



University of Florida Turfgrass Breeding

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PSREU



Breeding Program

- **Conventional Species:**
 - *St. Augustinegrass*
 - *Zoysiagrass*
 - Bermudagrass
- **Alternate Species:**
 - *Bahiagrass*
 - Centipedegrass
 - Carpetgrass
 - Seashore Dropseed

Zoysiagrass and St. Augustinegrass Breeding

Traits of interest:

- Environmental: Drought, Nutrient Use
- Home Owner: Shade and Winter Color
- Sod Producers: Diseases (Large Patch) and Growth Rate

Objectives:

- Improved spring green up and winter color for Florida market
- Equivalent or improved drought resistance, large patch tolerance and shade tolerance compared to commercial standards.



FAES1307



FAES1313



FAES1319

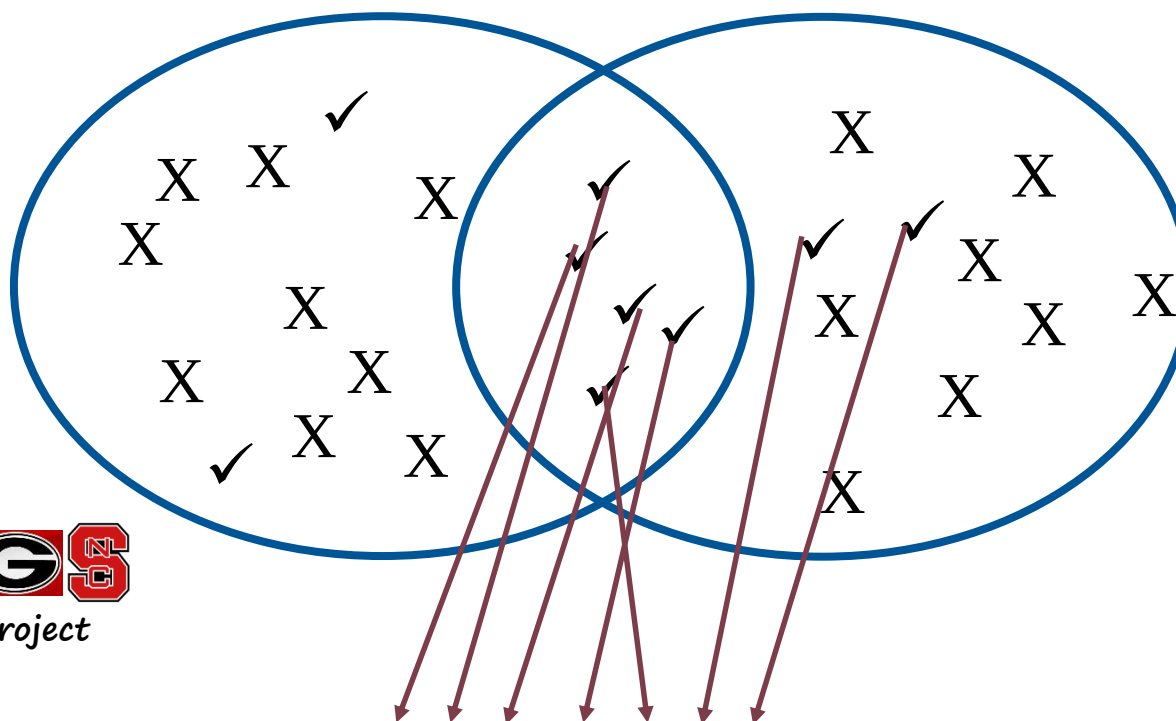


FSA 1602

Process

SCRI Trial

- Drought: 1 year



Florida and NTEP Trials:

- Shade
- Sod webworm
- Large patch
- Winter color
- Adaptability
- Production



USDA- SCRI Project

Selected:

- Advanced trials
- NTEP
- Work with producers
- Work with Golf Course Superintendents



Release



Commercialization

Test Sites for UF Exp. Lines

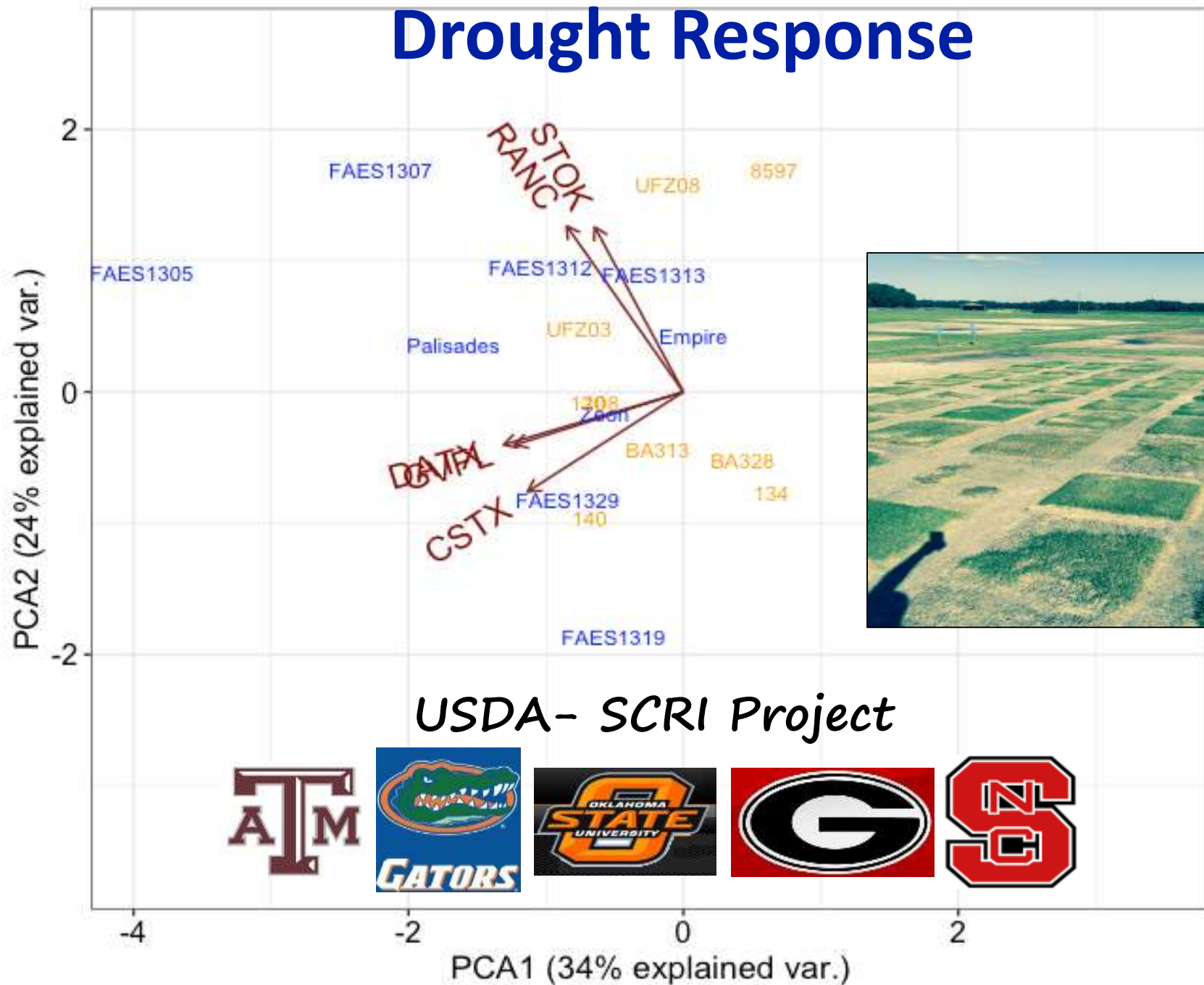


Zoysiagrass

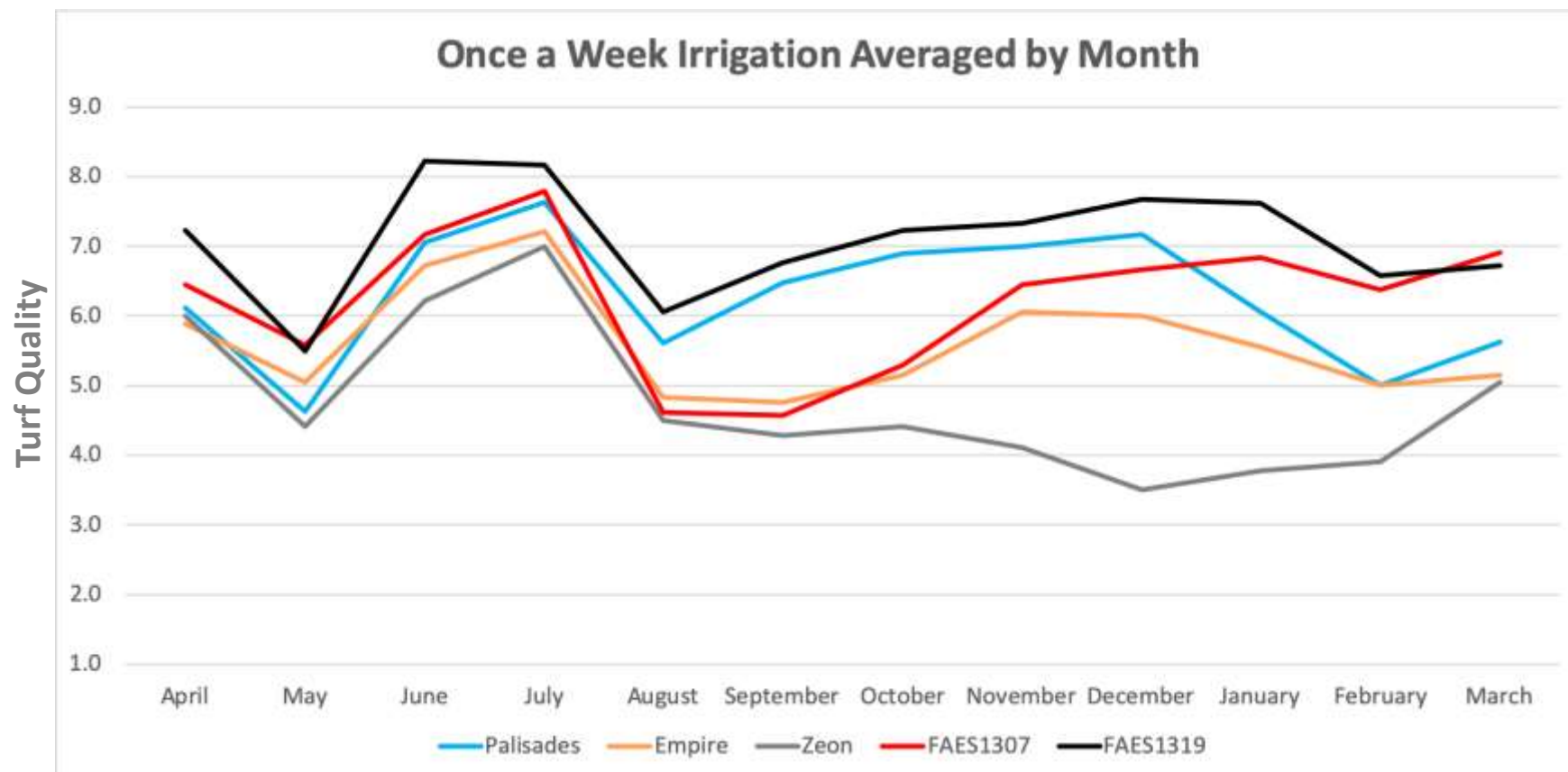


PCA1 and PCA2

Drought Response



Turf Quality; Irrigation Frequency

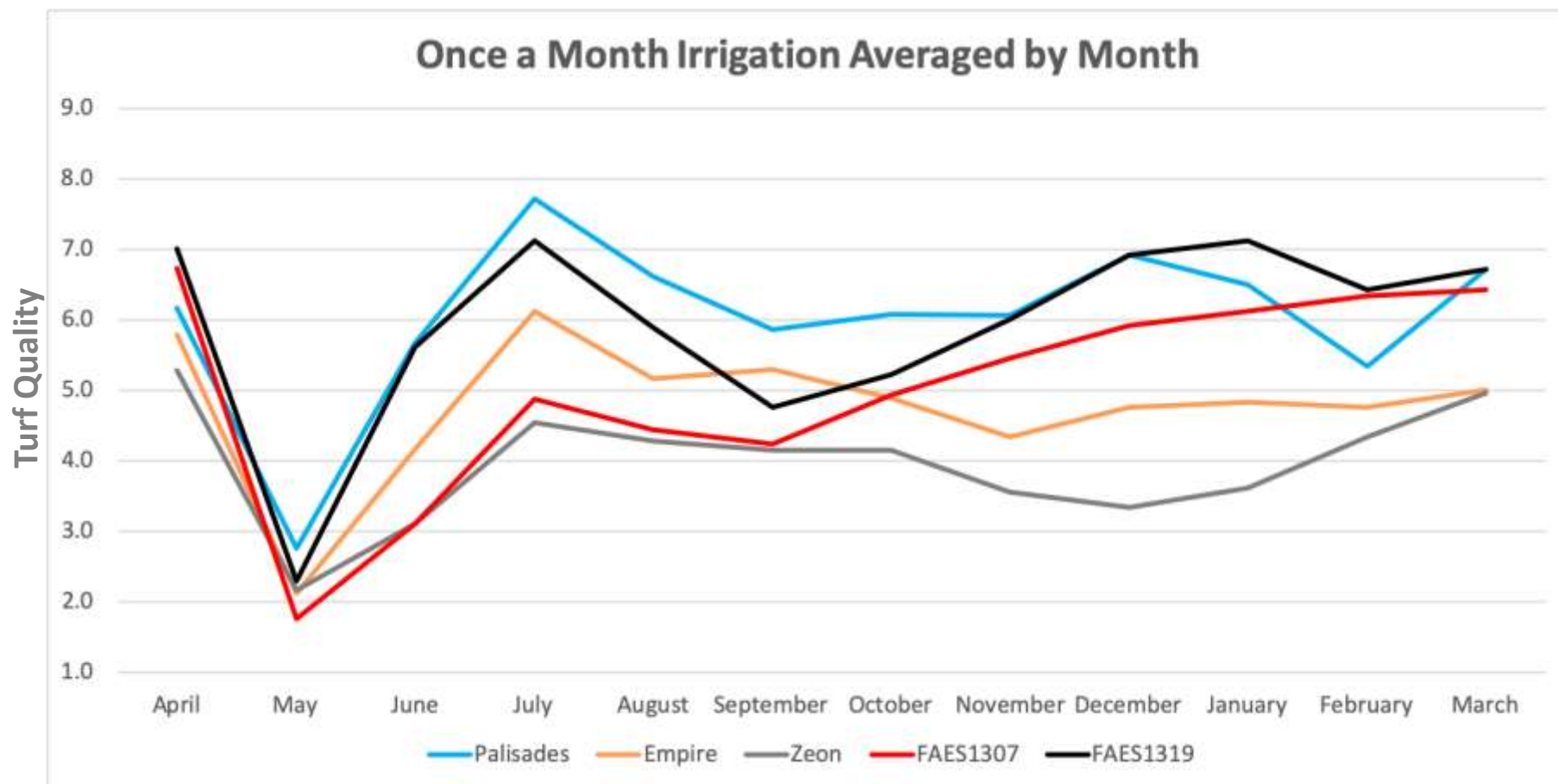


2018 - 2019

USDA- SCRI Project



Turf Quality; Irrigation Frequency



2018 - 2019

USDA- SCRI Project

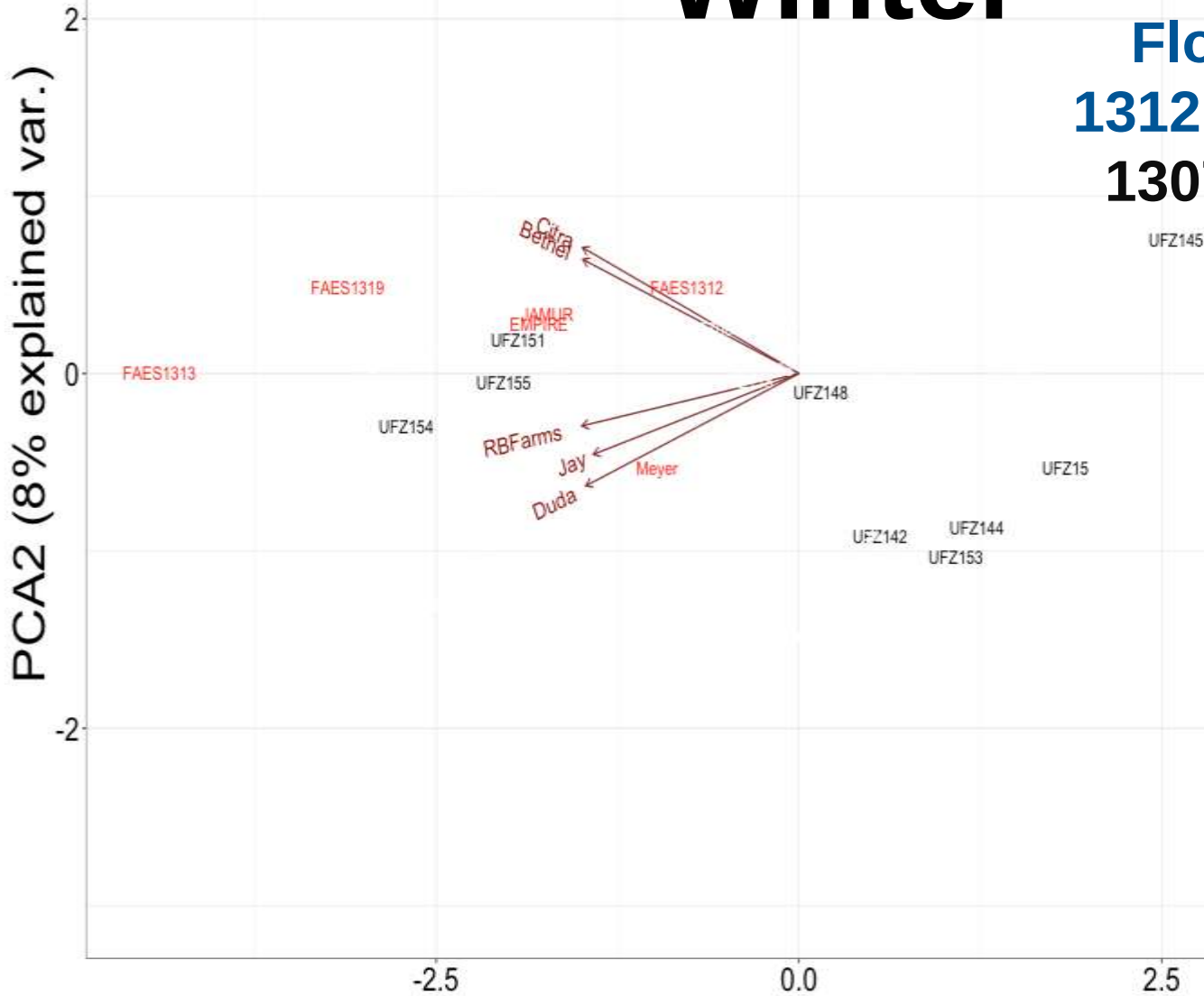


Turf Quality Winter

Florida ITN Trial
1312, 1313 and 1319
1307 not included

PCA2 (8% explained var.)

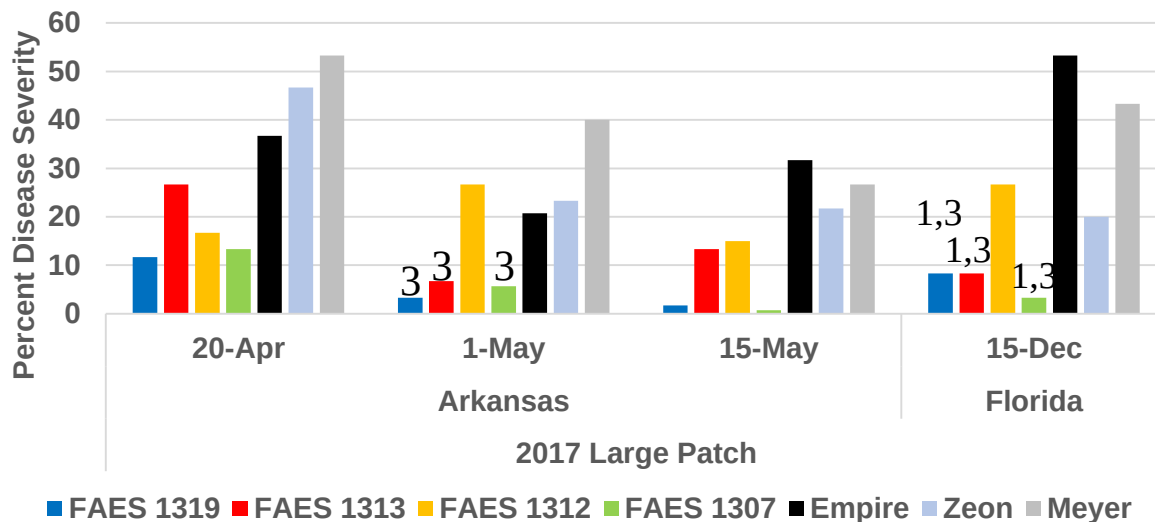
PCA1 (76% explained var.)





Large Patch Disease

% Disease Severity of Large Patch



1 = Entry better than Empire, $p < 0.05$

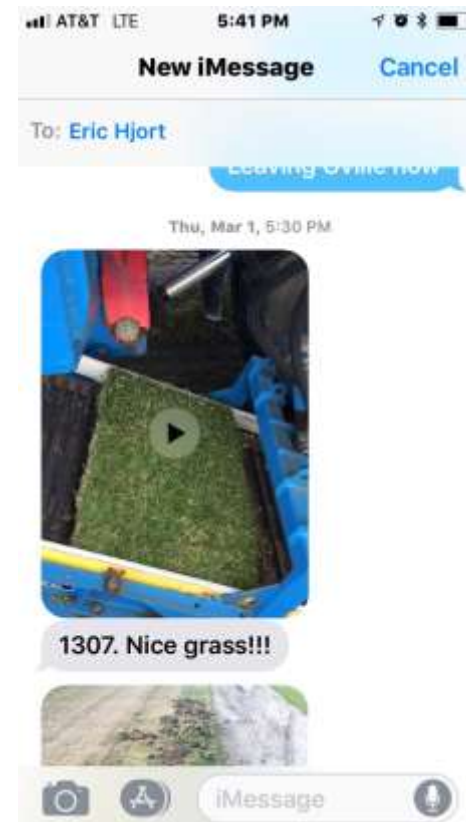
2 = Entry better than Zeon, $p < 0.05$

3 = Entry better than Meyer, $p < 0.05$



Obs	Species	Entry	Estimate	Standard Error	Letter Group
43	Zoysia	FAES1307	189.17	17.1925	A
44	Zoysia	DALZ1604	184.68	17.1186	A
45	Zoysia	DALZ1314	178.80	17.2219	AB
46	Zoysia	DALZ1625	169.27	17.1296	AB
47	Zoysia	DALZ1614	139.59	18.2412	BC
48	Zoysia	FZ1337	124.70	17.1838	CD
49	Zoysia	DALZ1606	122.39	17.1838	CD
50	Zoysia	DALZ1613	119.48	17.1263	CDE
51	Zoysia	FAES1335	115.78	17.1263	CDEF
52	Zoysia	FZ1407	109.81	17.1296	CDEFG
53	Zoysia	DALZ1311	108.40	17.1180	CDEFGH
54	Zoysia	FZ1327	105.32	17.1294	CDEFGHI
55	Zoysia	DALZ1609	104.77	17.1261	CDEFGHIJ
56	Zoysia	DALZ1615	101.02	17.1234	CDEFGHIJ K
57	Zoysia	FZ1252	98.3084	17.1186	CDEFGHIJ K
58	Zoysia	FZ1422	97.8467	17.1180	CDEFGHIJ K
59	Zoysia	DALZ1601	93.4134	17.1604	DEFGHIJK
60	Zoysia	FZ1436	93.2674	17.1542	DEFGHIJK
61	Zoysia	FAES1336	90.8112	18.3555	DEFGHIJKL
62	Zoysia	FAES1313	88.9991	17.1332	DEFGHIJKL
63	Zoysia	DALZ1410	88.0606	17.1234	DEFGHIJKL
64	Zoysia	FZ1333	87.6073	17.3700	DEFGHIJKL
65	Zoysia	DALZ1611	85.7181	17.2945	DEFGHIJKL M
66	Zoysia	DALZ1603	83.1063	17.1334	DEFGHIJKL M
67	Zoysia	DALZ1605	77.1024	17.1920	EFGHIJKL MN
68	Zoysia	FAES1312	76.6331	17.1197	FGHIJKLM N
69	Zoysia	DALZ1409	74.8056	17.1428	FGHIJKLM N
70	Zoysia	Zeon	72.6195	17.1263	GHIJKLMN
71	Zoysia	DALZ1408	69.6249	17.1425	GHIJKLMN O
72	Zoysia	DALZ1607	68.8217	17.1180	GHIJKLMN O
73	Zoysia	FZ1440	68.4420	17.1608	GHIJKL MN

Sod strength NC State Harvest Dates 8-23-2017 and 11-2-2017







UF St. Augustinegrass Breeding

- Roselawn, 1944, developed by R. Bair
- Floratine, 1960, developed by G.C. Nutter
- **Floritam, 1973, developed by G.C. Horn**
- Floralawn, 1985, developed by A. Dudeck
- FX-10, 1990, developed by P. Busey
- FX-33, 1990, developed by P. Busey
- FloraVerde, 2006, developed by R. Nagata
- NUF-76 (Captiva), 2007, developed by R. Nagata
- **FSA1602 (CitraBlue™), 2018, K. Kenworthy**

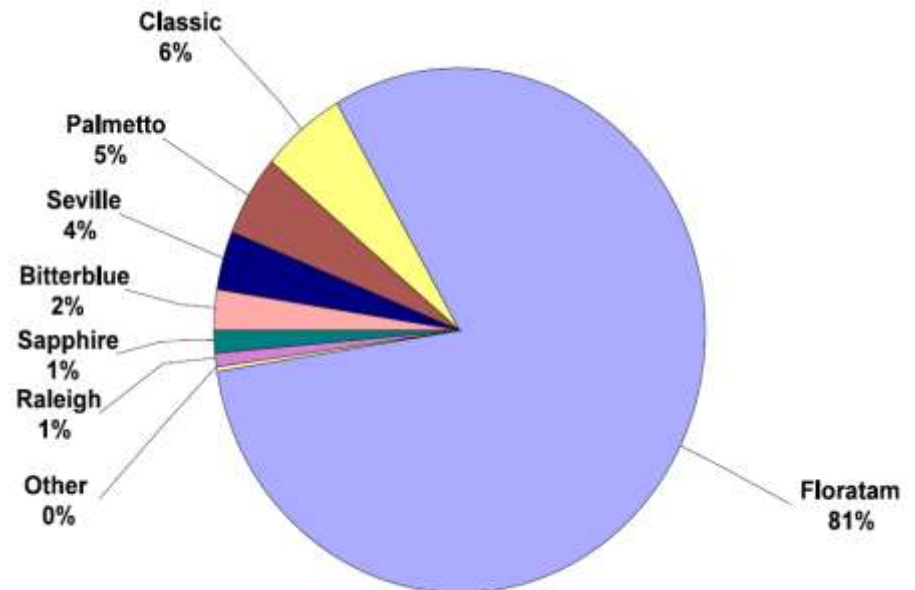
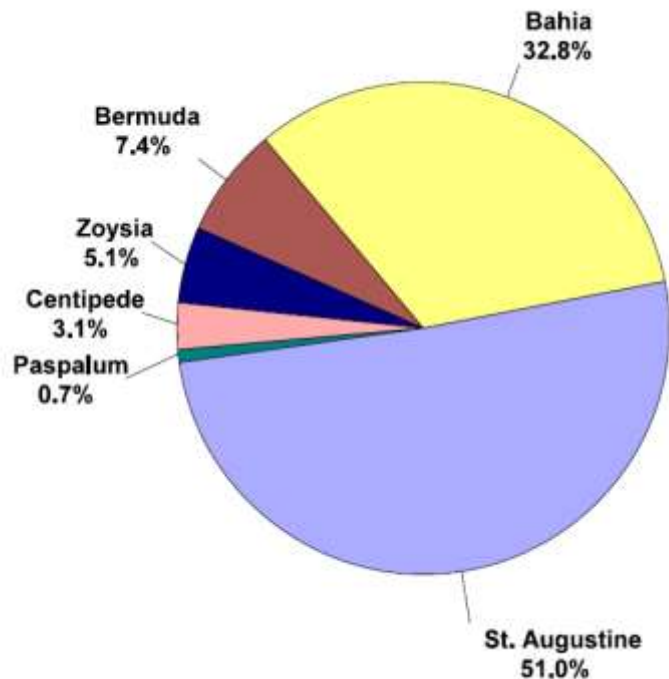


Florida's Sod Industry

2007

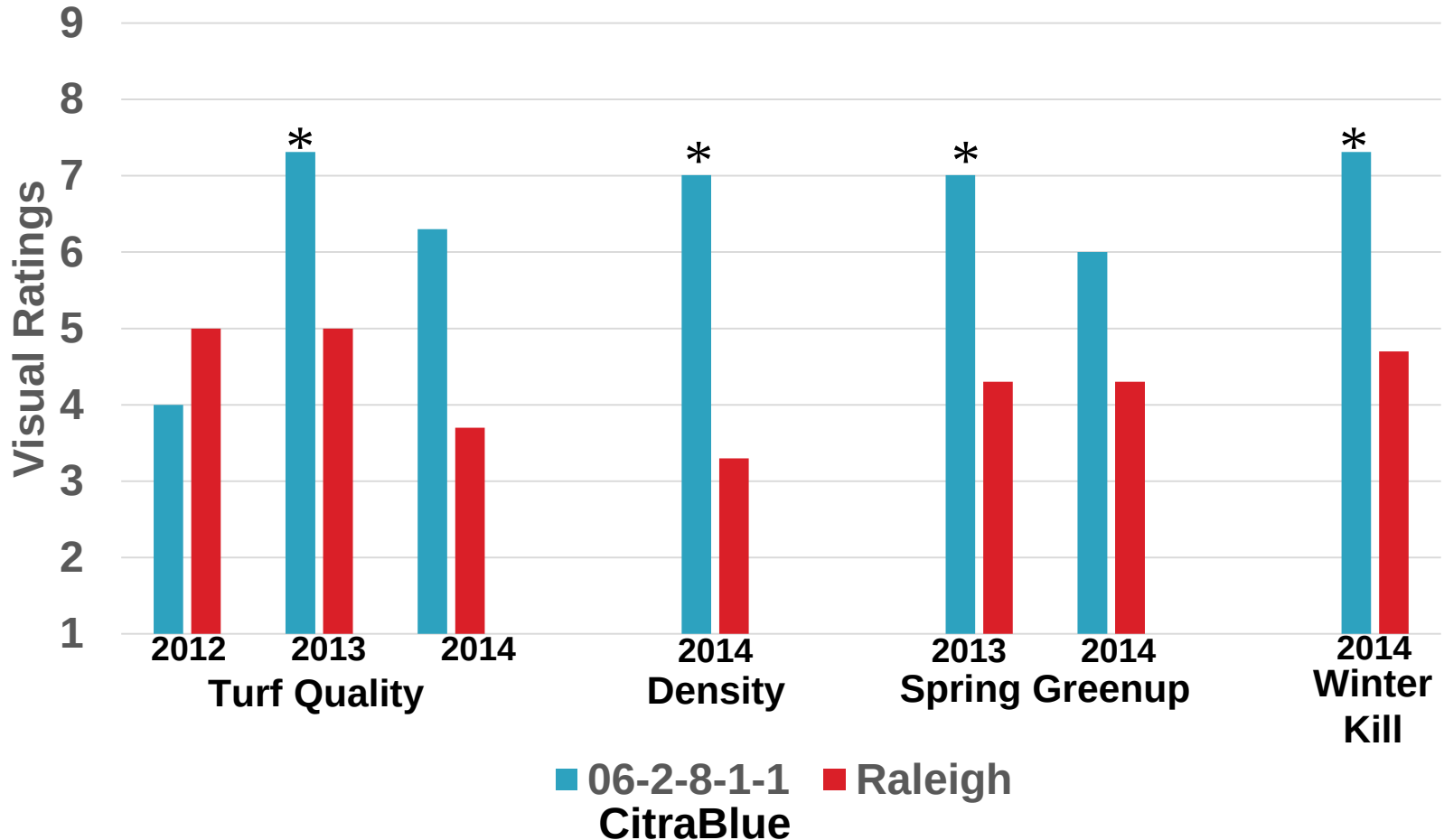
103,000 total acres

40,000 acres of Floratam



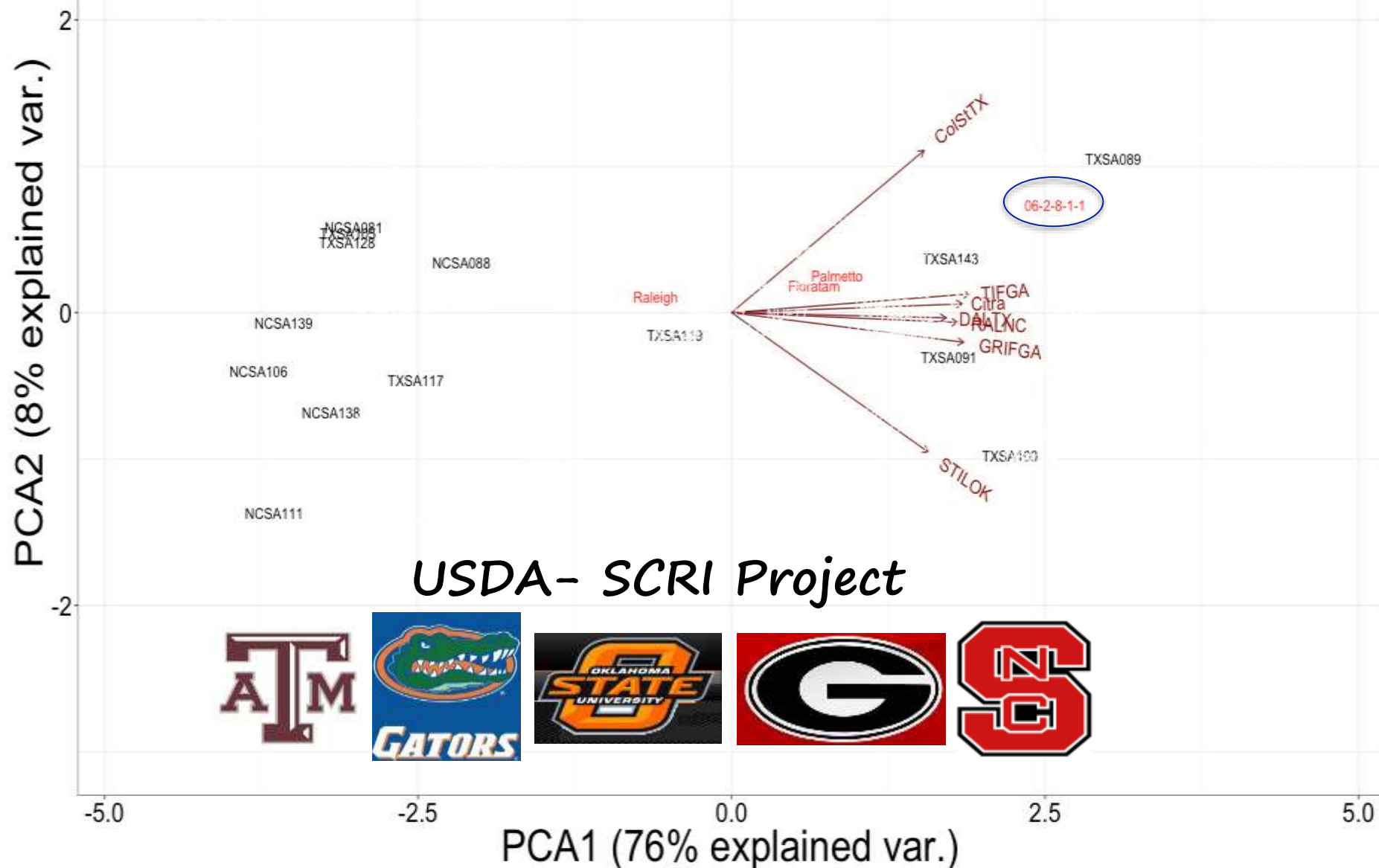
± Satterthwaite et al., 2009

Raleigh, North Carolina

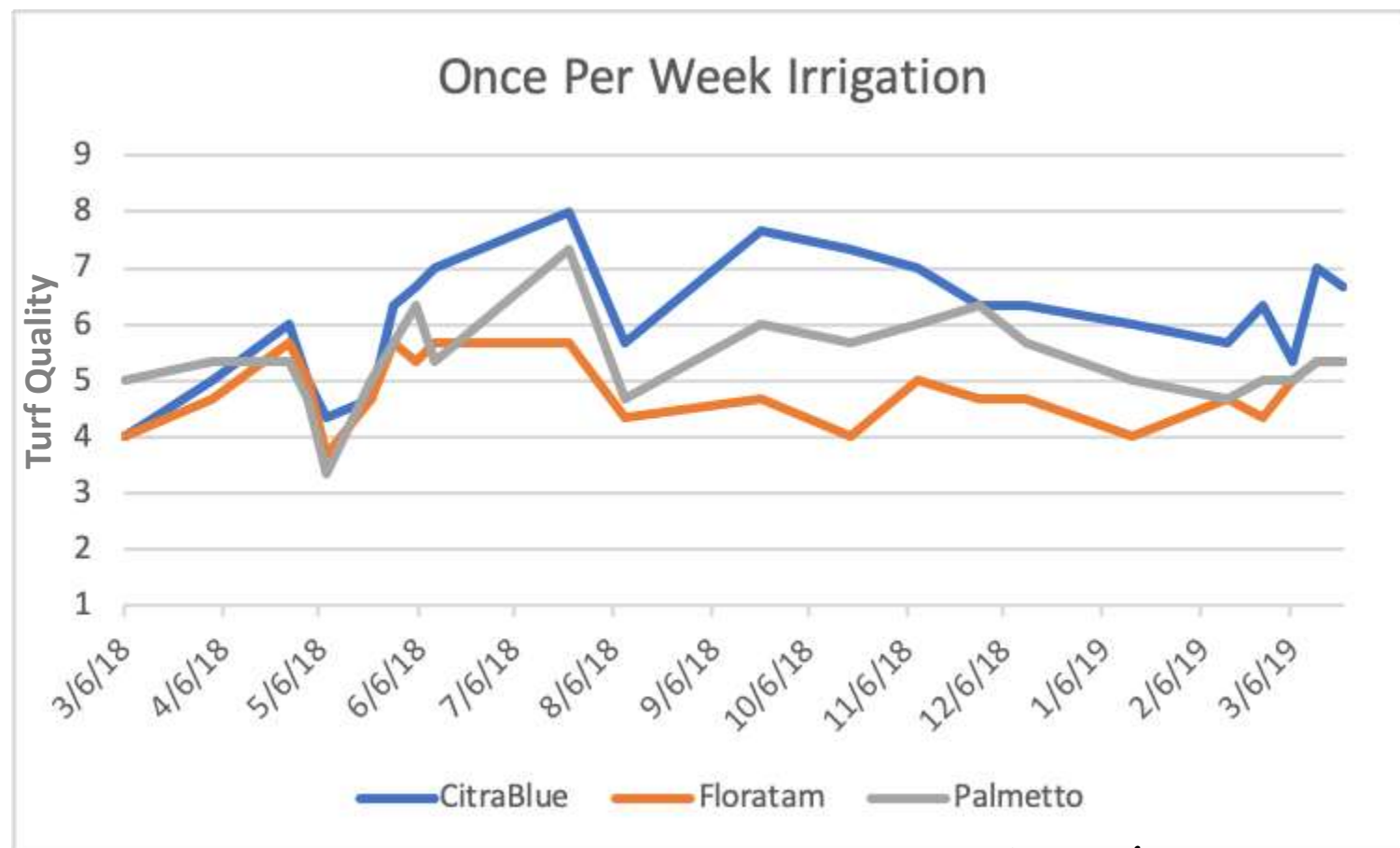


USDA-SCRI Drought Response

Turf Quality (CitraBlue = 06-2-8-1-1)



Turf Quality; Irrigation Frequency

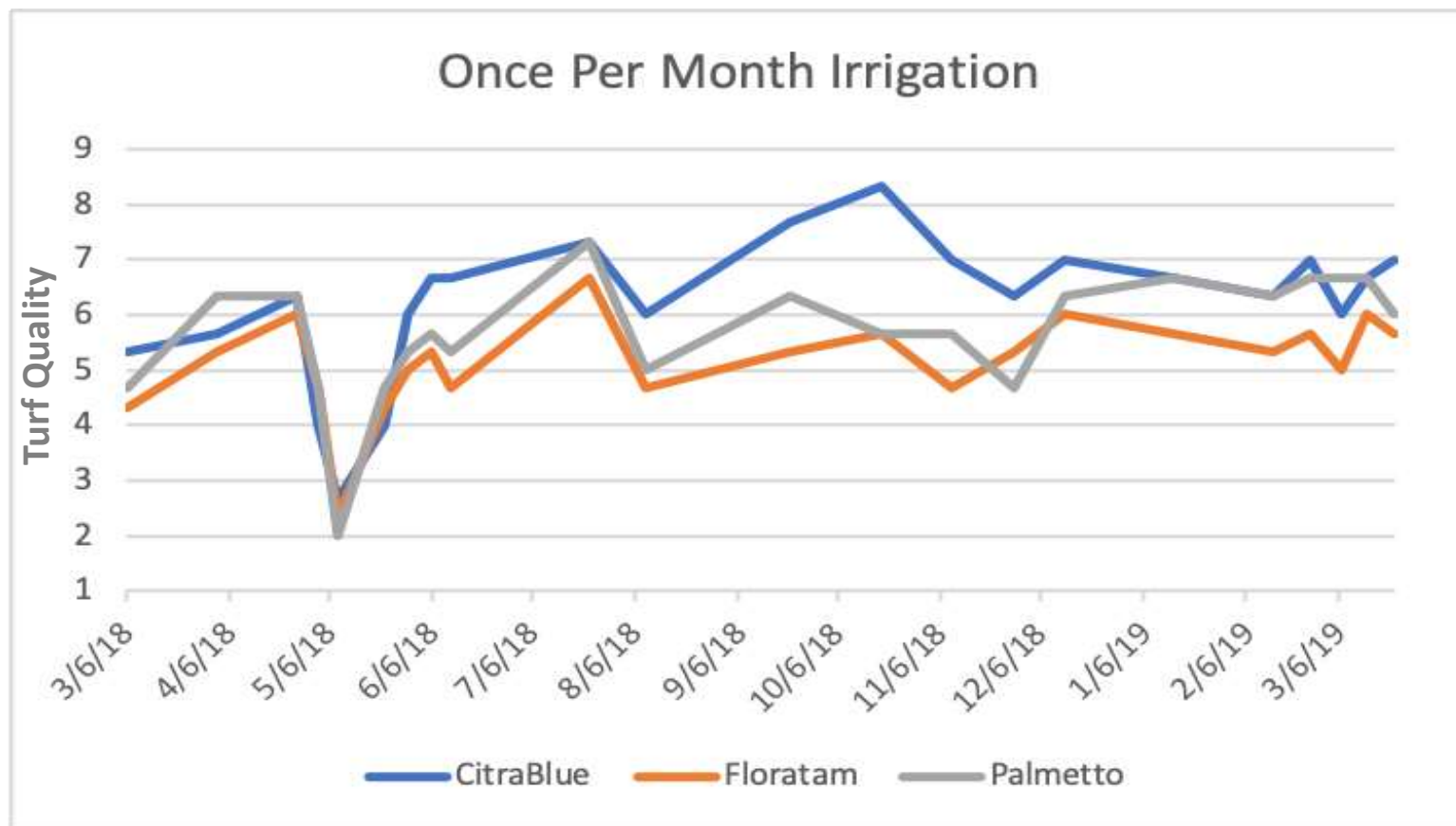


2018 - 2019

USDA- SCRI Project



Turf Quality; Irrigation Frequency



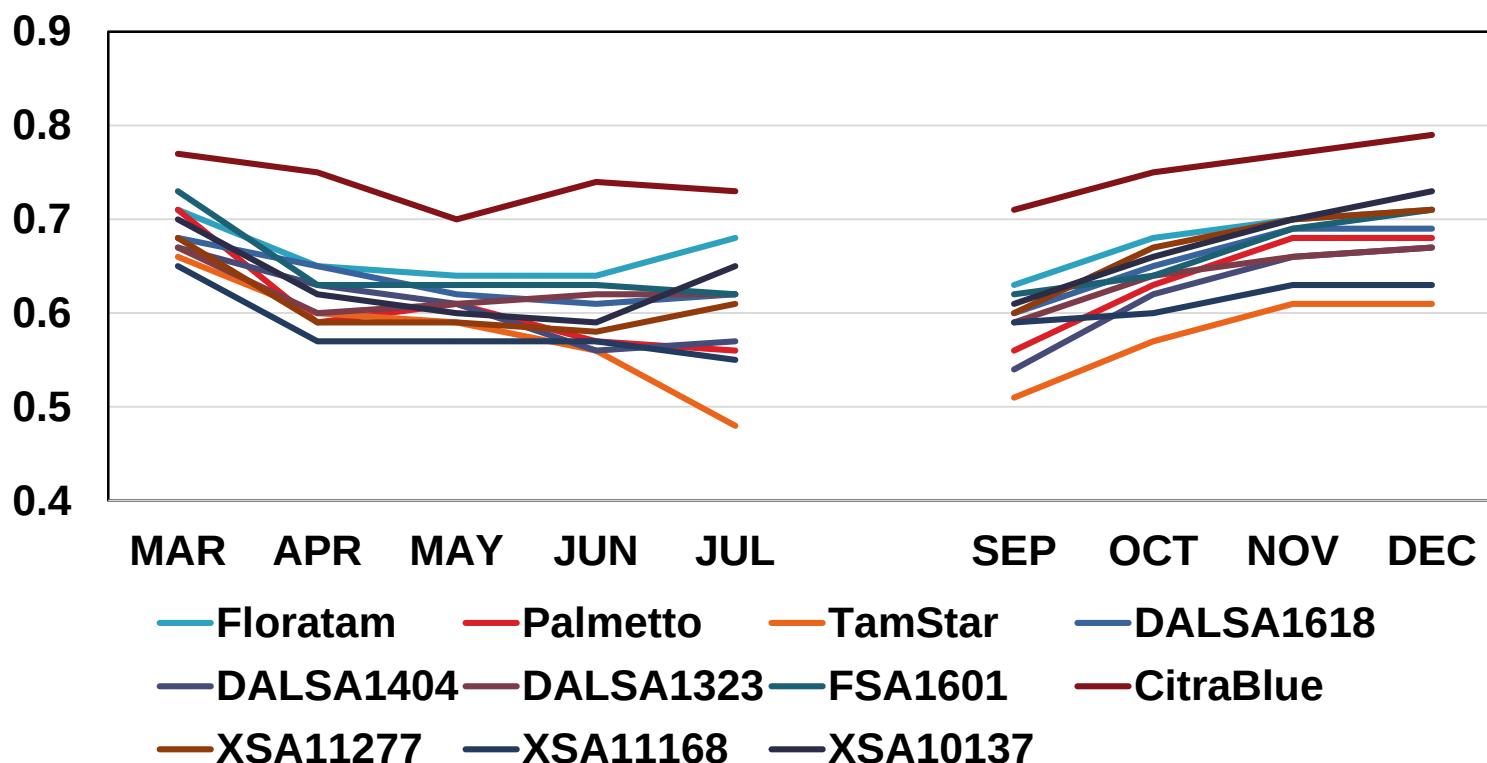
2018 - 2019

USDA- SCRI Project



CitraBlue's Unique Color and Density

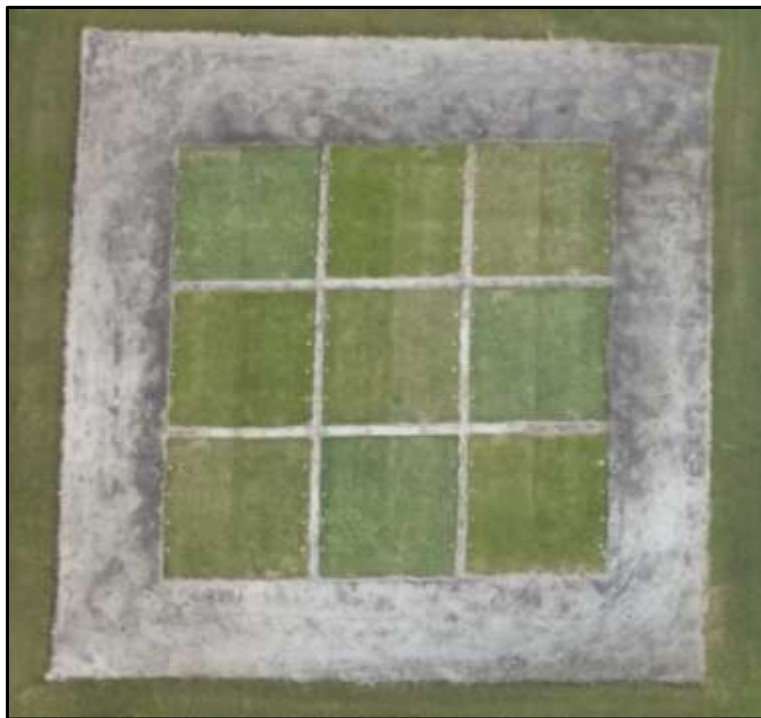
Digital Green Cover Index



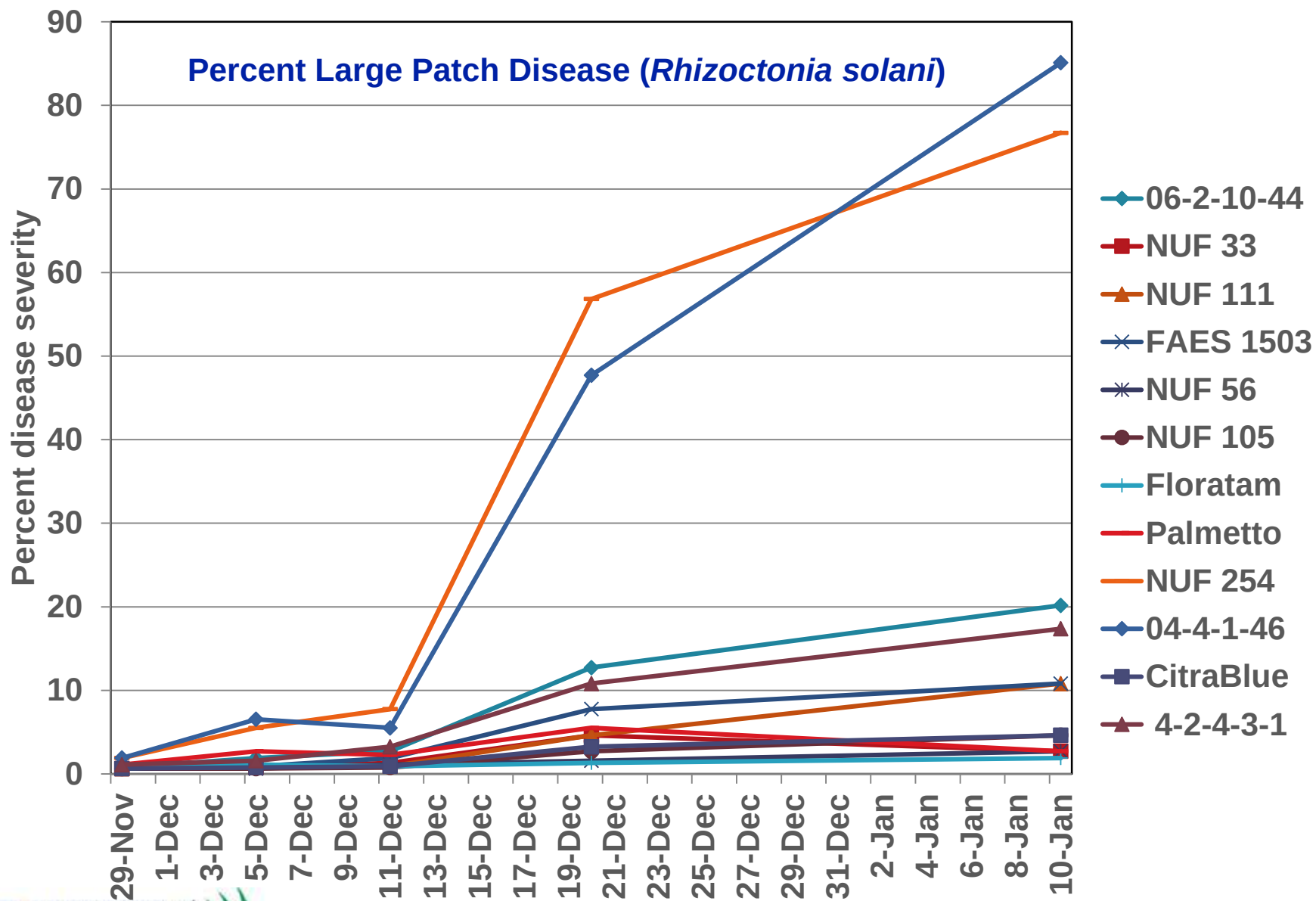


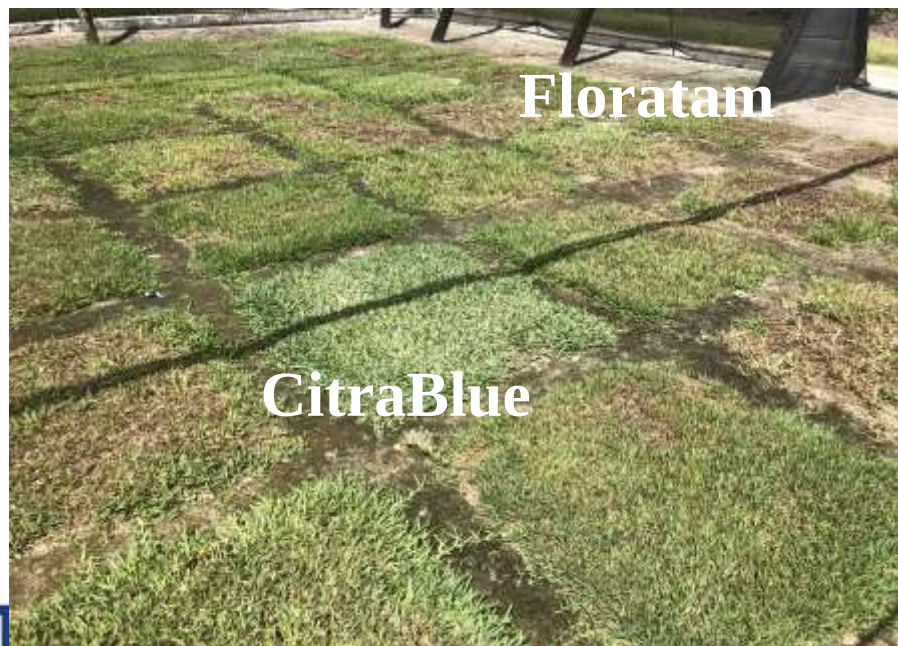
N Program and Rate Trial

Fertilization Programs:



- Scotts – 4X Year: 0.8 lb/1,000 ft² - 3.2 lbs N total
 - Scotts Crabgrass Pre Plus Fertilizer – Feb 15
 - Scotts LawnPro Step 3 – April 01
 - Scotts LawnPro Step 3 – June 01
 - Scotts LawnPro Step 4 – September 01
- IFAS – 4X Year: 1.0 lb/1,000 ft² - 4.0 lbs N total
 - IFAS - 15-0-15 – April 01
 - IFAS - 15-0-15 – June 01
 - IFAS - 15-0-15 – August 01
 - IFAS - 15-0-15 – October 01
- Blackout -3X Year: 1.0 lb/1,000 ft² - 3.0 lbs N total
 - Polyon 43 – April 01
 - Polyon 43 – May 31
 - Polyon 43 – October 01
- Unfertilized Control





Comments: Zoysiagrass

- Produce high quality landscapes with improved disease responses
- improved winter color: 1307, 1313 & 1319
- 1312 poor winter color, but good cold tolerance
 - Recommending for north Florida or out of state
- 1319 most consistent NTEP entry and very consistent in Florida
 - concern for TSW feeding
 - Must be mowed short or the canopy will become uneven
- 1307 extremely good sod strength
 - Very uniform appearance
 - More flexible mowing height



Comments: *CitraBlue*[™] St. Augustine

- Good drought response
- Good disease resistance
- Good shade tolerance
- Appears to be more competitive against weeds
 - Increased canopy density
- Attractive blue-green color
- Good performance in landscape tests
- Positive feedback from homeowners
- Positive feedback from sod producers



Future Landscapes

- Planted with lawns that...
 - require less potable water and use water more efficiently
 - Require less fertilizer to maintain density and color
 - Improved insect and disease resistance



Thank You!



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