

# ThryvOn Cotton: Economically managing a novel technology

Tyler Towles<sup>1</sup>, Ben Thrash<sup>2</sup>, Whitney Crow<sup>3</sup>, and Scott Stewart<sup>4</sup>

<sup>1</sup>LSU AgCenter, <sup>2</sup>University of Arkansas, <sup>3</sup>Mississippi State University, <sup>4</sup>University of Tennessee



# ThryvOn Cotton

- Approaching commercialization
- Cry51a2 protein
- Activity against:
  - Thrips (Tobacco, western flower)
  - Tarnished plant bugs
  - Cotton fleahoppers
- ~50k acres in 2022

**Bollgard<sup>3</sup>**  
**ThryvOn<sup>TM</sup>**  
With **XTENDFLEX<sup>®</sup>**  
TECHNOLOGY



UAEX



LSUAgCenter.com

# Technology Significance - Thrips

- Thrips infest 100% of cotton acreage
- Loss of thiamethoxam (2011)
- At-planting control options:
  - Imidacloprid
  - Acephate
  - Aldicarb
- Seed treatments needing foliar rescue treatments

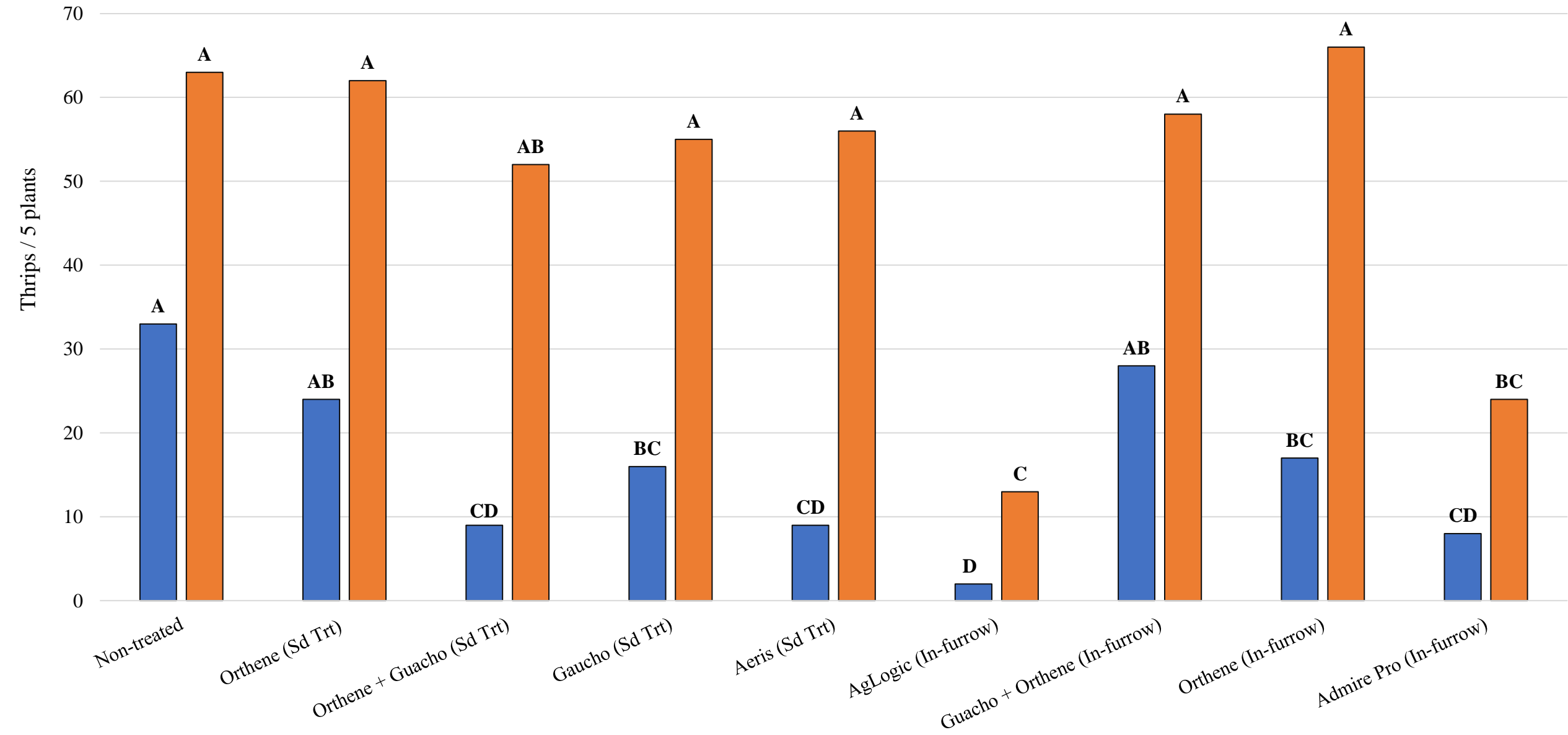






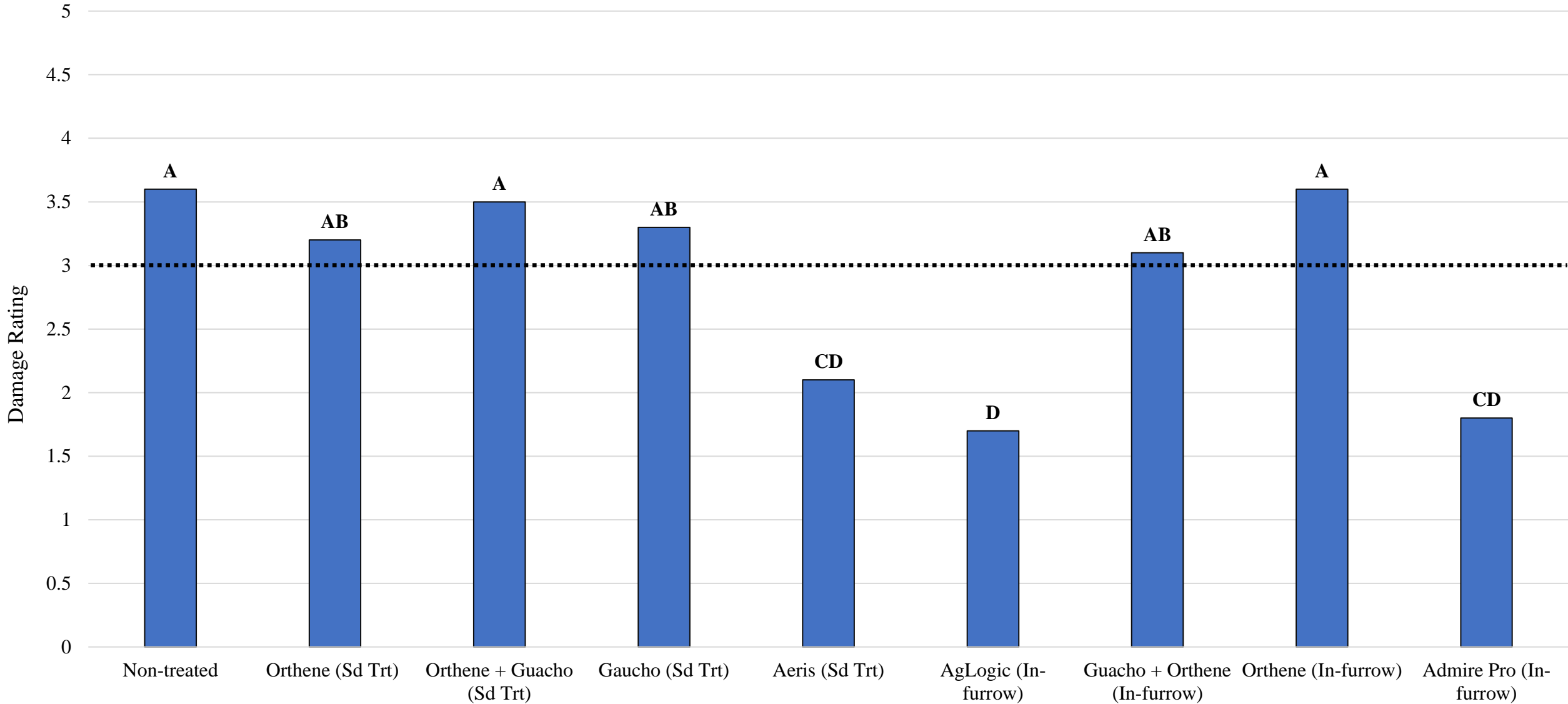
# At-Planting Thrips Control Options

■ 2 Leaf ■ 4 Leaf

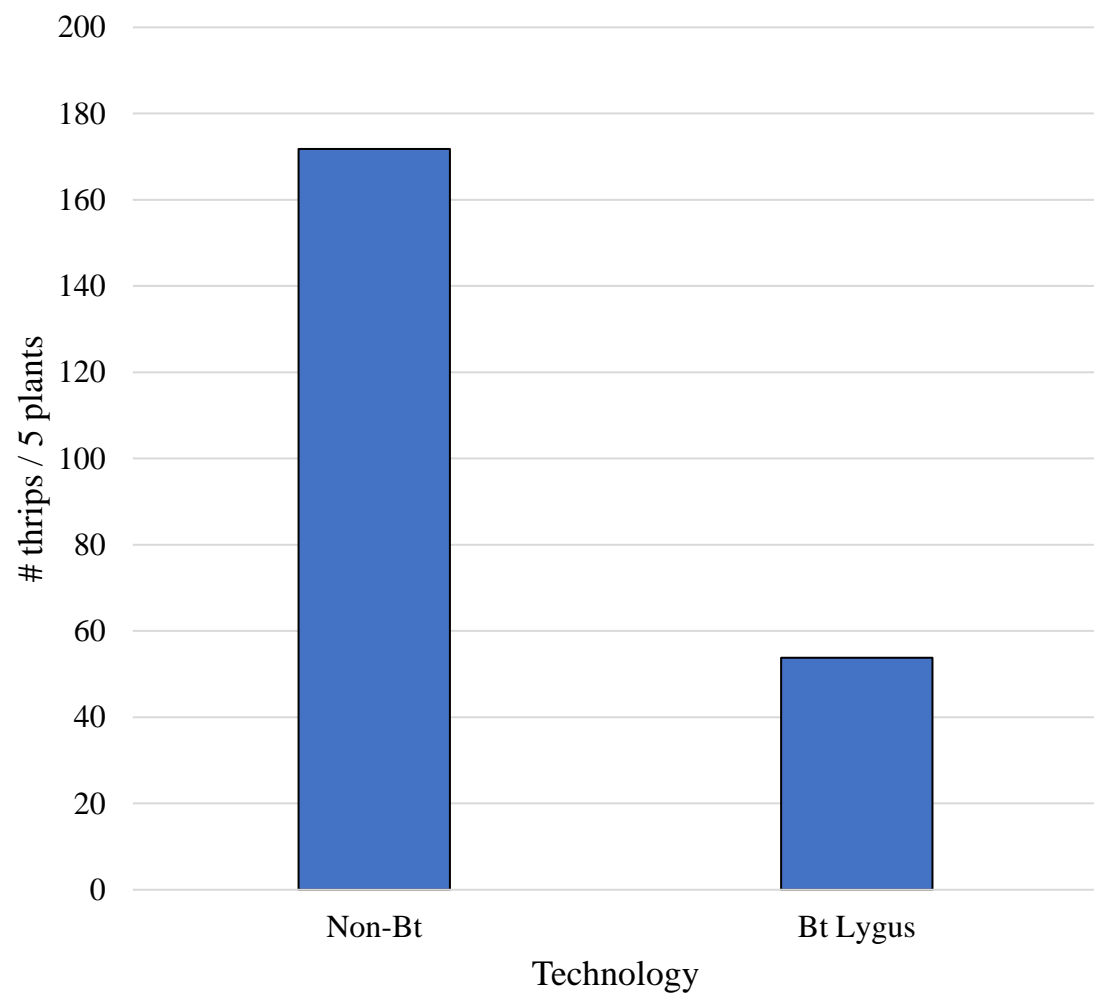


# At-Planting Thrips Control Options (4-leaf)

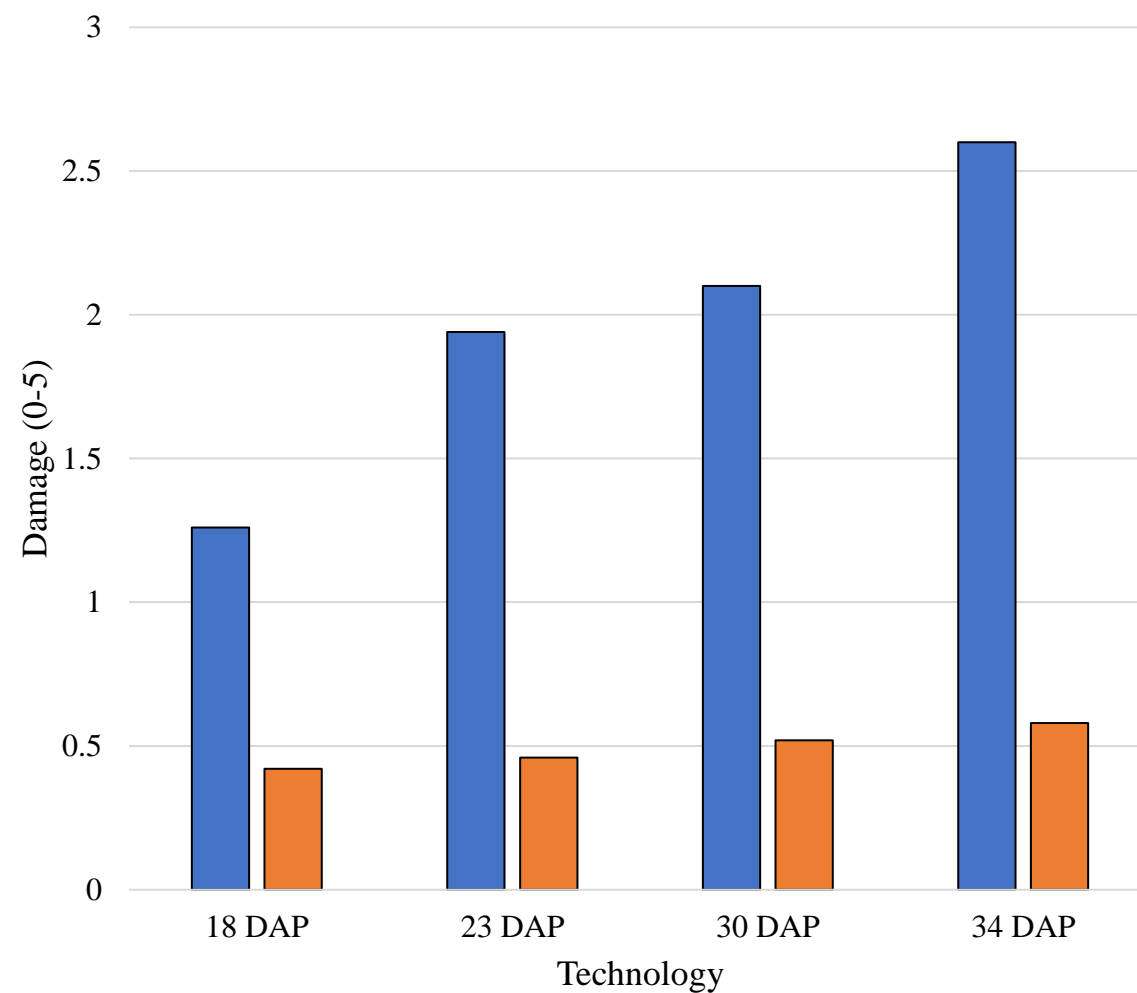
Damage Threshold .....



Thrips Counts: Conventional Vs. ThryvOn  
Jackson, TN

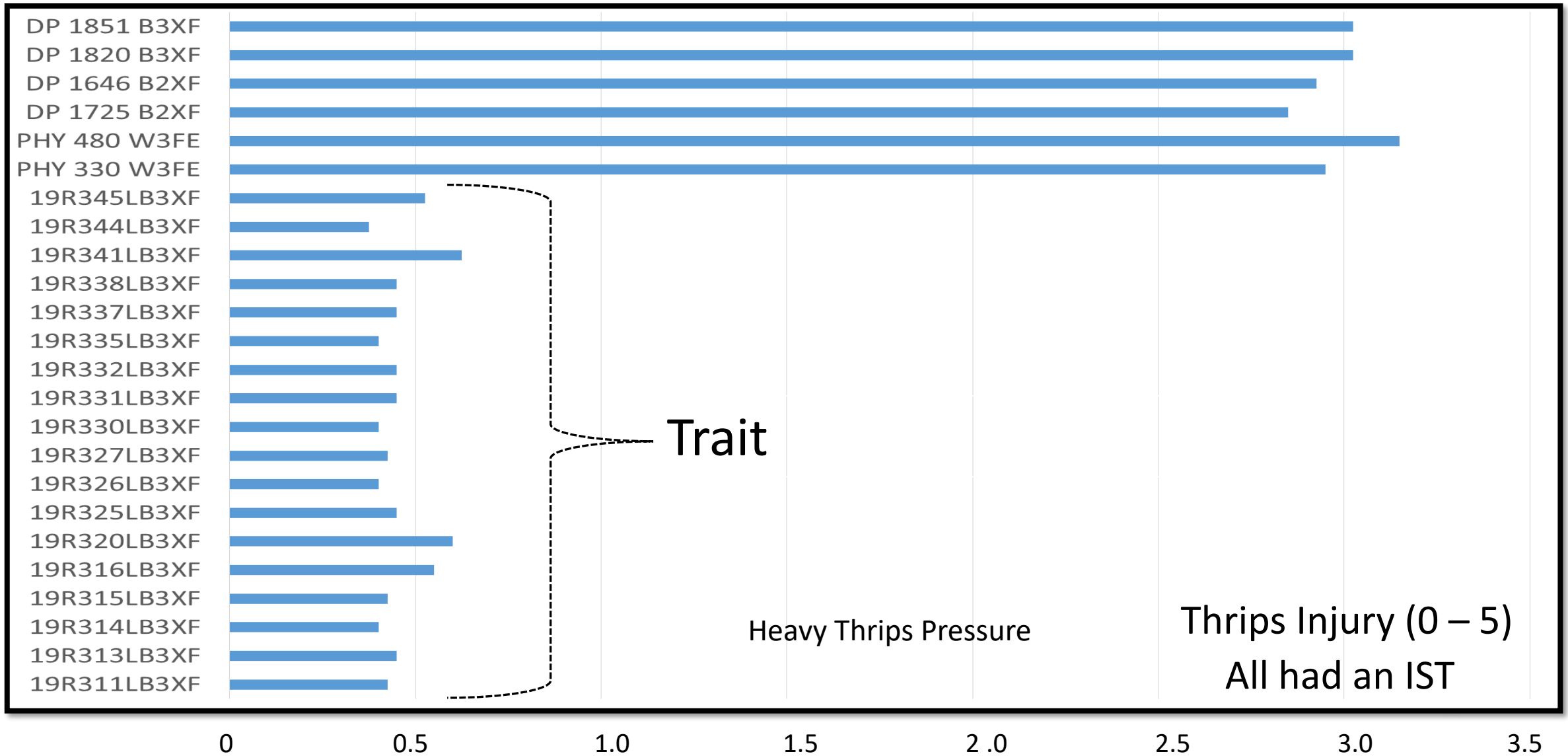


Damage Ratings: Conventional Vs. ThryvOn  
Jackson, TN





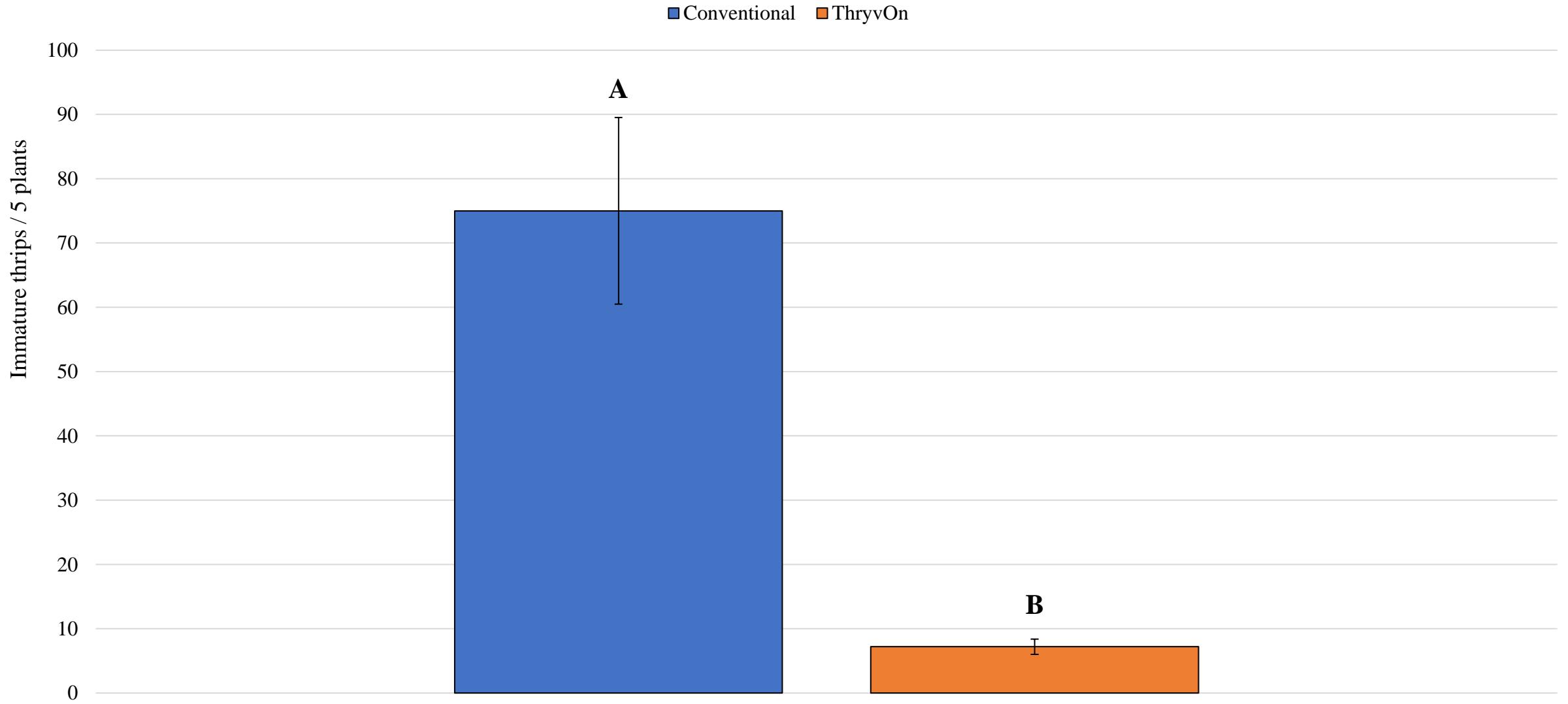
# 2019 ThryvOn Regulated Variety Trial Jackson, TN





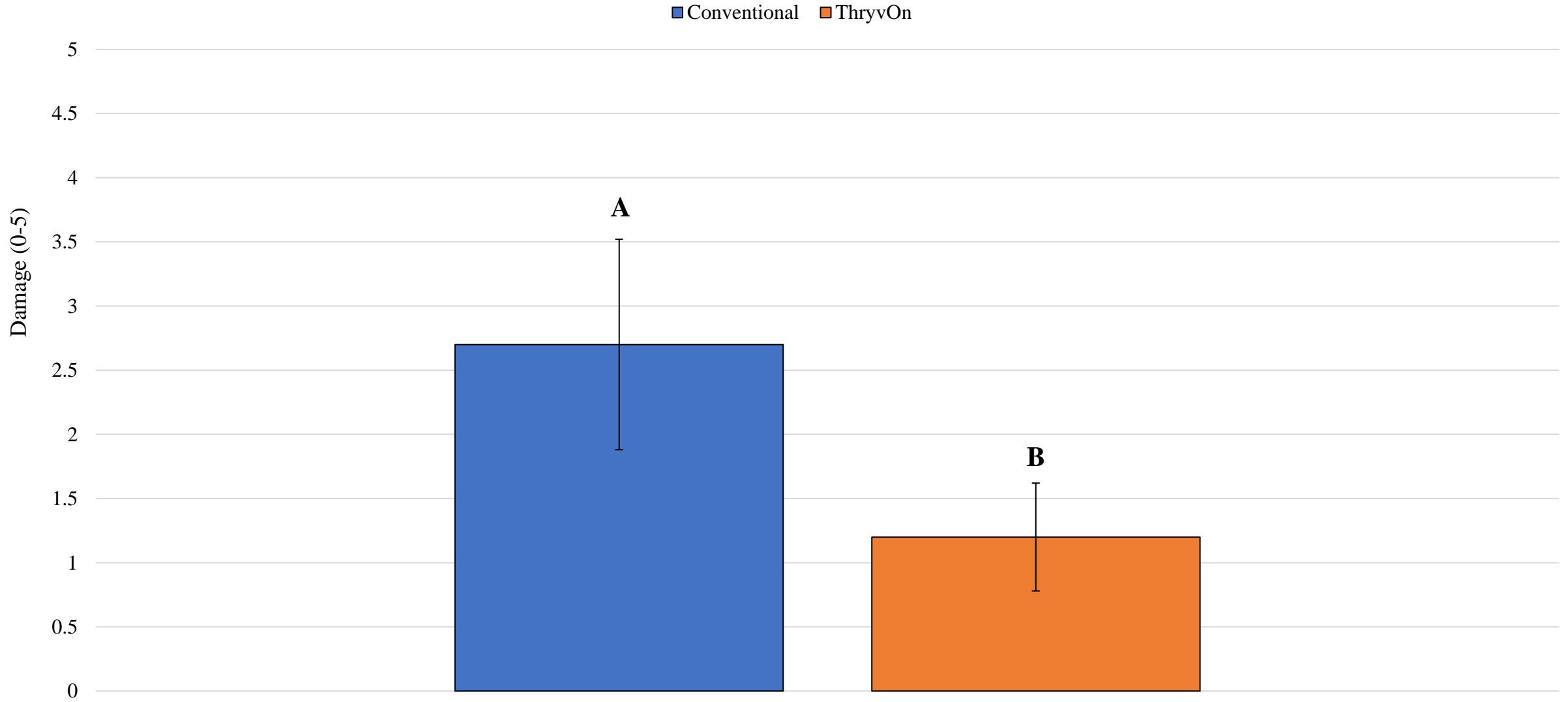
# ThryvOn Cotton Performance – Thrips 4-leaf (St. Joseph, La)

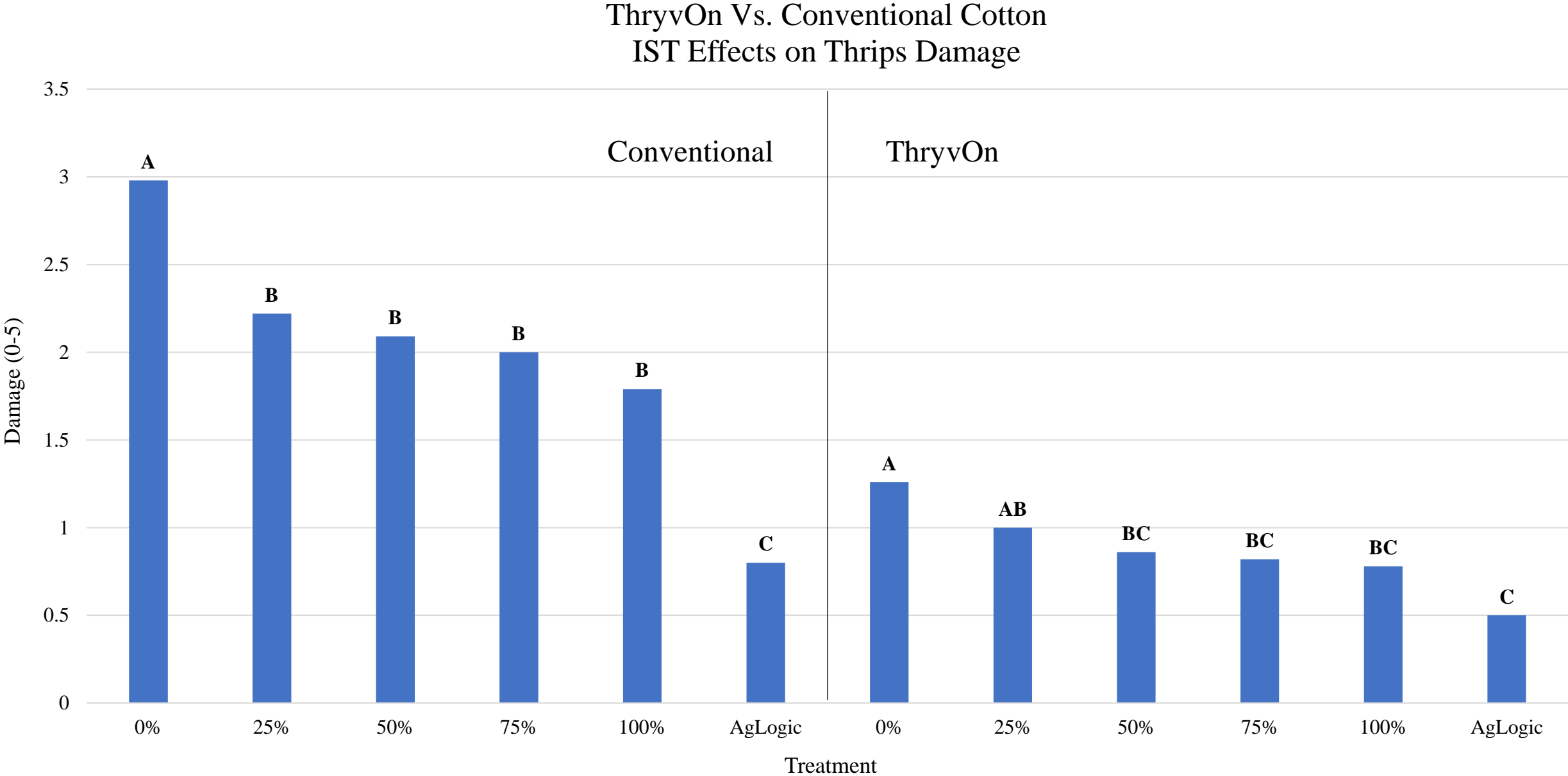
$P = <0.01$



# ThryvOn Cotton Performance – Damage Ratings 4-leaf (St. Joseph, La)

$P = <0.01$





# Going Forward - Thrips

- No foliar applications for thrips control in ThryvOn cotton varieties
- Seed treatment – No data indicating significant benefits
  - Massive reduction in neonic utilization
- Not all visible damage in seedling cotton is thrips damage!
  - Sand blasting
  - Chemical splashing / burn





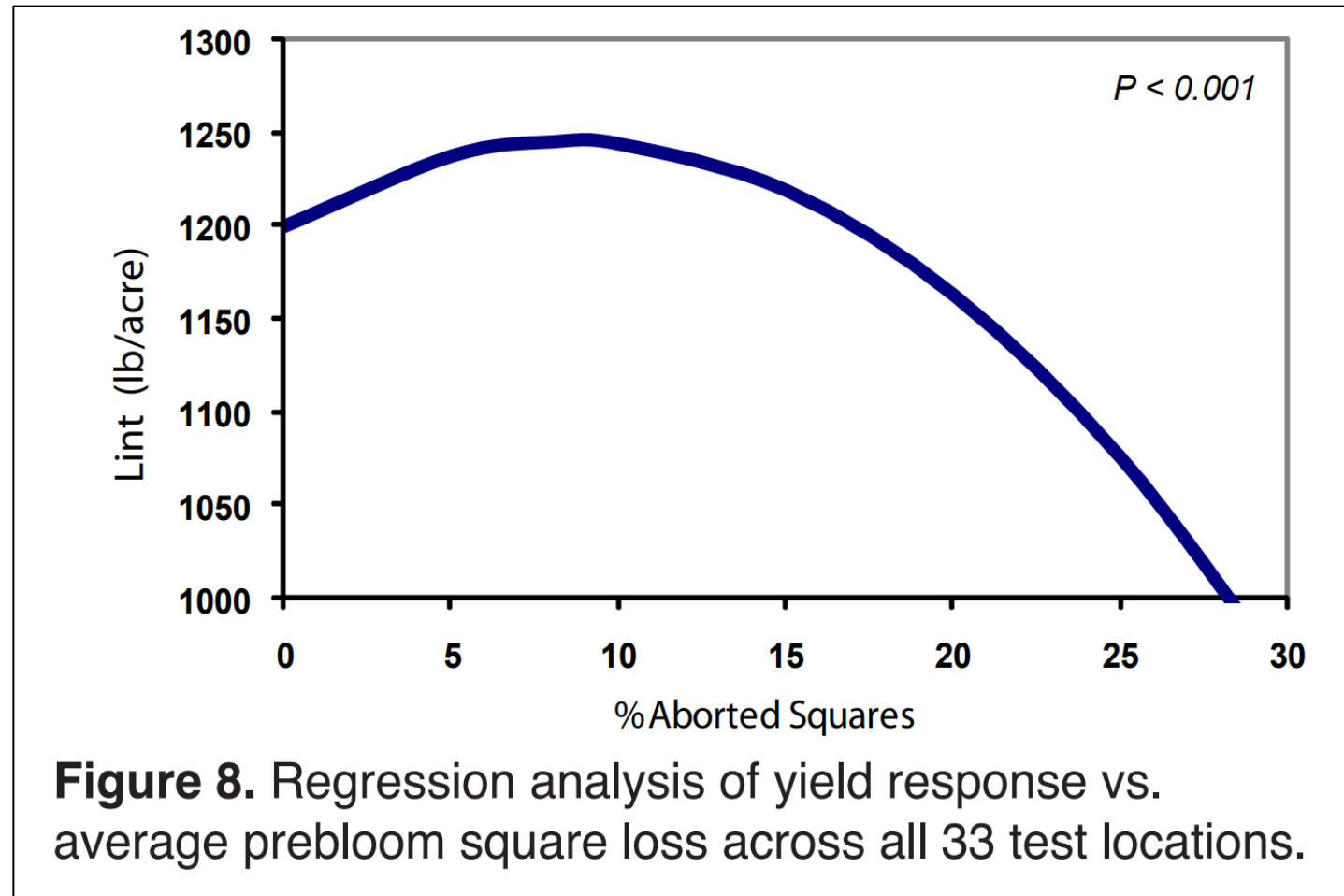
# Technology Significance – Tarnished Plant Bug



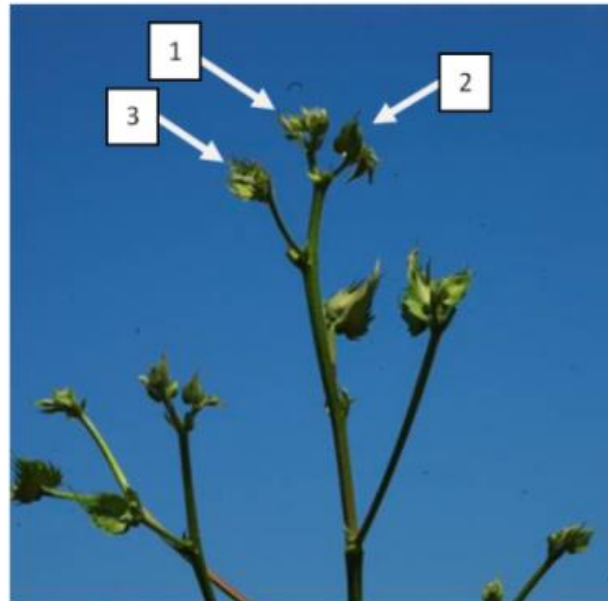
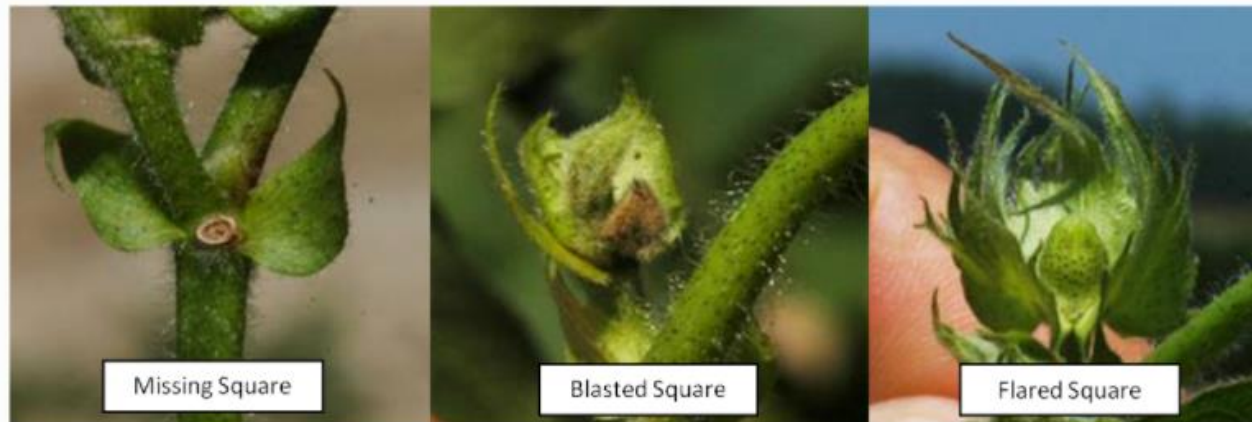
# Pre-bloom *Lygus* Control

## Louisiana Threshold (Prebloom)

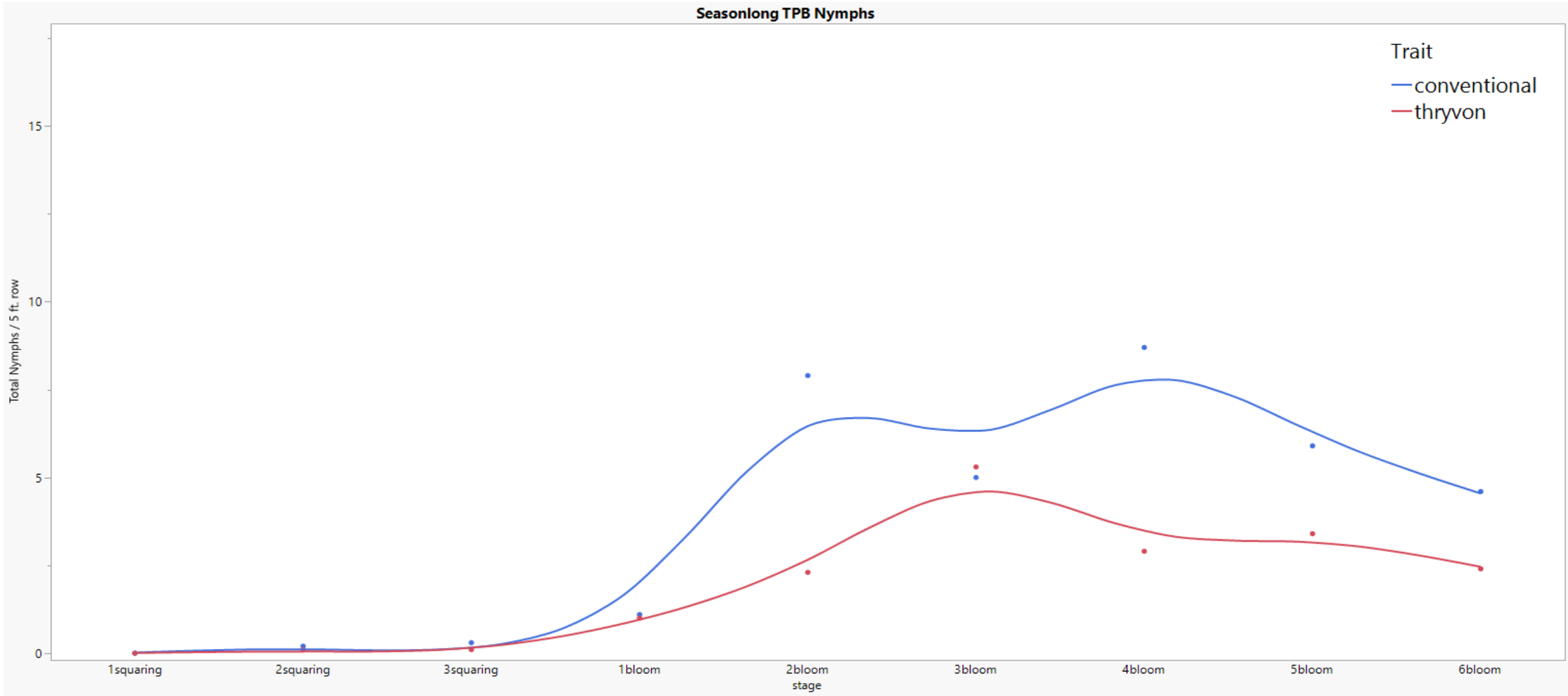
- 10 tarnished plant bugs / 100 sweeps
- 70 – 85% square retention



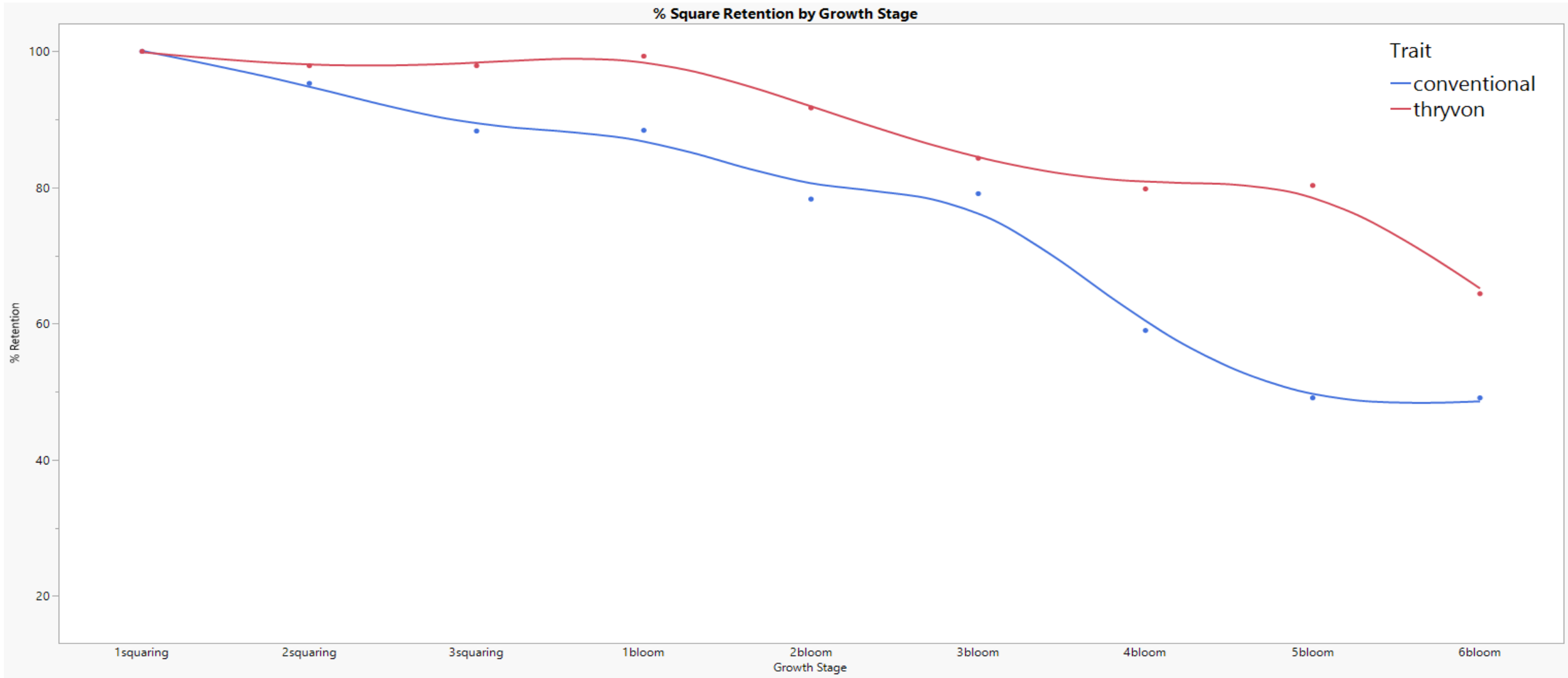
# Square Retention



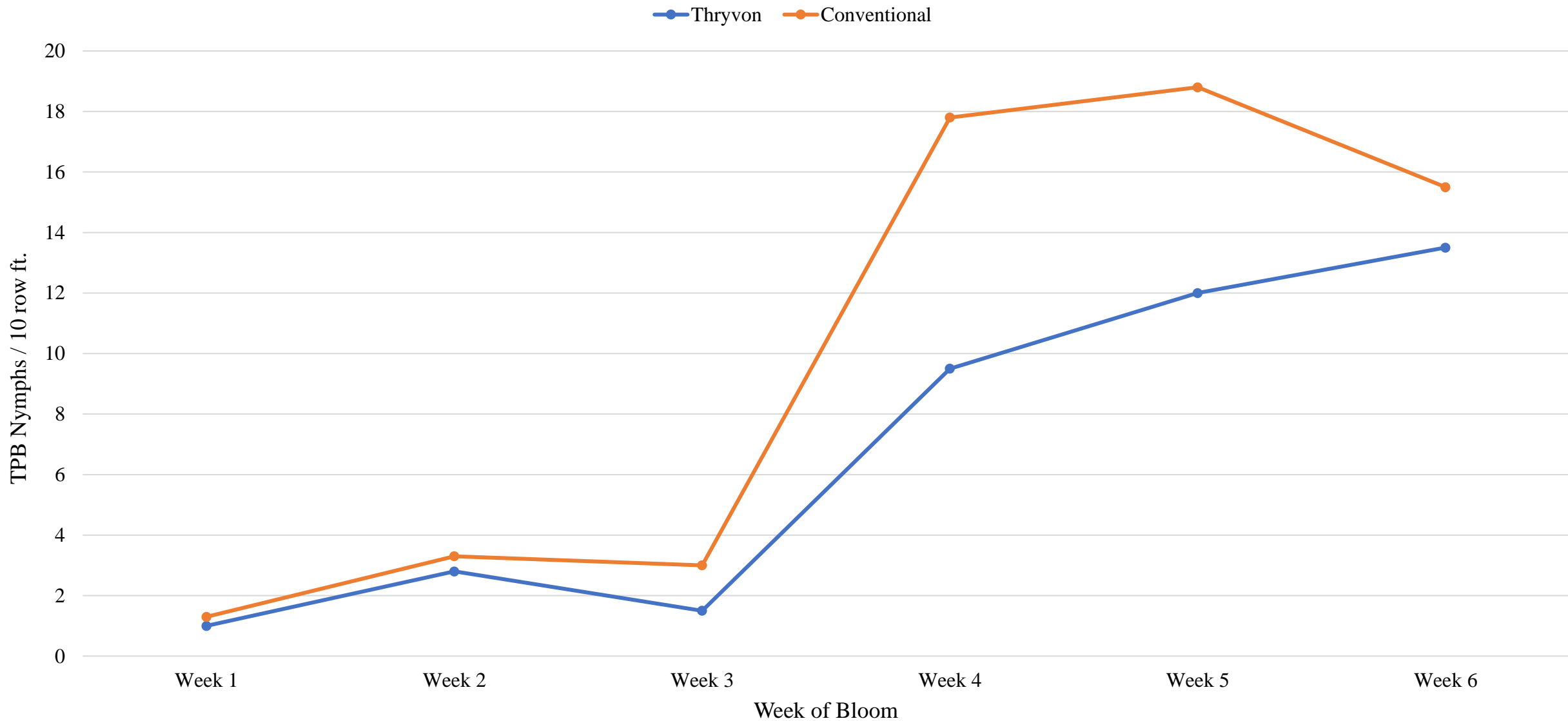
# Season-long TPB Nymphs



# Square Retention - St. Joseph, La

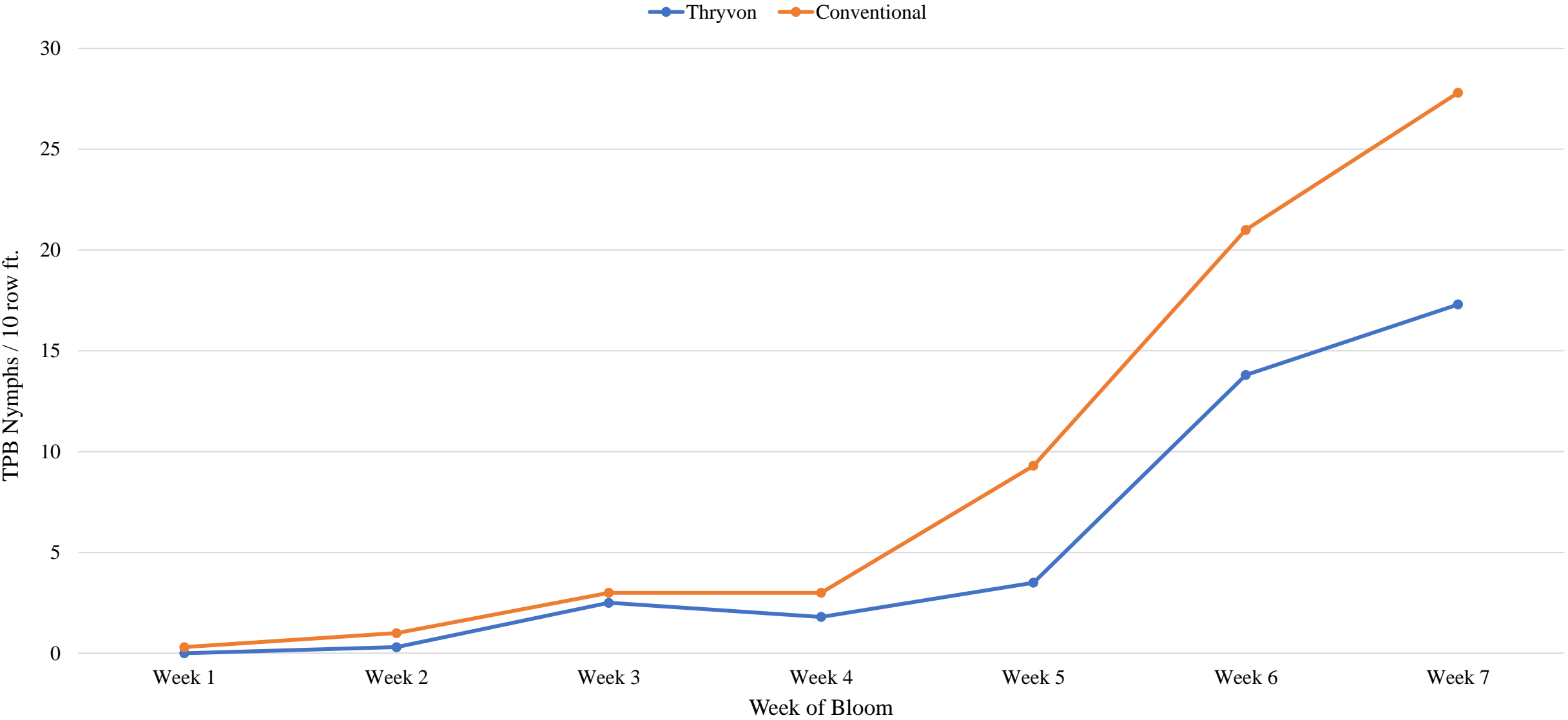


# Tarnished Plant Bug Populations in Blooming Cotton (Sidon, Mississippi)



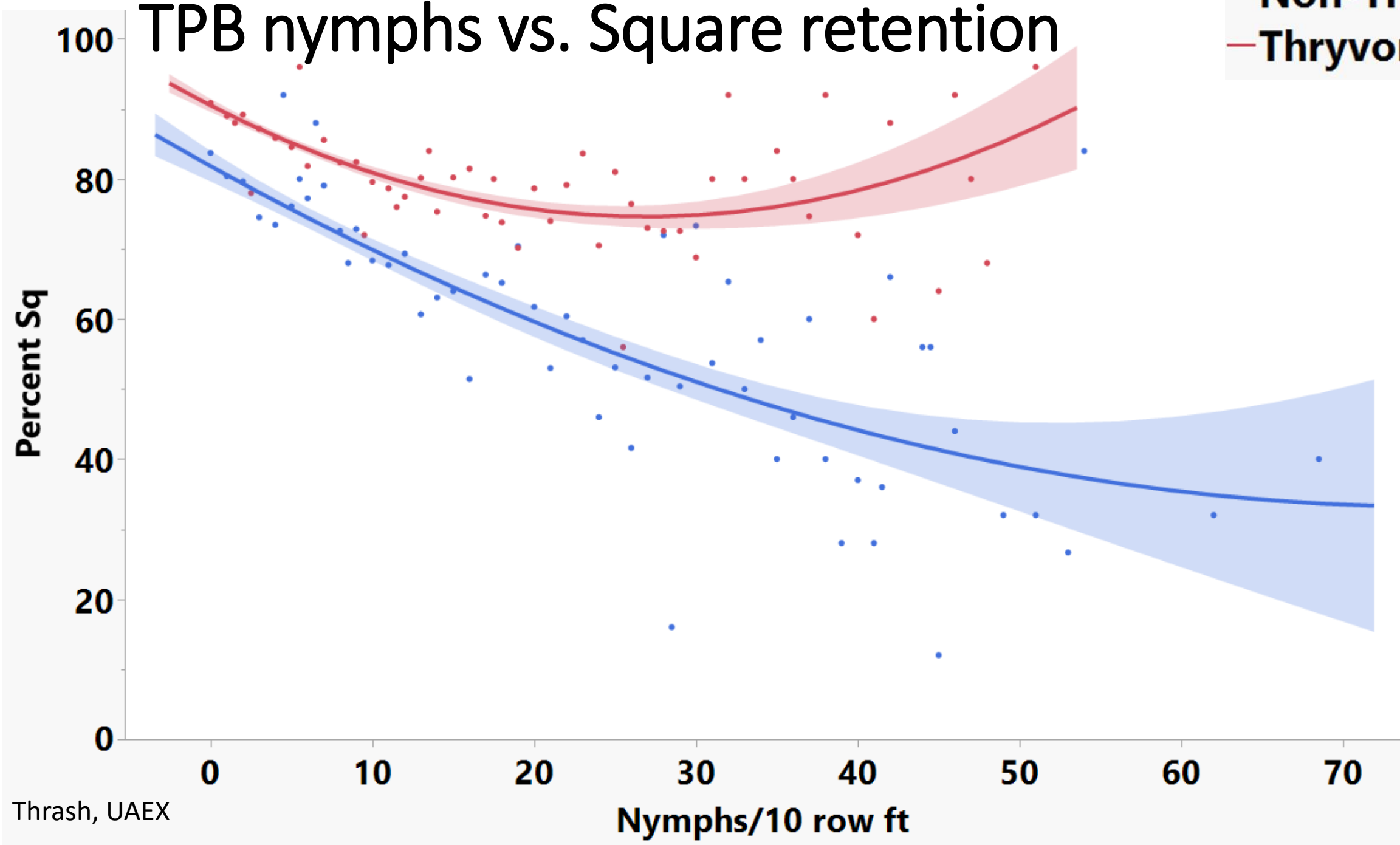


# Tarnished Plant Bug Populations in Blooming Cotton (Glendora, Mississippi)



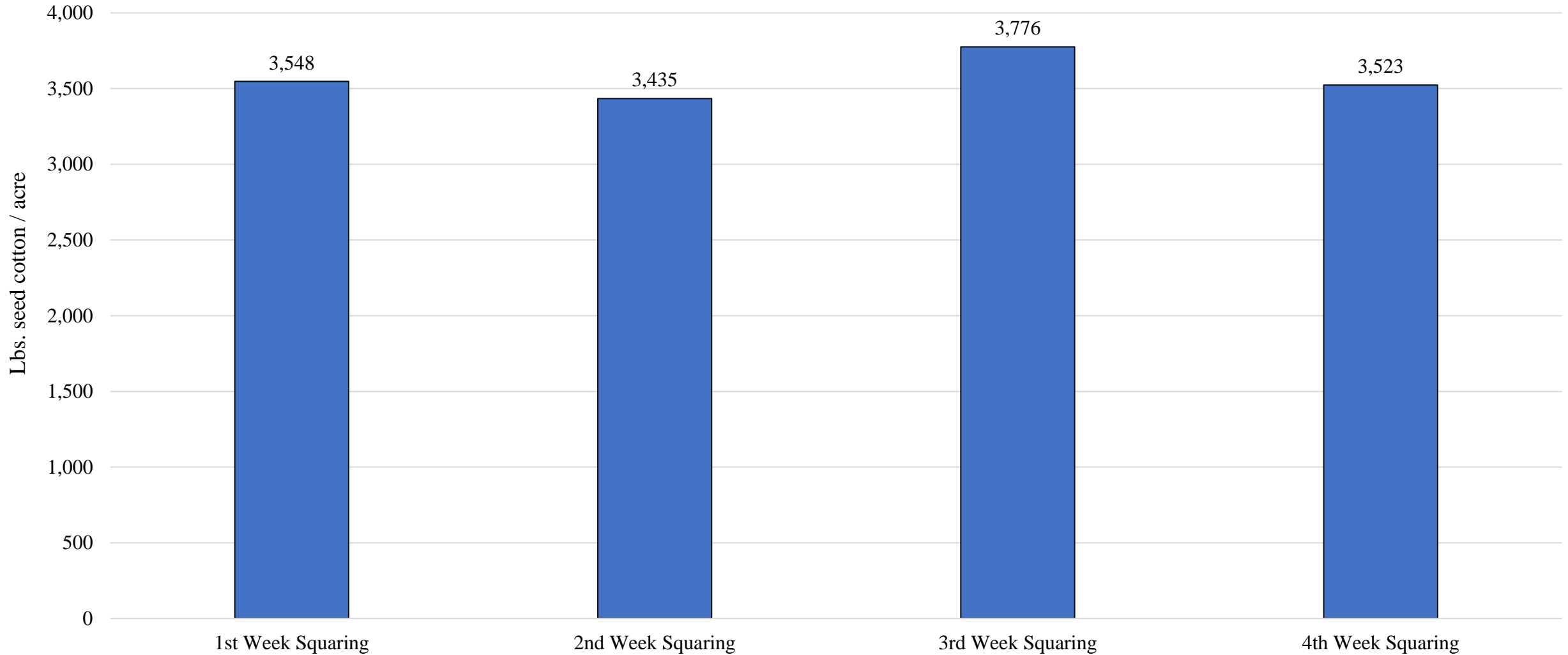
# TPB nymphs vs. Square retention

- Non-Thryvon
- Thryvon

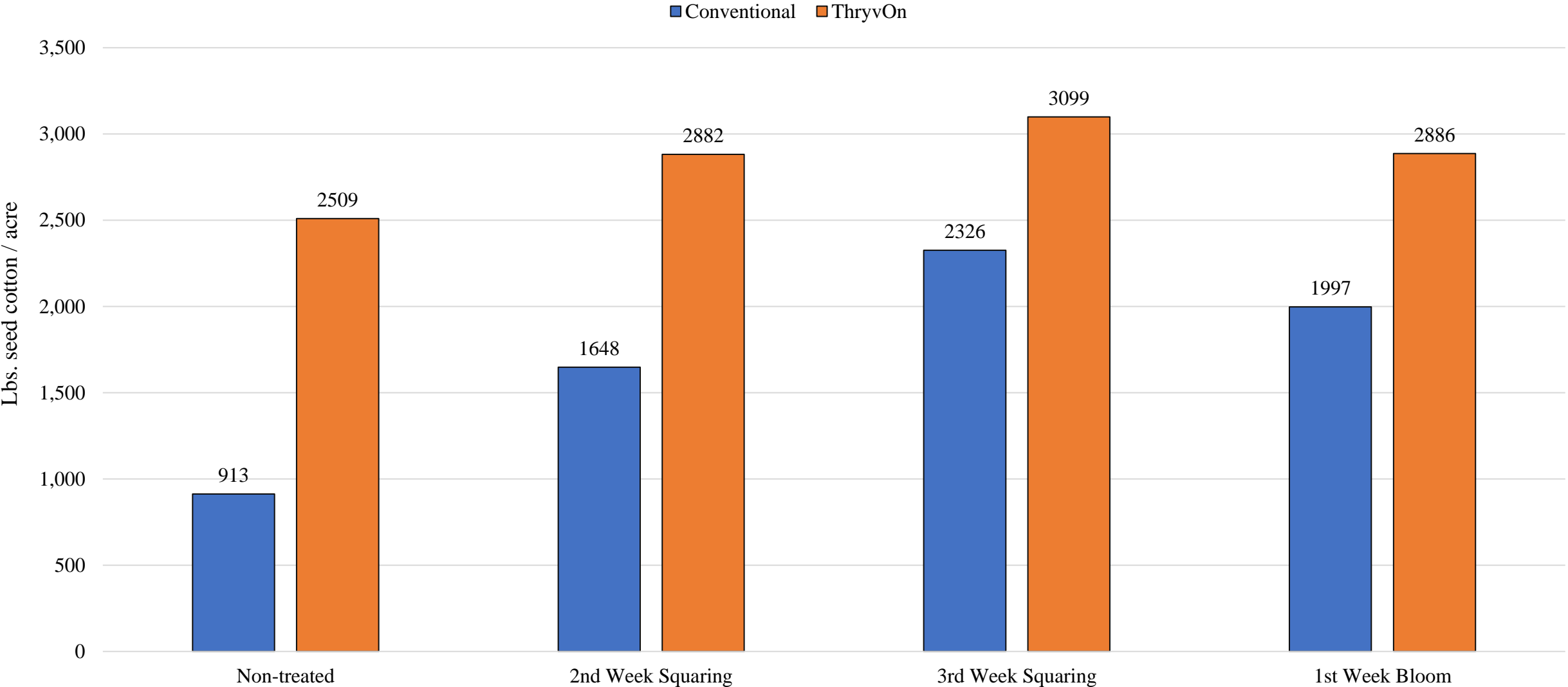


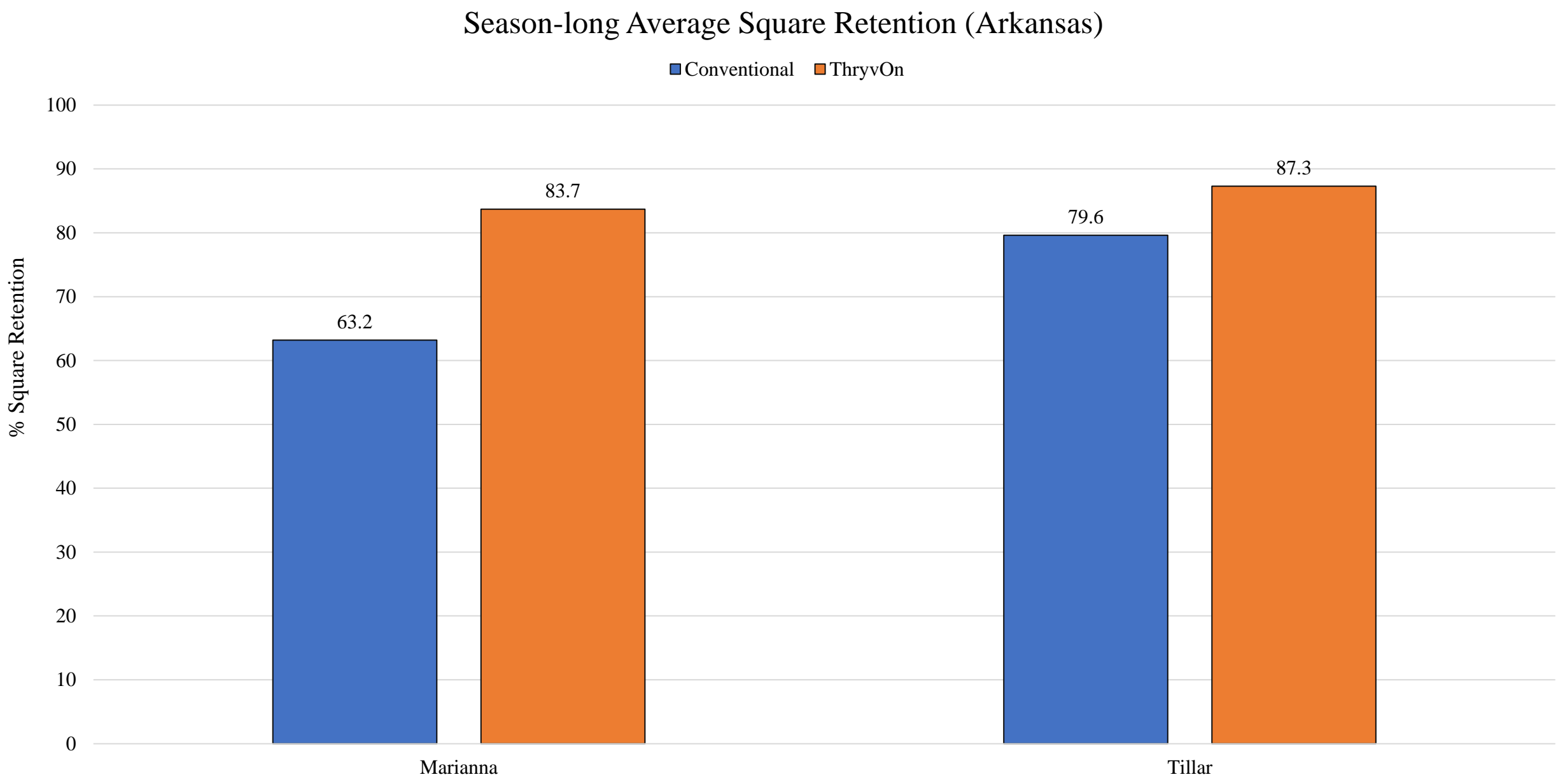
Thrash, UAEX

Pre-bloom Insecticide Applications – Effects on Yield (Arkansas)  
ThryvOn Cotton Variety



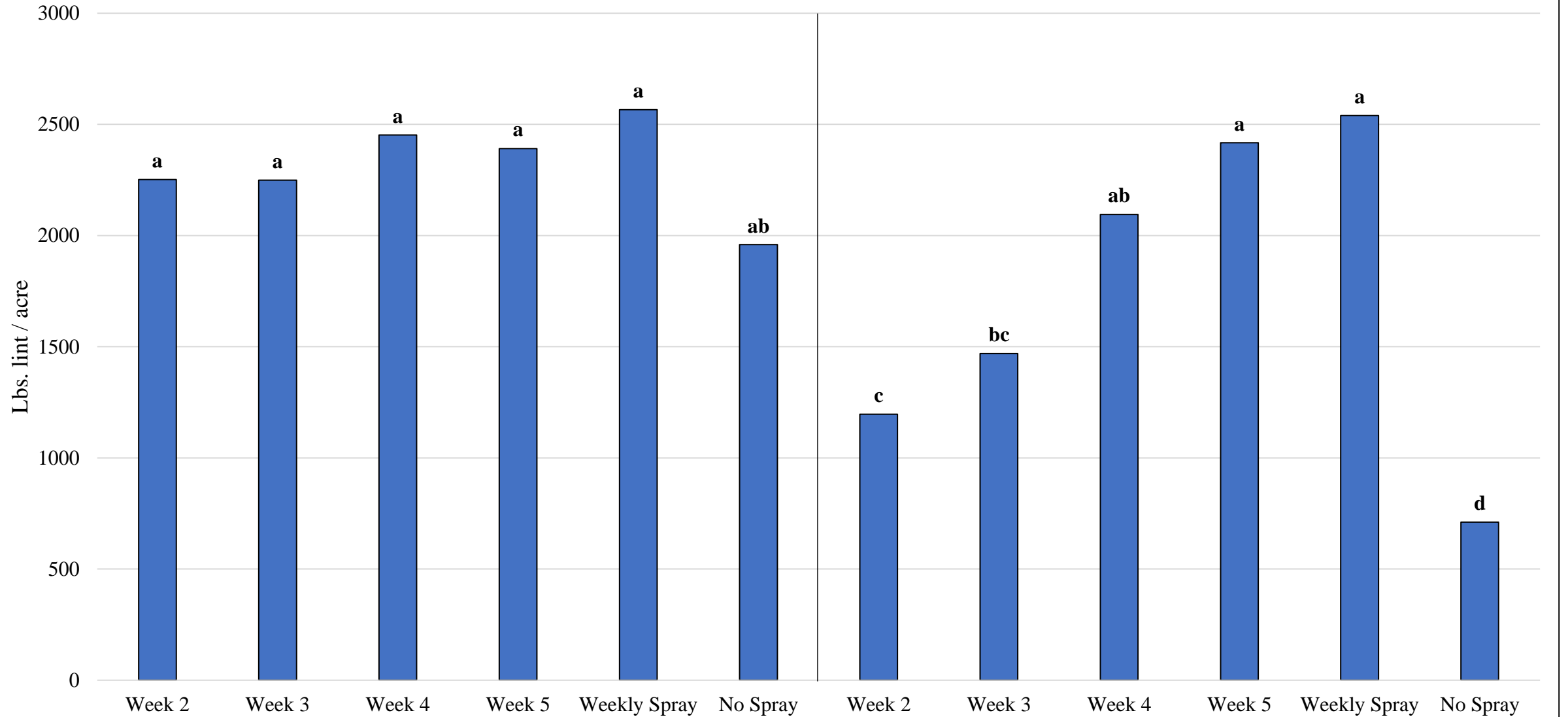
Pre-bloom Insecticide Applications – Effects on Yield (Arkansas)







## Bloom Treatments: ThryvOn Vs. Conventional

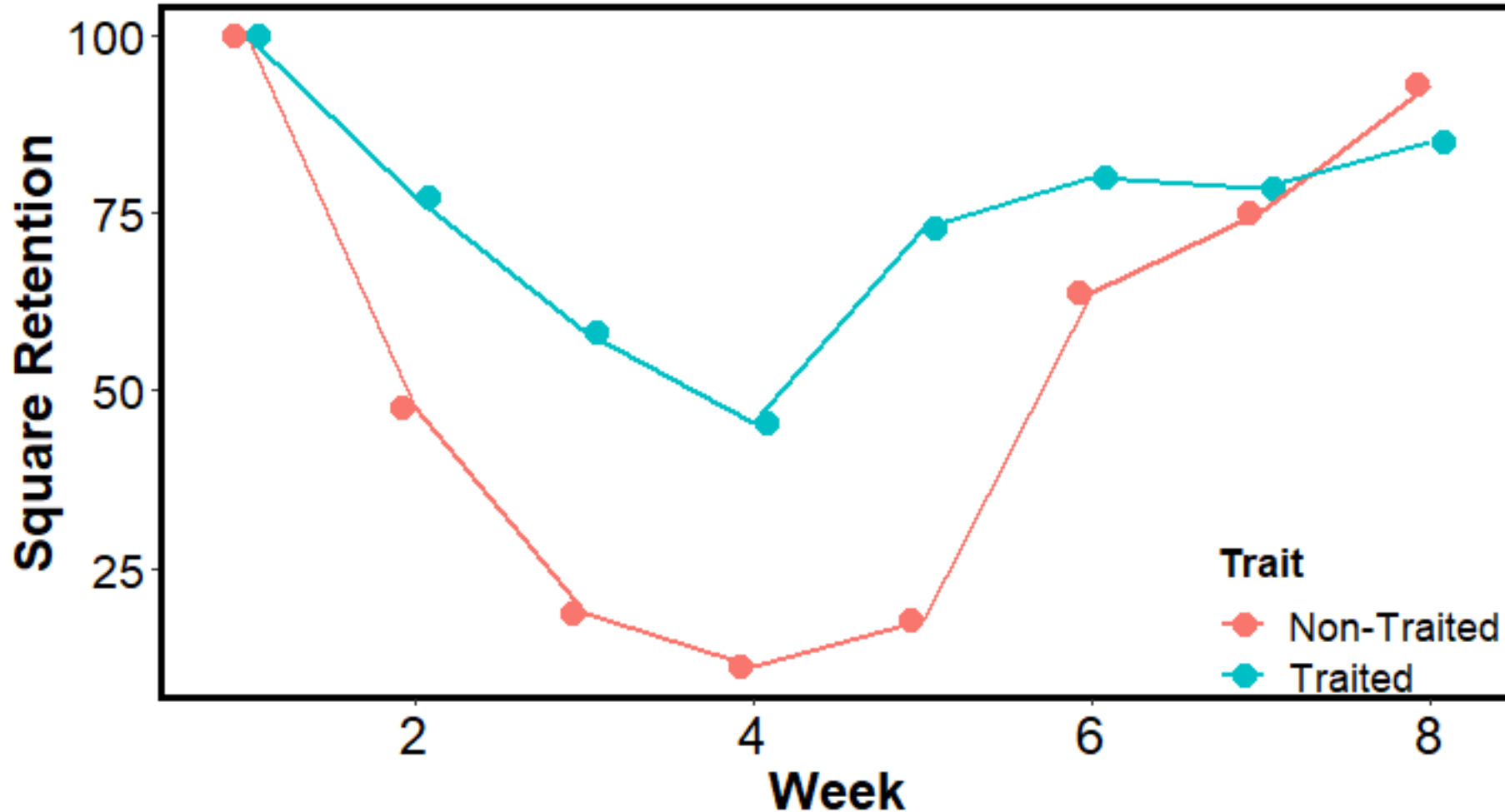








# High Pressure – Migrating Adults





# Untreated Conventional





# Conventional – 3 post bloom apps





# Untreated Thryvon







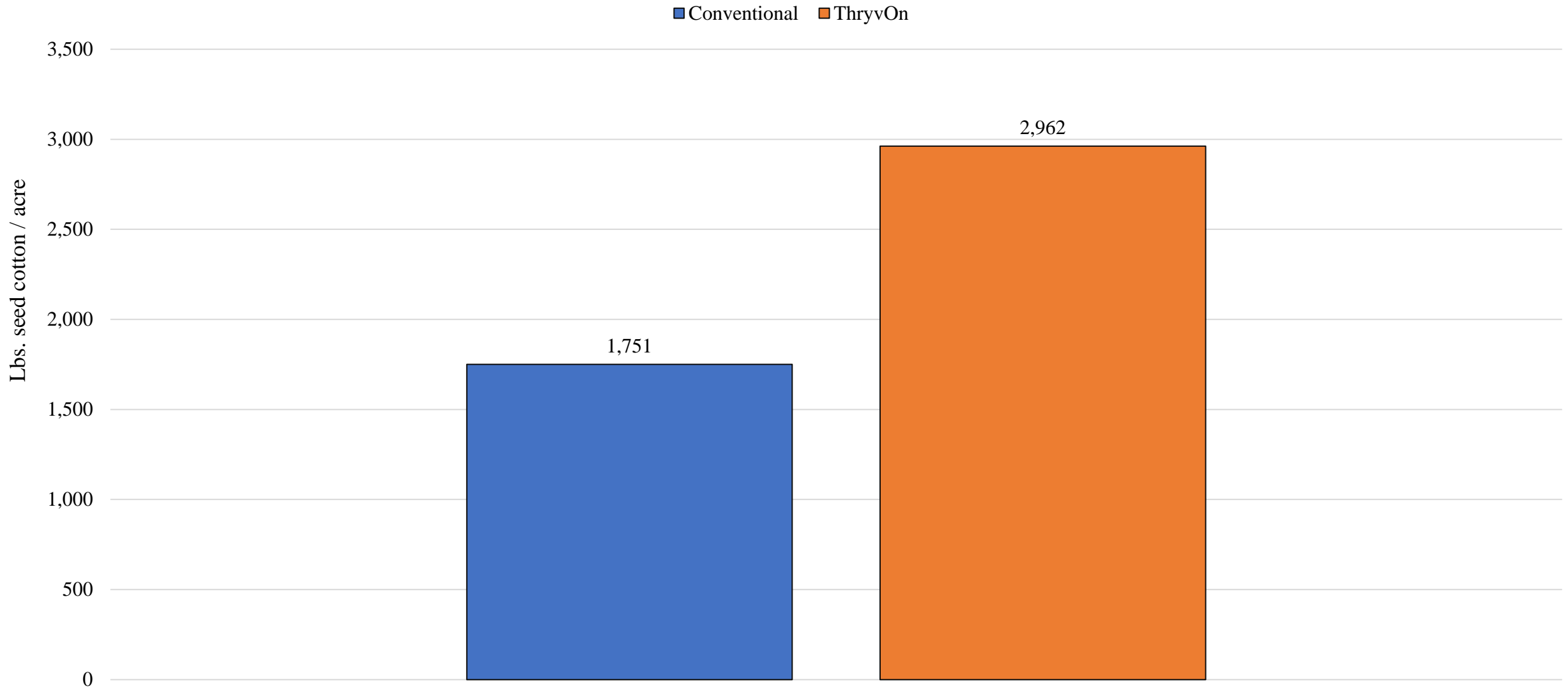
Glendora, MS- Planting Date- 5/13/2020  
Picture Taken- 11/4/2020



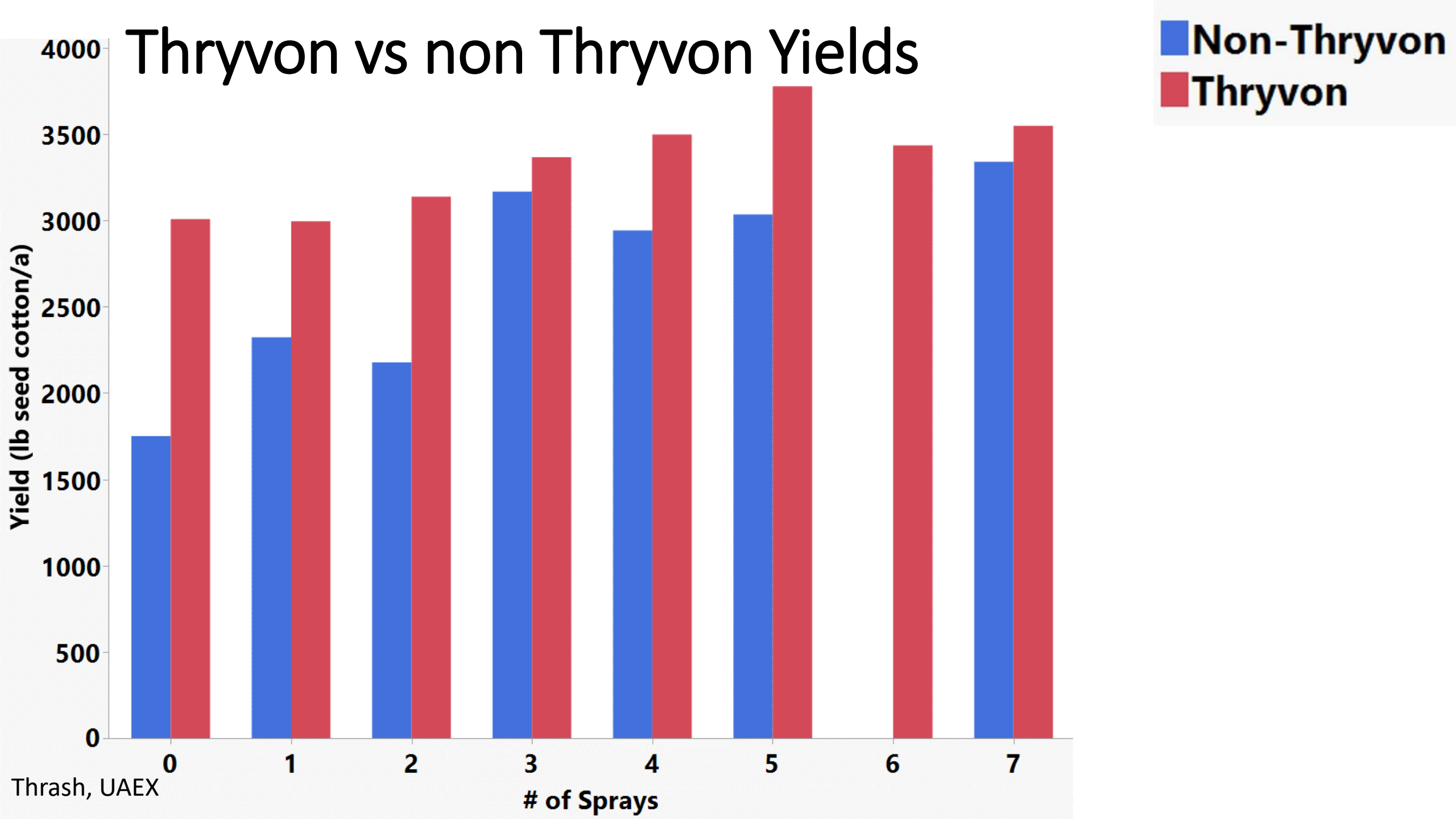
# Yield – Variety Testing (Mississippi)

Variety	Lint Yield†	Lint	Variety	Lint Yield†	Lint
	(lb/acre)	(%)		(lb/acre)	(%)
21R4139B3TXF	1183 *	0.41	21R4135B3TXF	968	0.40
21R4123B3TXF	1140*	0.40	21R4125B3TXF	960	0.41
21R4140B3TXF	1125*	0.41	21R4334B3TXF	938	0.42
DP 1845 B3XF	1073*	0.41	21R4232B3TXF	937	0.41
DP 2020 B3XF	1041	0.40	DP 2115 B3XF	927	0.42
21R4332B3TXF	1040	0.40	DP 1646 B2XF	904	0.41
21R4533B3TXF	1031	0.41	21R4136B3TXF	891	0.41
21R4145B3TXF	1019	0.40	21R4116B3TXF	875	0.41
21R4229B3TXF	1016	0.40	21R4152B3TXF	842	0.40
21R4233B3TXF	991	0.41	21R4130B3TXF	839	0.41
21R4632B3TXF	990	0.41	21R4535B3TXF	802	0.40
21R4117B3TXF	985	0.41	21R4238B3TXF	798	0.41
Overall Mean	971	0.41	Overall Mean	971	0.41
LSD(0.05)	132.7	0.01	LSD(0.05)	132.7	0.01
C.V. (%)	13.1	3.1	C.V. (%)	13.1	3.1

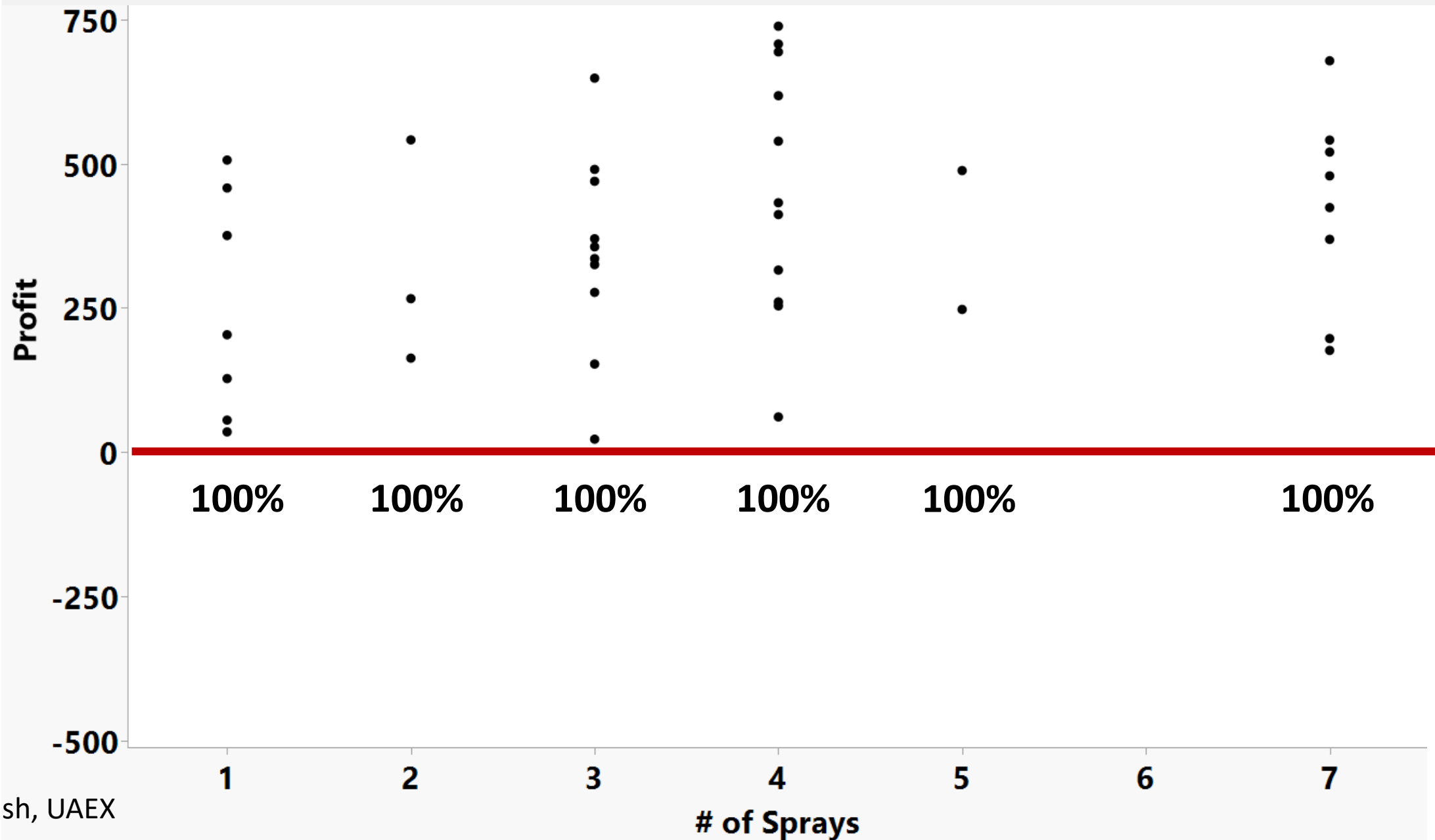
# Season-long Unsprayed Cotton Yield (Arkansas) Conventional Vs. ThryvOn



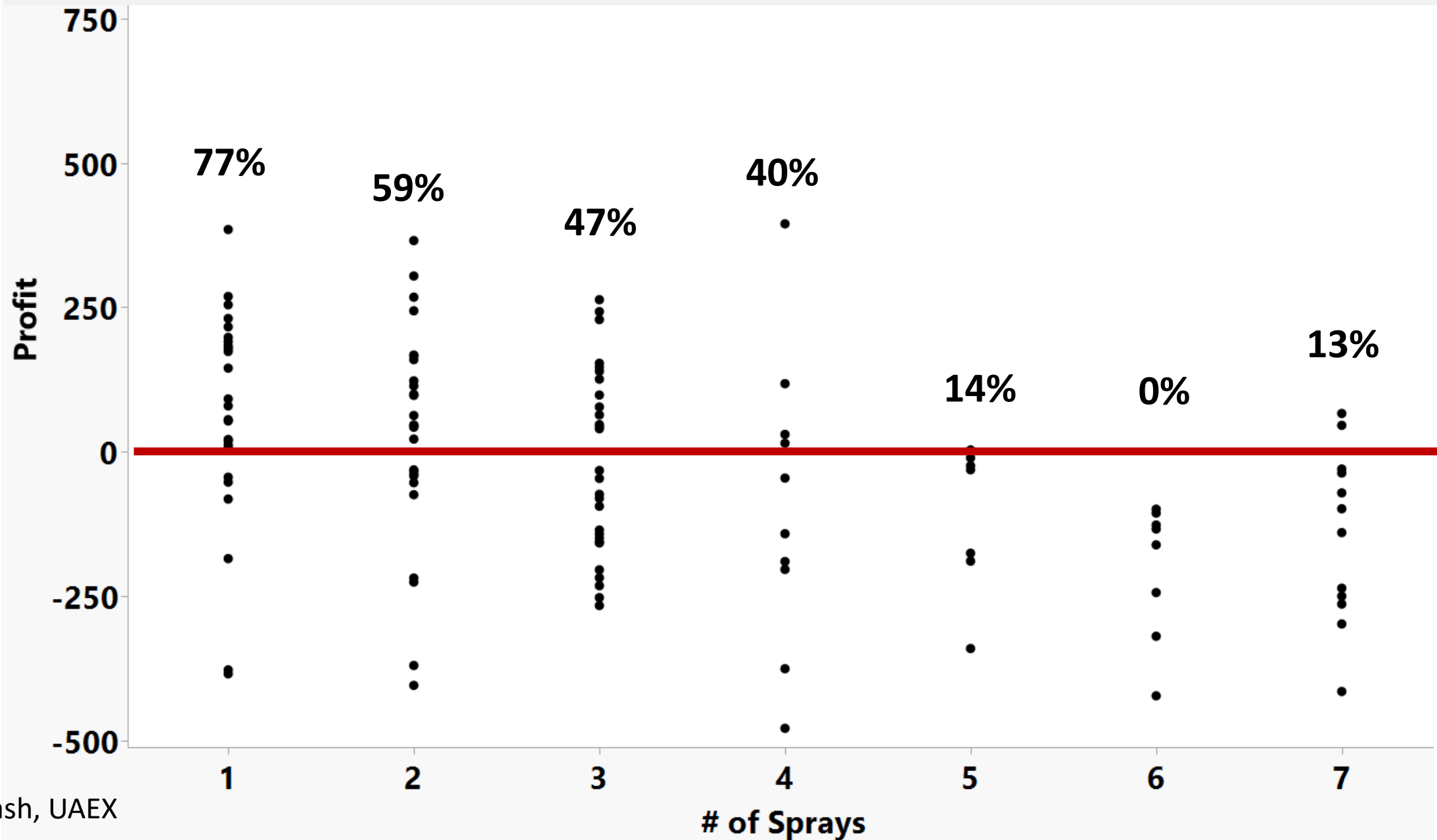
# Thryvon vs non Thryvon Yields



# Plots that Profited from Spraying Non-Thryvon



# Plots that Profited from Spraying Thryvon







# Things to Consider

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- Introduction of ThryvOn
  - No thrips applications
  - Less sprays = less spider mite flaring
  - Less plant bug sprays = higher stink bug populations?
- In TPB: seems to be avoidance, not mortality
  - Activity tends to affect nymphs, not adults

# Research Conclusions

- Thrips
  - Reduced need for insecticide seed treatments for thrips
  - No foliar applications made for thrips control in ThryvOn
- Plant bugs
  - Square retention is increased in ThryvOn cotton compared to conventional varieties
  - TPB populations build much slower in this technology
  - Follow Louisiana's TPB threshold
- No apparent yield drag with this technology

# Take Home Messages

For this product to save you money:

- No foliar thrips treatments
- No additional seed treatments for thrips
- ThryvOn isn't bulletproof - Scout
- Do not cheat thresholds – You will not see that spray reduction