B3XF	606	36.71
PHY 580 W3FE	579	40.77
ST 5600 B2XF	563	39.59
ST 5471 GLTP	524	36.92
PHY 400 W3FE	508	35.06
PHY 500 W3FE	490	37.61
CG 19X	470	40.77
PHY 480 W3FE	392	32.06
Avg.	552	

No rain from early August until early October

2019 NC On-Farm Trials (16 Trials Statewide)

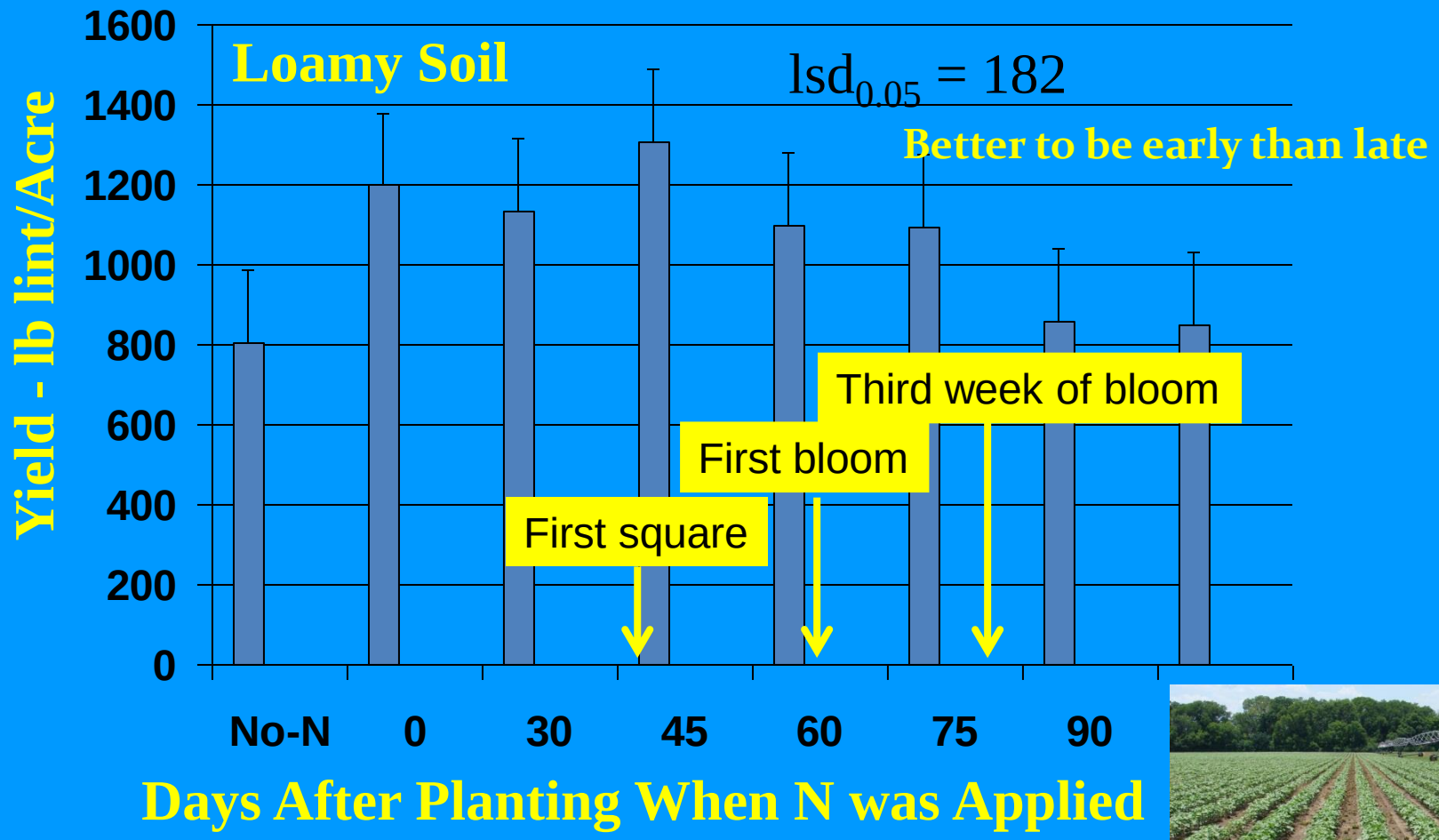
Variety	Combined AVG Yield	Lint %	% #1	% Top 2	% Top 3	% of trials in highest group (p<0.1)
DP 1646 B2XF	1376	41.9	25	38	44	56
ST 4550 GLTP	1345	42.6	13	25	56	50
DG 1702 GLT	1317	39.7	13	25	25	44
ST 5471 GLTP	1311	39.3	13	19	31	44
DG 3605 B2XF	1305	41.4	13	19	25	31
NG 4936 B3XF	1304	39.7	13	31	38	31
PHY 350 W3FE	1292	39.6	0	25	38	38
PHY 340 W3FE	1282	42.2	6	6	19	31
DP 1916 B3XF	1280	42.7	6	6	19	25
NG 3522 B2XF	1253	40.9	0	6	6	19

Susceptible

PhytoGen RKN resistance as well as bacterial blight resistant

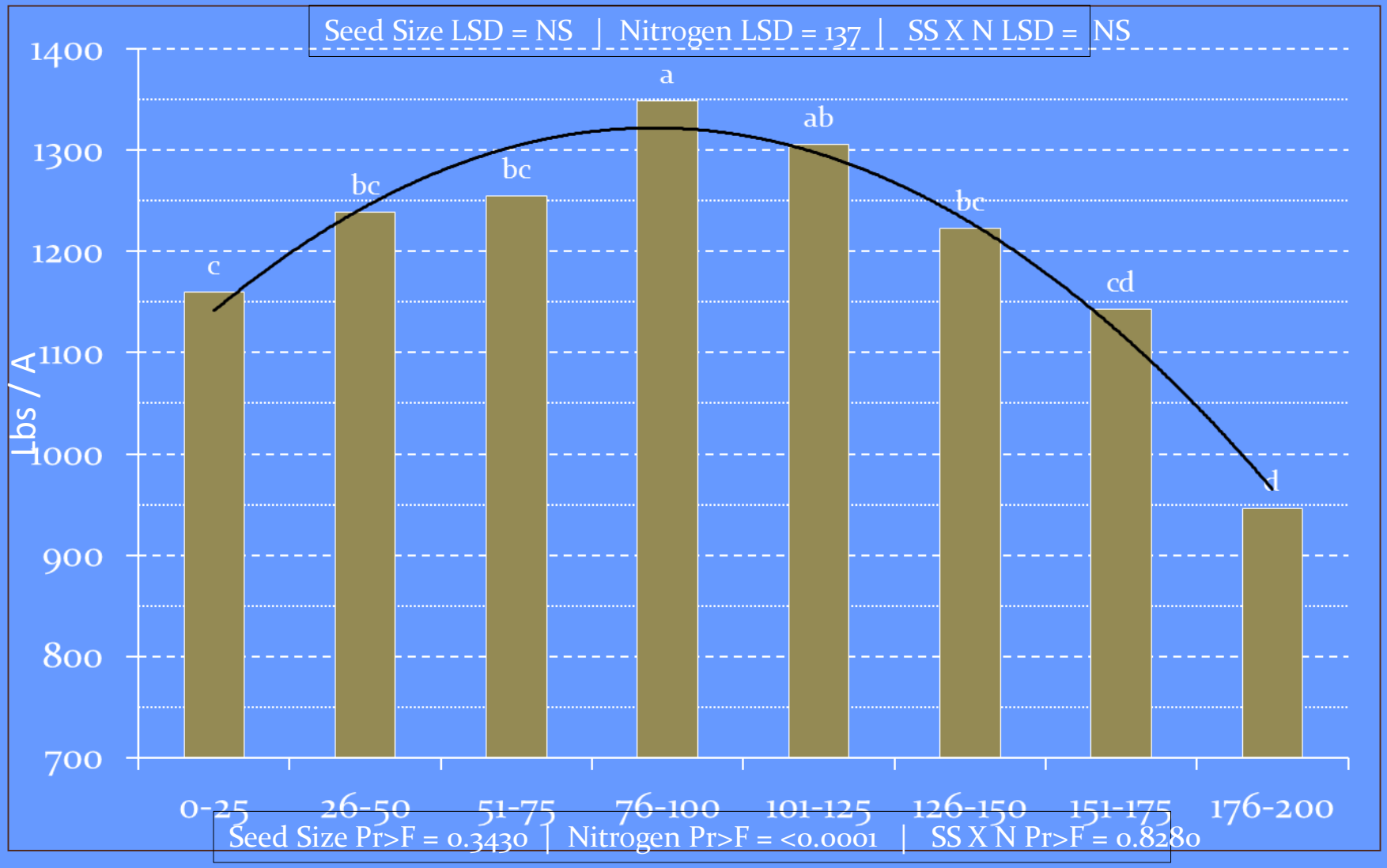
Nematode damage on susceptible variety, impacts on sandy soils

N timing is critical to yield of cotton - All plots except control got 60 lb N/A



Lint Yield*

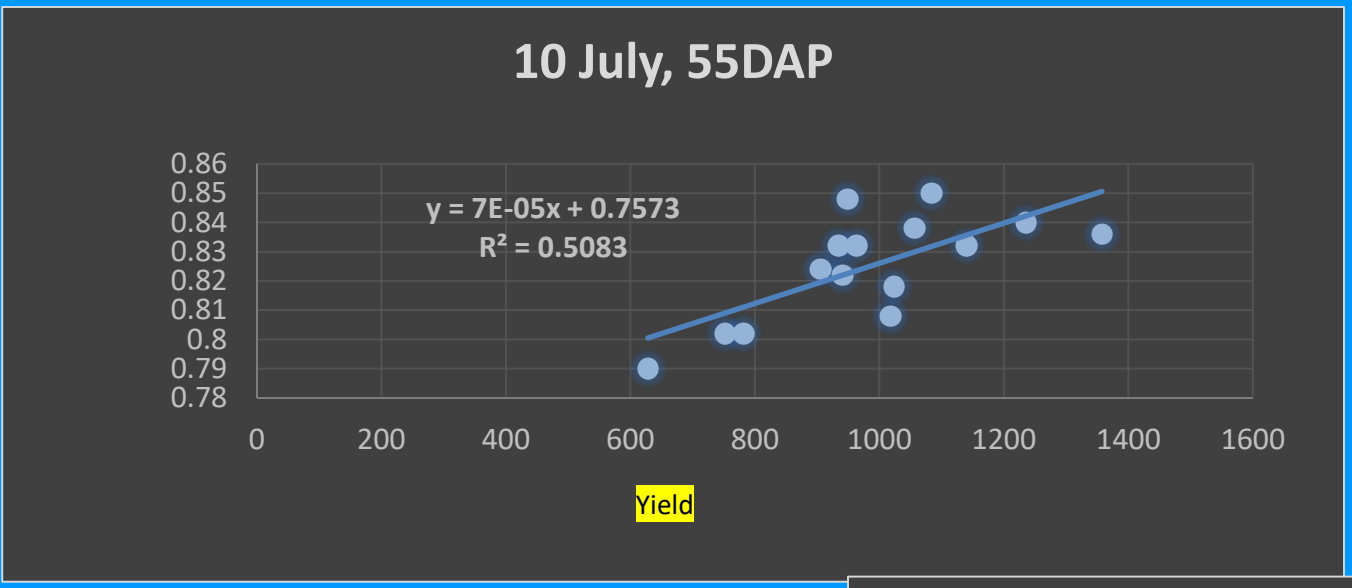
Too much N reduces yields



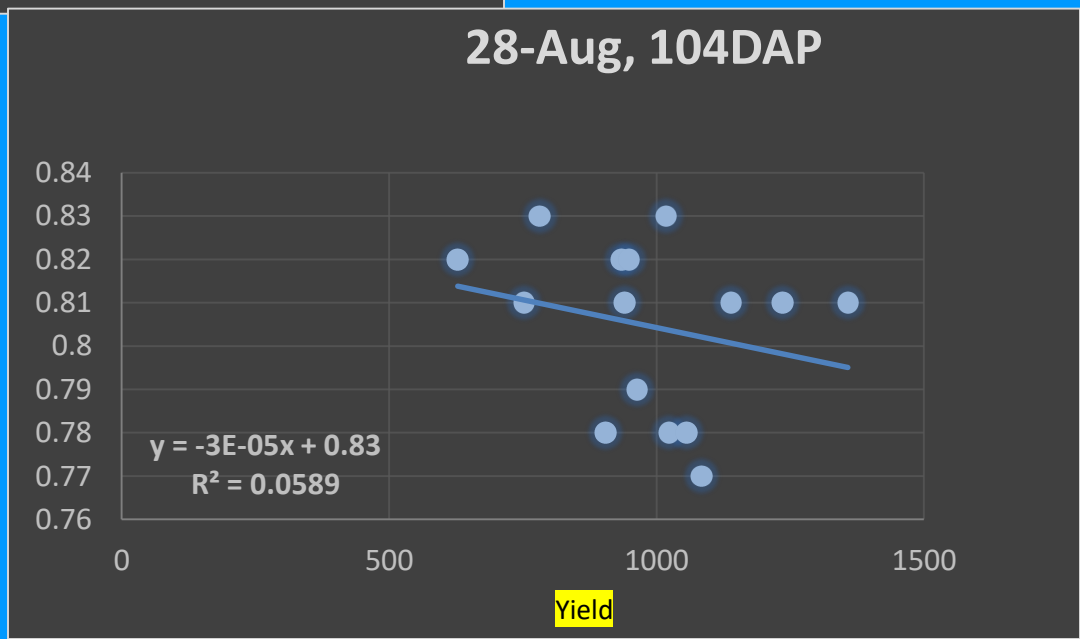
*16 locations across cotton belt

Using technology to identify plant growth (yield) and stress

Predicting yield using vegetative index from sensor based technology (NDVI)



Late N applications can decrease yields. Plants may look healthier and greener but yield is lower.



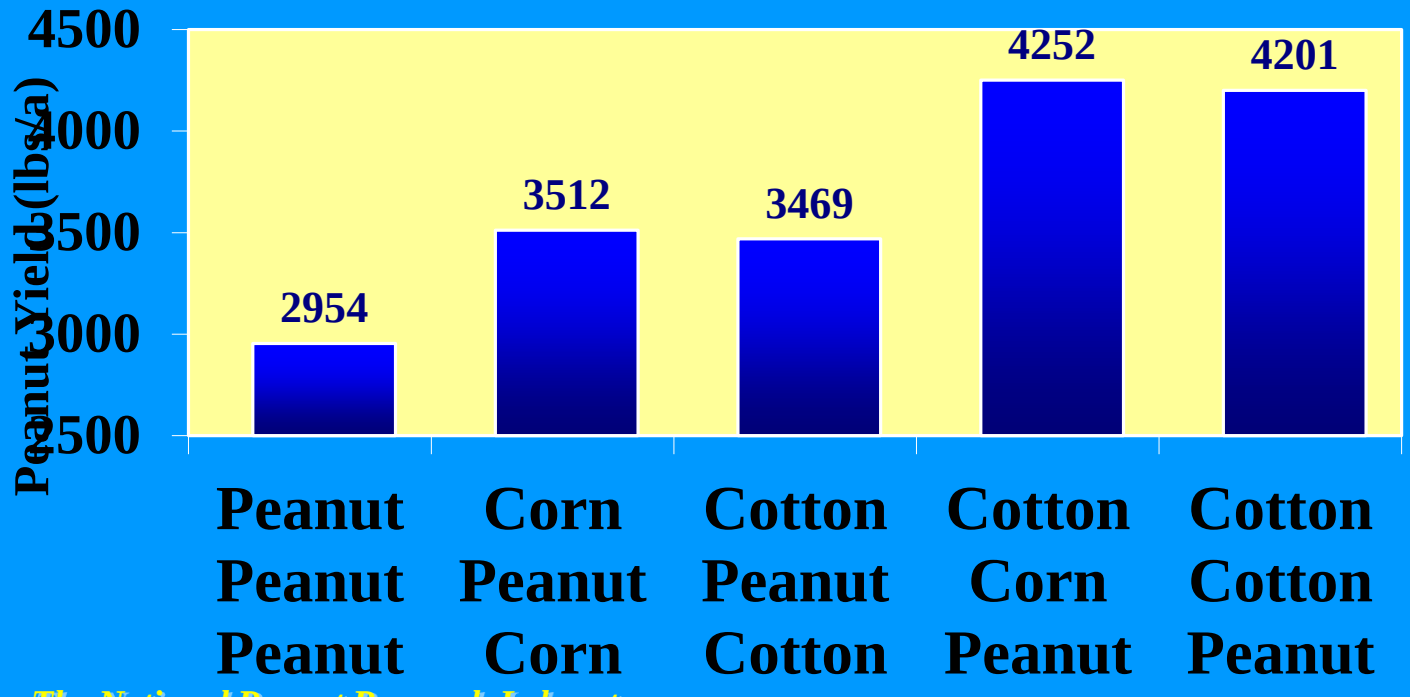
Rotation, irrigation and nematicide impacts on cotton

Years in cotton	IR Velum	IR no Velum	NI Velum	NI no Velum	AVG
		Lbs/A			
1 in 4	1705	1584	1662	1622	1643
1 in 2	1441	1415	1445	1396	1424
1 in 1	1445	1261	1344	1103	1288
AVG	1530	1420	1483	1374	
IR= irrigation	NI= no irrigation	100 -150lbs more lint/yrs out of cotton			

What made the greatest impact? 1) rotation 2) nematicide 3) irrigation.

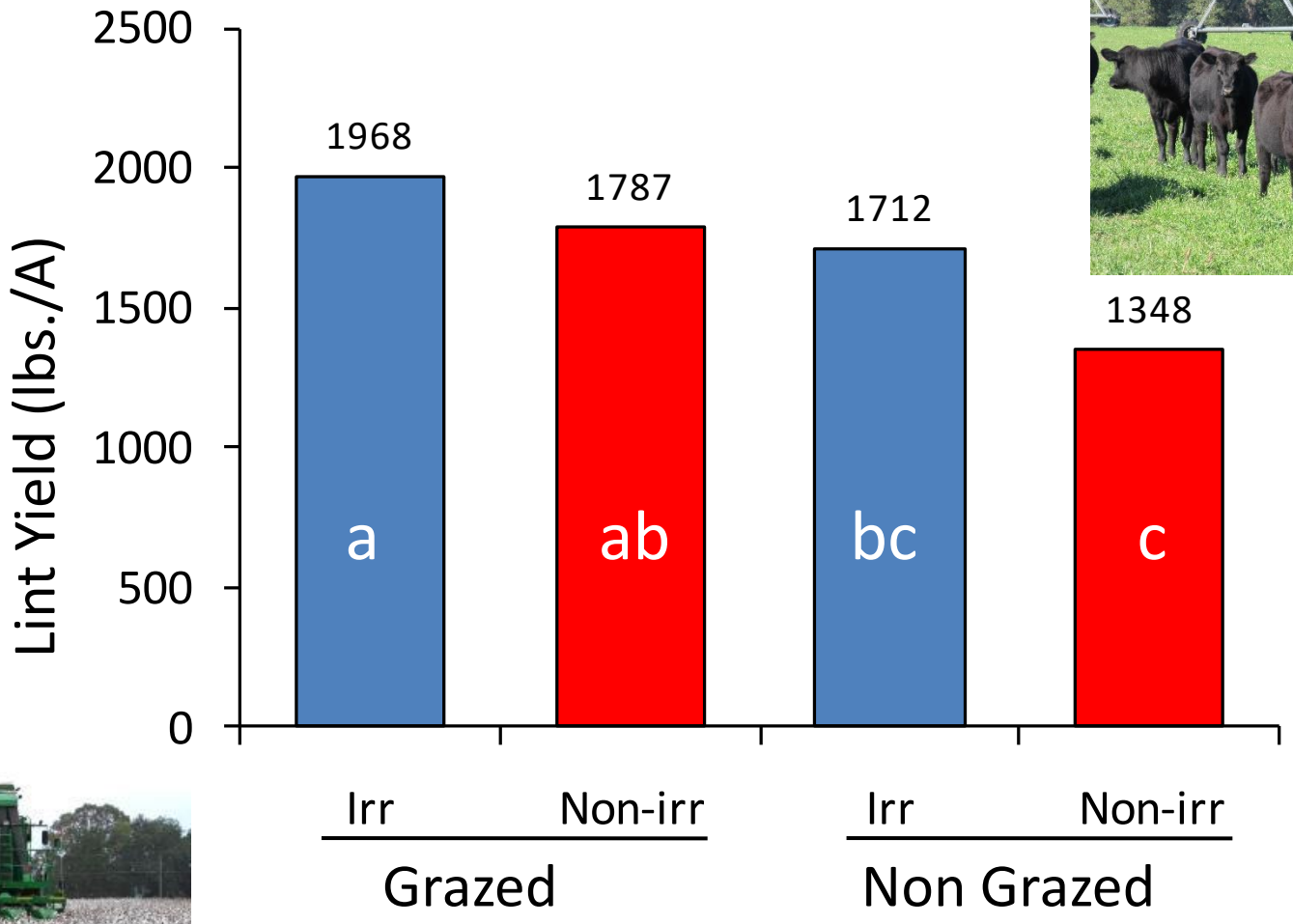
Peanut Yield in a 4-Year Rotation

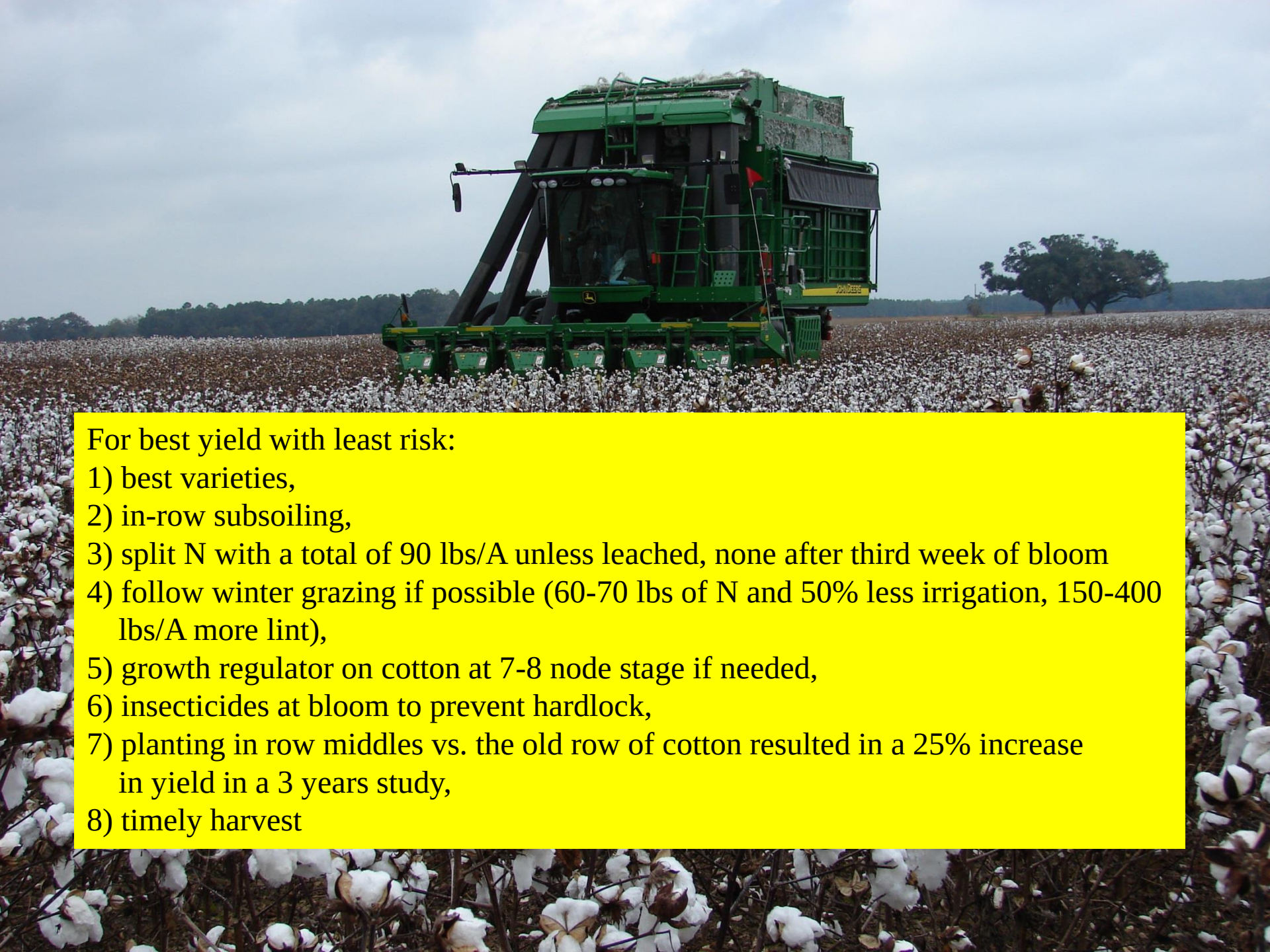
Non-Irrigated Peanut Rotation



The National Peanut Research Laboratory

Cotton yield response to irrigation and winter grazing (NFREC Marianna)





For best yield with least risk:

1) best varieties,
2) in-row subsoiling,
3) split N with a total of 90 lbs/A unless leached, none after third week of bloom
4) follow winter grazing if possible (60-70 lbs of N and 50% less irrigation, 150-400 lbs/A more lint),
5) growth regulator on cotton at 7-8 node stage if needed,
6) insecticides at bloom to prevent hardlock,
7) planting in row middles vs. the old row of cotton resulted in a 25% increase in yield in a 3 years study,
8) timely harvest

Thank You! Questions?

Florida Cotton Production

	2015	2016	2017
Acres planted	85,000	103,000	99,000
Yield per acre (lbs)	885	922	784
Production (bales)	153,000	196,000	160,000

Cotton Supply

- US Planted acreage up 12% to 14.1 M acres.
- Higher abandonment acreage in Southwest due to early season drought.
- Southeast yields down due to hurricanes.
- Global production down in major countries except Brazil and Argentina.

2018	Planted Acres	Harvested Acres	Yield
Alabama	**510**	**500**	**826**
Florida	**117**	**90**	**640**
Georgia	**1,430**	**1,350**	**693**
South Carolina	**300**	**290**	**728**
US	**14,099**	**10,530**	**838**

Nematicide Trial

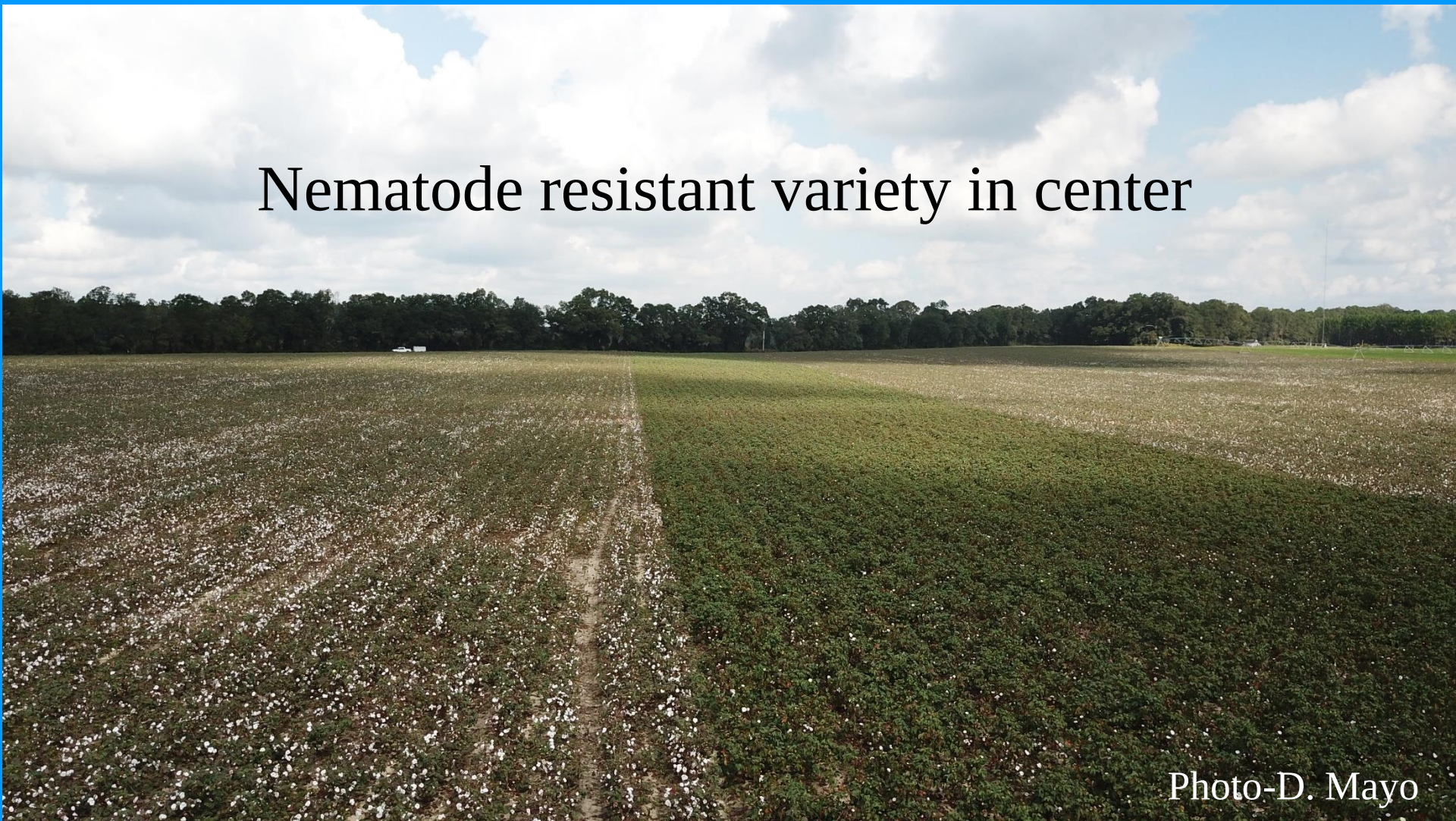
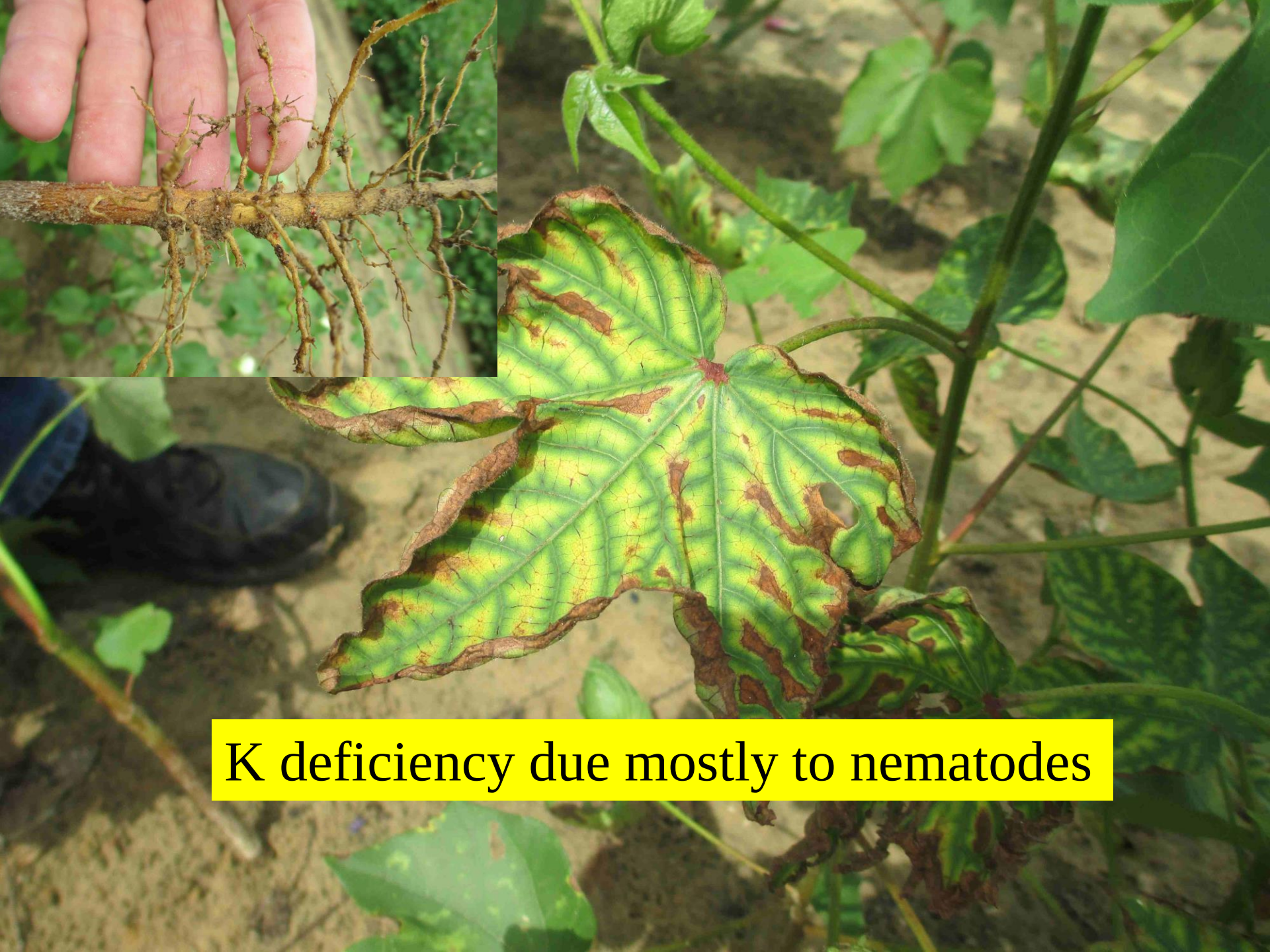


Table 1. Nematicide application economics based on 2017 on-farm nematicide trial. All values are on a per-acre basis

Treatment (rate)	Seed cotton yield	Yield increase vs. untreated	Revenue increase from lint†	Revenue increase from seed†	Total revenue increase	Product cost (no fuel/equipment)	Income increase
Velum Total (18 oz/a)	2706 lb/a	272 lb/a	$72.71	$16.85	$90	$34	$56
Telone (3.5 gal/a)	2686 lb/a	252 lb/a	$67.48	$15.63	$83	$70	$13
AgLogic 15GG (7 lb/a)	2611 lb/a	177 lb/a	$47.53	$10.98	$59	$42	$17
Untreated	2434 lb/a	-	-	-	-	-	-

†Revenue is based on $0.70/lb for lint and $.10/lb for seed. Revenue and income increases are relative to untreated control.

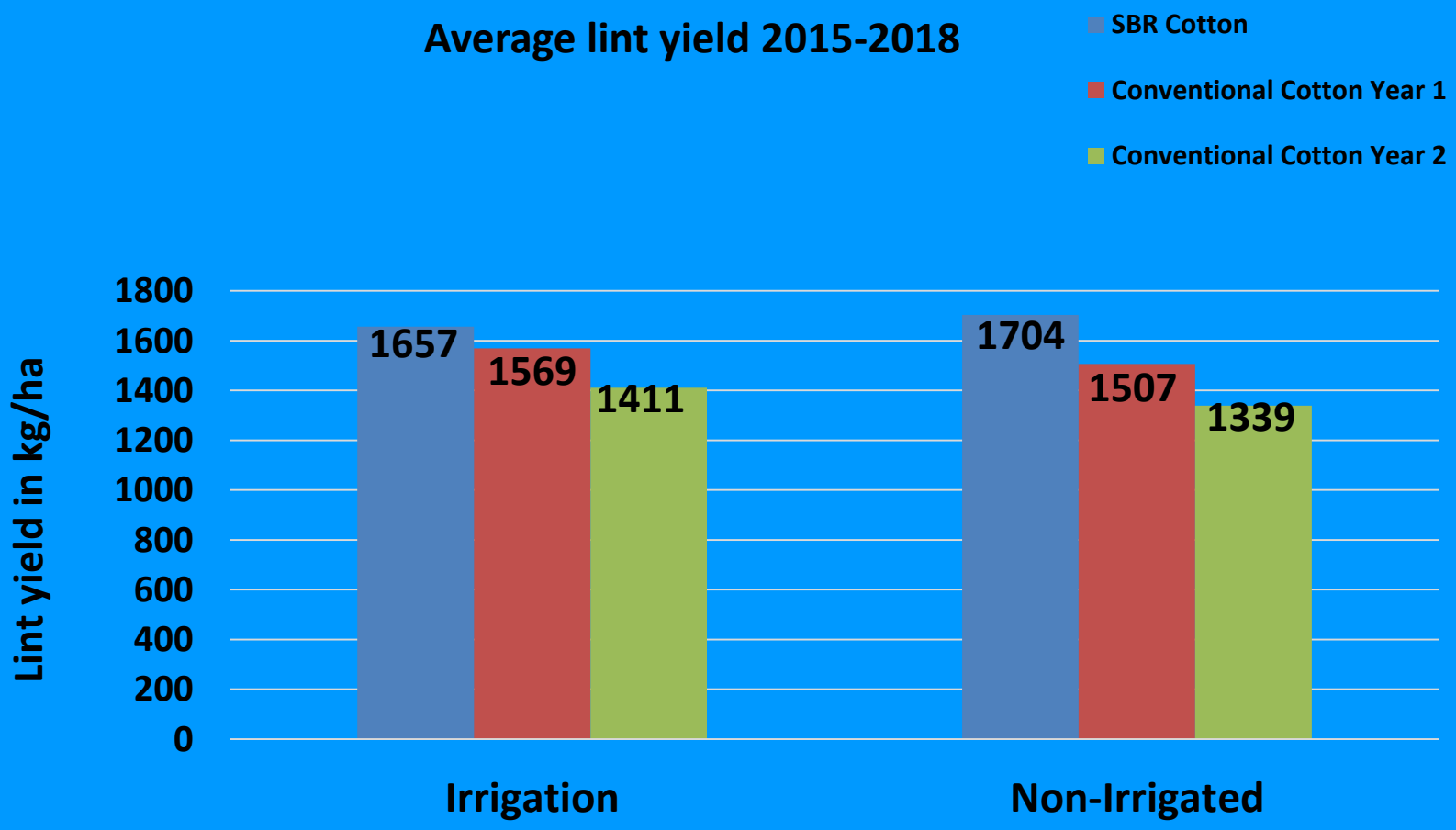
Grabau and Carter- Jackson Co.


K deficiency due mostly to nematodes


High residue mulches help with weed control and the other factors associated with cover crops

Cover crops and conservation tillage, proven concept with better economics

Cotton lint yield-sod rotation and conventional with strip tillage



Control volunteer peanuts and most other weeds should be controlled

Palmer amaranth can be controlled in bahia with broadleaf herbicides. Some hand weed control is often needed in conventional rotations of peanut and cotton

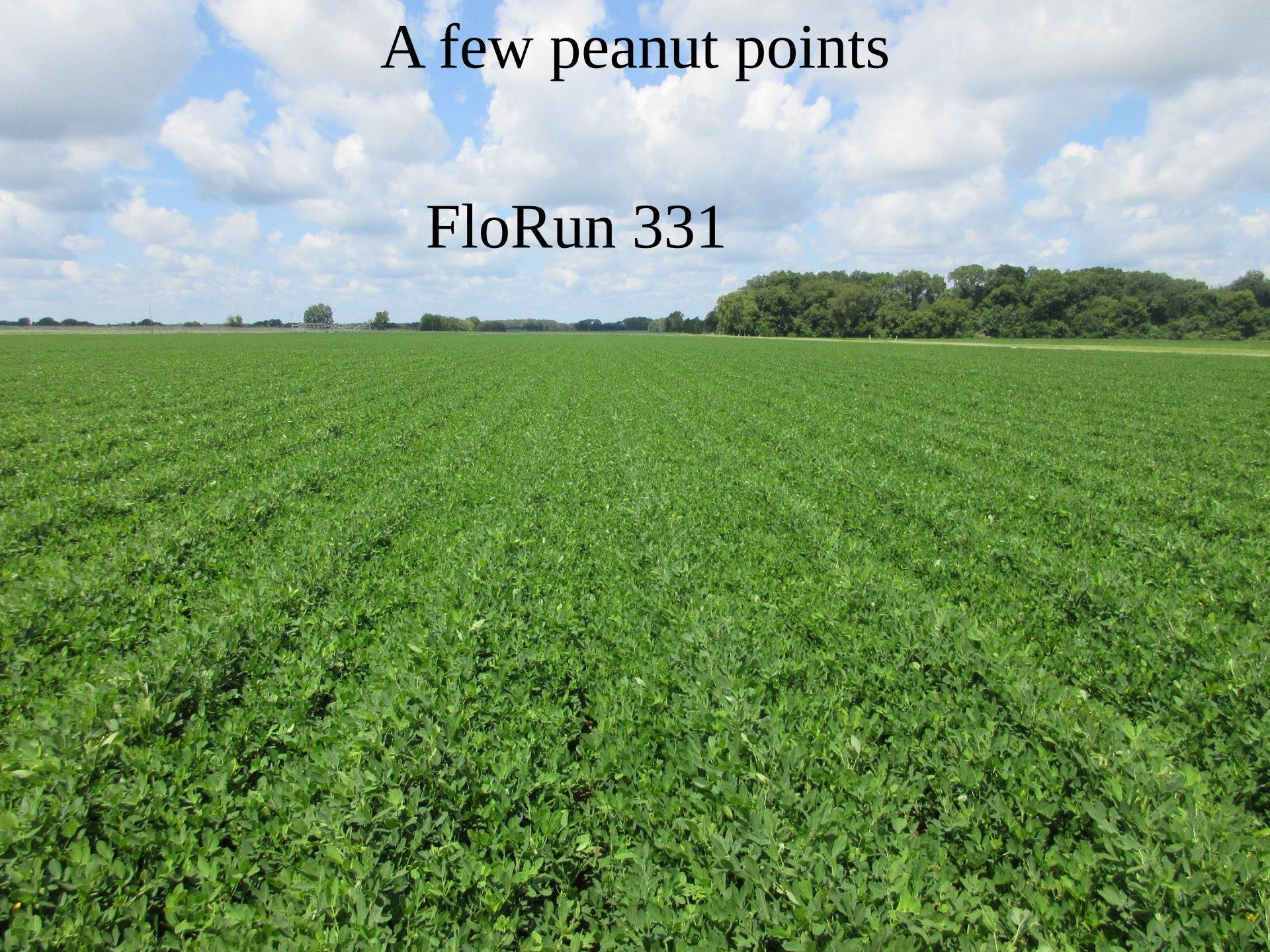
Resistant weed control

Control Stinkbugs First

Cotton starts blooming late June to early July so scouting and control of insects is important for July and early August

A few peanut points

FloRun 331



Planting cotton after winter grazing has been shown to reduce irrigation needs by 50% and N application needs to 60 lbs/A with yield increases of from 150-400 lbs lint per acre. Try a field if it is convenient and let your neighbor bring the cows in and have them out by April 15 to plant cotton. EQIP may help on infrastructure.

State	2013	2014	2015	2016	2017**	2017 FSA Acreage
	1,000 acres					
AL	140	175	200	175	195	191.6
AR	-	10.5	16.3	24	30	29.1
FL	140	175	190	155	195	184.9
GA	430	600	785	720	840	827.6
MS	34	32	44	39	44	42.2
SE	**744**	**982**	**1,219**	**1,113**	**1,304**	**1,277**
NM	7	5	5	8	9	8.4
OK	17	12	10	13	21	18.8
TX	120	130	170	305	275	237.8
SW	**144**	**147**	**185**	**326**	**305**	**265**
NC	82	94	90	101	120	115
SC	81	112	112	110	125	119.8
VA	16	19	19	21	27	26.3
VC	**179**	**225**	**221**	**232**	**272**	**261**
US	**1,067**	**1,354**	**1,625**	**1,671**	**1,881**	**1,808**

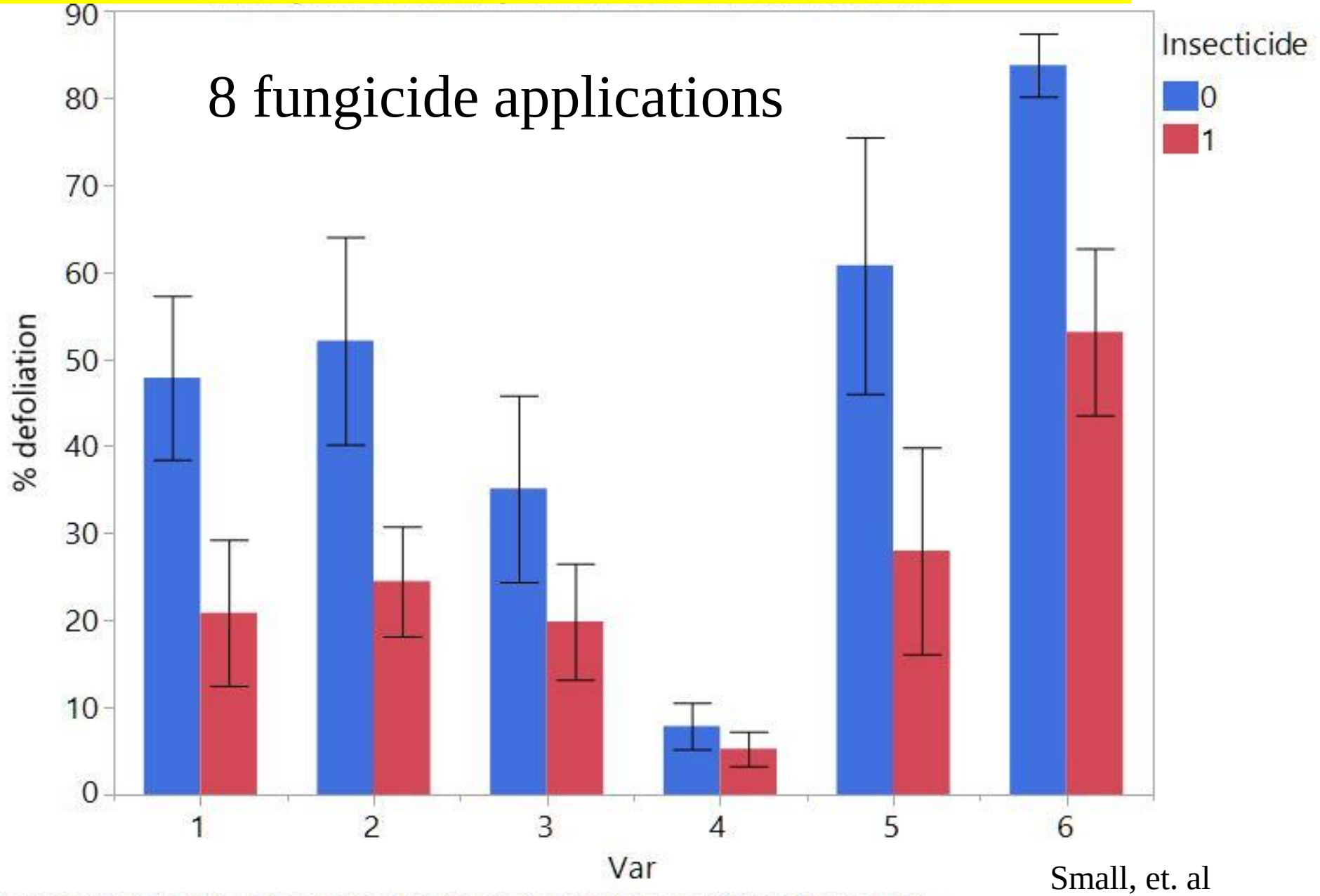
Source: *USDA NASS Crop Production Reports

Peanut Situation

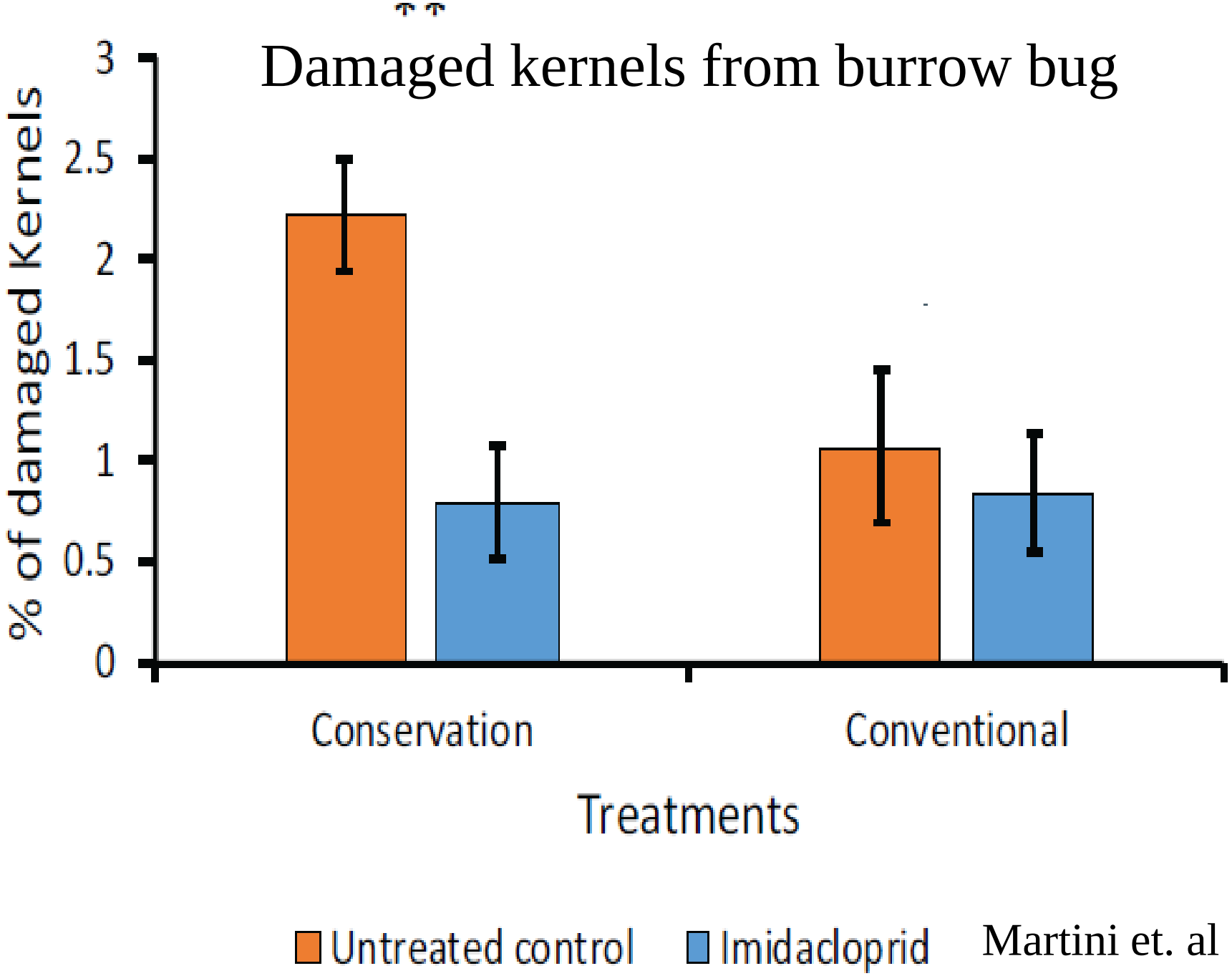
- 2018 US Planted Acreage down 24% to 1.425 million acres.
- US Yield slightly smaller than last year at 3,991 lb/ac.
- 2018 US Production at 2.73 M tons. (2012 record 3.38 M tons).
- Buildup of stocks to 1.3 million tons.
- Domestic use stable and increasing.
- Exports key for prices.

2018	Planted Acres	Harvested Acres	Yield
Alabama	165	162	3,400
Florida	155	140	3,600
Georgia	665	650	4,450
South Carolina	87	82	3,400
US	1,425	1,369	3,991

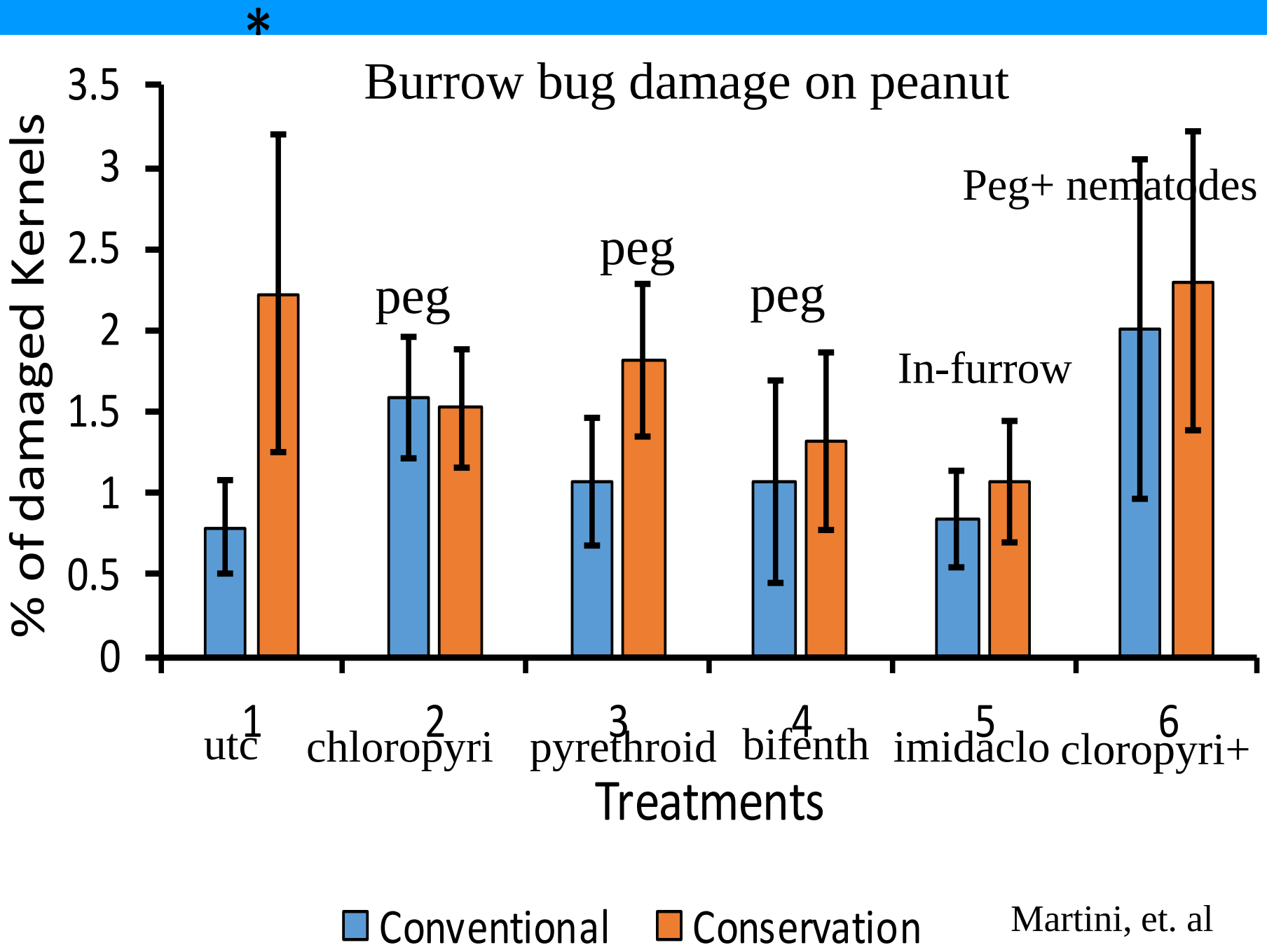
Peanut defoliation with and without Thimet

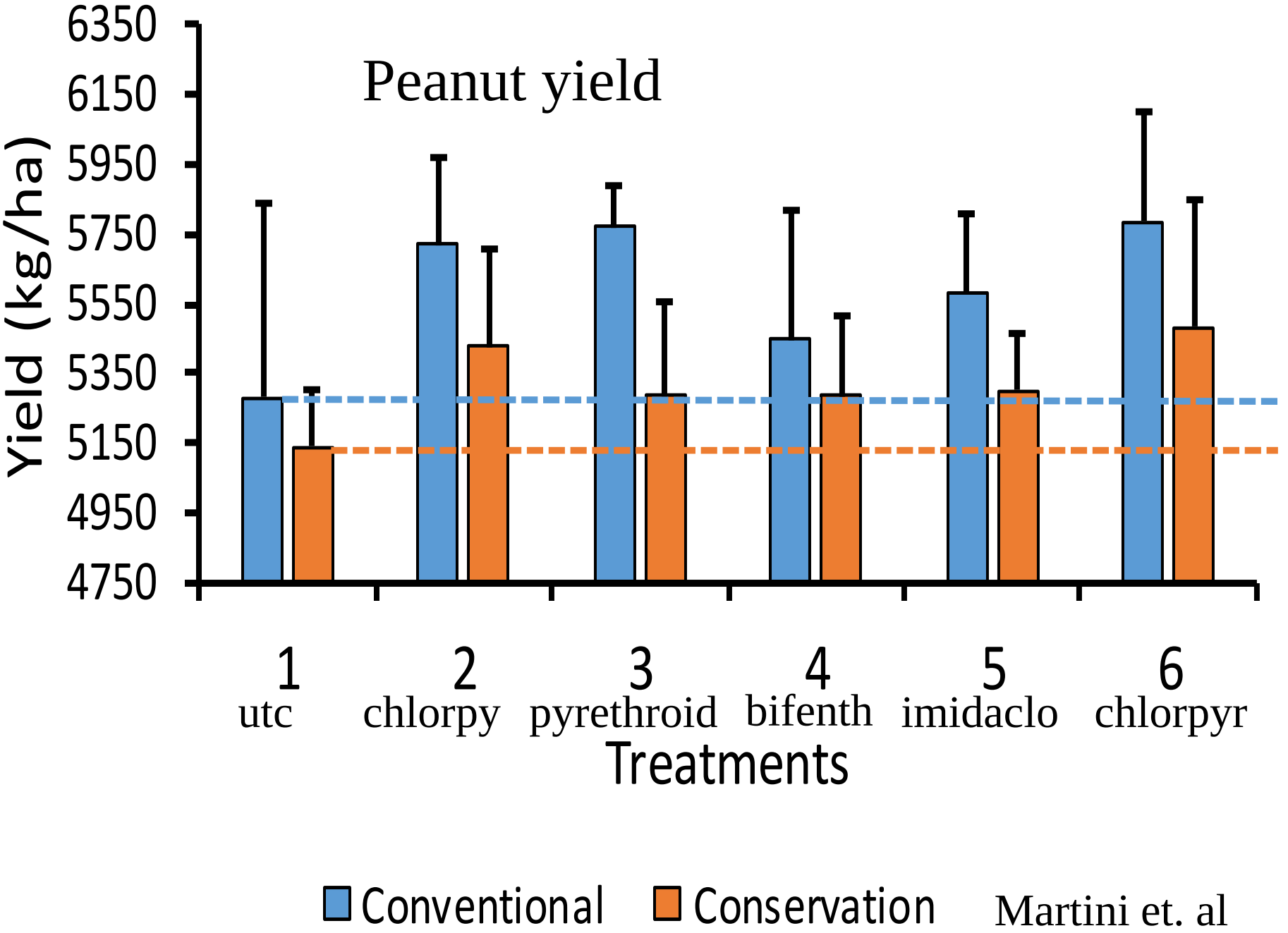


Small, et. al



Martini et. al


*
Burrow bug damage on peanut
% of damaged Kernels
3.5
3
2.5
2
1.5
1
0.5
0
peg
peg
peg
In-furrow
Peg+ nematodes
1
2
3
4
5
6
utc
chloropyri
pyrethroid
bifenth
imidaclo
cloropyri+
Treatments
Conventional
Conservation
Martini, et. al


Peanut yield
Yield (kg/ha)
6350
6150
5950
5750
5550
5350
5150
4950
4750
1
utc
2
chlorpy
3
pyrethroid
4
bifenth
5
imidaclo
6
chlorpyr
Treatments
Conventional
Conservation
Martini et. al

Peanut plant population impact on peanut yield and grade.

Plant spacing in row	Yield	Grade (%)	SMK (%)	Other (%)	Damage (%)	AUDPC
3 plants/ft.	4931 a	75.7	91.64 a	5.8 a	2.1	287.7 a
2 plants /ft.	5064 a	76.0	90.48 a	6.7 a	2.3	261.4 a

Planting Date Impacts on Yields and Grades, 2 yr. avg.

Planting Date	Yield lbs/A	SMK %	OK%	Damaged %
Mid-April	5149 c	71 c	4.4 a	.4 b
Mid-May	5501 b	73 b	1.9 b	.5 b
Early June	5839 a	76 a	1.7 b	.8 a
Mean	5496	73	2.7	.5

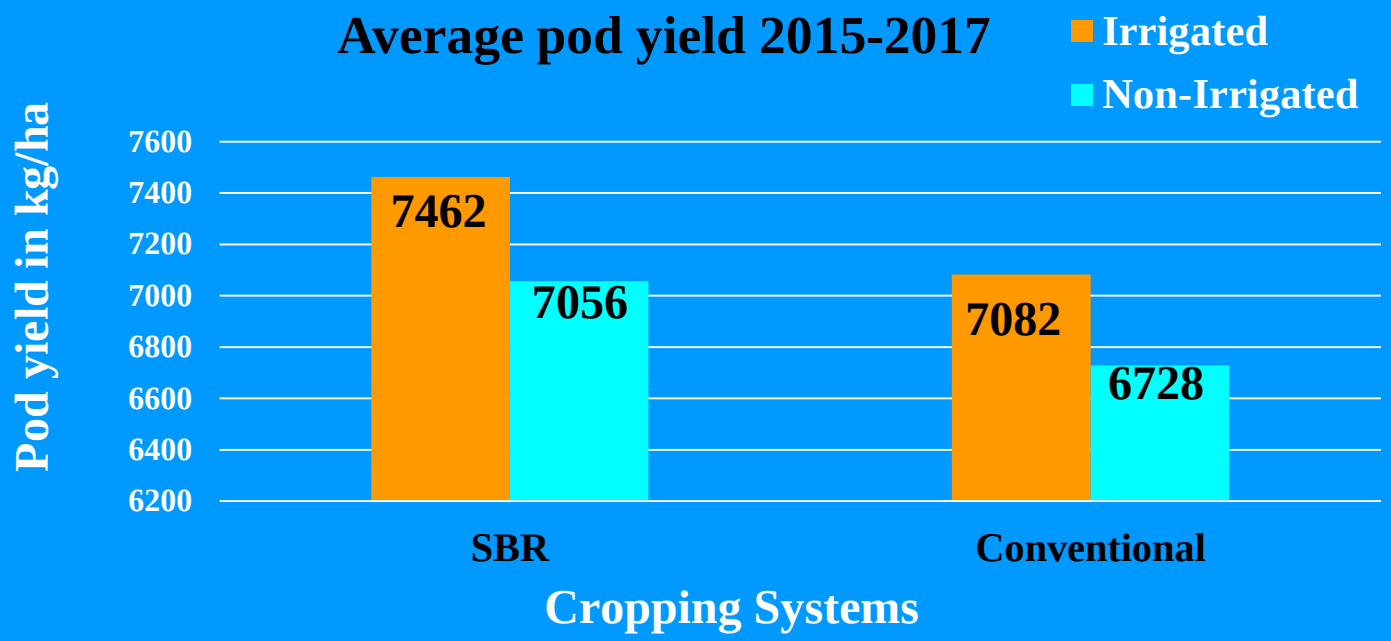
Avg. over 5 varieties

Rotation impacts on peanut yield

Years out of peanut	Irrigated	Non-irrigated
	Lbs/A	Lbs/A
3	6481	5891
2	5525	4795

One extra year out of peanut adds about 1000lbs/A

Peanut yield-SBR and conventional cropping using strip tillage




Thank you!