

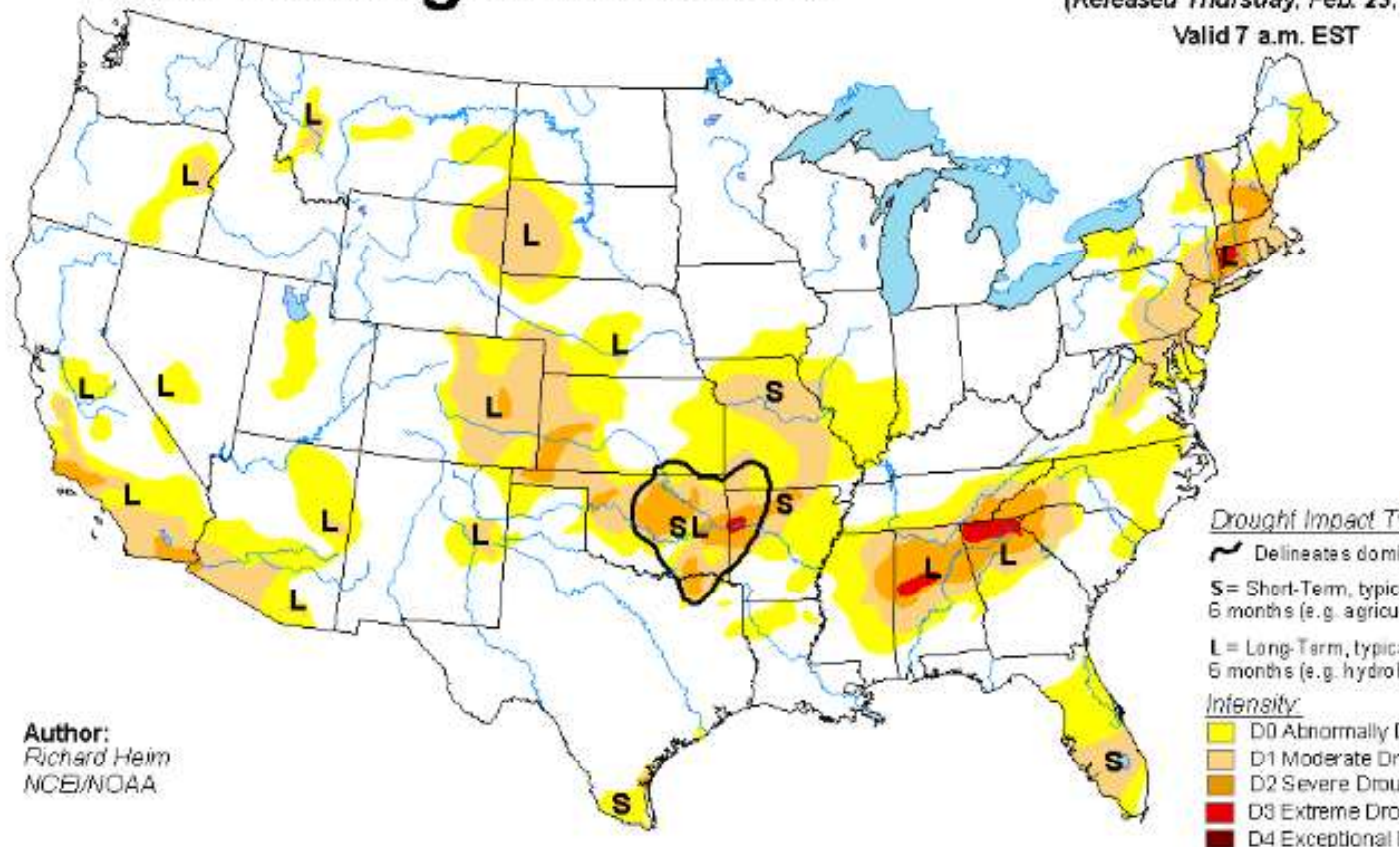
Making Replant Decisions for Cotton and Peanut

David Wright



U.S. Drought Monitor

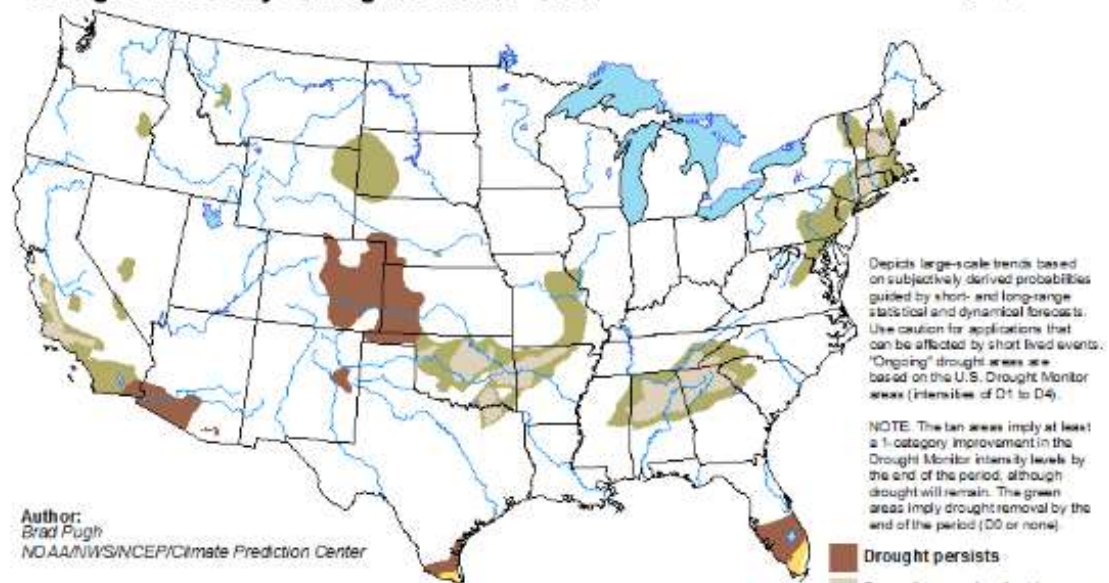
February 21, 2017
(Released Thursday, Feb. 23, 2017)
Valid 7 a.m. EST



Author:
Richard Heim
NCBI/NOAA

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for February 16 - May 31, 2017
Released February 16, 2017



Record cotton yields in Florida in 2016- 960 lbs/A

- 102,000 acres with warmest year on record
- No rain in most areas from early September until early December
- Expect 110,000 acres of cotton for 2017

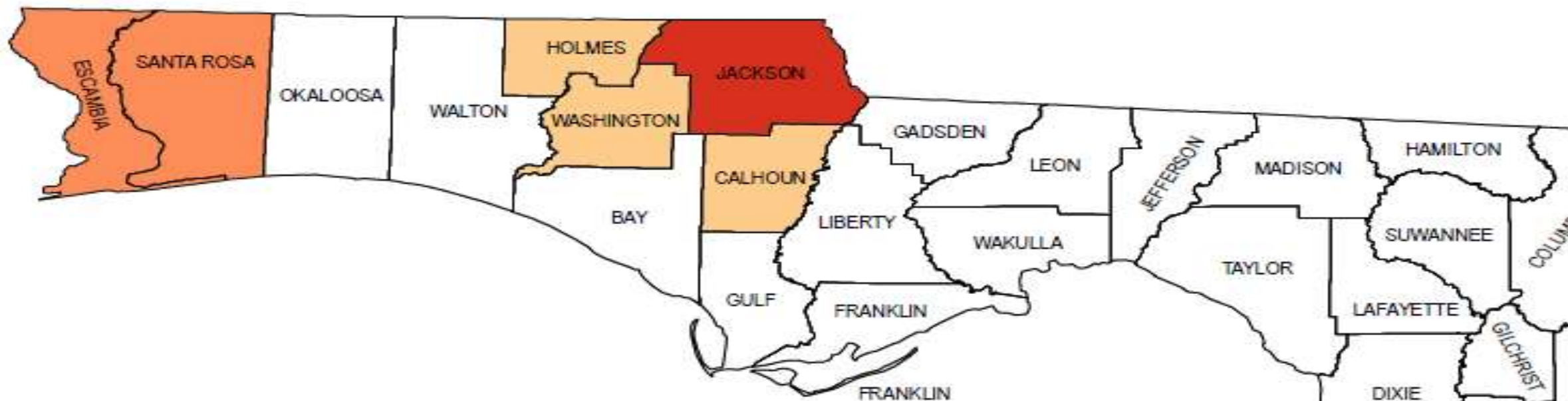


Comparison of 2017 Estimated Net Returns, Georgia, Irrigated

	Corn	Cotton	Grn Sorgh	Peanuts	Soybeans
Expected Yield	200	1,200	100	4,700	60
Expected Average Price¹	\$4.15	\$0.70	\$3.75	\$430	\$9.50
Crop Income	\$830	\$840	\$375	\$1,011	\$570
Variable Costs²	\$640	\$505	\$310	\$640	\$250
Net Return Per Acre Above VC	\$190	\$335	\$65	\$371	\$320
Net Return per Acre Above VC & Land Rent	\$189	\$146	(\$124)	\$182	\$131

1/ Expected average price. Cotton includes LDP and quality premium.

2/ Assumes Jan 2017 costs, [Crop Comparison Tool](#), Department of Agricultural and Applied Economics, UGA



Cotton Top Producing Counties 2015

Jackson	56,100 bales
Santa Rosa	27,900 bales
Escambia	20,900 bales
State Total	153,000 bales

Stand Establishment

- Crops encounter more hazards at stand establishment than at any other time in the crop life cycle
- Cool temperatures are often a major player in seedling diseases when we try to push planting.
- Excessive moisture can impact time to emergence along with cool temperature
- Hard packing rains may cause as much problem as any other factors although later plantings may have dry soil conditions especially if tillage is done. Strip till works for all row crops.
- Sand blasting after stand emergence when seedlings have not hardened off
- Many of these factors can cause injury of stems where seedling diseases can enter and infect plant parts, insects, etc.

Things to consider on cotton for replant

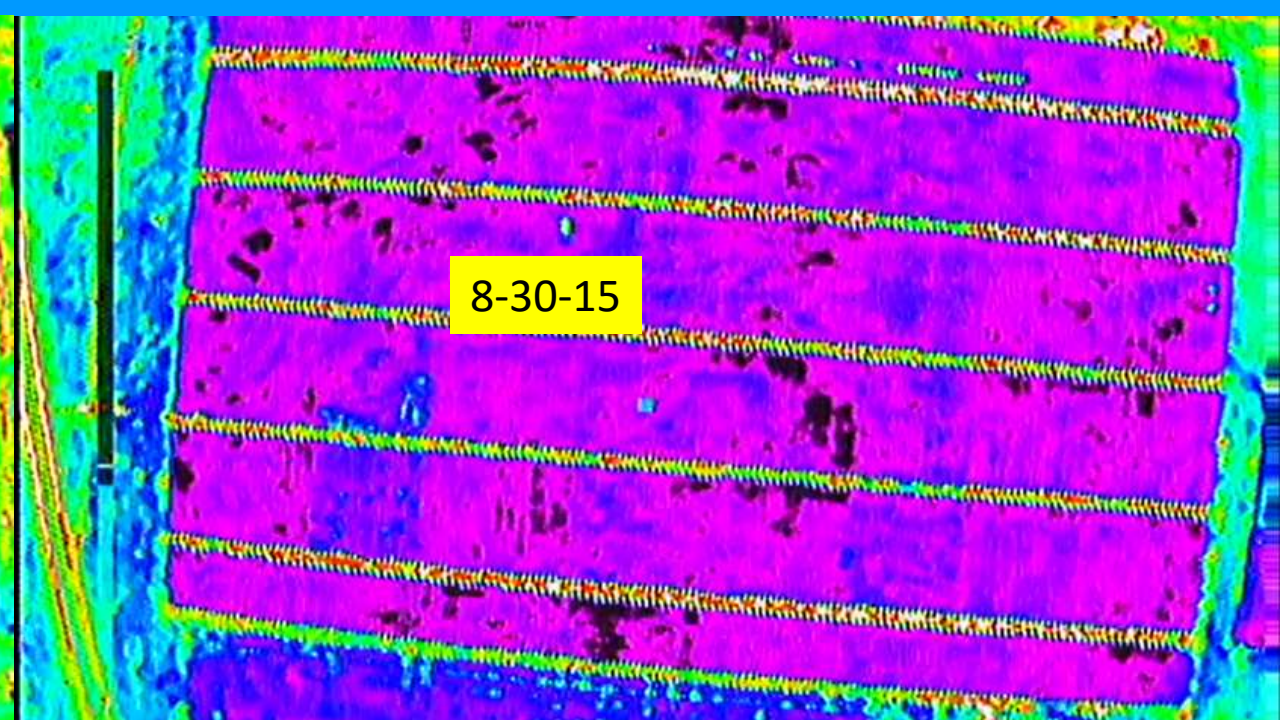
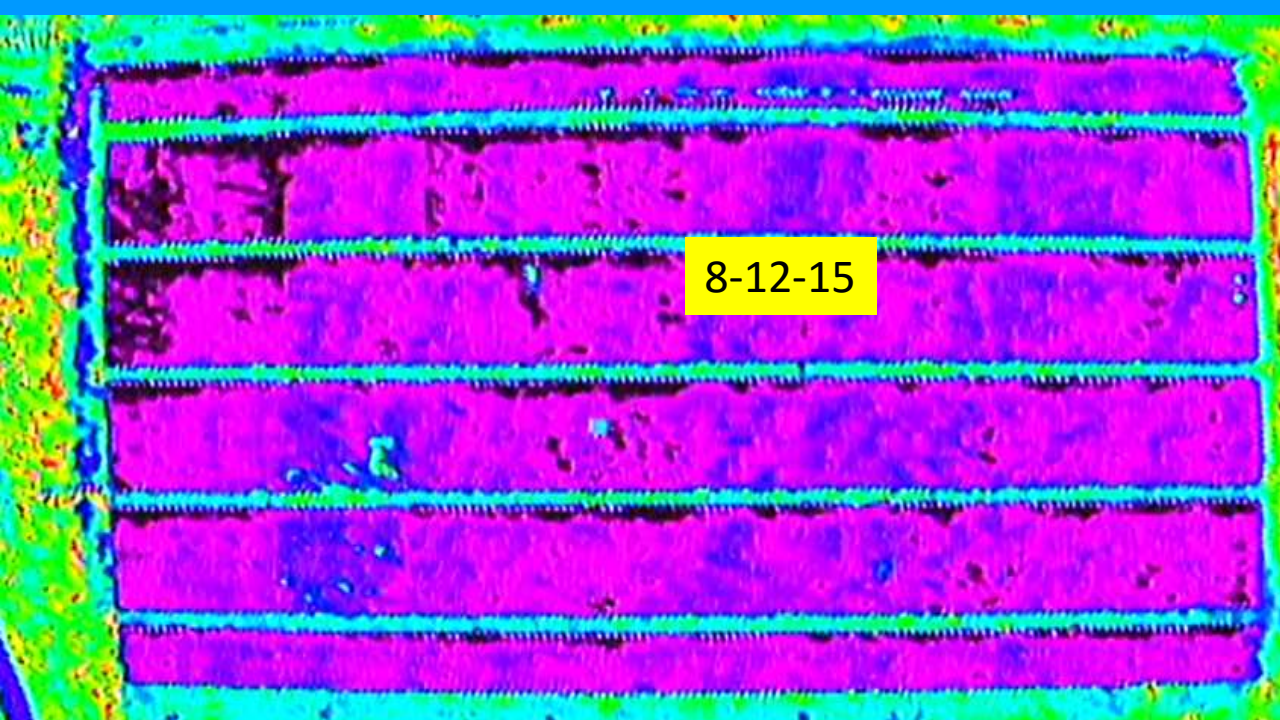
- **Calendar date- planting window of Apr. 20-May 20 is optimum** but can plant into early June without significant yield loss. If you see a poor stand on May 15, replant, if it is June 15 consider carefully with late harvest, more insects, etc.
- **Evaluate the stand on the entire field-** take note of any skips longer than 3'. Look at lesions on stems and if they are brittle-probably will die, check roots and if brown scrape and if roots are still white or green will probably live. 1/1000th of an acre in 36 inch rows is 14'6".
- **How many plants are needed to make a crop-** for cotton, there is little difference between 20,000-70,000 plants per acre in a uniform stand. This translates into 1.5 plants to 4 plants per foot.
- **What is the cost to replant** and what are the cultural practices used? If you used cotoran, diuron or caparol will have to go back with cotton.

Things to consider for replant (continued)

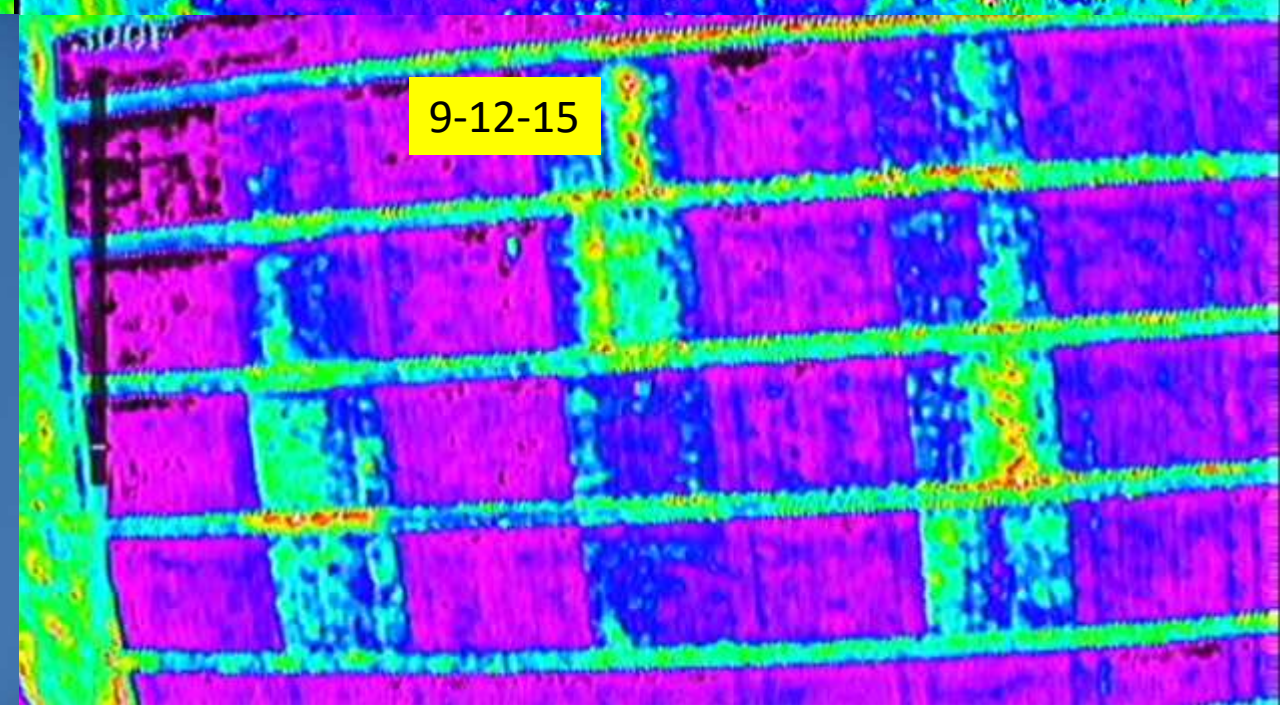
- **Manage for earliness- choose an early maturing variety.** If stand is lost due to seedling disease, use a full seed treatment or in furrow fungicide and plant in row middles, etc.
- **If you decide to replant- are weather conditions conducive** for quick emergence and plant growth.
- **Destroy old stands-ease of management** makes decision making easier
- **Replanting part of the field is less costly but complicates management.**
- If the decision to replant is difficult there are probably enough plants to keep the stand.
- Weather conditions can be favorable or unfavorable and the decision you made may look like you were very smart or leave you saying, I won't do that again.

Replant Decisions

- 6' skips with plants on either side has resulted in 13% less yield. Losses look like they could be more
- Skips of 3' with 3' skips in adjacent rows result in more loss than longer skips with good stands on either side
- Crop recovery is more dependent on type and extent of damage
- Hail, sand blasting and even thrips damage may be considered acute (short term) and often recovers while chronic damage from nematodes, herbicides, etc. may not recover as well
- Data has shown that a 45% stand loss can reduce yields by 25%, you will need to consider if a later replant would reduce yields by 10-15% and consider whether it is worth replanting
- Adjust N and other fertilizer levels to coincide with lower yield potential



Thermal images
Late leaf spot

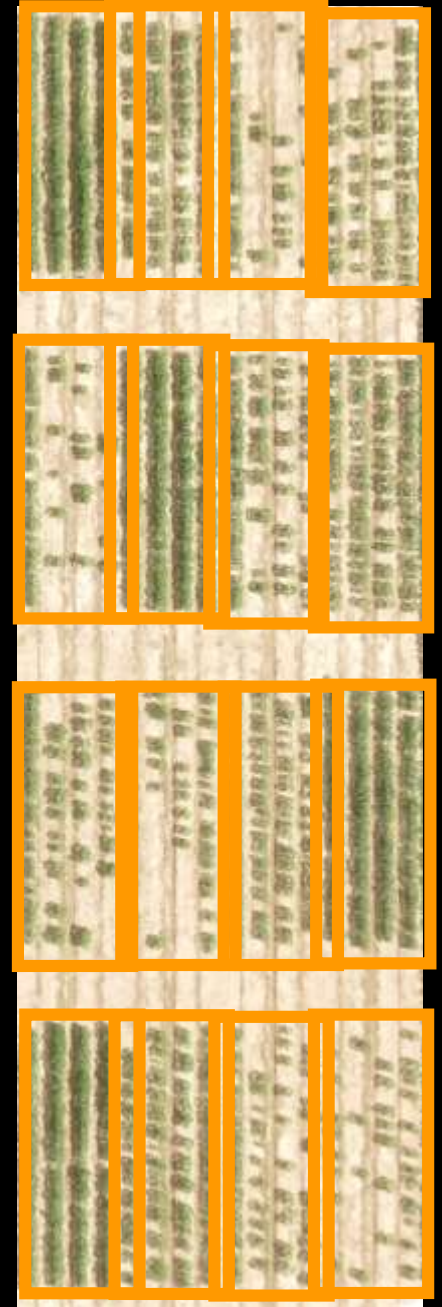


Plant stand studies

Populations

- 10.5 seed m^{-1}
- 3 seed m^{-1}
- 1.5 seed m^{-1}
- 0.75 seed m^{-1}

Using drones to capture this data from aerial views can give you a overview all at once. We will be set up to capture some of this data during the coming year.

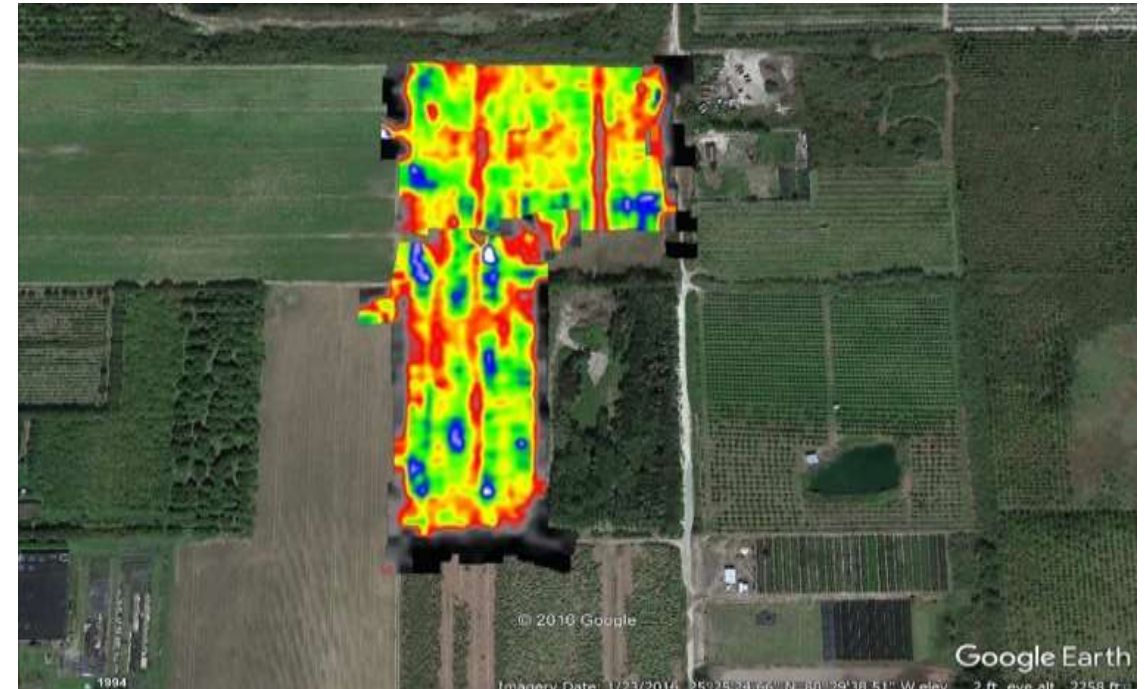
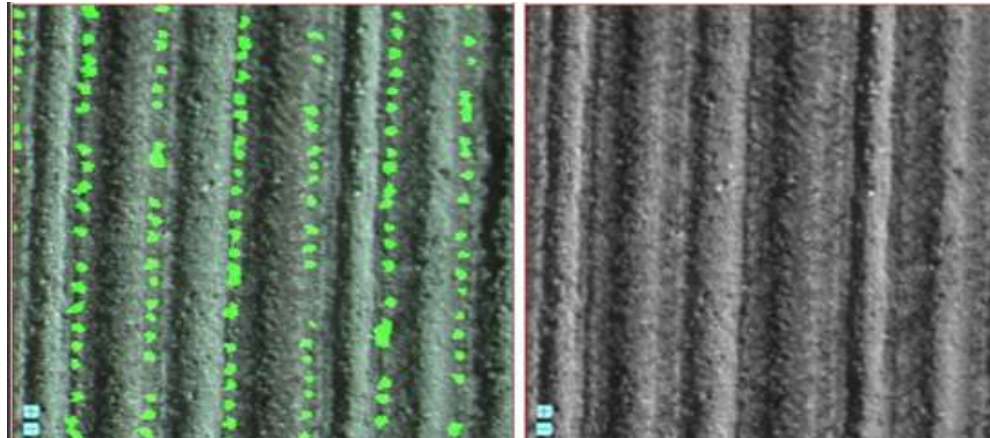




Images of variety trials with aerial view this week



Additional data layers – plant population counts



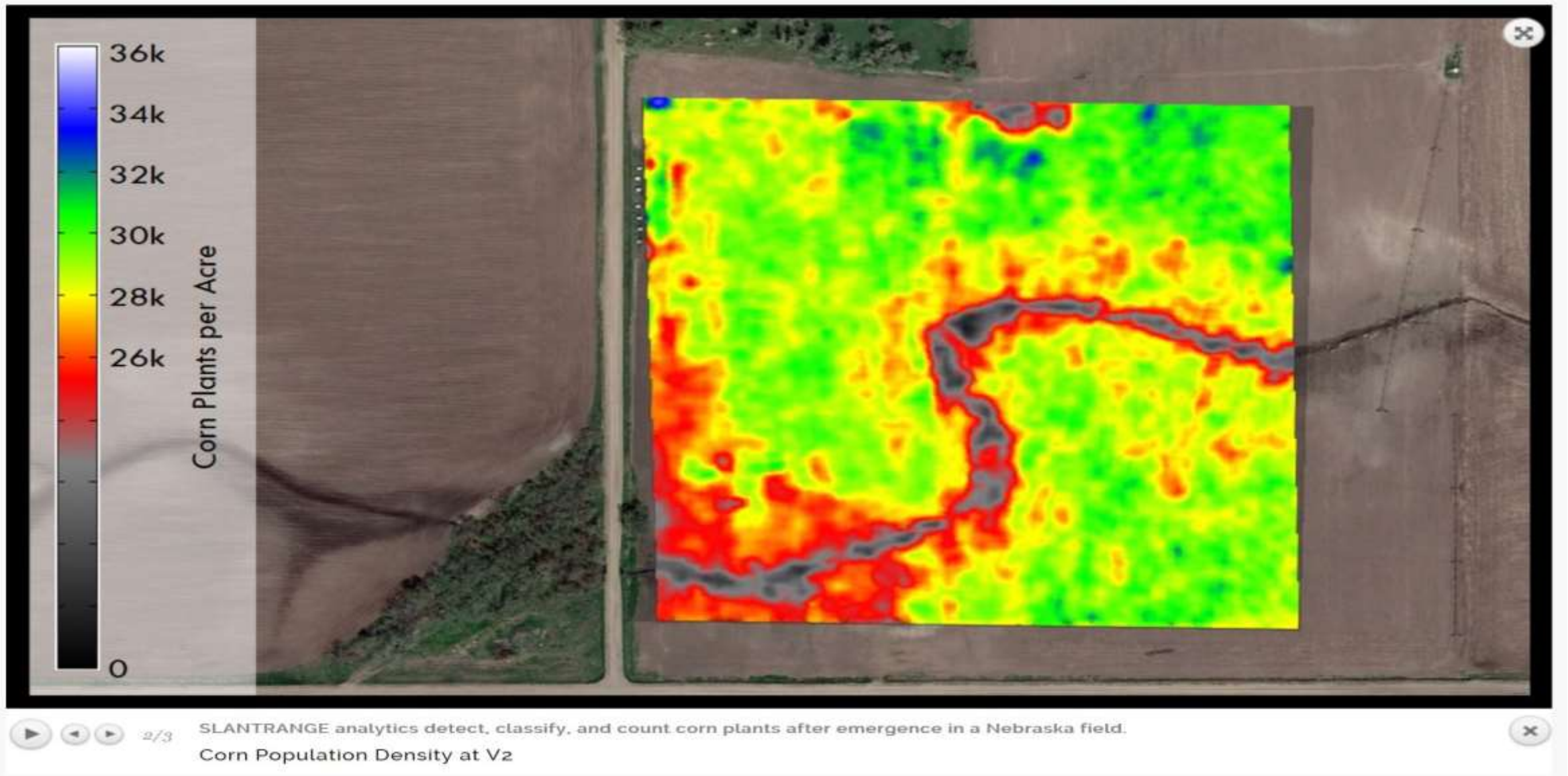
POPULATION DENSITY

Total map area: 11.82 acres, Valid data area: 8.11 acres.

Color	Min	Max	Area, acres	Area percentage	Cumulative
Blue	20500	23500	0.34	4.2 %	100.0
Green	19500	20500	0.27	3.5 %	95.8
Red	18500	19500	0.41	5.2 %	92.3



Verification of actual plant population after planting



Translating information into action



4Rs - Right product, Right rate, Right time, Right place

Replant decisions on soybean is not as complicated as cotton (soybeans can be planted until late July with irrigated even later).



Replant Decisions

- Not an easy thing to figure out but the more information on the field the better
- Even after the decision has been made weather conditions after the replant may make the decision seem good or a bad decision
- An aerial view of the whole field and some of the sensor technology being developed will help you make the right decision
- Working with a biological system is never a sure thing and when weather is thrown in on top, decisions are complicated

Cotton variety selection considerations

Stability over different management is the best predictor of performance

- Every variety can win or lose a trial....no variety wins them all!!
- How frequently a variety performs at or near the top determines stability = strong performance across soils, rainfall patterns, planting dates, etc
- Observe Multi-Location and Multi-Year Data (OVT & On-Farm Trials)
- Plant multiple varieties (all have strengths and weaknesses)
- Position varieties in environments where they are likely to perform competitively

2016 trials	Lowest Yield Env.	Highest Yield Env.
Top Variety	785	2188
Bottom Variety	540	1811
Difference in Yield	245	377

Table 5. Mid- to Full-Season Cotton Variety Fiber Quality and Value. WRECC, Jay

	Variety	Mic^u	Fiber length^v (in.)	Fiber strength^w (g/tex)	Uniform^x (%)	Lint (lb/A)	Net loan price^y (¢/lb)	Lint value^y (\$/A)
1	DP 1646 B2XF	4.4	1.20	29.2	80.9	1162	54.75	553
2	DP 1639 B2XF	4.7	1.10	30.3	81.6	964	53.20	449
3	DP 1538 B2XF	4.8	1.07	27.4	81.3	973	52.25	439
4	DP 1553 B2XF	4.6	1.14	29.2	80.9	825	52.85	392
5	DP 1555 B2XF	4.6	1.13	31.4	80.9	865	53.05	398
6	DP 1558 B/R B2RF	4.9	1.13	32.0	81.7	685	52.30	304
7	MON 15R535 B2XF	4.6	1.13	29.8	81.4	806	56.00	369
8	MON 16R247NR B2XF	4.7	1.11	30.9	81.2	756	54.65	346
9	MON 16R251NR B2XF	4.5	1.17	30.9	80.7	973	55.25	435
10	ST 5115GLT	4.5	1.13	29.1	81.6	926	54.45	448
11	ST 6182GLT	4.8	1.12	29.0	80.5	793	53.10	380
12	BX 1739GLT	4.4	1.19	33.2	81.6	752	56.20	361
13	ST 4747GLB2	4.7	1.16	30.0	80.2	1068	54.90	499
14	ST 4946GLB2	4.9	1.13	30.8	82.1	900	52.90	411
15	ST 4848GLT	4.7	1.12	30.1	81.0	952	56.95	468
16	ST 4949GLT	4.7	1.10	28.5	80.9	924	53.75	445
17	PHY333WRF	4.6	1.12	29.9	82.4	984	51.80	448
18	PHY444WRF	4.0	1.23	31.6	83.2	974	52.45	484
19	PHY487WRF	4.9	1.08	29.1	81.5	886	54.75	408
20	PHY495W3RF	4.7	1.07	31.8	80.9	908	55.20	404
21	PHY499WRF	4.8	1.10	31.5	81.6	931	52.35	420
22	PHY552WRF	4.1	1.14	30.9	83.1	1062	56.50	503
23	PHY575WRF	4.2	1.19	30.2	81.6	764	55.20	361
24	DG 3757B2XF	4.7	1.10	28.6	80.5	784	56.40	353
25	CPS16654	4.4	1.21	30.7	81.7	909	56.35	445
26	3885 B2XF	4.7	1.10	27.8	81.6	904	54.75	435
27	NG5007 B2XF	4.5	1.12	28.0	80.5	1028	53.20	504
28	AMX1601B2XF	4.6	1.13	31.9	81.0	807	52.25	396
	<i>LSD</i>	<i>0.2</i>	<i>0.03</i>	<i>1.3</i>	<i>1.7</i>	<i>180</i>		
	<i>CV</i>	<i>3.6%</i>	<i>2.0%</i>	<i>3.1%</i>	<i>1.5%</i>	<i>14%</i>		

Table 6. Mid- to Full-Season Two and Three Year Lint/A Yield Averages

WFREC, Jay

	2016	2-year Average	3-year Average
DP 1646 B2XF	1162	1449	
DP 1639 B2XF	964	1297	
DP 1538 B2XF	973	1292	
DP 1553 B2XF	825	1238	
DP 1555 B2XF	865	1262	
DP 1558 B/R B2RF	685	1186	
ST 5115GLT	926	1157	
ST 6182GLT	793	1167	
ST 4747GLB2	1068	1344	1552
ST 4946GLB2	900	1183	1349
PHY333WRF	984	1330	1475
PHY444WRF	974	1223	1465
PHY487WRF	886	1203	
PHY495W3RF	1029	1320	1498
PHY499WRF	931	1198	1437
PHY552WRF	1062	1220	
PHY575WRF	764	1146	1340
3885 B2XF	904	1303	
NG5007 B2XF	1028	1256	

County cotton trial, Jackson Co.

**(Seed Cotton) (Seed Cotton) Calculated
Field Weight Weight/ Acre Seed Cotton**

Variety	Acres	(Lb)	(Lb)	sample (Lb)	Lint (Lb)	Seed wt (Lb)	Lint + Seed (Lb)	Turnout	Lint Yield (lb/A)
PHY 444	1.085	3160	2912	2.72	1.150	1.509	2.659	0.422	1229
PHY 496	1.080	2710	2509	2.23	0.985	1.195	2.180	0.441	1106
PHY 333	1.090	2846	2611	2.50	1.059	1.381	2.440	0.424	1106
PHY 575	1.085	3346	3084	2.66	1.033	1.565	2.598	0.388	1197
DP 1252	1.055	2975	2820	2.21	0.961	1.197	2.158	0.435	1225
DP 1553	1.080	3084	2856	2.30	1.006	1.24	2.246	0.437	1248
DP 1538	1.070	3104	2901	2.59	1.117	1.413	2.530	0.431	1250
CG 3885	1.065	2984	2802	2.64	1.156	1.417	2.573	0.438	1228
ST 6182	1.060	3000	2830	2.53	1.162	1.308	2.470	0.459	1299
ST 5115	1.050	2945	2805	2.30	0.935	1.307	2.242	0.407	1142
DP1646	1.045	3123	2989	2.12	0.923	1.143	2.066	0.436	1303

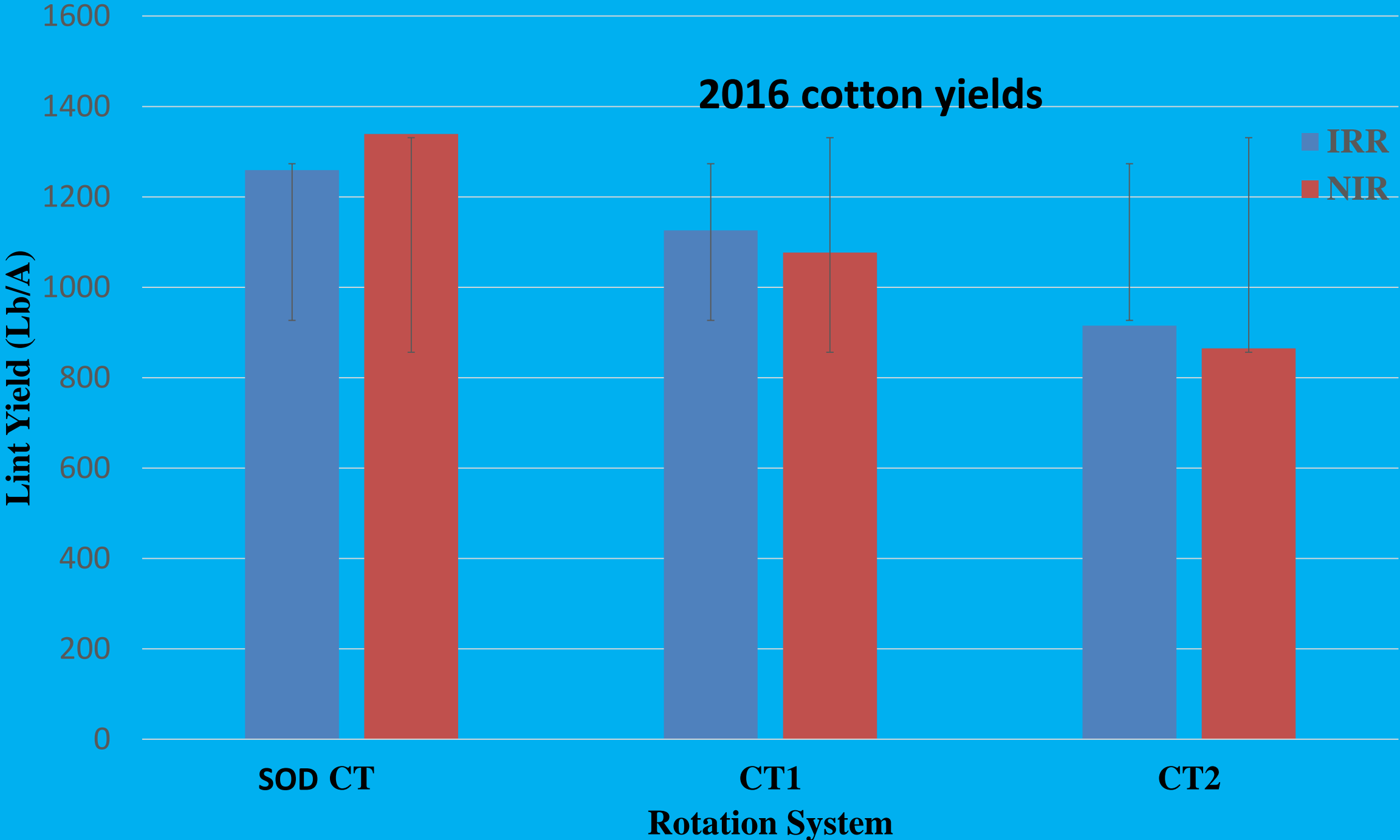
2016 UGA On-Farm Cotton Variety Performance Evaluation Program – TOP 4 Highlighted

Variety	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Var. Avg.	Top 4 %
PHY 444 WRF	425	553	496	927	819	952	873	1119	1115	1213	975	1266	1246	1396	1388	1384	1316	1479	1622	1602	1108	75
DG 2615 B2RF	249	291	469	1025	770	791	1045	1065	1022	1145	1083	1410	1195	1235	1328	1441	1524	1545	1597	1532	1088	45
PHY 496 W3RF	478	481	615	832	711	871	903	1017	1085	1083	1045	1218	1315	1201	1168	1355	1390	1511	1555	1534	1068	55
CG 3885 B2XF	449	447	461	829	975	753	912	992	1104	1208	956	1185	1342	1237	1333	1329	1483	1336	1460	1495	1064	45
DP 1646 B2XF	430	462	447	784	834	790	785	921	1193	1068	1089	1158	1192	1409	1248	1316	1365	1459	1450	1551	1048	25
DP 1538 B2XF	411	453	420	803	870	814	775	964	1191	1163	1184	1145	1130	1346	1294	1281	1261	1332	1581	1499	1046	30
ST 6182 GLT	382	444	457	721	742	807	895	1018	1085	1155	1018	1246	1241	1178	1327	1294	1338	1278	1514	1454	1030	20
NG 5007 B2XF	437	482	490	712	728	749	879	892	1167	1165	1166	1237	1219	1240	1276	1266	1354	1314	1428	1382	1029	25
ST 5115 GLT	349	494	497	708	845	809	848	1023	965	1184	1118	1158	1186	1109	1221	1298	1412	1196	1384	1496	1015	30
PHY 333 WRF	366	536	492	697	671	834	842	987	931	952	1132	1204	1445	1173	1027	1268	1246	1311	1383	1333	991	20
BX 1739 GLT	158	227	485	765	763	728	749	877	945	1029	1122	1284	1185	1160	964	1307	1389	1613	1417	1552	986	15
NG 3522 B2XF	374	482	532	655	736	796	799	882	1096	979	1109	1078	1239	1146	1247	1307	1190	1305	1262	1347	978	5
DP 1553 B2XF	420	499	347	695	780	765	846	949	1097	984	1229	1095	1050	1183	1214	1199	1196	1222	1362	1380	976	10
DG 3526 B2XF	373	465	402	616	778	710	836	895	1047	987	1121	1208	1118	1186	1164	1311	1267	1260	1295	1374	971	0
Location Total	379	451	472	769	787	798	856	972	1074	1094	1096	1207	1222	1228	1229	1311	1338	1369	1451	1466		

2016 NC On-Farm Trials (TOP 3 Statewide)

Variety	1	2	3	4	5	6	7	8	9	10	11	12	AVG Yield
DP 1646	642	752	773	761	913	953	1066	891	1000	1063	1201	2188	1017
NG 3522	724	733	804	709	783	840	843	950	981	927	1008	1957	938
DP 1614	599	722	752	660	741	867	808	900	933	909	1215	2085	933
PHY 312	653	776	807	721	755	898	880	843	967	931	984	1843	922
ST 4848	616	656	631	650	732	783	884	899	1005	955	1234	1961	917
DG 3526	785	440	740	759	775	551	855	889	977	946	1061	2038	901
PHY 444	630	690	632	736	683	710	869	847	843	973	1000	1956	881
DG 3757	643	572	767	804	625	501	935	865	884	875	930	1929	861
NG 3405	540	686	606	663	714	810	795	887	906	850	1055	1811	860
ST 6182	607	447	705	785	697	537	807	856	766	891	1076	2024	850
Trial AVG	644	647	722	725	742	745	874	883	926	932	1076	1979	

2016 cotton yields



Cotton yields as affected by nematodes and row pattern, 3 yr. study

Planting method	Yield Lint lbs/A	Nematodes/ 100 cm ³ soil*
In-row**	453b***	240a
Row middle	714a	92b

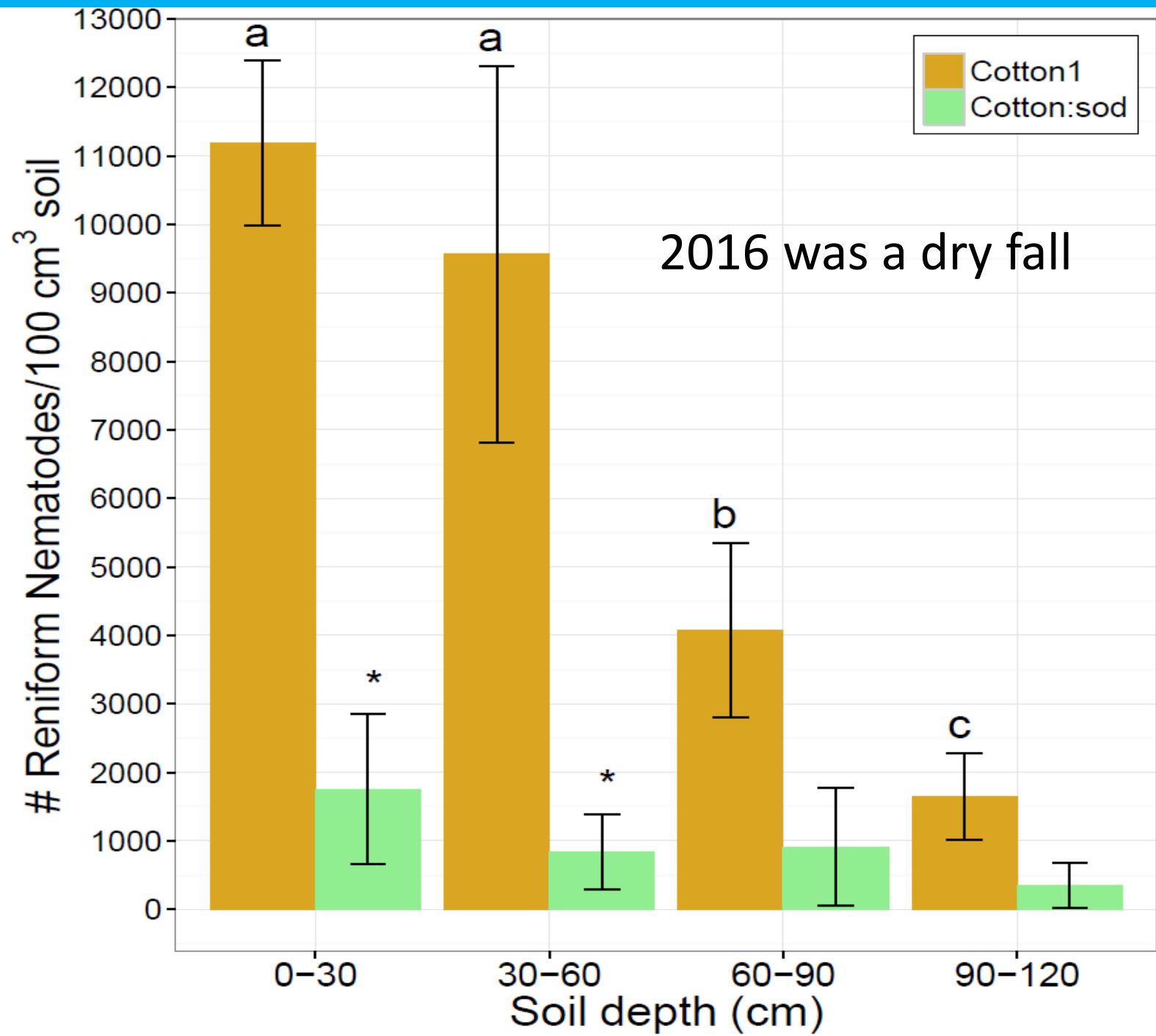
3 years of data showed about 33% less cotton yield when planted back over the old row vs. row middles.

Use precision planting to move to row middles.

* Indicates initial nematode population densities; samples were collected eleven days prior to planting.

** In-row planting indicates cotton was seeded over the row from the previous year; row middle cotton was planted between rows from the previous year.

*** Column means followed by the same letter are not significantly different ($P \leq 0.05$).



Yellow bars are cotton after peanut and the rotation is 2 years of cotton followed by peanut.
Green bars are cotton after peanut followed by two years of bahiagrass

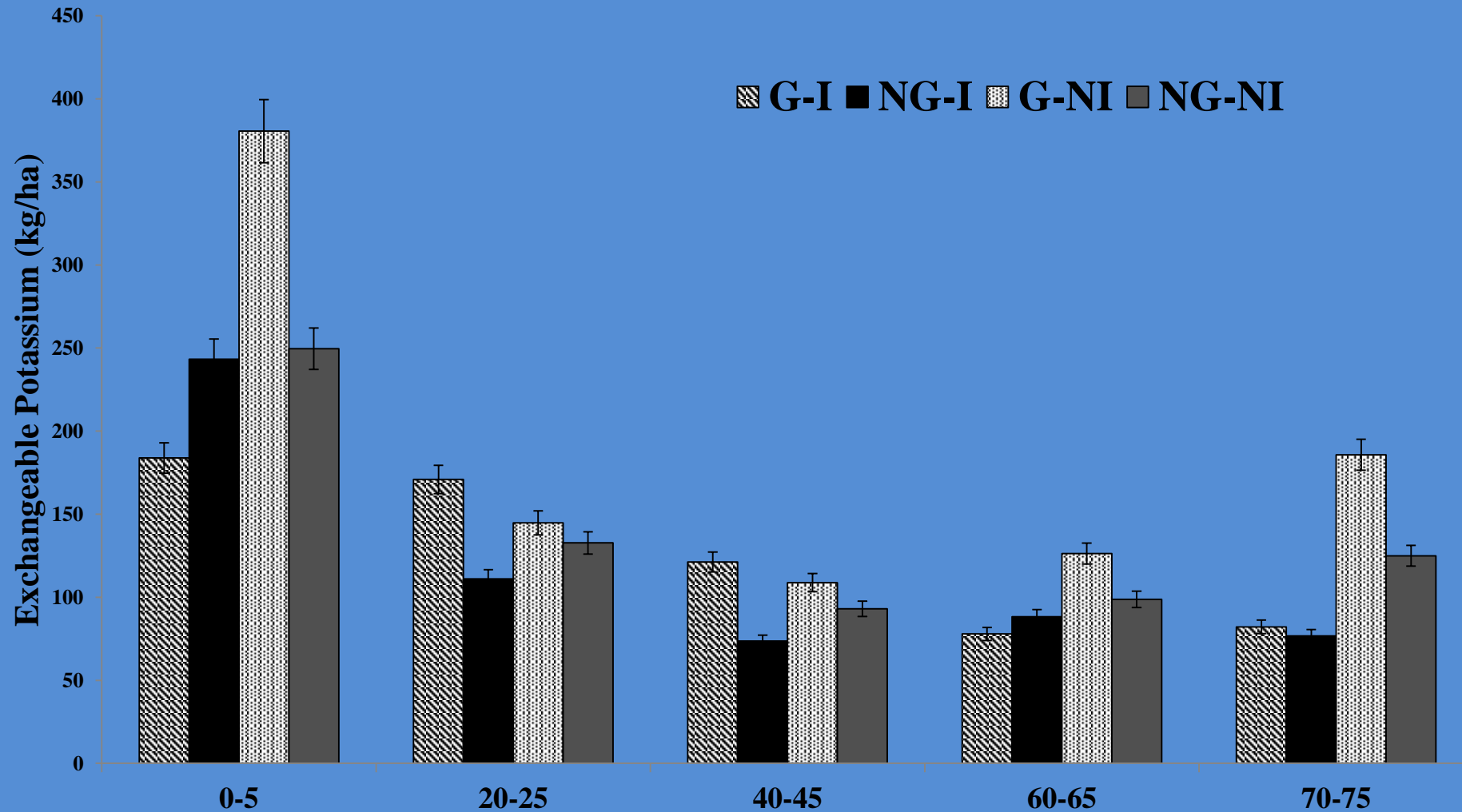
Impact of Velum Total on cotton yields in 2016 applied at 18 Oz/A

Rotation/Irrigation		Lint Yield (lb/A)	Turnout
SBR-Irr	+ Velum	1338 ab	0.43 a
SBR-Irr	-Velum	1181 cd	0.43 a
SBR-Nirr	+Velum	1415 a	0.45 a
SBR-Nirr	-Velum	1264 bc	0.45 a
Conv. Cotton year 1-Irr	+ Velum	1143 bcd	0.42 a
Conv. Cotton year 1-Irr	-Velum	1110 cd	0.42 a
Conv. Cotton year 1-Nirr	+Velum	1085 cd	0.43 a
Conv. Cotton year 1-Nirr	-Velum	1068 de	0.43 a
Conv. Cotton year 2-Irr	+ Velum	905 f	0.43 a
Conv. Cotton year 2-Irr	-Velum	925 f	0.42 a
Conv. Cotton year 2-Nirr	+Velum	880 f	0.44 a
Conv. Cotton year 2-Nirr	-Velum	849 f	0.44 a



Plant after winter grazing if possible due to recycled nutrients and higher microbial C

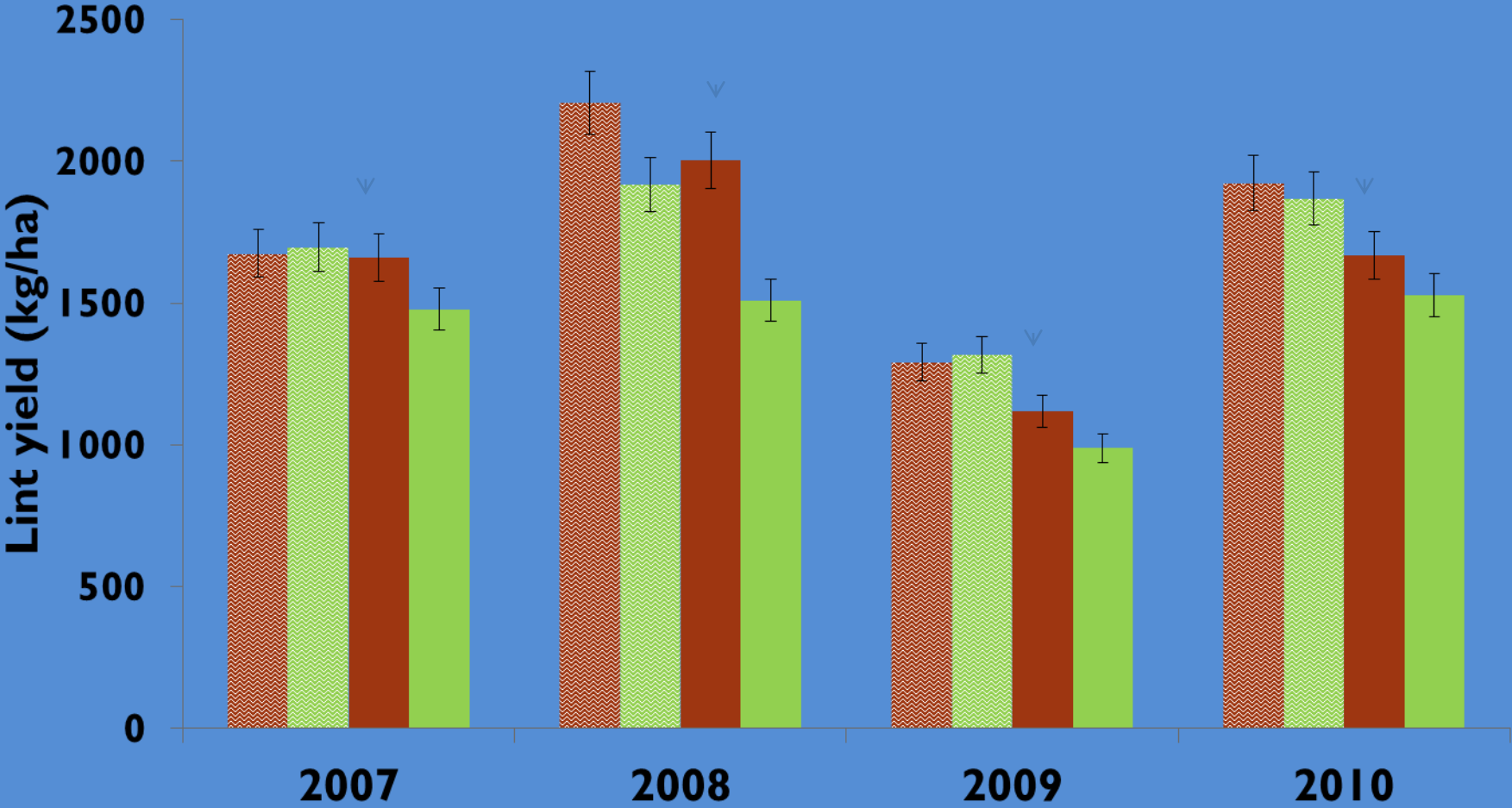
Soil exchangeable K levels at different depths after winter grazing- 3 year avg.

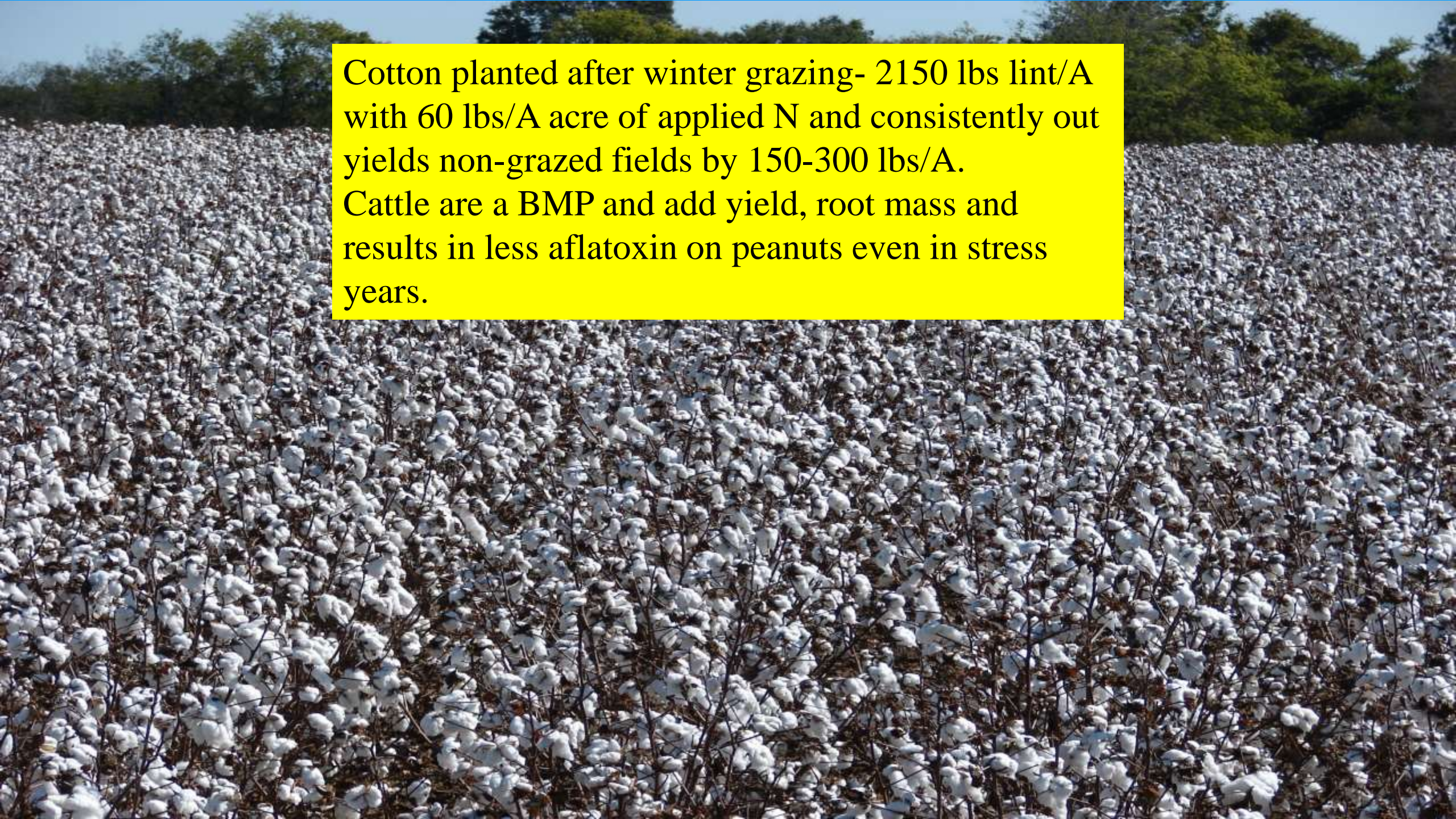


Cotton lint yields

Consistently higher yields for non irrigated cotton

G-I **NG-I** **G-NI** **NG-NI**



A wide-angle photograph of a cotton field in full bloom. The plants are densely packed, and the white cotton bolls are prominent against the dark green leaves and brown stems. The field extends to the horizon under a clear blue sky. In the background, there is a line of trees.

Cotton planted after winter grazing- 2150 lbs lint/A with 60 lbs/A acre of applied N and consistently out yields non-grazed fields by 150-300 lbs/A. Cattle are a BMP and add yield, root mass and results in less aflatoxin on peanuts even in stress years.



Thank You! Questions or comments on replant or cotton varieties?