2021 ThryvOn™ Technology Update

Tim Dabbert

ThryvOn™ Technology has received full approval for planting in the United States but, as of the date this material was published, is pending approval in certain export markets. Specific plans for commercialization depend upon regulatory approvals and other factors.

What will ThryvOn™ Technology be able to provide Growers?

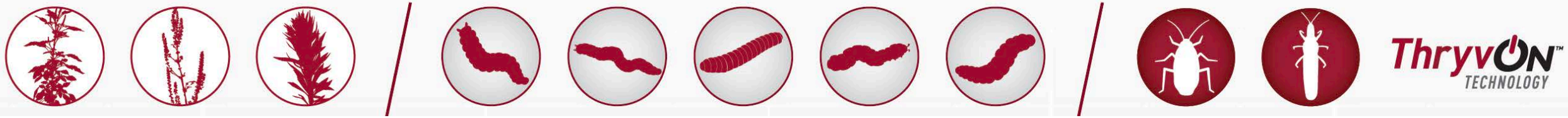
ThryvOn™ Technology will be the **industry's first cotton biotechnology trait to provide protection** against tarnished plant bugs and thrips species.*

Its simple, **built-in technology will help protect cotton and may reduce insecticide applications** for tarnished plant bugs and thrips species*, providing more management flexibility.

More options against tough-to-control and resistant weeds like Palmer amaranth, waterhemp and marestail, with **tolerance to three herbicides: glyphosate, dicamba and glufosinate**.

ThryvOn™ TECHNOLOGY | Bollgard 3 ThryvOn™ With XTENDFLEX® TECHNOLOGY

Expected soon!



*ThryvOn™ Technology may help reduce insecticide applications for tarnished plant bugs and thrips species (tobacco thrips (*Frankliniella fusca*); Western flower thrips (*Frankliniella occidentalis*); tarnished plant bug (*Lygus* lineolaris); and the Western Tarnished Plant bug (*Lygus Hesperus*)). Scouting is critical to determine which and how many insecticide applications are recommended to avoid economic losses greater than the pest management costs (i.e., when economic thresholds are met).

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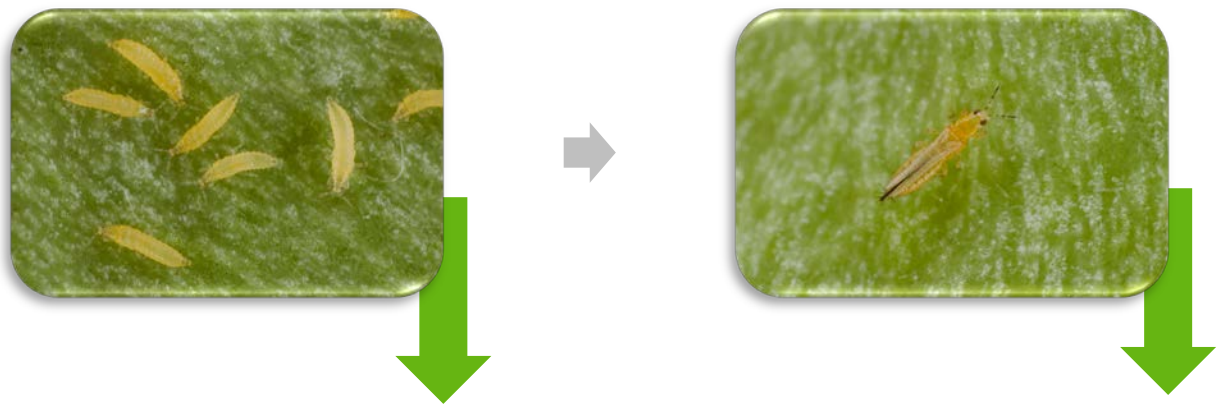
How It Works

- ThryvOn™ Technology protects young cotton against thrips species:
  - tobacco thrips (*Frankiella fusca*) mainly through oviposition reduction
  - western flower thrips (*Frankliniella occidentalis*) through larval mortality and oviposition reduction
  - Huseth et al., 2019[1]



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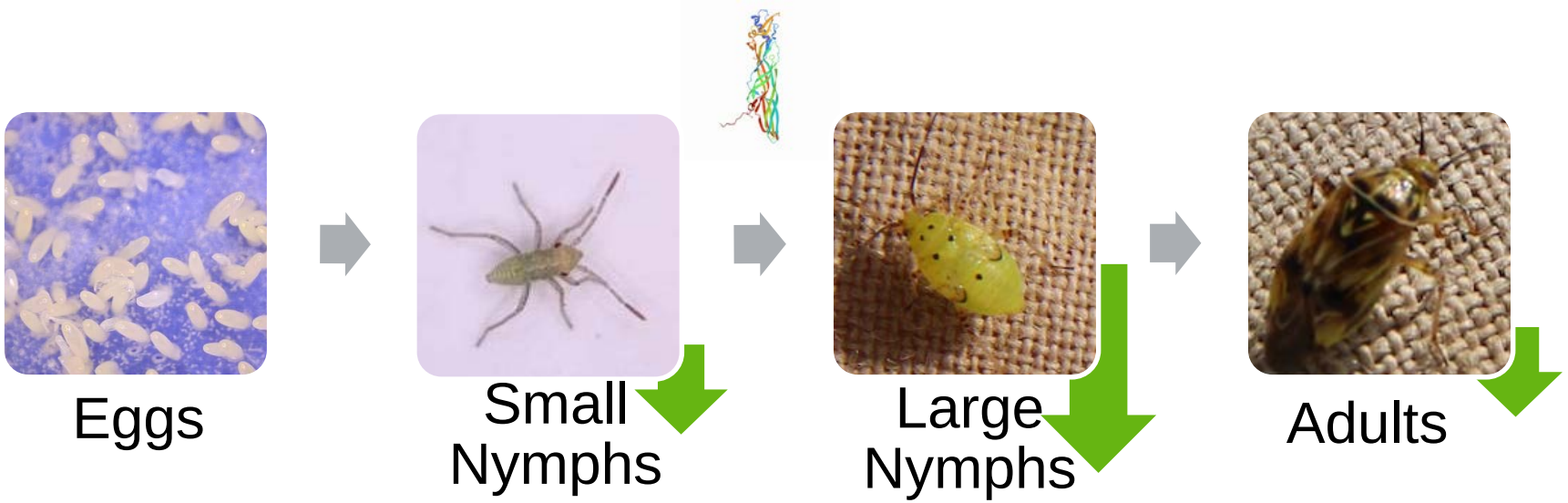
[1] Huseth, Anders & D'Ambrosio, Damon & Yorke, Benjamin & Head, Graham & Kennedy, George. (2019). Novel mechanism of thrips suppression by Cry51Aa2.834_16 Bt toxin expressed in cotton. Pest Management Science. 76. 10.1002/ps.5664.

How It Works

- ThryvOn™ Technology protects squaring and flowering cotton plants
  - B.t. protein in ThryvOn™ Technology causes mortality to small nymphs, although not 100%
  - See subsequent reduction in large nymphs and adults as populations cycle
  - Gowda et al., 2016[1] and Bauchman et al., 2017[2]



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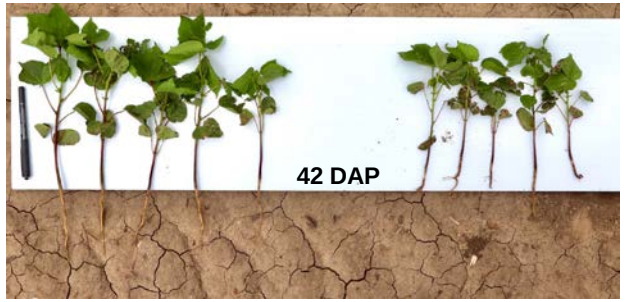
[1] Bachman, Pamela & Ahmad, Aqeel & Ahrens, Jeffrey & Akbar, Waseem & Baum, James & Brown, Scott & Clark, Thomas & Fridley, Jennifer & Gowda, Anilkumar & Greenplate, John & Jensen, Peter & Mueller, Geoffrey & Odegaard, Matthew & Tan, Jianguo & Uffman, Joshua & Levine, Steven. (2017). Characterization of the Activity Spectrum of MON 88702 and the Plant-Incorporated Protectant Cry51Aa2.834_16. PLoS ONE. 12. e0169409. 10.1371/journal.pone.0169409.

[2] Gowda, Anilkumar & Rydel, Timothy & Wollacott, Andrew & Brown, Robert & Akbar, Waseem & Clark, Thomas & Flasinski, Stan & Nageotte, Jeffrey & Read, Andrew & Shi, Xiaohong & Werner, Brent & Pleau, Michael & Baum, James. (2016). A transgenic approach for controlling Lygus in cotton. Nature Communications.

ThryvOn™ TECHNOLOGY | Bollgard 3 ThryvOn™ With XTENDFLEX® TECHNOLOGY

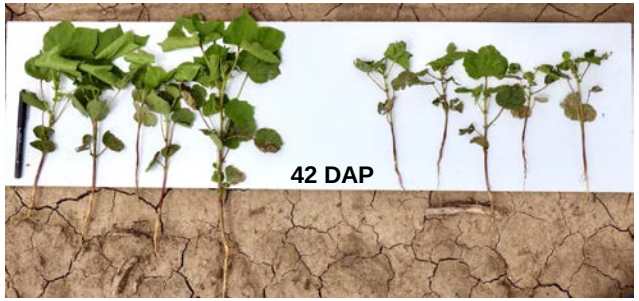
Scott Learning Center Thrips Study

Photo Taken: July 1, 2020 at the Scott Learning Center



Bollgard 3 ThryvOn™ Acceleron Standard

Bollgard II XTENDFLEX® Cotton Acceleron Elite



Bollgard 3 ThryvOn™ Acceleron Standard

Bollgard II XTENDFLEX® Cotton Acceleron Basic

2021 ThryvOn™ Technology Tarnished Plant Bug Evaluations

Planting Date: May 14-15, 2021
Photo Taken: September 27, 2020
Scott Learning Center, Field D1


DP 2055 B3XF – Untreated Check – 0 Lygus Treatments


DP 2131 B3TXF – Untreated Check – 0 Lygus Treatments


DP 2055 B3XF – Threshold - 5 Lygus Treatments


DP 2131 B3TXF –Threshold- 3 Lygus Treatments

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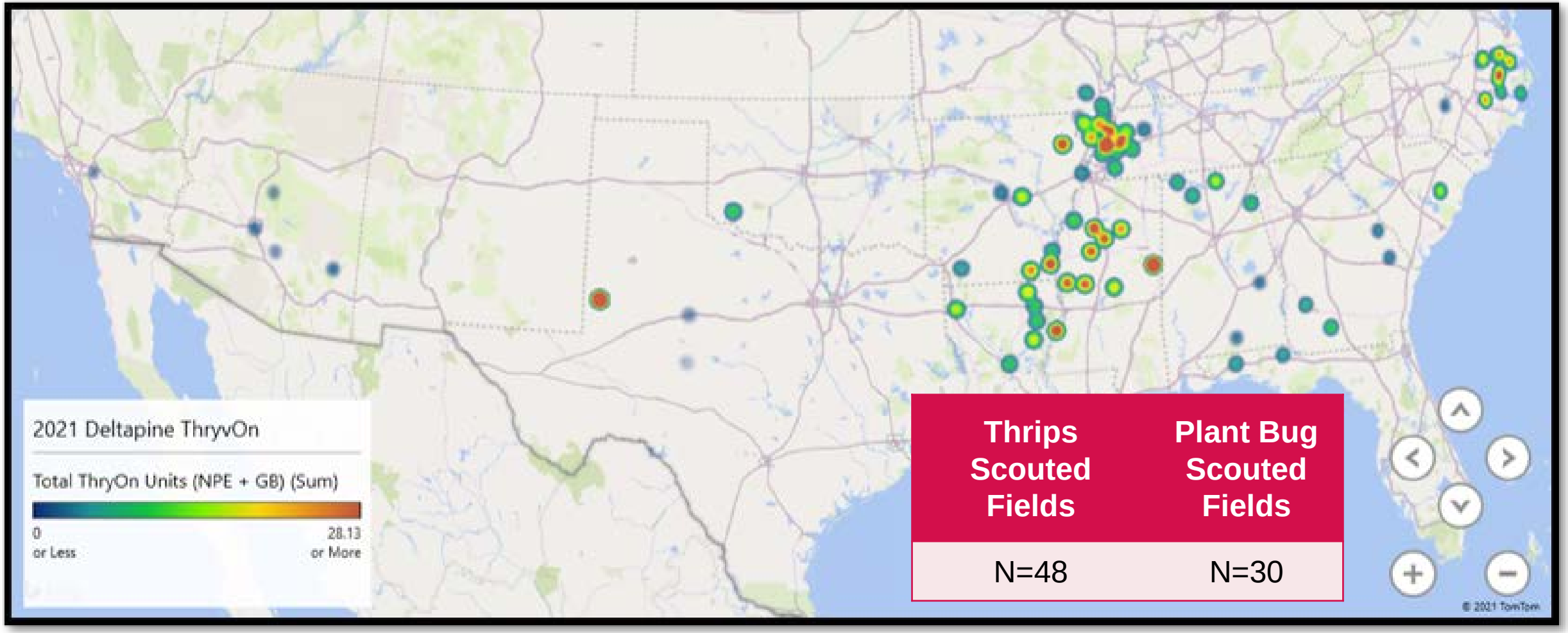
2021 Stewarded ThryvOn™ Ground Breakers® Field Trials Locations

87 Growers representing ~4600 acres



ThryvOn™ Technology may help reduce insecticide applications for tarnished plant bugs and thrips species (tobacco thrips (*Frankliniella fusca*); Western flower thrips (*Frankliniella occidentalis*); tarnished plant bug (*Lygus lineolaris*); and the Western Tarnished Plant bug (*Lygus Hesperus*)). Scouting is critical to determine which and how many insecticide applications are recommended to avoid economic losses greater than the pest management costs (i.e., when economic thresholds are met).

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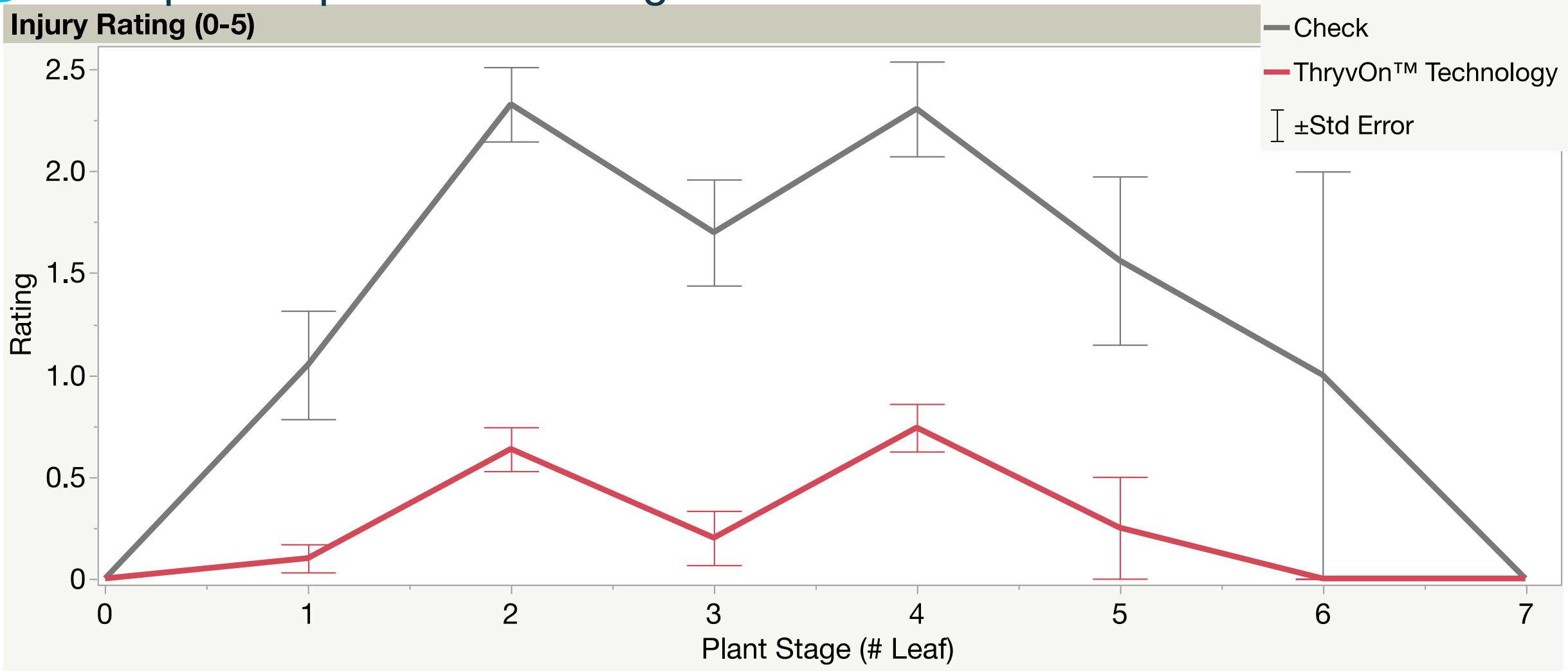
ThryvOn™ Technology reduced plant injury from Thrips compared to the negative check[1]



*48 2021 Ground Breakers® Field Trials in the cotton belt (AL, AR, GA, MO, MS, NC, TN, TX) in a variety of thrips pressure environments vs cotton not containing ThryvOn™ Technology. Thrips counts 0-7 and injury rating of 0-4.75 (0-5 scale). Scouting is critical to determine which and how many insecticide applications are recommended to avoid economic losses greater than the pest management costs (i.e., when economic thresholds are met). Third-party consultants scouting the trial fields determined whether a spray was necessary considering factors such as academic research, thrips counts, and economic thresholds, and were compensated for their services.

ThryvOn™ Technology may help reduce insecticide applications for tarnished plant bugs and thrips species (tobacco thrips (*Frankliniella fusca*); Western flower thrips (*Frankliniella occidentalis*); tarnished plant bug (*Lygus lineolaris*); and the Western Tarnished Plant bug (*Lygus Hesperus*)). Scouting is critical to determine which and how many insecticide applications are recommended to avoid economic losses greater than the pest management costs (i.e., when economic thresholds are met).

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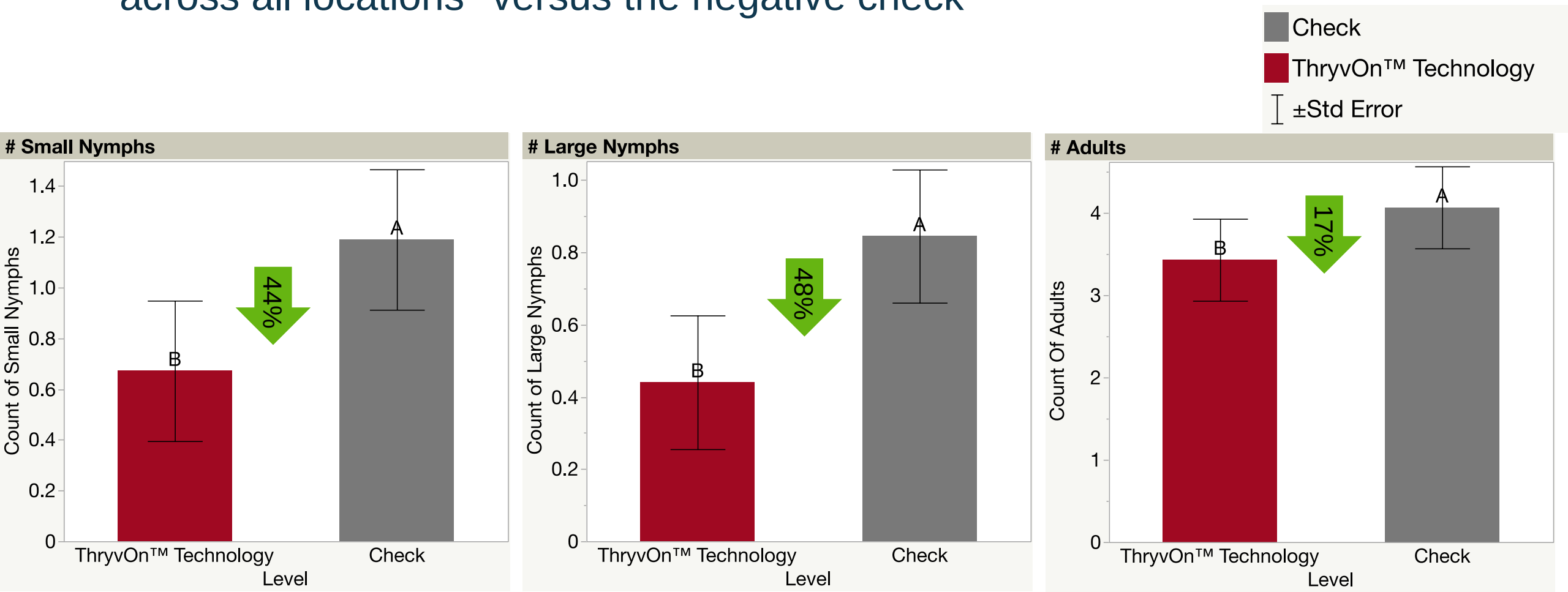
[1]Negative check was closest planted variety that did not contain ThryvOn™ Technology

ThryvOn™ Technology provided a statistically significant reduction in season average Tarnished Plant Bug counts throughout the season across all locations* versus the negative check[1]



*30 2021 Ground Breakers® Field Trials in the cotton belt (AL, AR, GA, MO, MS, NC, TN, TX) across low to high tarnished plant bug pressure environments vs cotton not containing ThryvOn™ Technology. Scouting is critical to determine which and how many insecticide applications are recommended to avoid economic losses greater than the pest management costs (i.e., when economic thresholds are met). Third-party consultants scouting the trial fields determined whether a spray was necessary considering factors such as academic research, thrips counts, and economic thresholds, and were compensated for their services. Field pressure determined by the maximum number of tarnished plant bug insects counted compared to the economic threshold during routine scouting of fields during trials' growing season. Low pressure = maximum insect counts never met the economic threshold; Moderate pressure = maximum insect counts were above economic threshold but below 3x the economic threshold; High pressure = maximum insect counts were above 3x the economic threshold.

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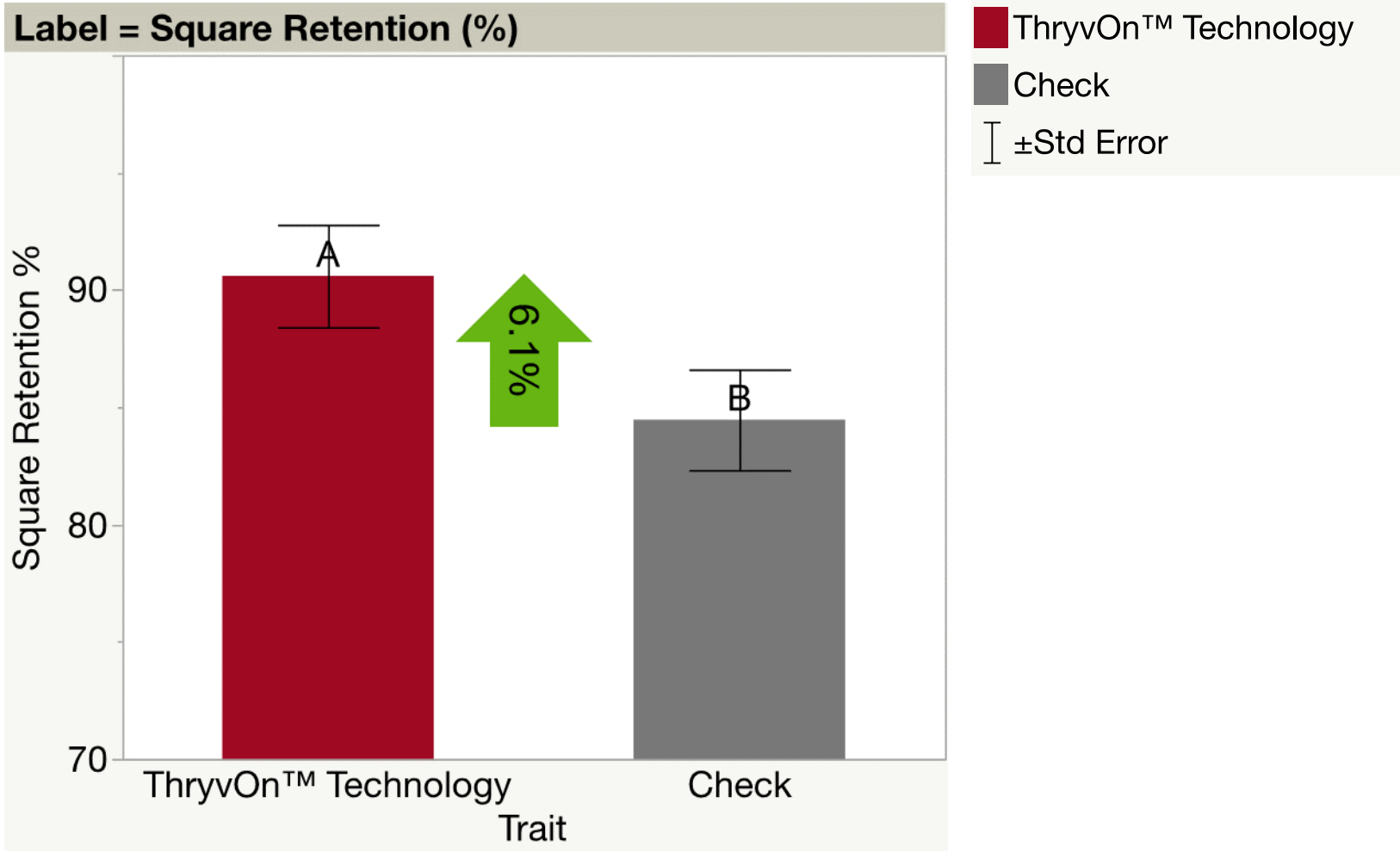
ThryvOn™ Technology provided a statistically significant increase in square retention percentage across locations* compared to the negative check



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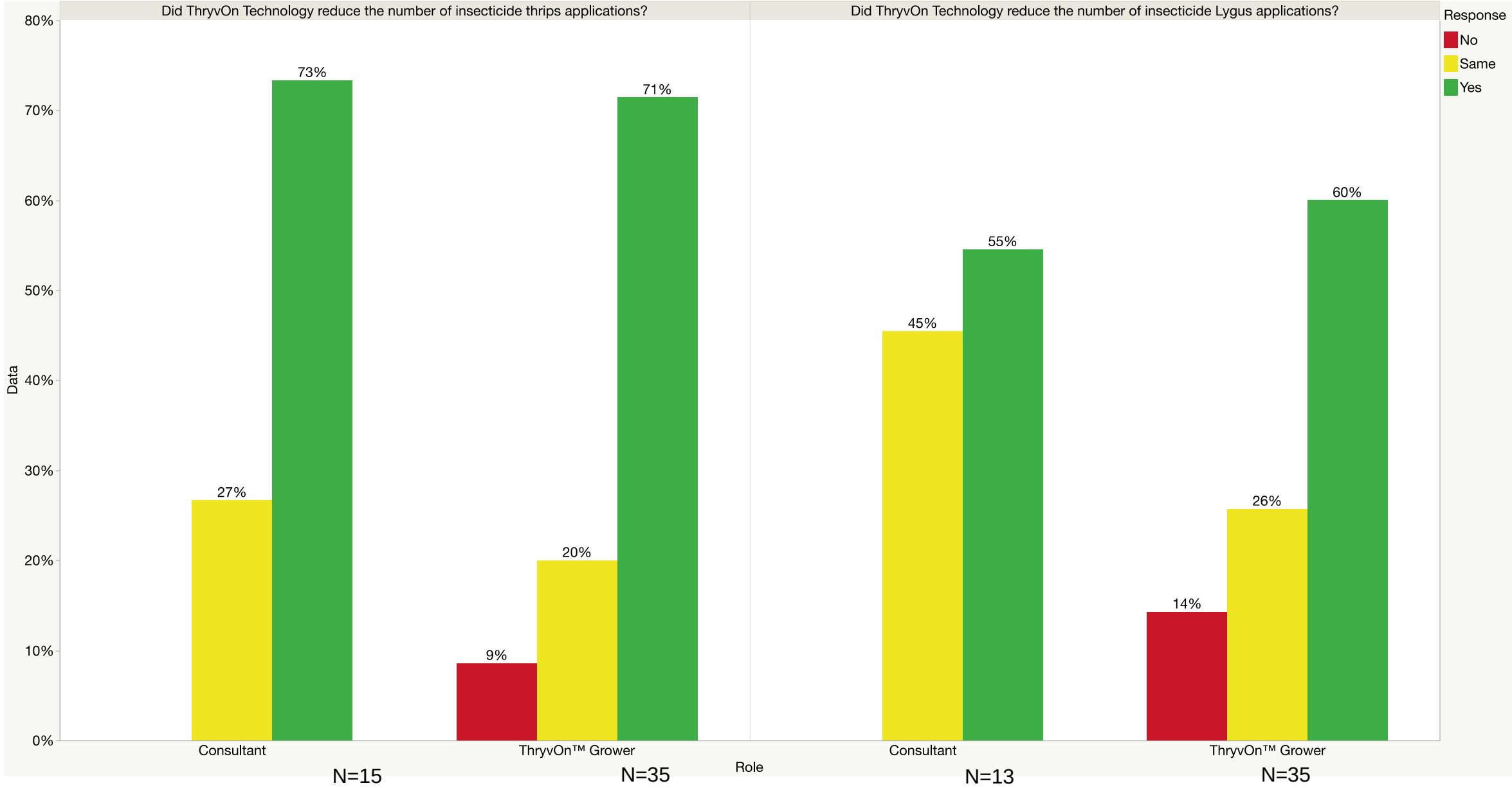
Grower and Consultant Qualitative Feedback



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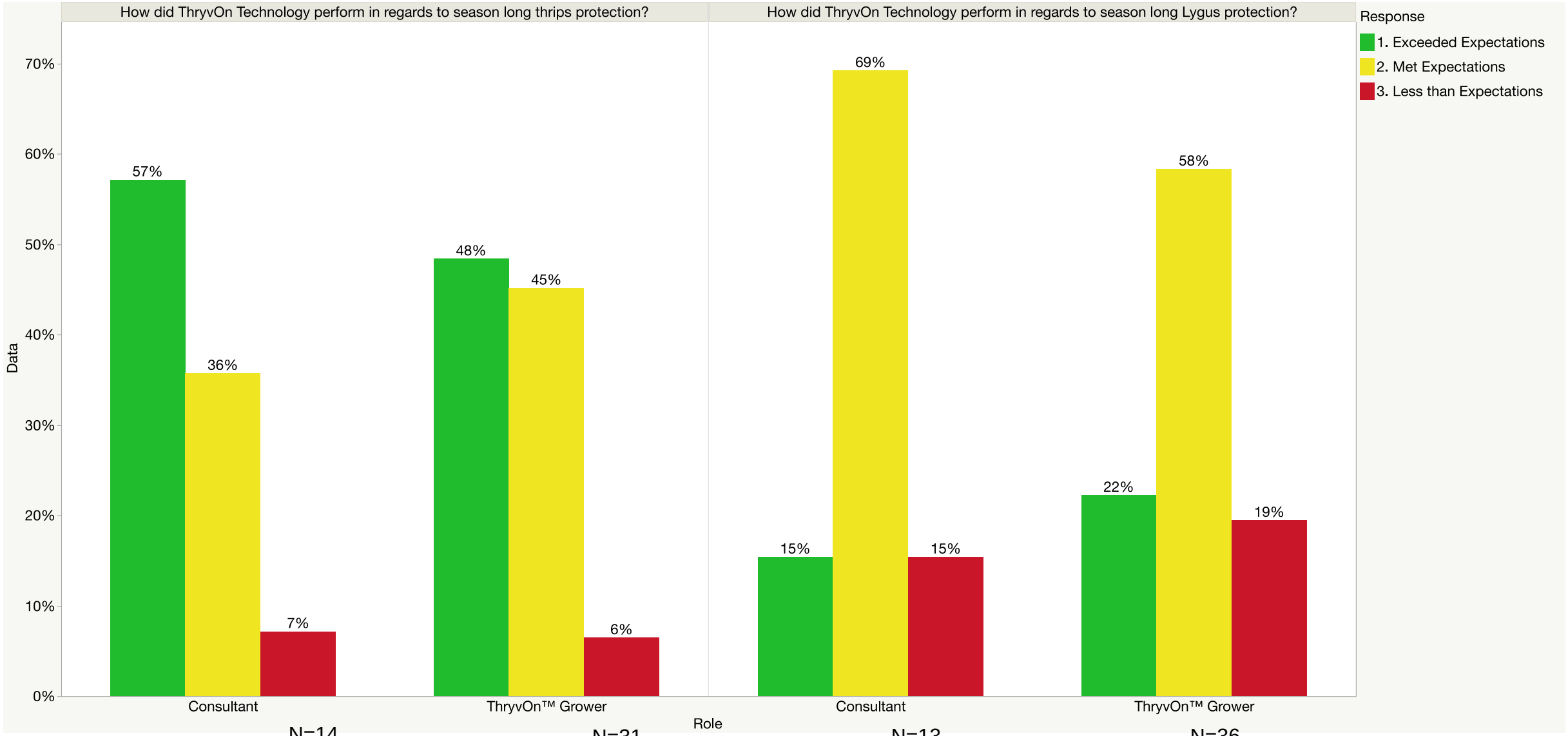

Regulatory Approvals

Submission	Export Markets
ThryvON™ TECHNOLOGY	✓
Bollgard 3 ThryvON™ With XTENDFLEX TECHNOLOGY	Pending

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2022 Pricing Overview

2022 Ground Breakers Pricing	
Product	DP 2131 B3TXF + Potential Advanced NPE Varieties
Seed Treatment	Acceleron Standard
Estimated Value	Bollgard 3 ThryvON™ With XTENDFLEX TECHNOLOGY
Innovator Incentive	(Less) ThryvON™ TECHNOLOGY
Your Price	Bollgard 3 XTENDFLEX COTTON

NPE Pricing	
Your Price	Standard Pricing/Handling Fee

North American Traits Pipeline

USA

EARLY THIS DECADE

SmartStax PRO with RNAi Technology

Launch: 2022
SmartStax® Technology + RNAi Technology for CRW Control

ThryvOn™ Technology*

Launch: TBD
Protection against tarnished plant bug & thrips species**

Smart Corn System (Breeding Trait)*

Launch: 2023
Improved plant stability & opportunity to optimize inputs, densities & placement

MID THIS DECADE

CRW4*

2 New Bt proteins + RNAi Technology for CRW Control

Smart Corn System (Biotech Trait)*

HT4 CORN*

5 Herbicide Tolerances: Glyphosate, Glufosinate, Dicamba, FOPS, 2,4-D

HT4 SOY*

5 Herbicide Tolerances: Glyphosate, Glufosinate, Dicamba, HPPD, 2,4-D

LATE THIS DECADE

Bollgard® 4 / HT4 / ThryvOn™ Technology*

Multiple MOA against key LEP pests
Glyphosate, Dicamba, Glufosinate + at least one additional MOA

HT5 CORN*

6 Herbicide Tolerances: HT4 + PPO

HT5 SOY*

6 Herbicide Tolerances: HT4 + PPO

EARLY 2030

LEP5*

5th Generation Lepidoptera Protection

Next Gen Insect Tolerance
New production system
Next Gen Herbicide Tolerance

*This product is not currently available for commercial sale or commercial planting. Commercialization is dependent on multiple factors, including successful conclusion of the regulatory process. The information presented herein is provided for educational purposes only, and is not and shall not be construed as an offer to sell.

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SmartStax® PRO corn products will be commercially available for the 2022 growing season.