

Crop Disease Management

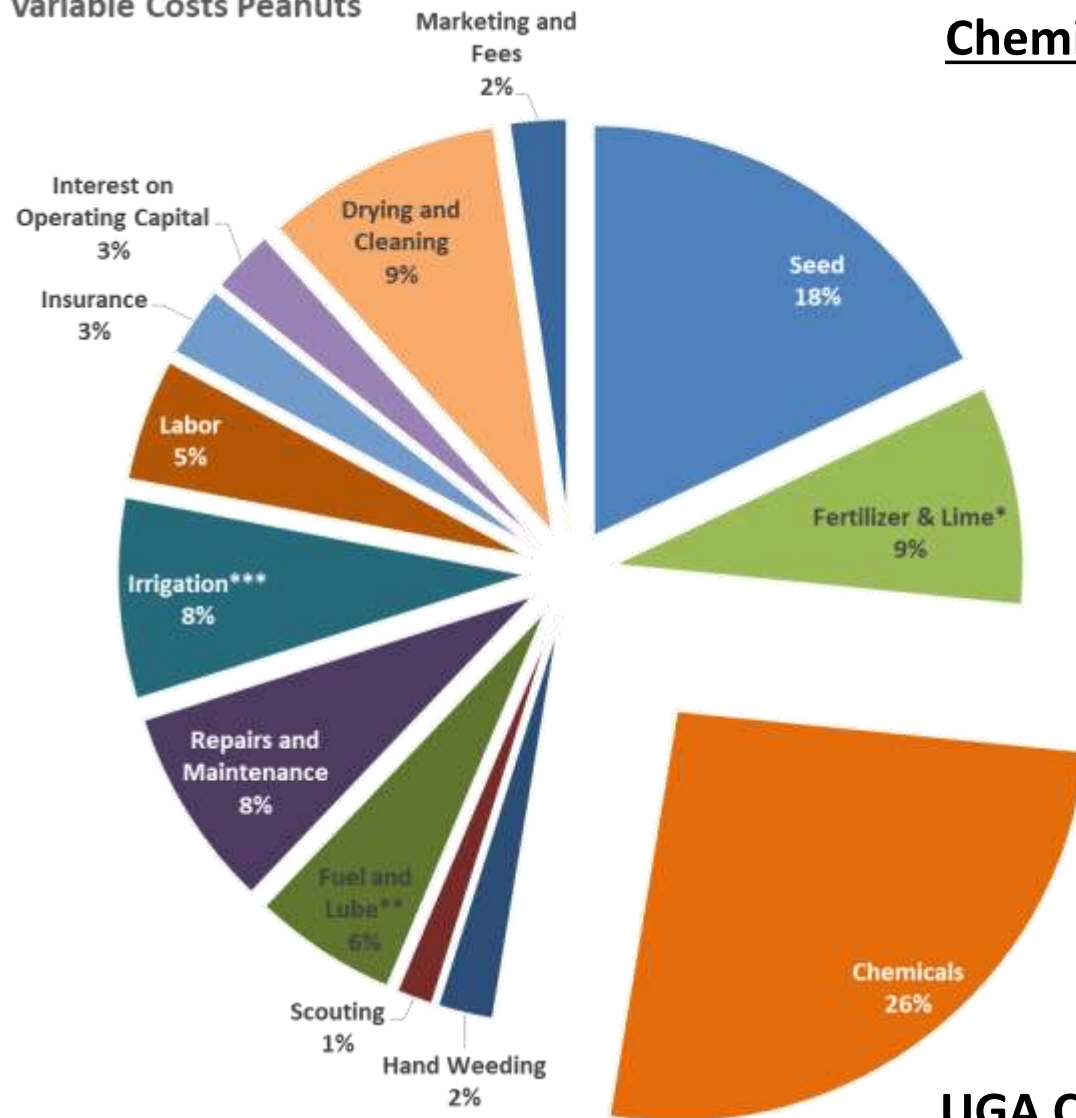
Row Crop Short Course
March 1st, 2018

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How important is pest management in your decisions?

Variable Costs Peanuts



Chemicals < 15% in cotton and corn

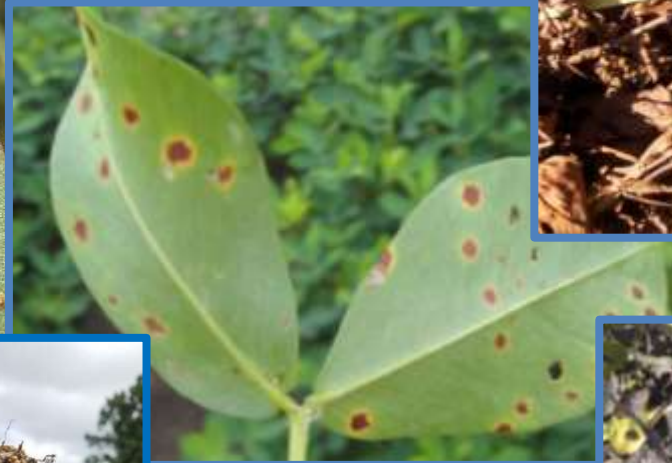
Growth inhibitors

Nematodes

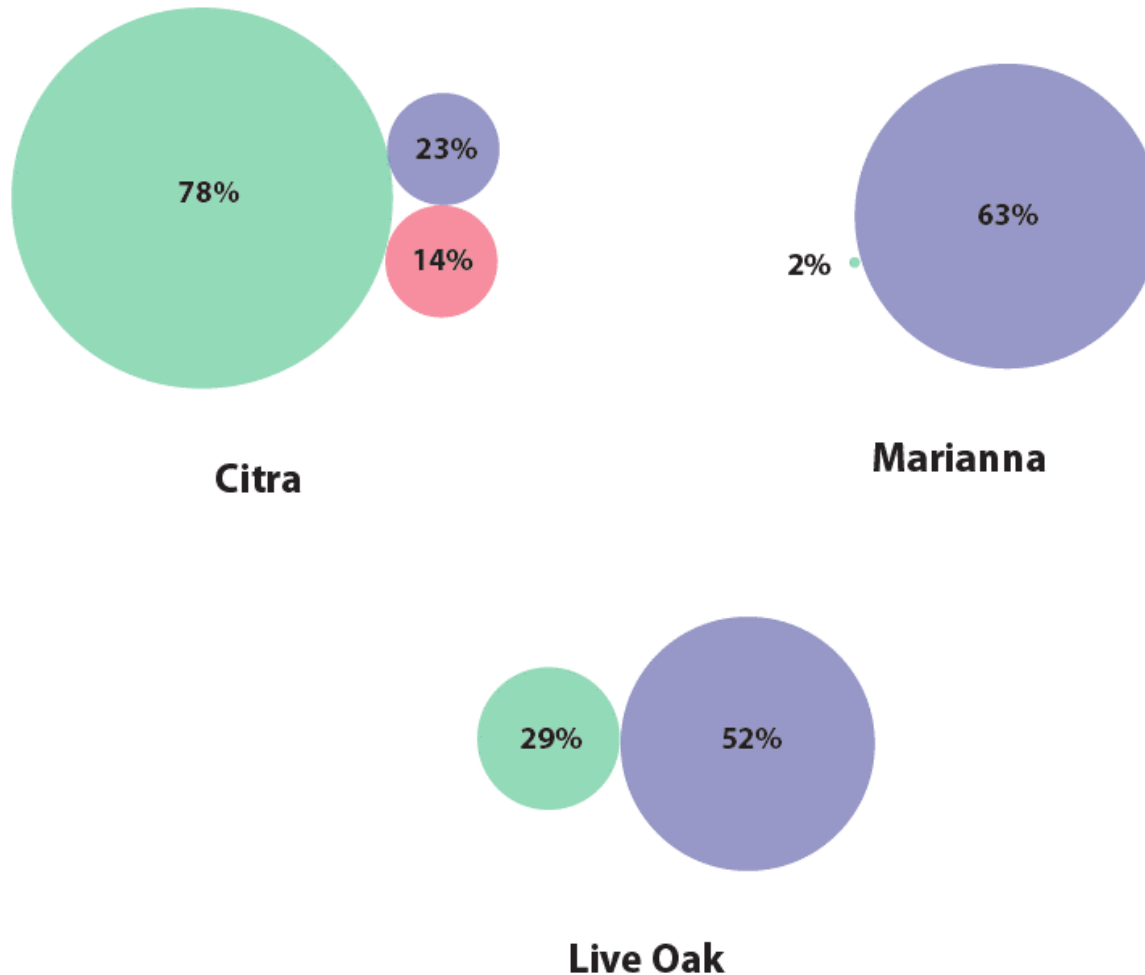
Insect Management

Scouting is critical, especially in cotton and corn.

What is the most important disease you manage each year?



No matter what, some level of disease is expected each year.



But which one?

Region
Climate



Climate can tell us a lot about disease, but it does have limitations.



ENSO Forecast

Climate Phase Forecast for the Next 3 Months

■ Neutral (54%)
■ El Niño (3%)
■ La Niña (43%)



El Niño Impacts on the Southeast by Season

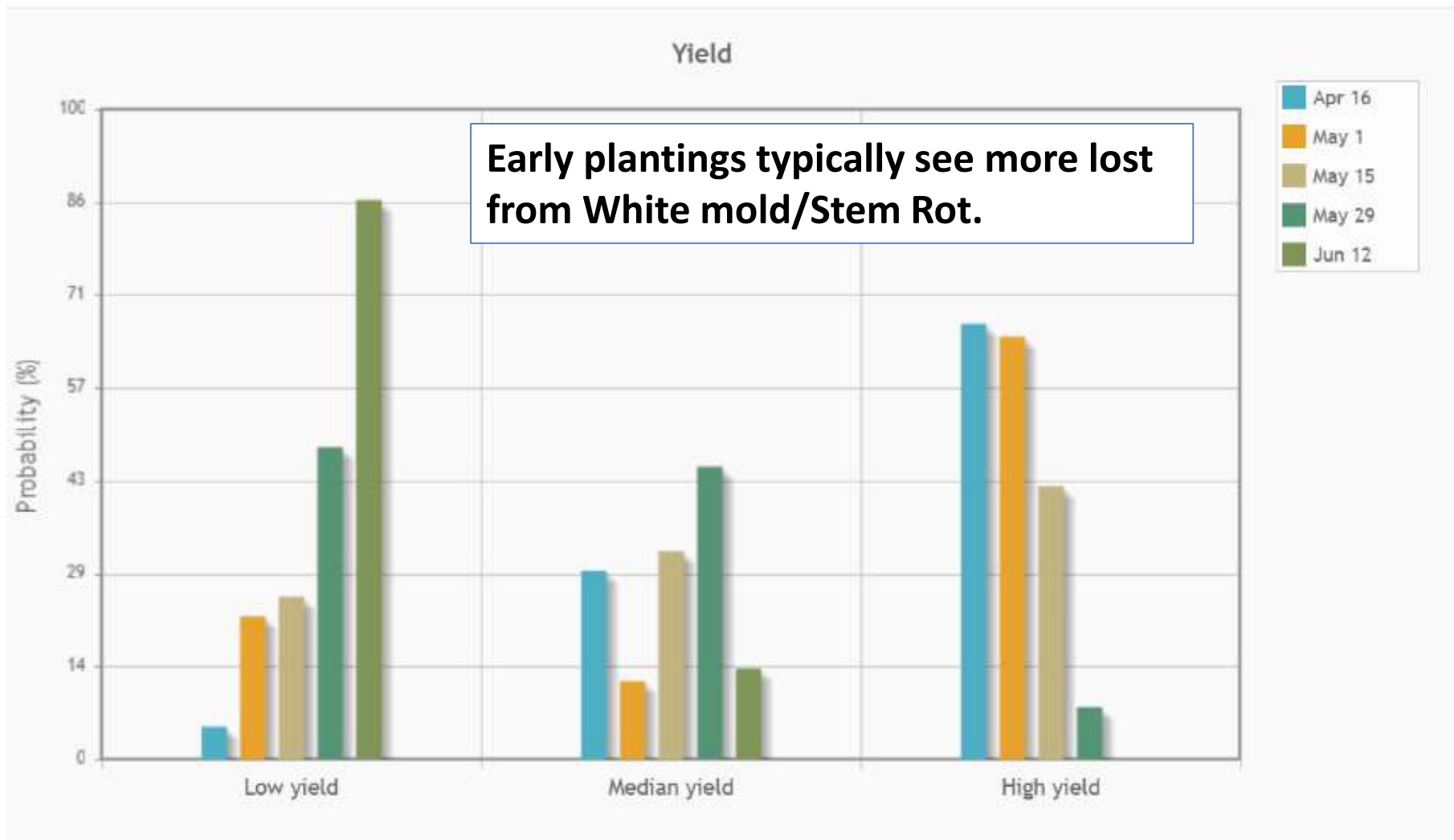
	Peninsular FL	Tri-State Region	Western Panhandle	Central and North AL and GA	Eastern NC
Oct-Dec	Wet & cool	Wet	No impact	No impact	Likely wet
Jan-Mar	Very wet & cool	Wet	Wet	No impact	Likely wet
Apr-Jun	Slightly dry	Slightly wet	Slightly dry	No impact	No impact
Jul-Sept	Slightly dry to no impact	No impact	No impact	Slightly dry	No impact

La Niña Impacts on the Southeast by Season

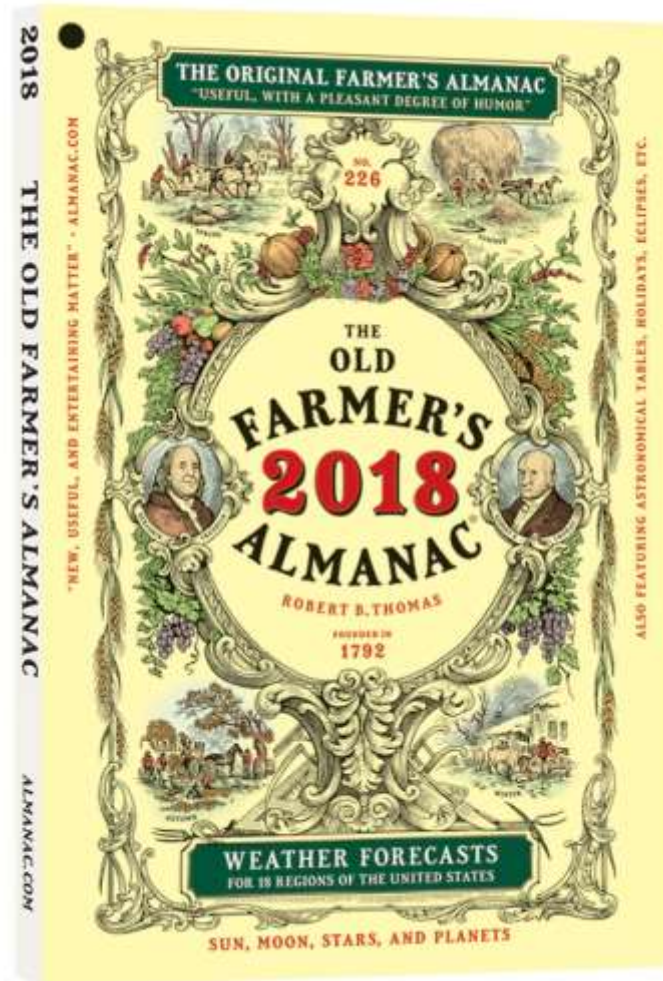
	Peninsular FL	Tri-State Region	Western Panhandle	Central and North AL and GA	Eastern NC
Oct-Dec	Dry & slightly warm	Slightly dry	Slightly dry	Dry	Likely dry
Jan-Mar	Very dry & warm	Dry	Dry	Dry in south, wet in NW AL	Likely dry
Apr-Jun	Slightly wet	Dry	Dry	No impact	No impact
Jul-Sept	Slightly cool	No impact	No impact	Wet in NW AL	No impact

Planting date & climate impacts on yield

(Jackson Co, Dothan Loamy Sand, Neutral Years)



Climate information is great, but it doesn't tell you what the weather is or will be.



Useful with a pleasant degree of humor

The Almanac has a 80% accuracy rate for their predictions based on averages.

Averages do not count well for extreme events (e.g. more intense rainfall events)

A diverse fungicide program is critical

Disease Risk Spray Schedules – 2018



Field Name _____

Planting Date _____

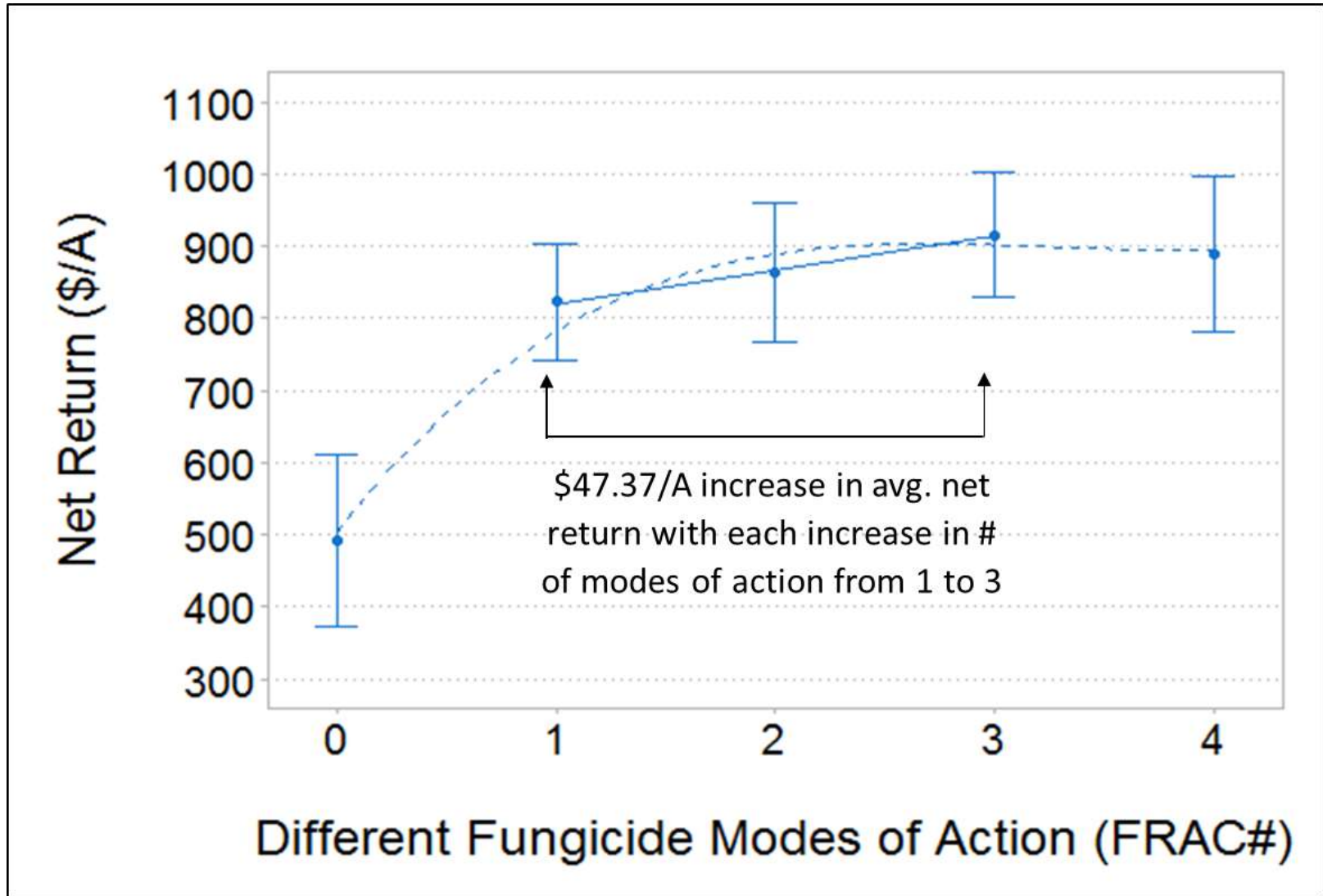
Example

PROGRAMS	LEAF SPOT		LEAF SPOT / WHITE MOLD / LIMB ROT				LEAF SPOT
DAP ¹	30	45	60	75	90	105	120
LOW RISK	Chlorothalonil 1.5 pts	Chlorothalonil 1.5 pts	CONVOY 21 fl oz + Chlorothalonil 1.5 pts	Chlorothalonil 1.5 pts	CONVOY 21 fl oz + Chlorothalonil 1.5 pts	Chlorothalonil 1.5 pts	Chlorothalonil 1.5 pts
MEDIUM RISK	Chlorothalonil 1.5 pts	Chlorothalonil 1.5 pts	CONVOY 13-16 fl oz + Chlorothalonil 1 pt + Topsin 5-10 fl oz	CONVOY 13-16 fl oz + Chlorothalonil 1.5 pts	CONVOY 13-16 fl oz + Chlorothalonil 1 pt + Topsin 5-10 fl oz	CONVOY 13-16 fl oz + Chlorothalonil 1.5 pts	Chlorothalonil 1.5 pts
HIGH RISK	Chlorothalonil 1.5 pts	Chlorothalonil 1.5 pts	CONVOY 26-32 fl oz + Chlorothalonil 1 pt + Topsin 5-10 fl oz	Tebuconazole 7.2 fl oz + Chlorothalonil 1 pt OR Priaxor 6-8 fl oz	CONVOY 26-32 fl oz + Chlorothalonil 1 pt + Topsin 5-10 fl oz	Tebuconazole 7.2 fl oz + Chlorothalonil 1 pt OR Priaxor 6-8 fl oz	Chlorothalonil 1.5 pts

¹Days After Planting.

Notes: Use higher rate of CONVOY if white mold risk increases to High Risk category. CONVOY only controls soilborne diseases (*Sclerotium rolfsii*–white mold; *Rhizoctonia solani*–limb rot). A foliar disease spray program must be added for management of leaf spot.

Using different modes of action, leads to yield savings and better disease control.



What FRACs are available?

Group 3

Domark
230 ME

Alto[®]

Tebuconazole
3.6F Flowable Fungicide

PROLINE

QUASH
FUNGICIDE

TOPGUARD
FUNGICIDE

Bravo
Weather Stik[®]

Group 7

DuPont
Fontelis
fungicide

CONVOY
FUNGICIDE

Mixed



Elatius[™]

priaxor
XEMUM[®] BRAND FUNGICIDE



ABSOLUTE

PROVOST
OPTI

Custodia[®]

Group 11

Headline
Fungicide

EQUATION
SC FONG

AZAKA
FUNGICIDE

Abound
Flowable Fungicide

Evito[®]

Group 1

TOPSIN 4.5FL
FUNGICIDE

ELAST
400
FUNGICIDE
FOR CONTROL OF CERTAIN

Manzate
Pro-Stick T&O

There are/will be production issues with chlorothalonil products in 2018.



Prices will be higher
Supply will be less

The label for Equus 720 SST Fungicide, featuring a black background with a green hexagonal pattern at the top. The text "Equus® 720 SST" is in large white font, with "FUNGICIDE" in smaller white font below it.

Equus® 720 SST
FUNGICIDE

Prices will be higher for
tebuconazole too.

The label for Echo 720 Agricultural Fungicide, featuring a solid green background. The text "Echo® 720" is in large white font, with "Agricultural Fungicide" in smaller white font below it.

Echo® 720
Agricultural Fungicide

<http://nwdistrict.ifas.ufl.edu/phag/2018/02/16/fungicide-options-for-peanut-producers-due-to-the-expected-chlorothalonil-shortage-in-2018/>

Tank mix options to reduce chlorothalonil rate to 1.0 pints or 0.9 lbs.

DMI Products (FRAC 3)

- Tebuconazole (7.2 fl oz)
- Alto (5.5 fl oz)
- Topguard (7 to 14 fl oz)
- Quash (2.5 to 4 oz)
- Domark(2.5 to 5.25 fl oz)

QoI Products (FRAC 11)

- Headline (labeled)
- Abound (18.5 fl oz)
- Evito (5.7 fl oz)

Some mixed products include:

Custodia (15.5 fl oz)
Absolute (3.5 fl oz)
Acropolis (23 fl oz)

Watch for tebuconazole in mixes

What do we know about the fungicide product limitations?



Mostly research from tebuconazole

*Proline has been strong:

- White mold
- Leafspots

Strong	Moderate	Weak
Early Leaf Spot		
Rust		
White mold*		Late Leaf Spot

What do we know about the fungicide product limitations?

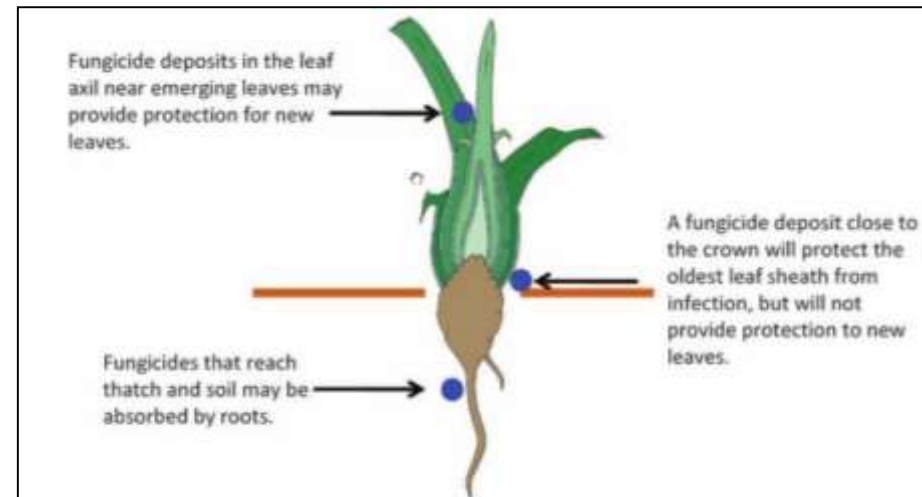


Rating based on research from azoxystrobin and pyraclostrobin

Strong	Moderate	Weak
Early Leaf Spot		
Rust		
Late Leaf Spot		
White mold		

Some alternative products are:

- Topsin-M (5 -10 fl oz)
 - FRAC 1
 - No more than 2 apps
 - Not consecutive (1 & 3 or 2 & 4)
- Protectants
 - Elast (12.8 fl oz)
 - mix with teb.
 - early in the season
 - Mancozeb - mix with Topsin M



Products that can be applied alone are:



16 fl oz/A



8 fl oz/A



7.3 – 9.5 fl oz/A



10.7 fl oz/A



Mixing other varieties available will be beneficial for disease management.

PEANUT VARIETY				
Variety:	TSWV Points	Leaf Spot Points	Soilborne Disease Points	
			White Mold	Limb Rot
Georgia Green	30	20	25	unknown
Florida Fancy	25	20	20	unknown
TUFRunner 511	20	30	15	unknown
Georgia-09B	20	25	25	unknown
FloRun 107	20	25	20	unknown
Georgia-16HO	15	25	20	unknown
FloRun 331	15	20	15	unknown
Georgia-13M	10	30	25	unknown
TUFRunner 297	10	25	20	unknown
Sullivan	10	25	15	unknown
Bailey	10	25	10	unknown
Georgia-06G	10	20	20	unknown
Florida-07	10	20	15	unknown
Georgia-07W	10	20	15	unknown
Tifguard	10	15	15	unknown
TifNV-HiOL	10	15	15	unknown
Georgia-14N	10	15	15	unknown
Georgia-12Y	5	15	10	unknown

“Again in 2018, Georgia-06G will be the predominant variety with over 80% of the seed acreage grown in that variety in 2017”

Reduced applications impacts

- 7th year of continuous peanuts
- Generic fungicide program
 - Chlorothalonil, Teb. and Azoxy.
 - All have 3 MOA
- Cultivars: Georgia-06G, TUFRunner 511 and 297, FloRun 331
- Planting date: 5/11/16 & 5/16/17

Fungicide schedule

Days After Planting

30	42	45	60	75	90	105	110	120
Echo	Echo*	Echo	Teb. + Echo	Teb + Echo**	Abound + Echo	Teb + Echo	Teb + Echo*	Echo

* 4 and 5 spray programs only

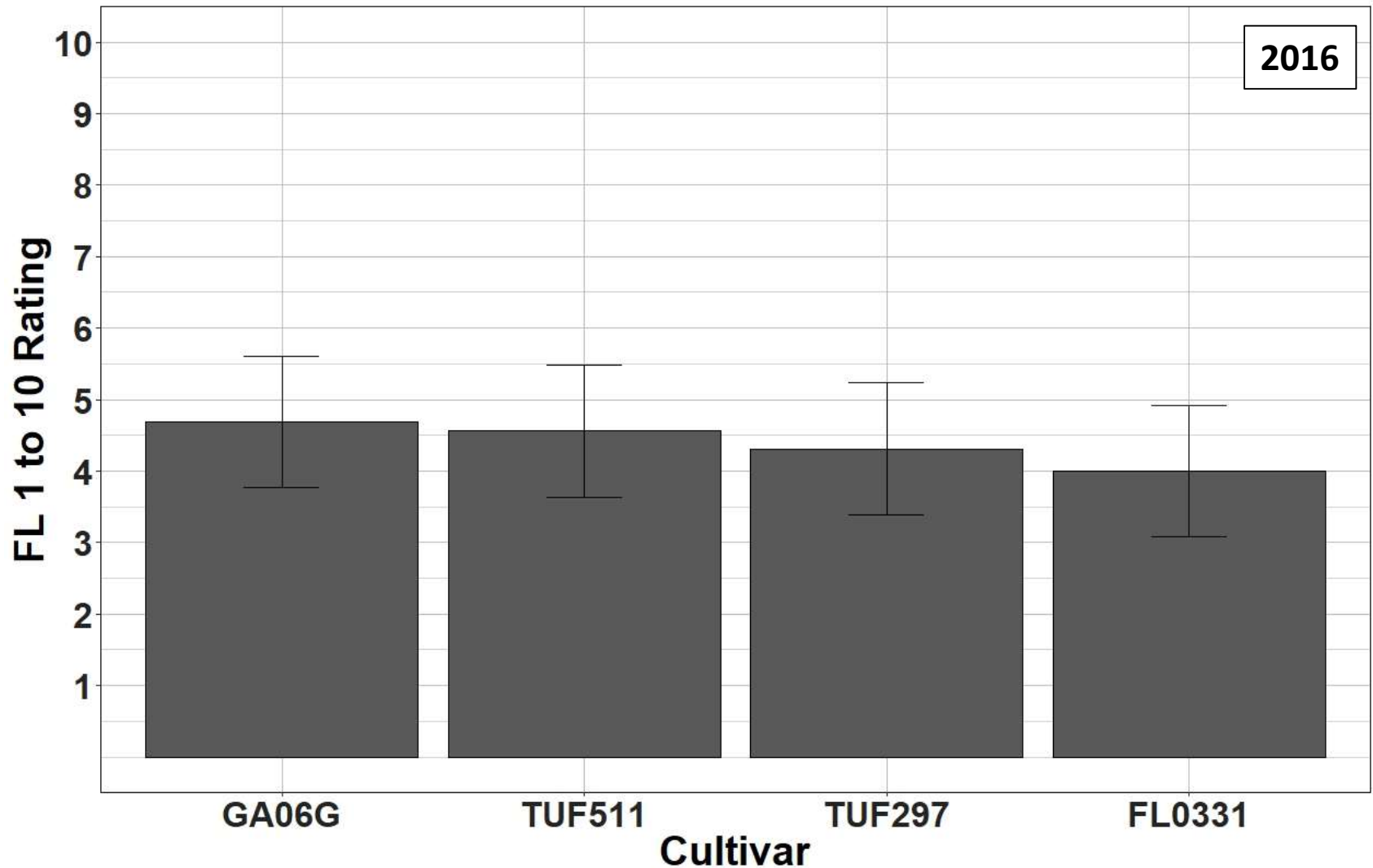
** 5 and 7 spray program only

4 Sprays: 2 Teb. and 1 Azoxy.

5 Sprays: 2 Teb. and 1 Azoxy.

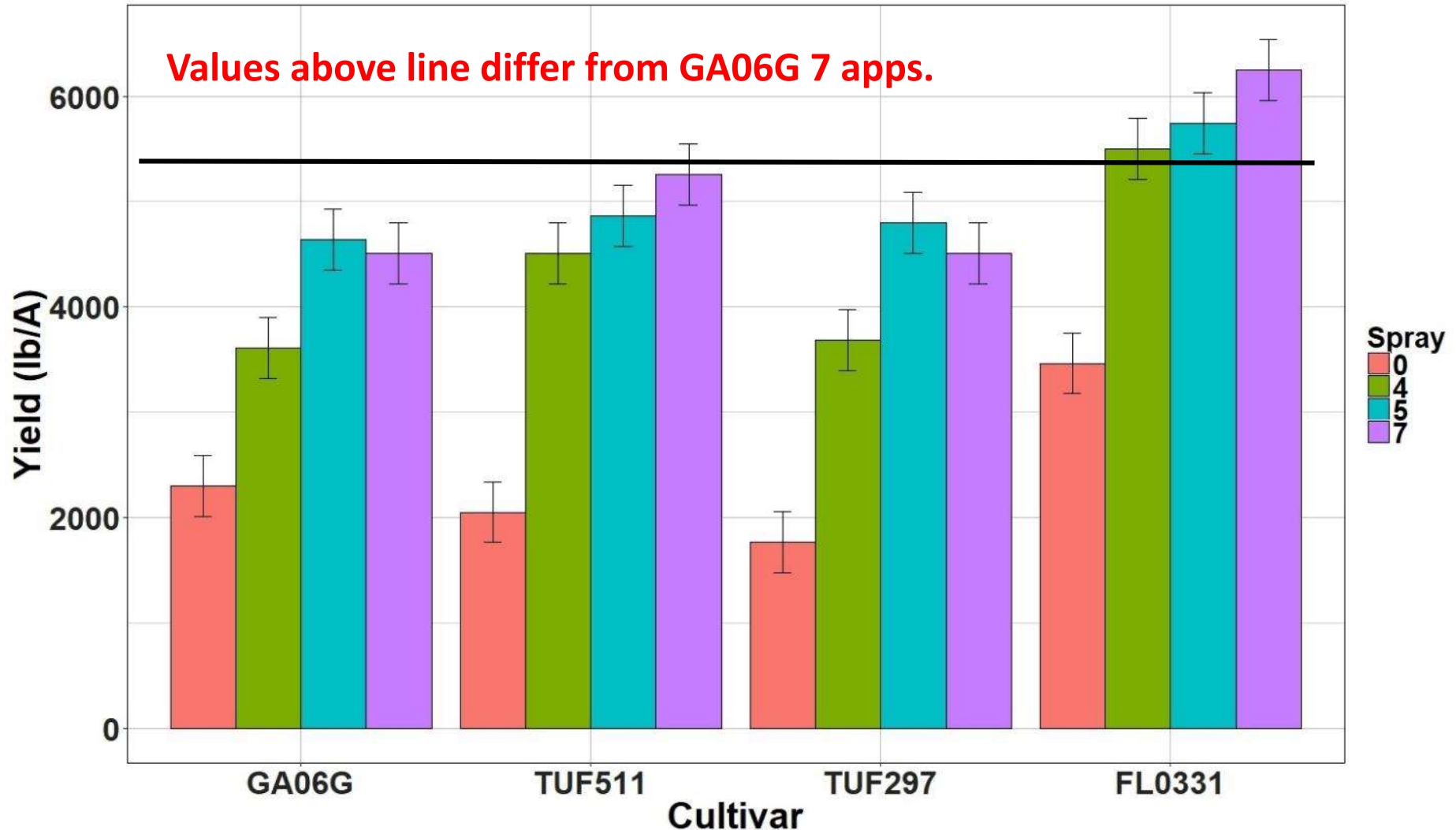
7 Sprays: 3 Teb. and 1 Azoxy.

Leafspot pressure is an important part of reduced application decisions.



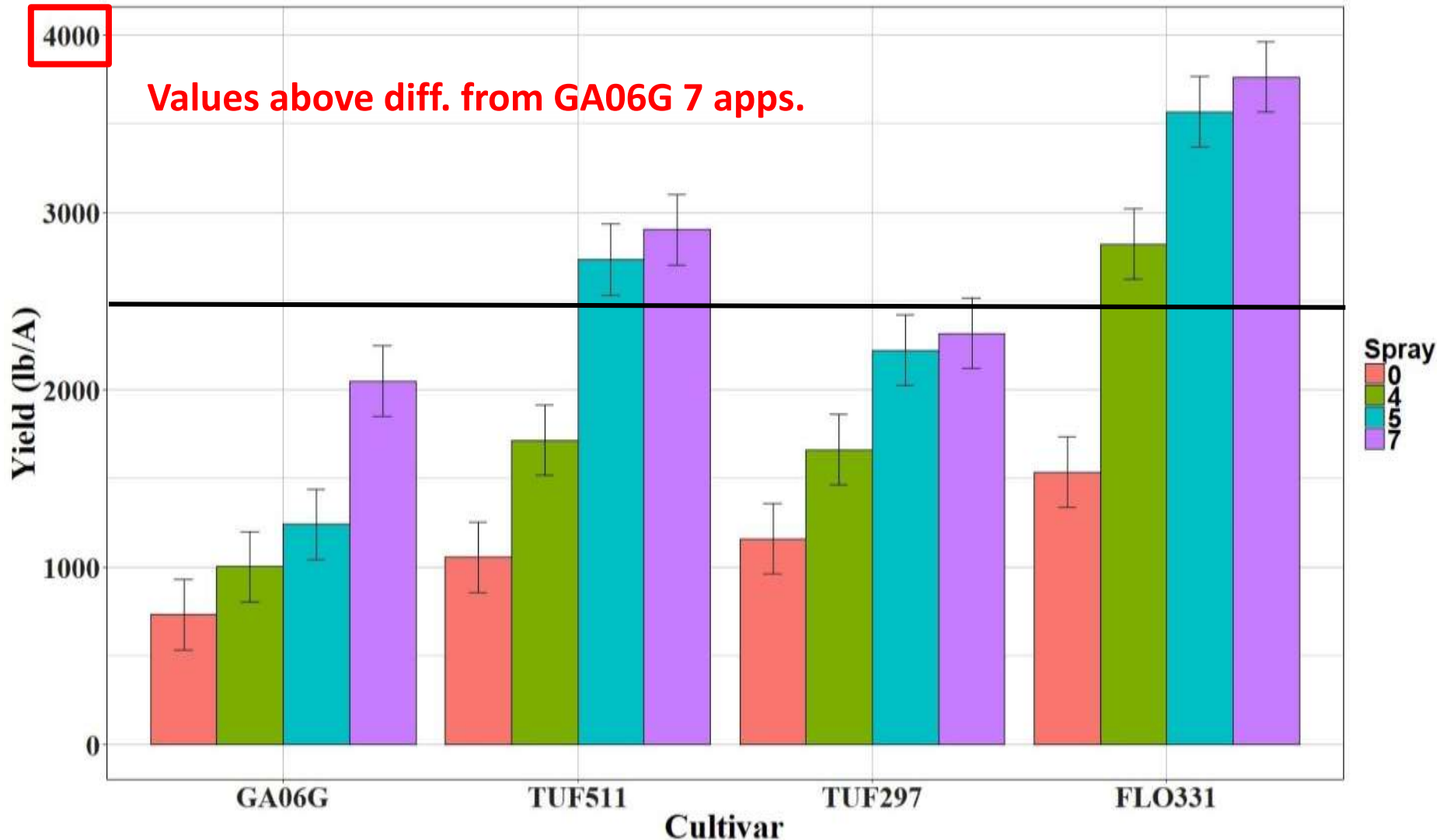
5 & 7 apps same yield for all varieties

(Defoliation < 50%)



2016: LSD = 722

5 & 7 apps same yield for all Florida vars. (Defoliation > 80%)



2017: LSD = 559

Yield increase with increased sprays, but significant benefits were not always seen.

- 5 apps. was comparable to 7 apps., but influence by variety and disease.
- GA06G needs at least 7 apps. for high disease
 - > 50% defoliation
 - **ELS dominate**

Could we reduce an early season chlorothalonil spray?

Yes, it may be possible.

	Date:	15-Jun	27-Jun	3-Jul	18-Jul	1-Aug
	DAP:	30	42	48	63	77
	Trt #					
0 Sprays	1 to 4					
4 Sprays	5 to 8		Echo 720 @ 1.5 pt/a		TebuStar @ 7.2 fl oz/a + Echo 720 1 pt/a	
5 Sprays	9 to 12		Echo 720 @ 1.5 pt/a		TebuStar @ 7.2 fl oz/a + Echo 720 1 pt/a	Echo 720 @ 1.5 pt/a
7 Sprays	13 to 16	Echo 720 @ 1.5 pt/a		Echo 720 @ 1.5 pt/a	TebuStar @ 7.2 fl oz/a + Echo 720 1 pt/a	TebuStar @ 7.2 fl oz/a + Echo 720 1 pt/a

Notes:

- 1.) Disease developed after 42 days
- 2.) Early leaf spot was the predominate pathogen
- 3.) Plantings were in May

It will be a case by case situation.

Live Oak Fungicide Trial Data

- Small plot trials (30-ft plots)
- Large plot trials (~ 2 acres)
- 3rd year of peanuts
 - History of white mold with peanuts
 - WM present in 3rd year, but still low
- Variety: Georgia-06G

Small plot trials focused on company Peanut Rx schedules.

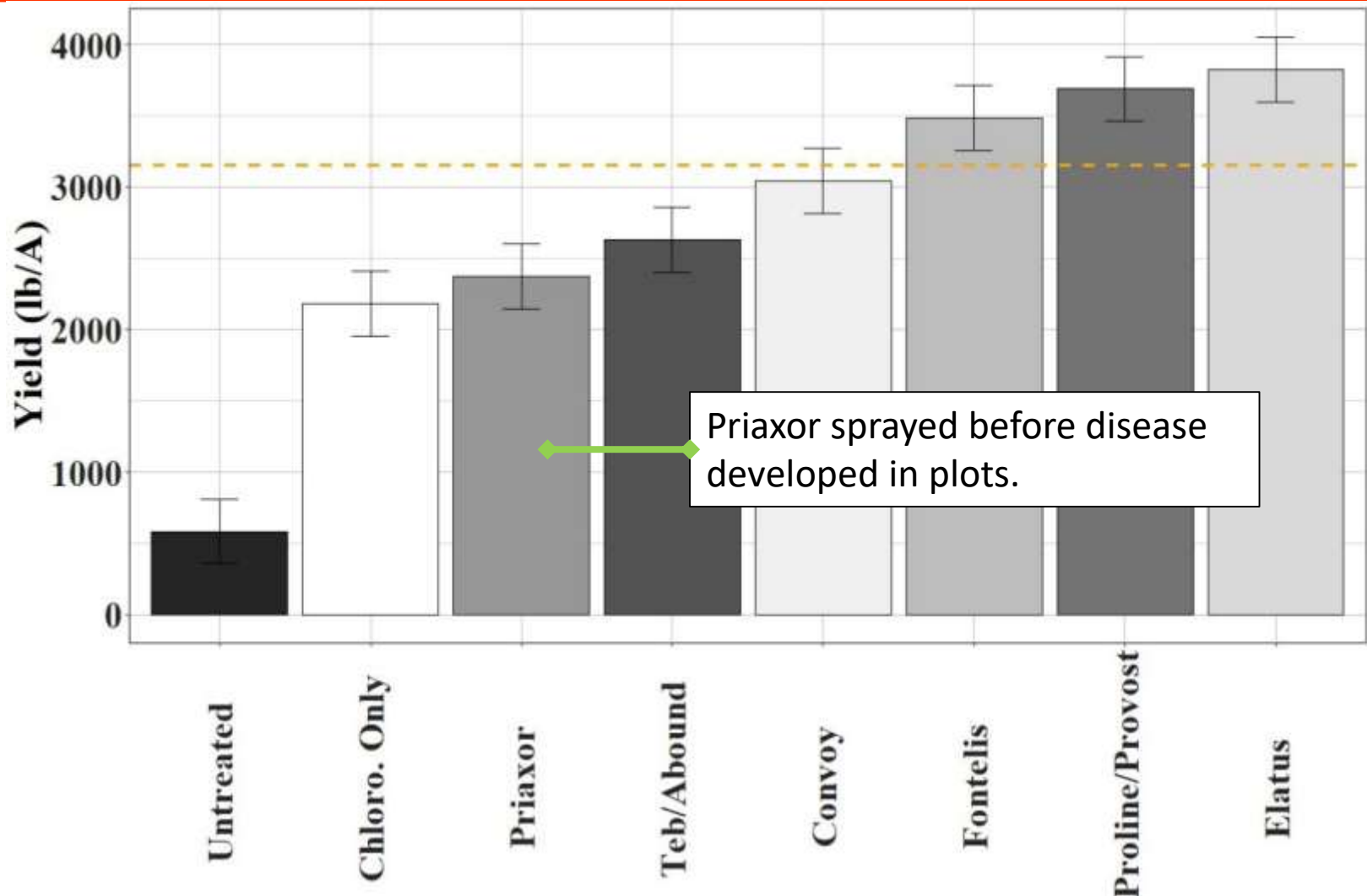
Planting Date: 5/13

Harvest Date: 10/12

Company Name	Key Fungicides – per acre
Nichino	Convoy-32 fl oz
Bayer	Proline-5.7 fl oz; ProvostOpti-10.7 fl oz
Syngenta	Elatus-7.3 oz
Dupont	Fontelis-16 fl oz
BASF	Priaxor-6 & 8 fl oz
Check	Echo 720-1.5 pt
Generic	TebuStar-7.2 fl oz; Abound-18.5 fl oz

Disease developed late; after July or 75 DAP.

All programs performed well, but some differences were present.



LSD = 672

Below orange line is sig. diff from Elatus

Large Plot: focused on the use of DMI (FRAC 3) products.

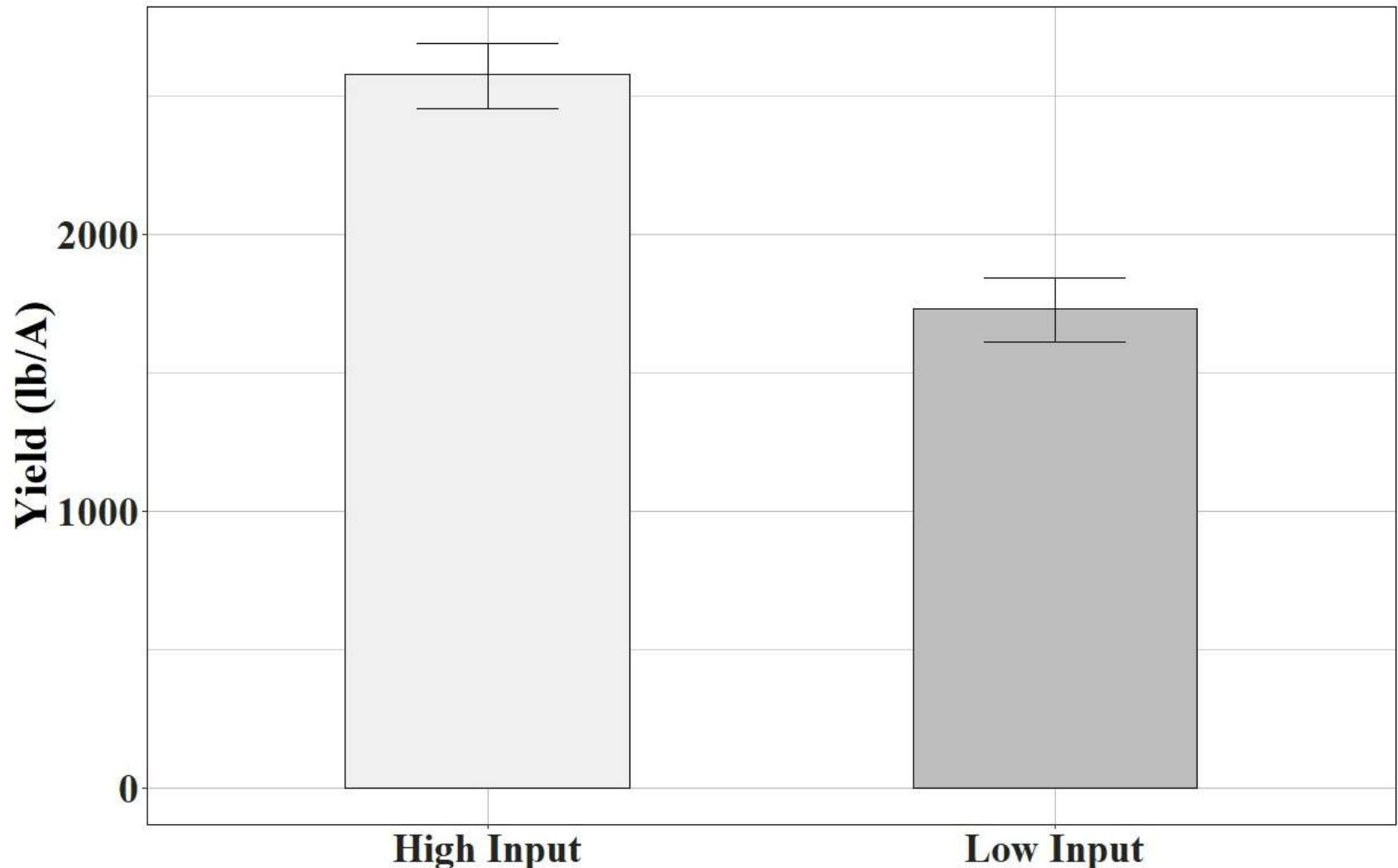
Harvest Date: 10/12

Program type	Key Fungicides – per acre
High input	Proline-5.7 fl oz; ProvostOpti-10.7 fl oz
Low input	TebuStar-7.2 fl oz; Abound-18.5 fl oz

3rd Year of Peanuts
White mold present
Late season defoliation

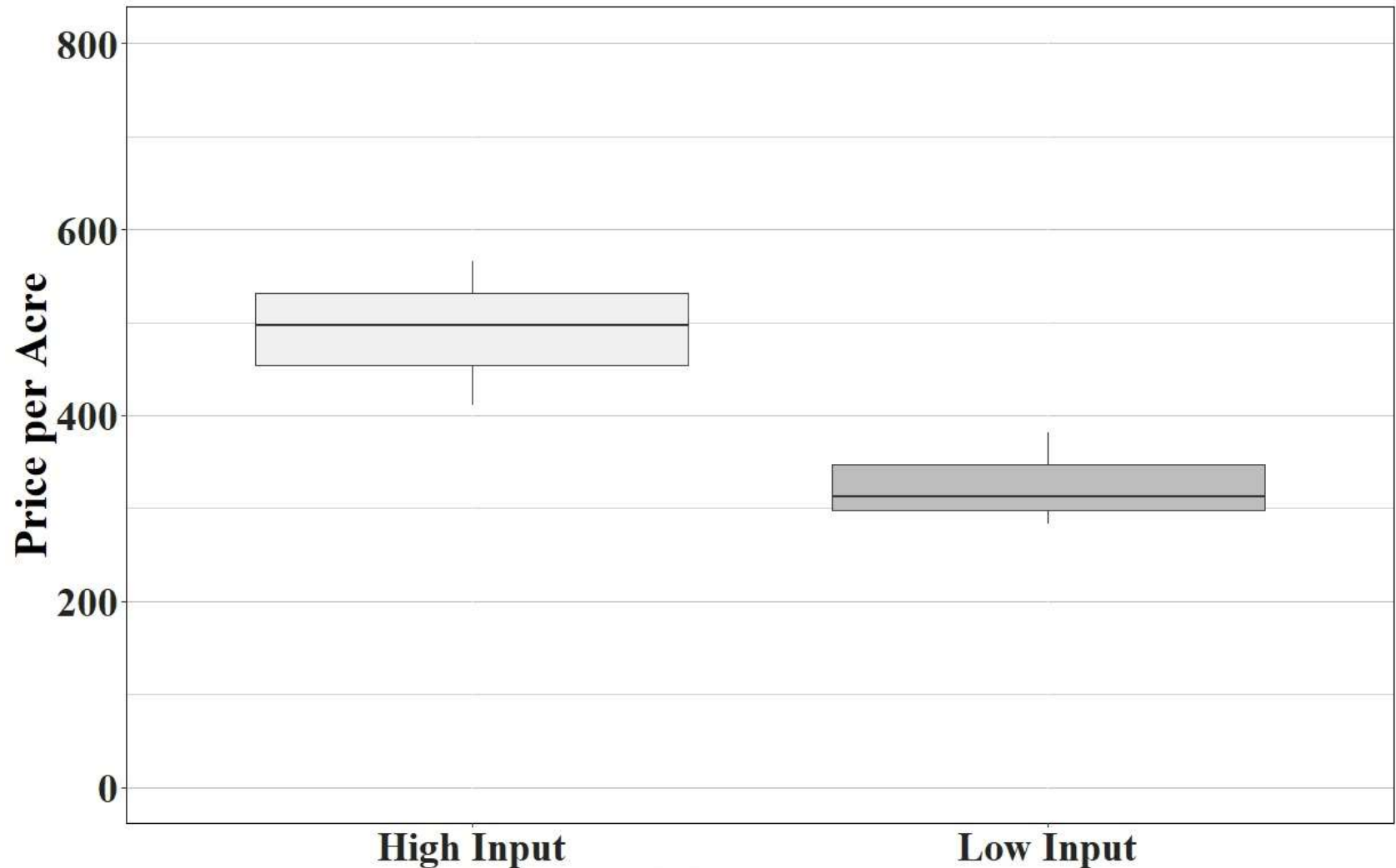


High input had significantly higher yields, but low yields overall.



LSD = 314

High input worth \$200 more per acre than low input.



LSD = 81

The trend in 2017 was that “high” input programs performed better.



On-Farm Trials

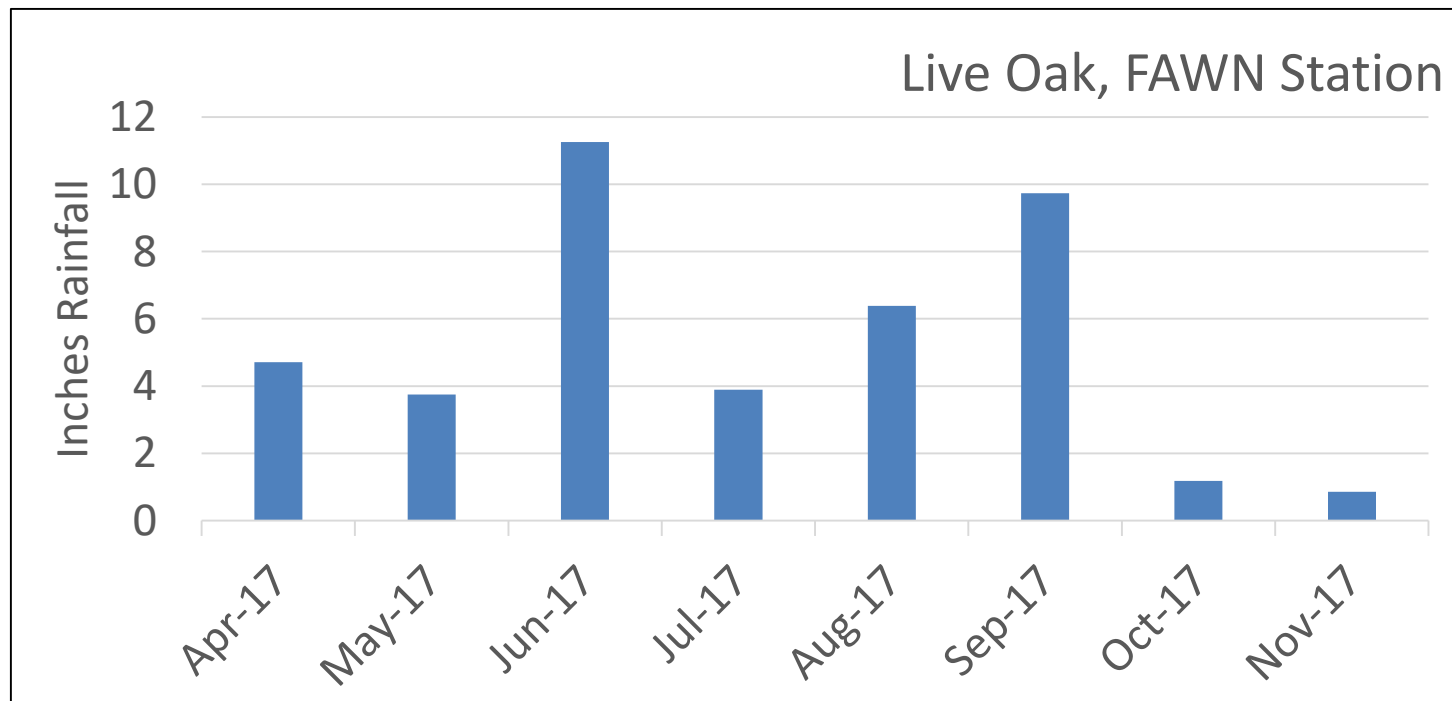
Hamilton Co. 2017

- Irrigated
 - Rx programs
 - Nematodes present
- Dry land
 - High and low input
 - Nematodes present

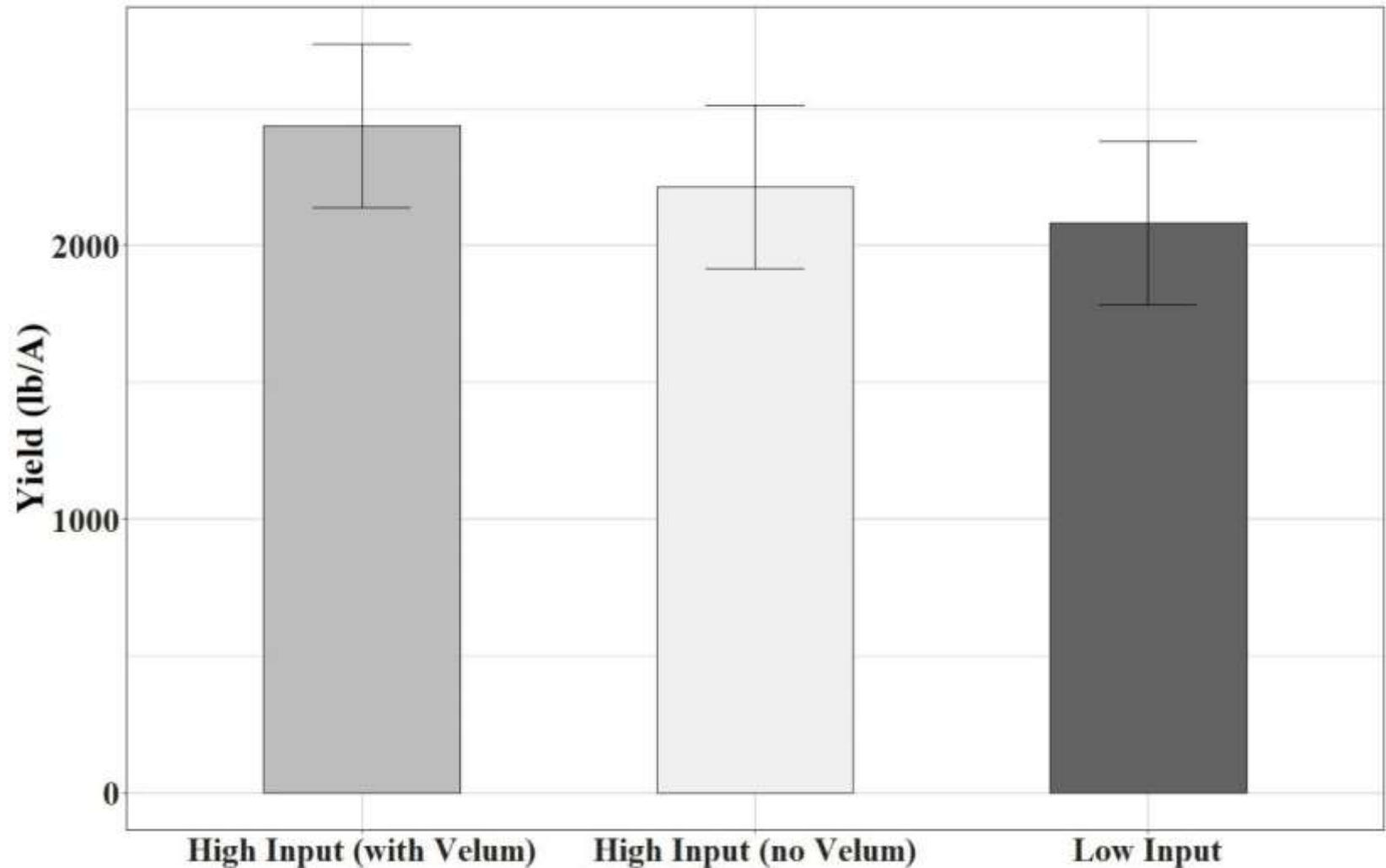


Dryland OFT with various input levels

Program type	Key Fungicides – per acre
High input	Proline-5.7 fl oz; ProvostOpti-10.7 fl oz
High + Velum	Infurrow-18 fl oz/A
Low input	TebuStar-7.2 fl oz; Abound-18.5 fl oz

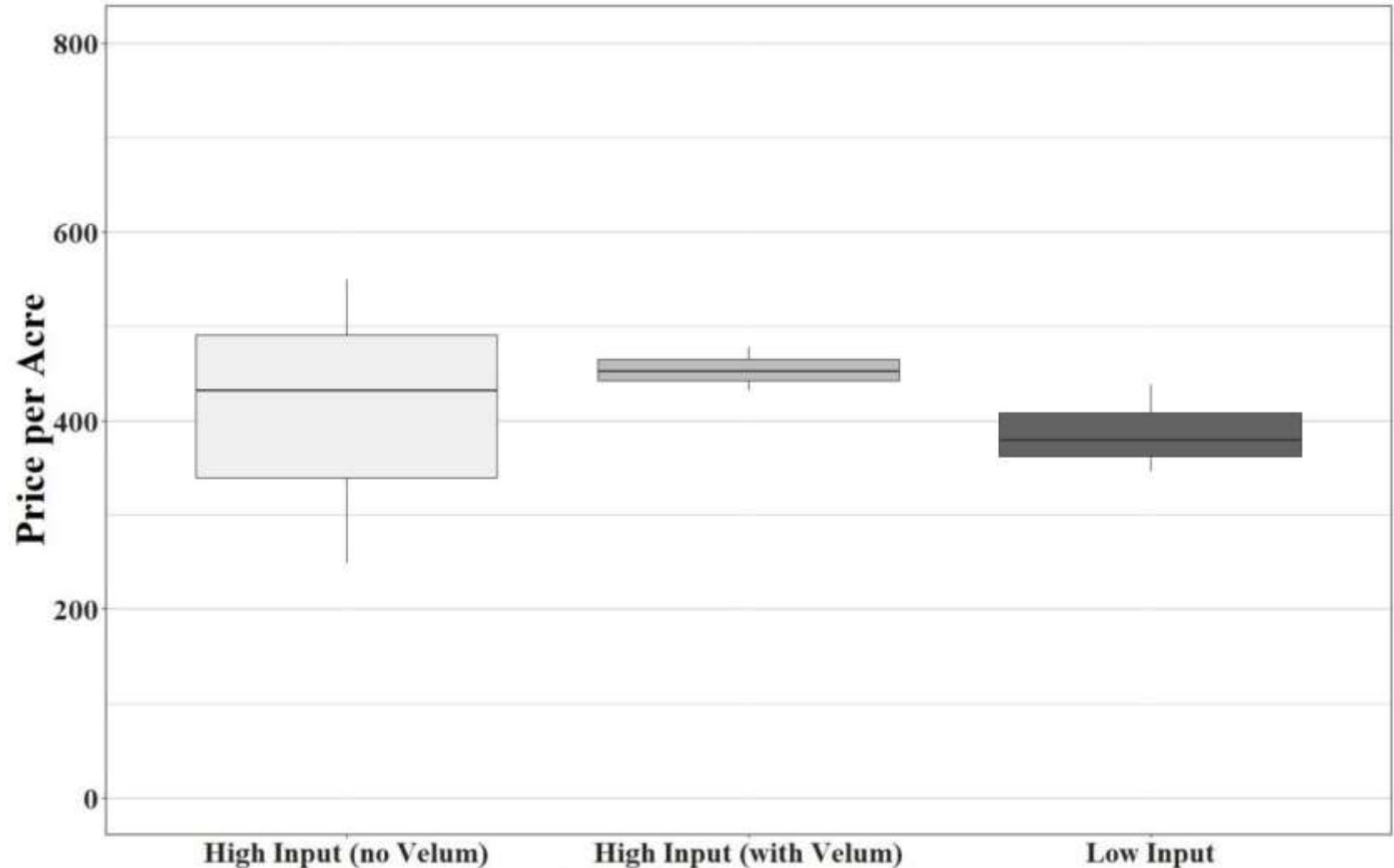


Yield was not significantly different.



$p > 0.50$

Root-knot was found in **one** replication of the “no Velum” plots.



$p > 0.60$

Peanut Rx programs with VelumTotal and one without.

Planting Date: 5/25 to 5/26

Harvest Date: 10/6 to 10/7

Company	Key Fungicides – per acre
Syngenta	Elatus-7.3 oz
Syngenta (No Velum)	Elatus-7.3 oz
Bayer	Proline-5.7 fl oz; ProvostOpti-10.7 fl oz
Nichino	Convoy-32 fl oz

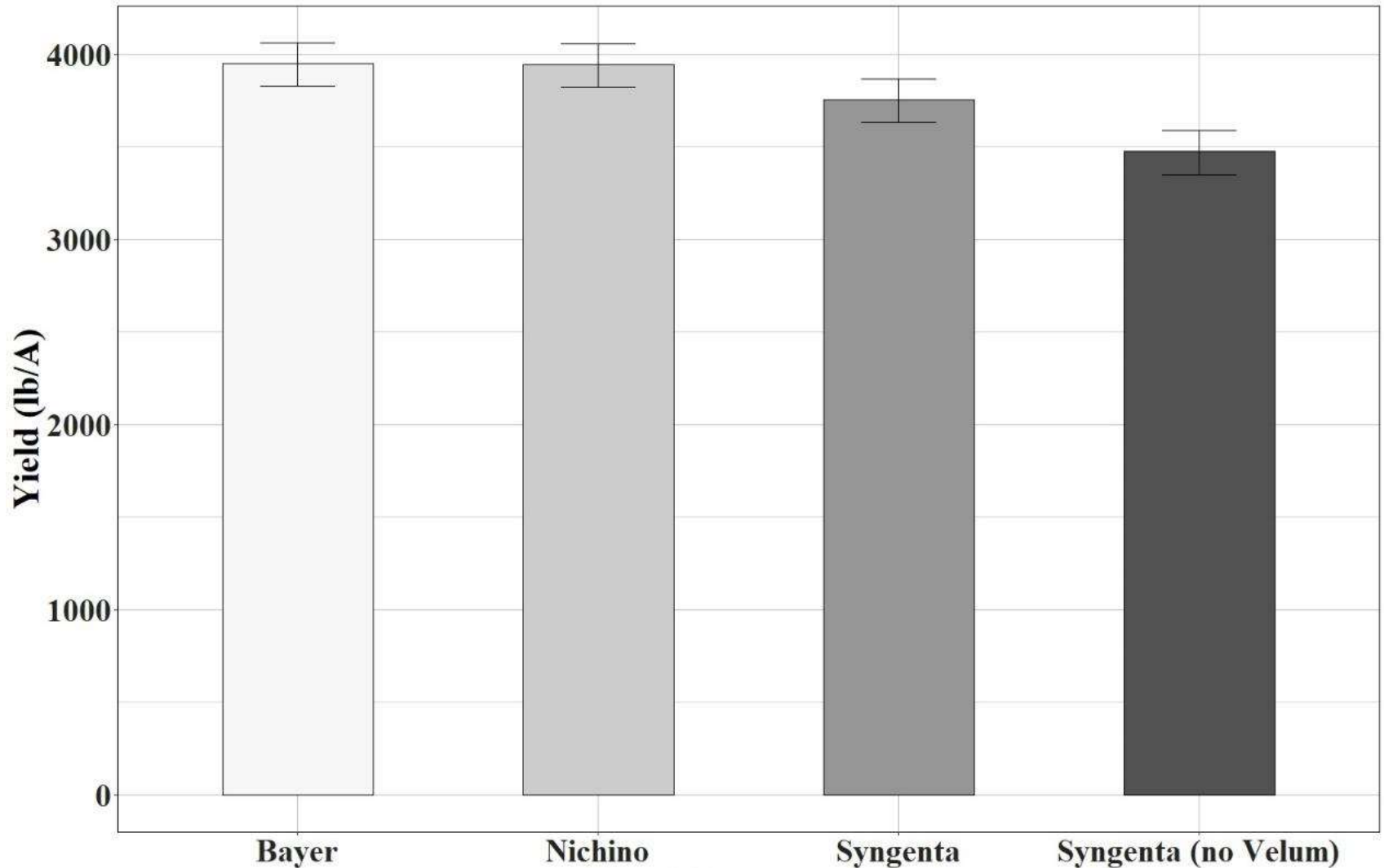
Infurrow Application: Velum total 18 fl oz and Abound 18 fl oz.

Disease was low (< 30% defoliation)

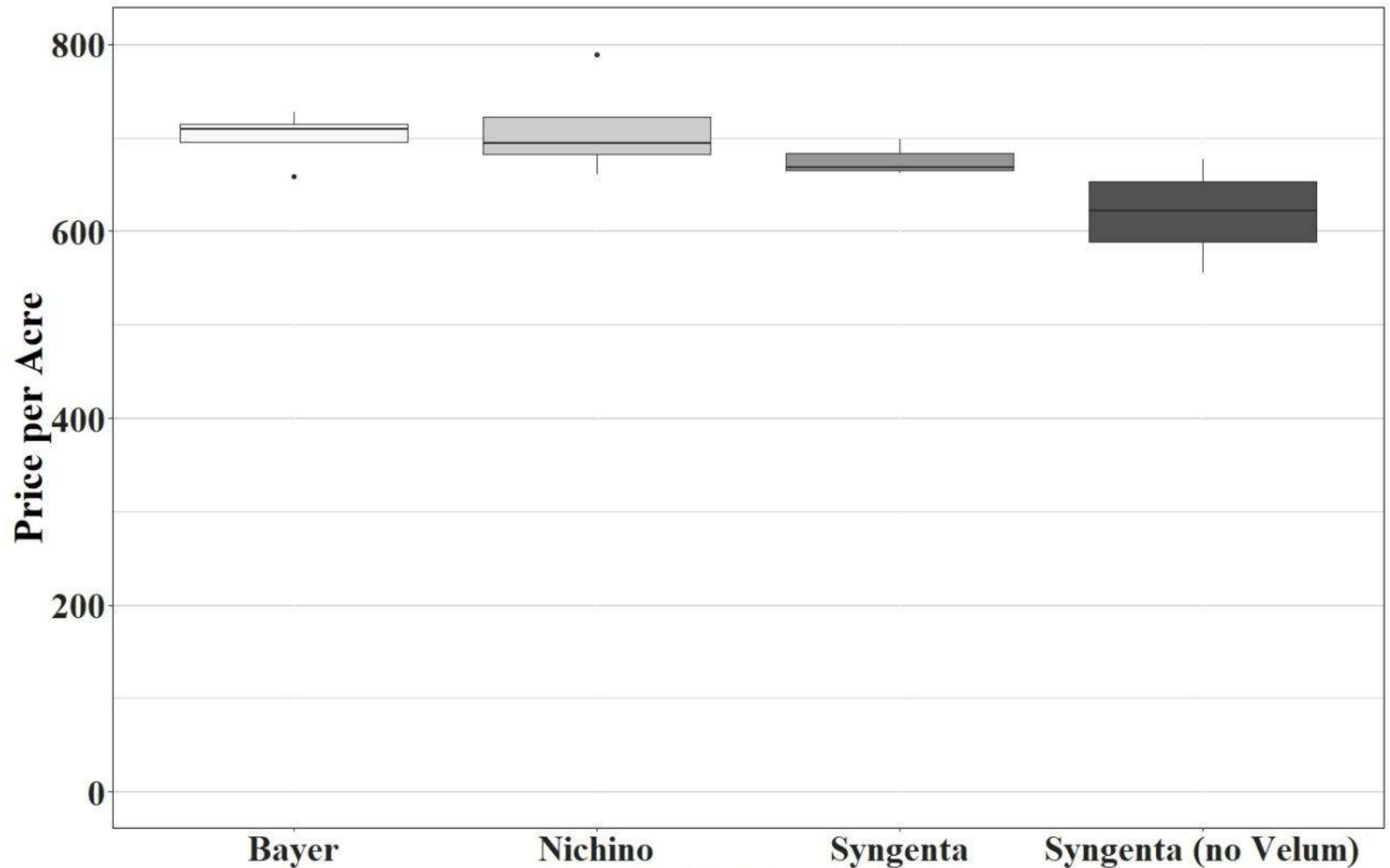
Stress was noticed in the field

Nematode counts (350/cc)

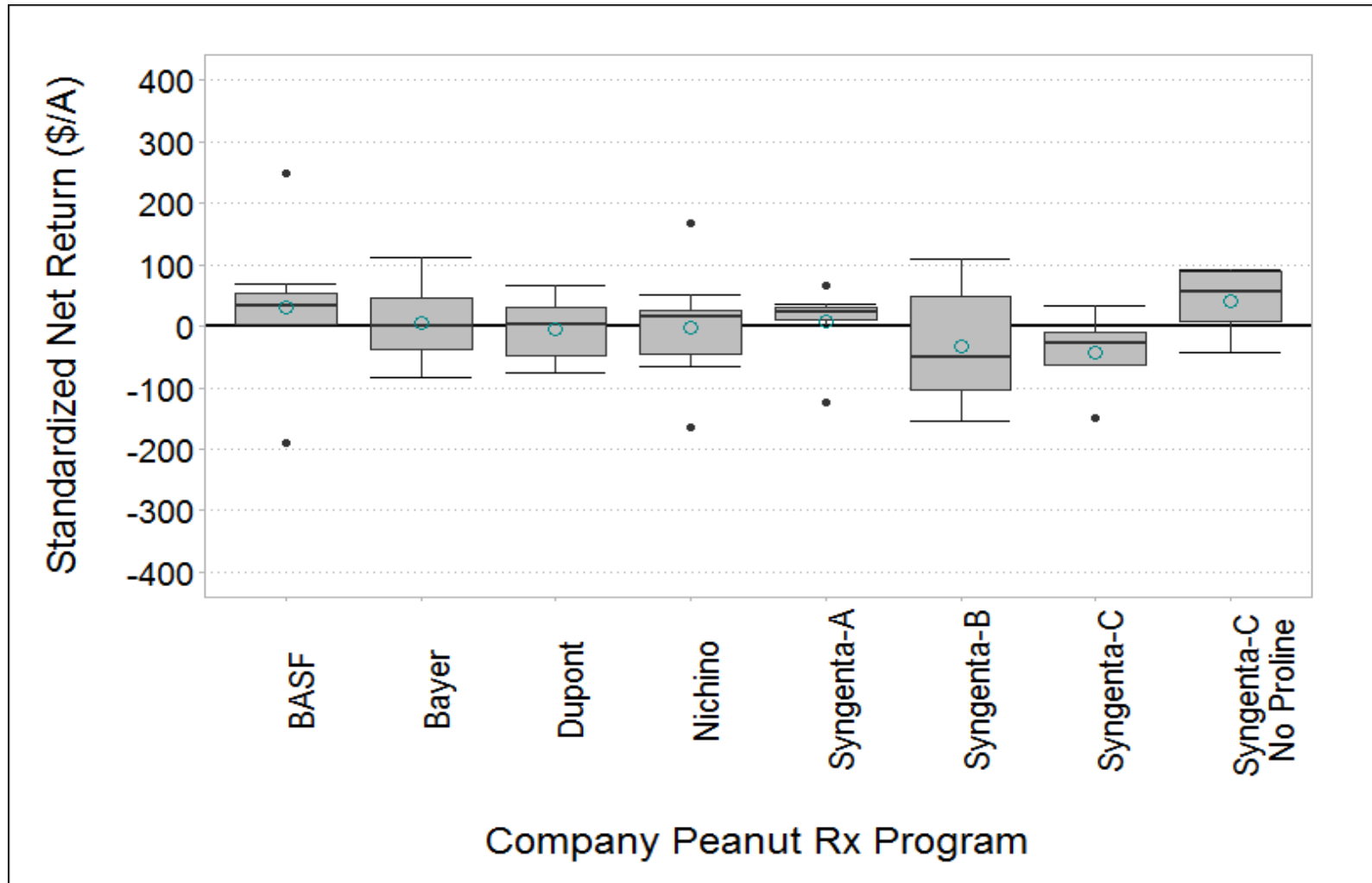
Treatments varied but not significantly.



Value of the peanuts varied by \$100/acre.



On average Peanut Rx programs work, but there is some variability.



There are multiple tools for peanut disease management



