

2024 Row Crop Disease Update

“Bob, do you have anything new for me, or are you just going to waste my time?”

Chris Goodman, Tift County



Row Crop Diseases & Nematodes



Robert C. Kemerait, Jr. PhD
Professor and Extension Specialist
Department of Plant Pathology, UGA CAES

Twitter

“bob kemerait”

**Santa Rosa County
30 January 2024**



Twitter

Bob Kemerait @bobkemerait · 4/12/23

Corn affected by stubby root nematodes in southwest Georgia. No nematicide applied. When the furrow closed, tactics to battle those nematodes ended. Growers get one chance. UGA Extension

10 43 5K

Bob Kemerait @bobkemerait · 4/13/23

My buddy and weed scientist Dr Eric Prostko has been called to look at beaucoup yellowed, stunted corn in south GA already this season. Much of the time it ends up having nothing to do with herbicide injury and everything to do with stubby-root nematodes. Don't forget nematodes!

Number of nematodes recovered per 10				
	Spiral	Stubby	Dagger	Reniform
t	*	30	*	*
	*	70	*	*
	310	180	*	*
	170	550	*	*

4 10 24 2.2K

Fear Monger?

THE WORLD NEWS

Since 1883

YOUR NUMBER ONE SOURCE FOR HEADLINES

\$1.05

THE SKY IS FALLING!

...IDENT DECLARES

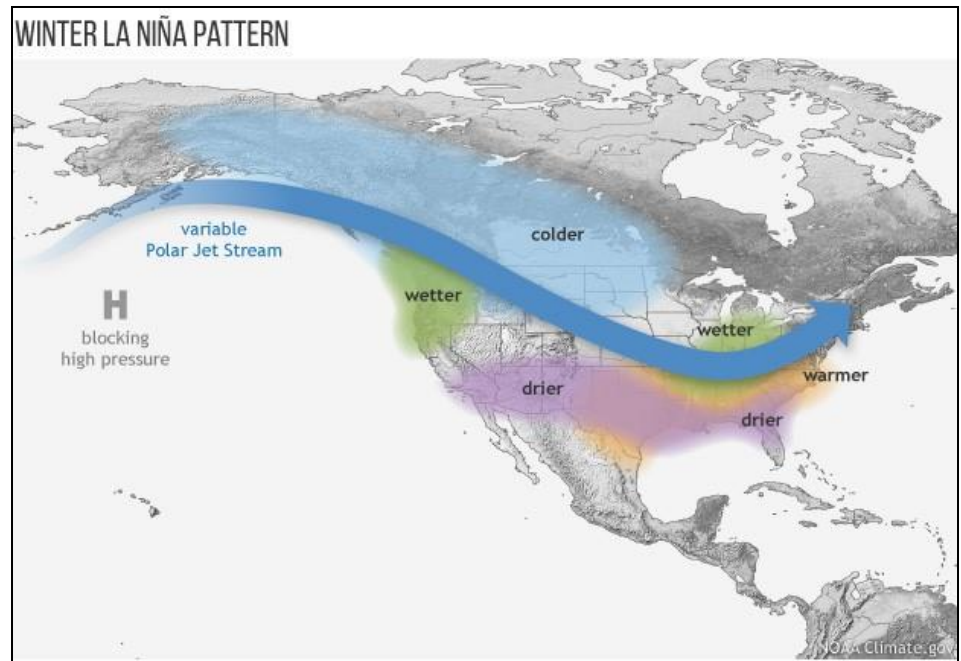
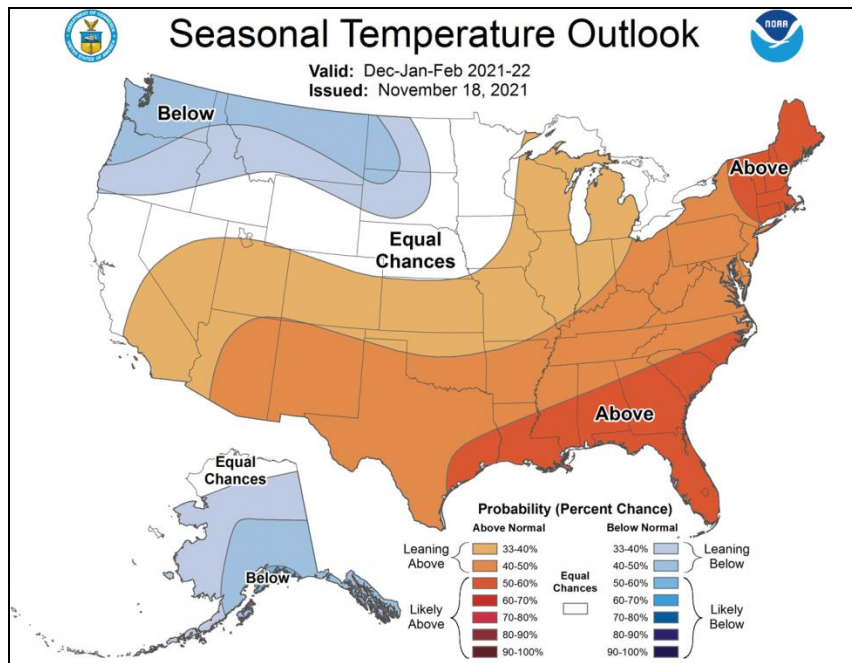
RELIGIOUS LEADERS
URGE ALL TO LOOK UP

CHICKEN LITTLE
NOWHERE TO BE FOUND

Winters

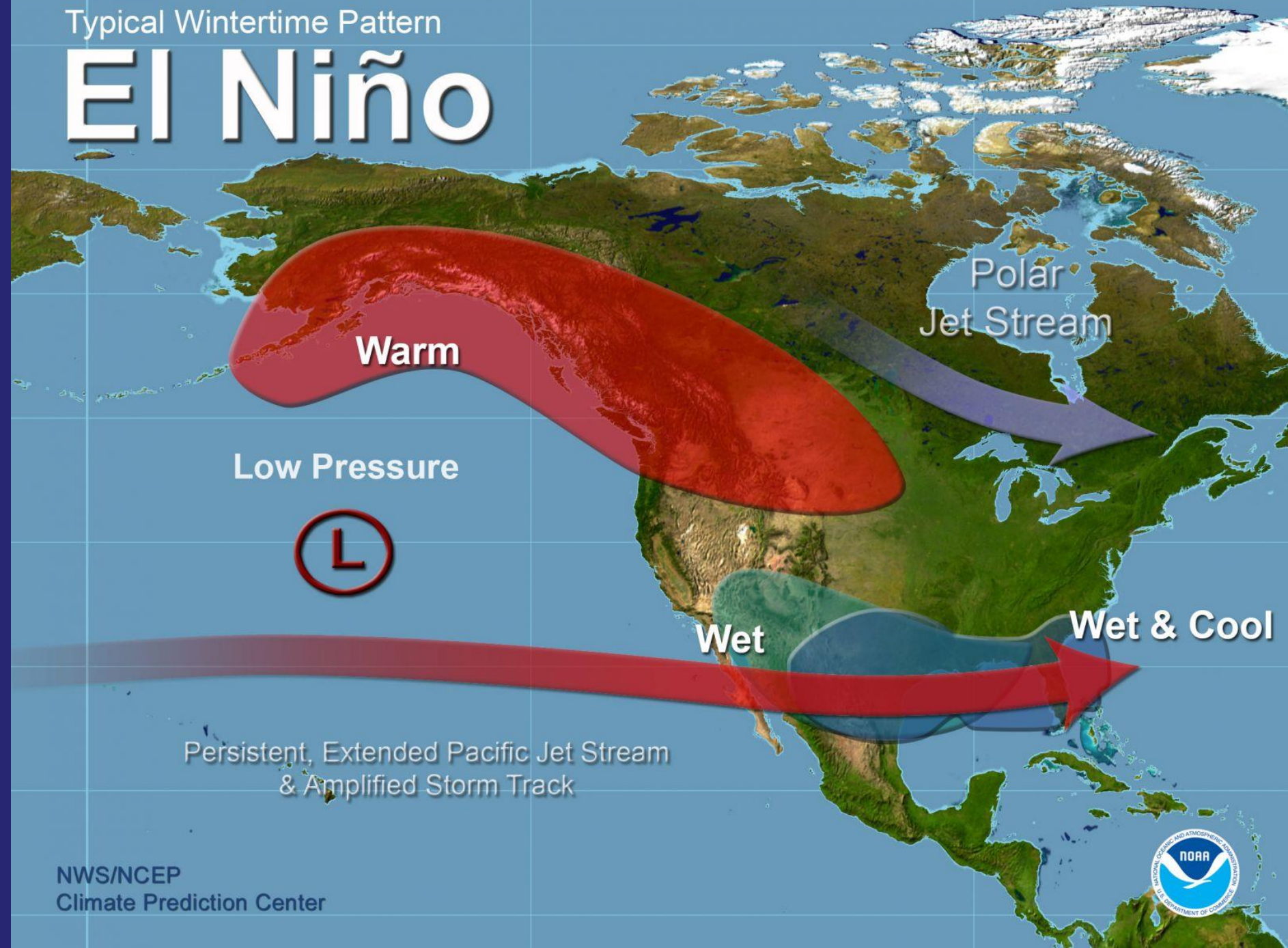
2020-2021 2021-2022 2022-2023

La Niña

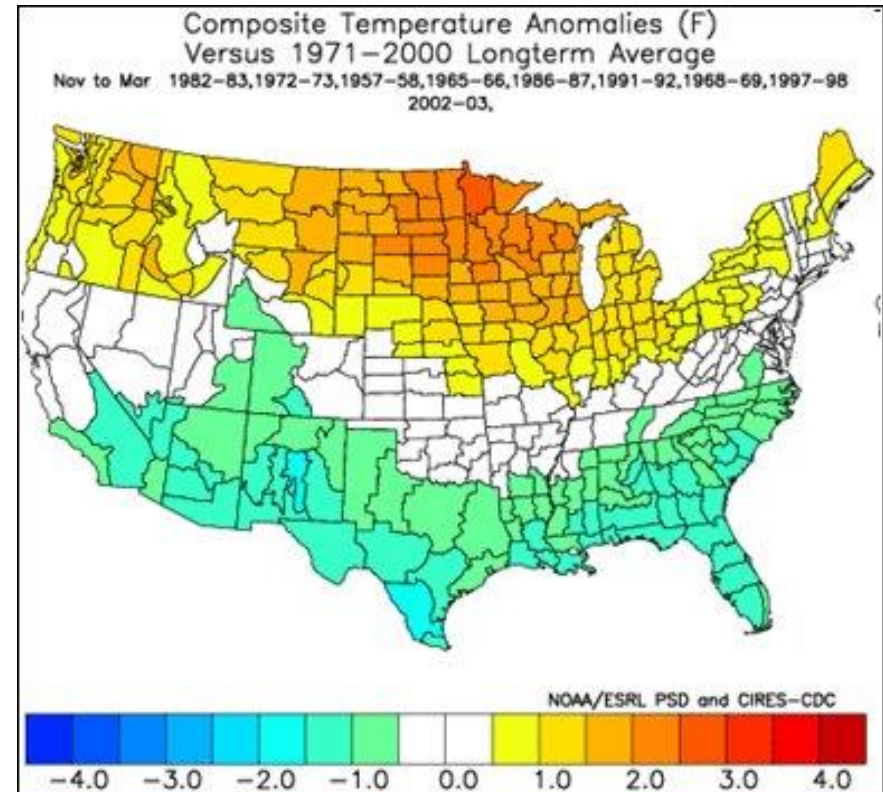
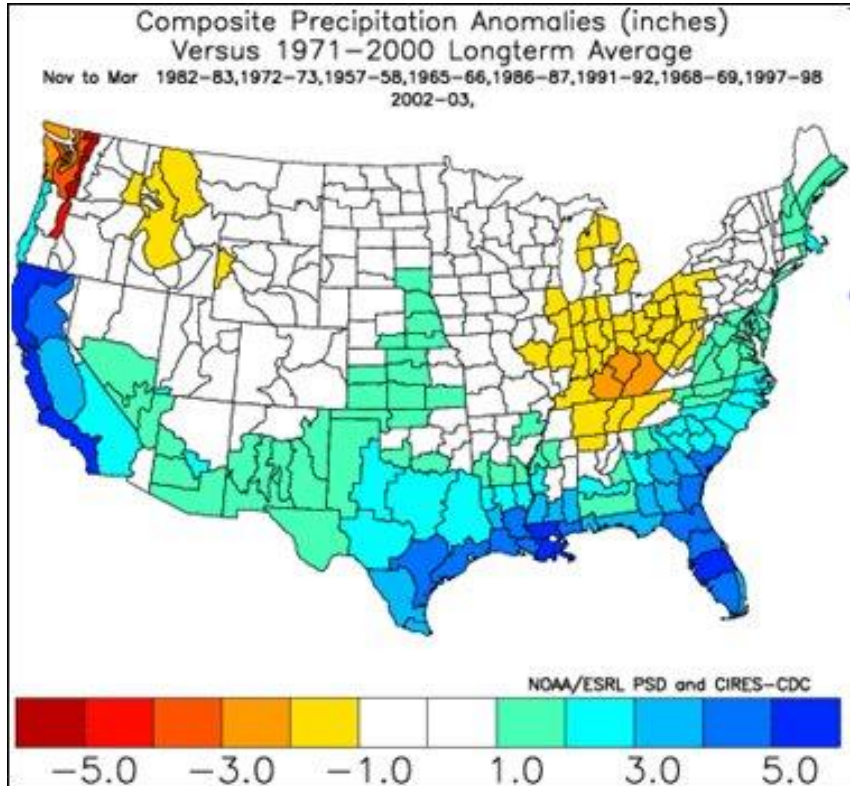


Typical Wintertime Pattern

El Niño



Winter 2023-2024 El Niño



Considerations for El Niño 2023-24

- Impact of El Niño in the Southeastern USA.
- Winter should be cooler and wetter than normal.
- Impact of cooler temperatures on nematodes?
- Impact of cooler temperatures on rust diseases?
- WETTER WINTER CONDITIONS
 - Better degradation of crop debris?
 - Impact on thrips and Tomato Spotted Wilt
 - Diseases (especailly Aspergillus crown rot)



Pathogens overwinter in peanut debris



- Late leaf spot
- Early leaf spot
- CBR
- White mold (maybe)

4 Threats for 2024

1. Tomato Spotted
Wilt

2. Seedling
disease

3. Nematodes

4. Leaf spot and
white mold



Late Leaf Spot



Leaf Spot Problems Are Not New

- **A late start on a fungicide program.**
- **Getting behind on a fungicide program.**
- **Using the wrong product at the wrong time.**
- **What about NOW?**

Why White Mold in 2023?



2023 – An EPIC white mold year! (especially dryland fields)



Why White Mold in 2023?



- Early season moisture initially very good growing conditions.
- Hot soil temperatures mid-season fueled white mold.
- Sparse rainfall prevented movement of fungicide to crown.
- Desire to use lowest rates of good fungicides.

Getting the most from a soilborne fungicide



Tim Brenneman





Does night spraying work?

YES!

07/10/2009

Why do night sprays work better?



1. Get more and larger droplets deeper into the canopy
2. Fungicides last longer in shaded part of canopy
3. Redistribution by spraying wet foliage in morning (vs evening w/ dry, folded leaves)



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Things you get one chance at:

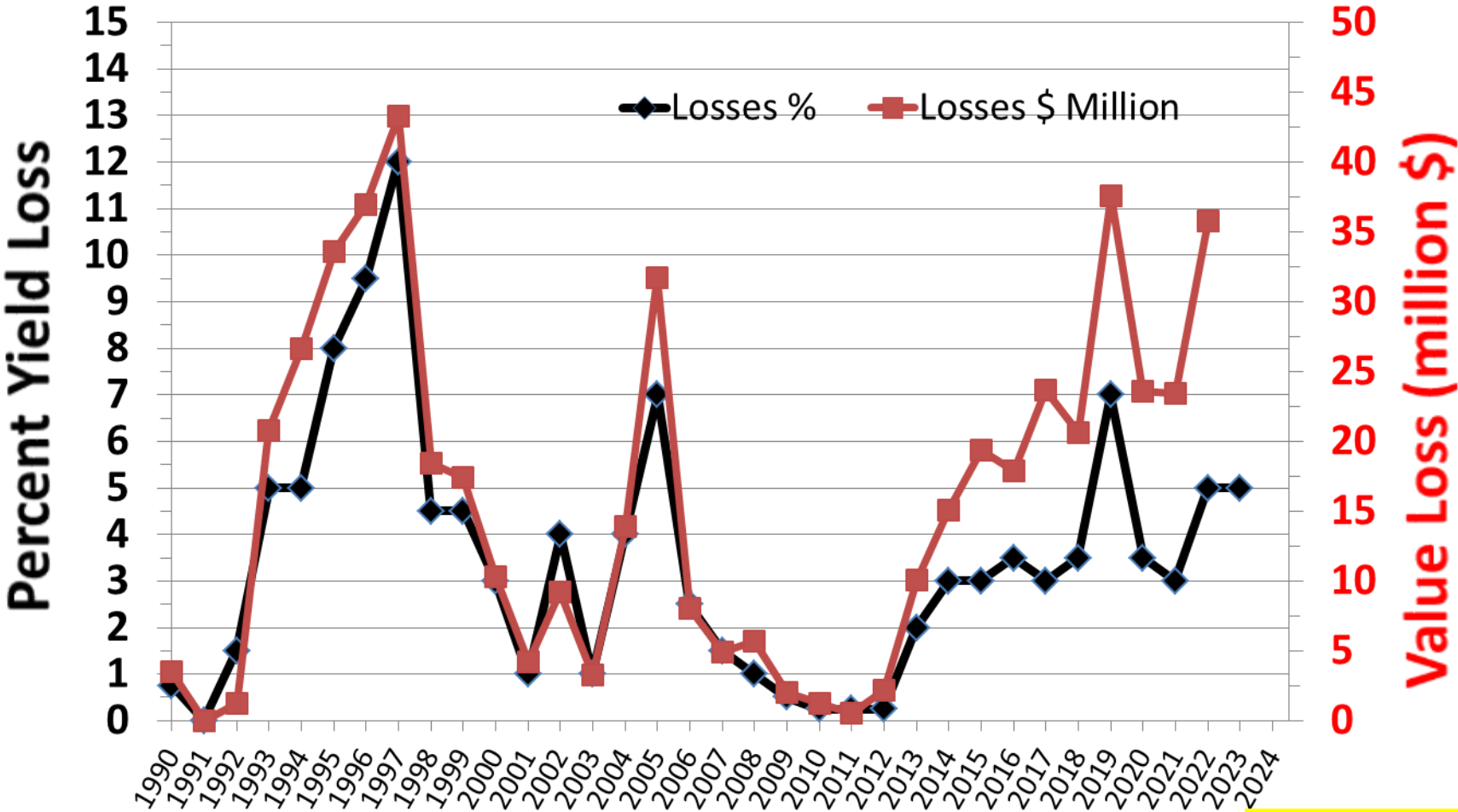
- Tomato spotted wilt in peanuts.
- Nematode control in all crops. (I know, pegging time in peanuts too...)
- Fusarium wilt in cotton.
- Seedling diseases, especially in cotton and peanuts.
- Bacterial blight in cotton.
- Starting a fungicide program on all crops.



Tomato Spotted Wilt: Tough again in 2023



Losses to Tomato Spotted Wilt in Peanut in Georgia 1990-2023



The logo for PEANUT Rx features the word "PEANUT" in a bold, dark brown, sans-serif font, followed by "Rx" in a bold, yellow, sans-serif font. The text is centered within a yellow rectangular border. Above and below the text are two stylized, wavy yellow shapes that resemble peanut shells, each containing three small, light-colored spots.

PEANUT Rx

www.peanutrx.org



www.peanutrx.org

Mail - ROBERT C Kemerait - Outl... x | 17 Google Calendar - Week of Marc... x | georgia peanut acreage 2021 - G... x | 2021 Peanut Rx Interactive Analy... x

peanutrx.org/index.html

PEANUT Rx Get your risk! Analysis Diseases Resources About Install

Plant Population (final stand)
Less than 3 plants/ft

At-plant Insecticide
None

Row Pattern
Single rows

Tillage
Conventional

Classic® Herbicide
Classic® applied

Crop Rotation
0

Disease a Problem?
No

Irrigation
No

Variety	Spotted Wilt	Leaf Spot	White mold	Root-knot Nematode Resistance
AU NPL 17	10	15	15	Susceptible
Bailey	10	25	10	Susceptible
Florida Fancy	25	20	20	Susceptible
FloRun™ '331	15	20	15	Susceptible
Georgia-06G	10	20	20	Susceptible
Georgia-07W	10	20	15	Susceptible
Georgia-09B	20	25	25	Susceptible
Georgia-12Y	5	15	10	Susceptible
Georgia-14N	10	15	15	Resistant
Georgia-16HO	10	25	20	Susceptible
Georgia 18RU	10	25	20	Susceptible
Georgia Green	30	20	25	Susceptible
Sullivan	10	25	15	Susceptible
Tifguard	10	15	15	Resistant
TifNV-High OL	5	15	15	Resistant
TUFRunner™ '297'	10	25	20	Susceptible

8:48 PM 1/17/2022

Peanut Rx updated for 2024



- Variety update
 - Adjust some point values
 - Add some new varieties
- Classic herbicide update from Dr. Prostko

GA-12Y vs GA-06G for Stem Rot

(2015, T. Brenneman)



Georgia -06G Rep 1



**Thimet 5 lb/A
In-furrow**

NONTREATED

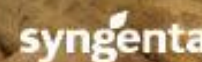
Disease Risk Fungicide Schedules



DAYS AFTER PLANTING	30 DAYS	45 DAYS	60 DAYS	75 DAYS	90 DAYS	105 DAYS	120 DAYS
TRADITIONAL PROGRAM	LEAF SPOT	LEAF SPOT	WHITE MOLD	LEAF SPOT	WHITE MOLD	LEAF SPOT	LEAF SPOT
LOW RISK*	 Tilt Bravo. with SuperWeatherStik. 2.25 pt	 Abound. + Bravo WeatherStik. 12-18 oz 16 oz	 Tilt Bravo. with SuperWeatherStik. 1.5 pt	 Abound. 18 oz	 Tilt Bravo. with SuperWeatherStik. 1.5 pt	 Bravo WeatherStik. 1.5 pt	 Bravo WeatherStik. 1.5 pt
MODERATE RISK	 Tilt Bravo. with SuperWeatherStik. 2.25 pt	 Abound. 18 oz	 Tilt Bravo. with SuperWeatherStik. 1.5 pt	 Abound. 18 oz	 Bravo WeatherStik. 1.5 pt		
HIGH RISK	 Tilt Bravo. with SuperWeatherStik. 1.5 pt	 Tilt Bravo. with SuperWeatherStik. 1.5 pt	 Abound. 18 oz	 Tilt Bravo. with SuperWeatherStik. 1.5 pt	 Abound. 18 oz	 Bravo WeatherStik. 1.5 pt	 Bravo WeatherStik. 1.5 pt
YOUR PROGRAM							

* Syngenta stewardship of FRAC guidelines recommend tank mixing Bravo WeatherStik® (chlorothalonil) with Abound® (azoxystrobin).

Programs developed through the cooperation of



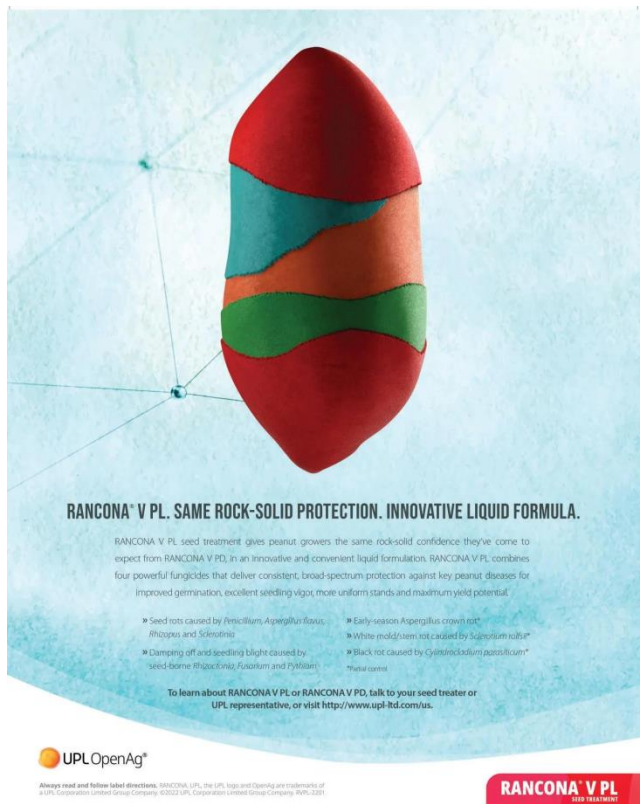
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***Aspergillus* spp.** – Virulent peanut pathogens that thrive when *hot & dry*



Current Seed Treatment Options



- **Trebuset (liquid + polymer)**
 - Azoxystrobin* Group 11
 - Fludioxonil Group 12
 - Mefenoxam Group 4
 - **Pydiflumetofen Group 7**
 - **Sedaxane Group 7**
- **Rancona VPD**
 - Ipconazole Group 3
 - Carboxin Group 7
 - Metalaxyl Group 4
- **Rancona VPL (+ polymer)**
 - Ipconazole Group 3
 - Carboxin Group 7
 - Metalaxyl Group 4
 - **Thiophanate methyl Group 1**

In Furrow Fungicides

1. **Abound/Quadris (6-11 fl oz)**

- Used to enhance stands & vigor
- Good on *Rhizoctonia* but not on *Aspergillus*, (Resistance verified)

2. **Proline (5.7 fl oz)**

- Used for CBR and early season white mold, with some stand and vigor benefits

3. **Velum (4.3-6.5 oz) or Propulse (13.6 oz)**

- Fluopyram for nematodes is currently the best option for *Aspergillus* (but not all seedling diseases, as in 2023!)

Peanut Root Knot Nematode



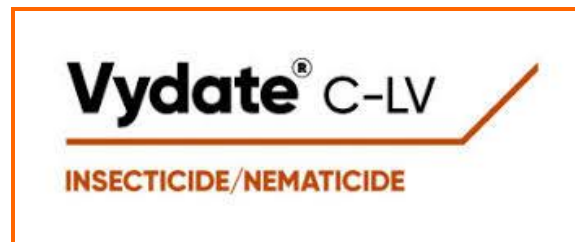
Attapulgus REC



Nematicide Options for 2024

- AgLogic
- Velum (fluopyram ONLY)
 - In-furrow
 - **6.5-6.84 fl oz/A (VELUM)**
 - **Needs thrips product**
- **Propulse** (fluopyram + prothioconazole)
 - Pegging-time for leaf spot, white mold and nematodes.
 - Irrigated/chemigated 13.7 fl oz/A
- **Vydate-CLV** is back
- Telone II
 - Supply ?

AgLogic



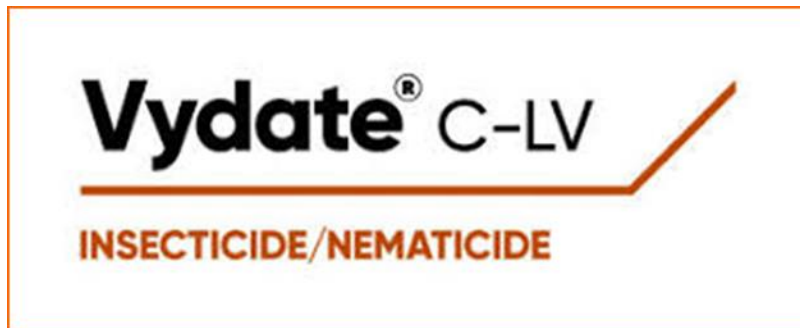
Telone* II

Velum vs Vydate-CLV for Peanut



- **Nematodes**

- **Thrips**



- **Seedling disease**

- **Leaf spot**

Early and Late Leaf Spots 2024



Sulfur as a "tank-mix" partners for Peanut Leaf Spot

- Microthiol 80W
- Drexel Sulfur 80W
- Drexel Suffa 6F
- TechnoS 90W
- Accoidal 80WG
- Kolla 6F (**Not as good**)
- Yellow Jacket 90W (**not recommended**)



More recent fungicides for leaf spot

- Approach Prima
 - Picoxystrobin + cyproconazole

Approach[®] Prima
FUNGICIDE

- Miravis
 - Pydiflumetofen

 **Miravis[®]**

- Provost Silver
 - Prothioconazole + Tebuconazole


PROVOST[®]
SILVER

- Provysol
 - Mefentrifluconazole

Provysol[™]
Fungicide

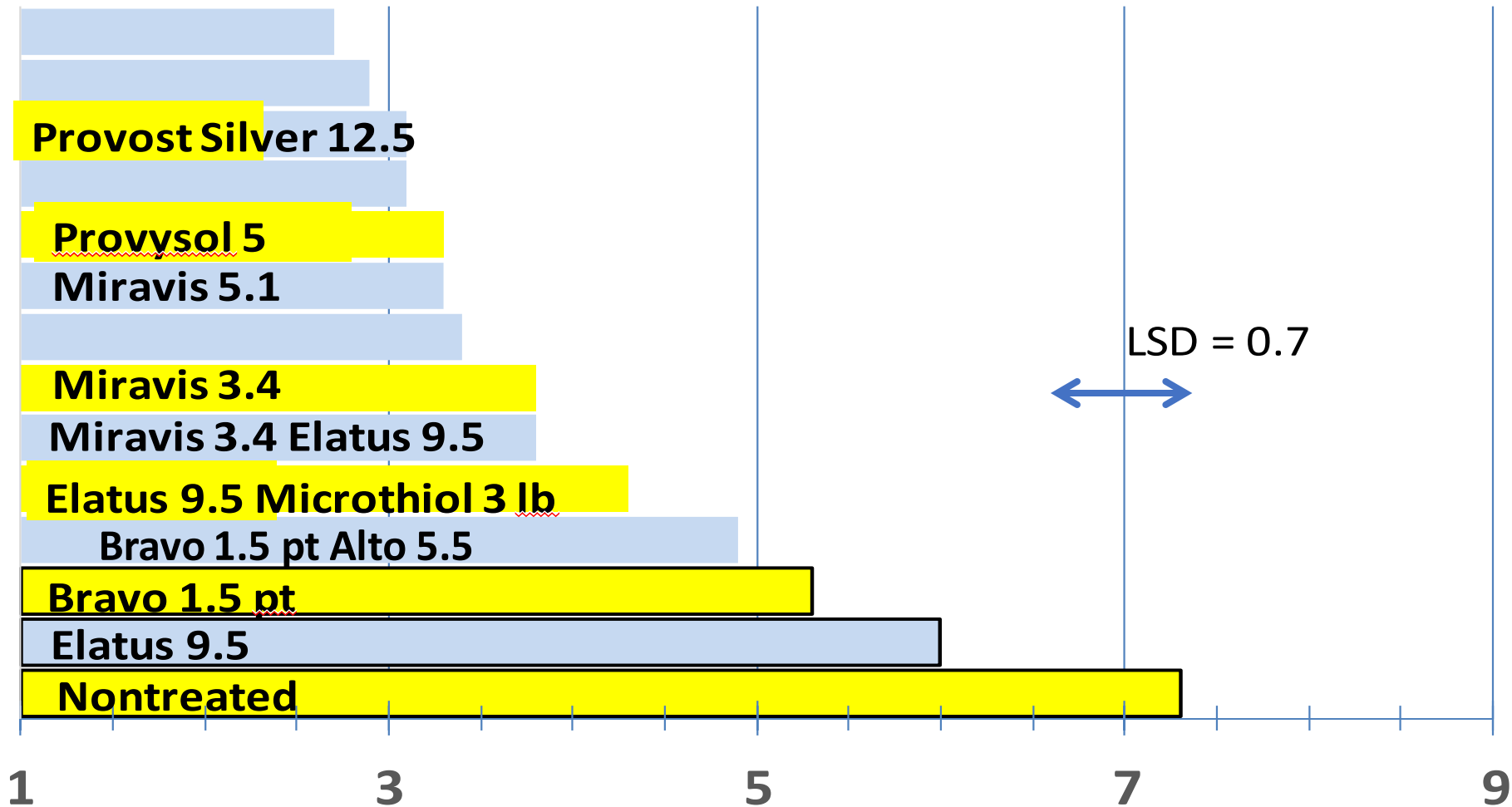
- Lucento
 - Flutriafol + Bixafen


LUCENTO[™]
FUNGICIDE

Treatment application timing, Fungicide Test, Lang Farm, 2023

A	B+7	D	E	F+7
Alto 5.5 Bravo 1.5	TRT	Bravo 1.5	TRT	Bravo 1.5
40 DAP	57 DAP	78 DAP	92 DAP	113 DAP

Effect of fungicides on early leaf spot, UGA Lang Farm, 2023 (Florida Scale 1-10)



White Mold 2023 and 2024



Tebuconazole 30 years later



- Inexpensive.....
- Still effective, especially for white mold
- Tebuconazole should be tank-mixed for best leaf spot control....



- Remember **RATE** and resistance management...
- **WE HAVE BETTER FUNGICIDES**

White Mold Control at 45 Days?

- In-furrow option



- Strong leaf spot control, fair white mold control



Priaxor[®]
Xemium[®] Brand Fungicide

- Tebuconazole

- Premium fungicides at generally lower rates

EXCALIA[®]
FUNGICIDE

 **Elatus**[®]

And then to 60 days and beyond



Vantana™
Control so good it's nuts.

- Spray program with Bravo Weather Stik® for full-spectrum disease control
- Targets late blight, white mold/southern blight
- Foliar multi-site contact fungicide
- Non-SDHI fungicide

Kyle Barker
ADAMA Territory Sales Rep
kyle.barker@adama.com
229.256.7745

ADAMA
Listen - Learn - Deliver

Always read and follow label directions. Bravo Weather Stik is a registered trademark of ADAMA. US. Vantana is a trademark of ADAMA US. ©2022 ADAMA.

Fontelis®

FUNGICIDE



Elatus®



PROVOST®

SILVER

EXCALIA®

FUNGICIDE



CONVOY®

FUNGICIDE



UMBRA®
FUNGICIDE

STOP THE CREEP

Fungicide and Best Results for White Mold control

1. Initial deposition

- Application method (pressure, spray volume, nozzle)
- Timing of application (ex. night sprays)

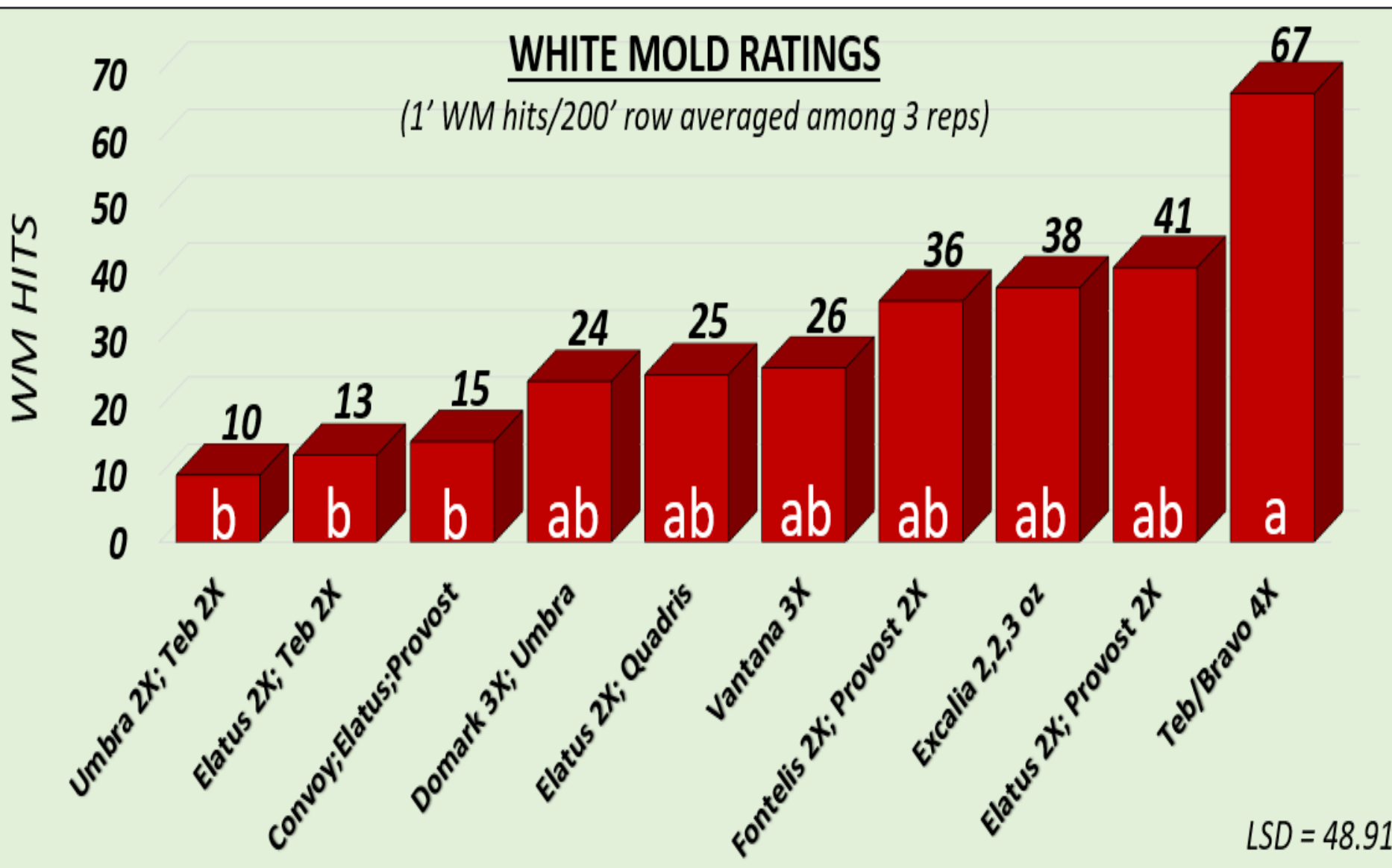
2. Redistribution

- Systemic movement within plant (up only)
- **Downward needs irrigation or rainfall**

3. SELECTION OF FUNGICIDE



Cook County 2023

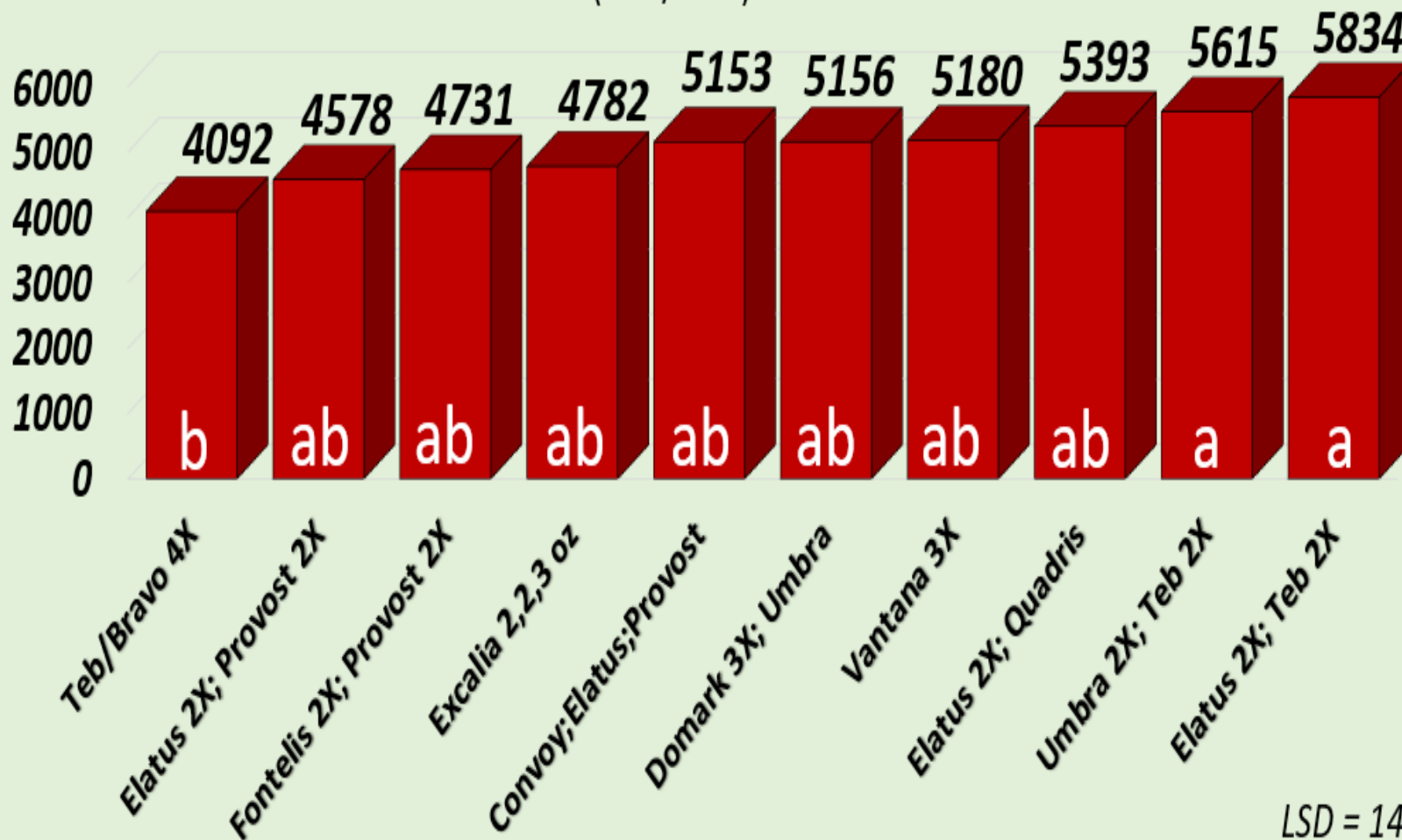


Cook County 2023

YIELD COMPARISON

(LBS./Acre)

POUNDS/ACRE



LSD = 1496.4

Cotton, Diseases, and Nematodes

Update for 2024



Robert C. Kemerait, Jr. PhD
Professor & Extension Specialist
Department of Plant Pathology

Twitter “bob kemerait”



The Problem with Boll Rot



- Particularly bad on early planted cotton in 2022.
- Boll rot is caused by a number of fungal pathogens (Diplodia boll rot pictured here)
- There are NO “silver bullets” except to try to increase airflow and reduce humidity.

Bacterial Blight Boll Rot Symptoms



Nematodes and Cotton





Nematodes and Cotton 2023 Colquitt County Packer Park Trial



Cotton and Nematodes in 2023

Screven County



Jason Mallard

Colquitt County



Jeremy Kichler

Reniform Nematode, Washington County



Why do we keep talking about resistant varieties and nematicides?

- Nematode-resistance breeding efforts.
 - From single-gene to dual-gene resistance for *Meloigogyne incognita*.
 - Resistance to *M. incognita* **AND** *R. reniformis*.
 - New traits and improved yield potential.
- Arsenal of nematicides is increasing.
- Growers need reminders from current trials.
 - **YIELD**
 - root-damage
 - nematode counts in soil



Root-knot and Reniform Nematodes

PHY 443 W3FE, 411 W3FE, 332 W3FE



ALSO: DP 2141 NR B3XF – Stacked RKN/Reniform variety. Bacterial blight susceptible. Mid-full season

ST DP DP
5471 1646 1851

PHY

3807 580 5028

Nematode and Resistance



root-knot and BB



ST 6000 XTP
root-knot and BB



DG 3644 B3XF
root-knot and reniform

Products to Manage Cotton Nematodes



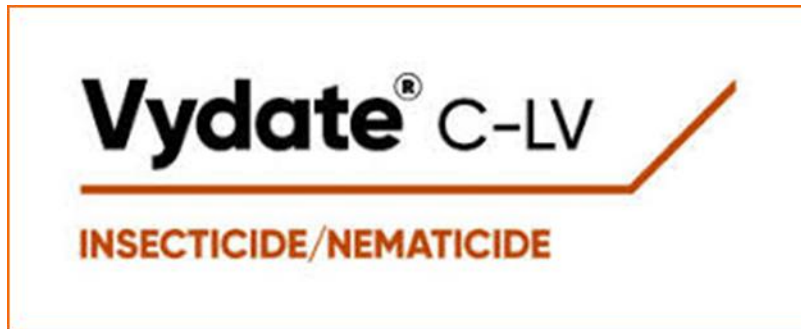
Copeo® Prime
Seed Treatment



AgLogic



RETURN™ XL



Averland FC from Vive

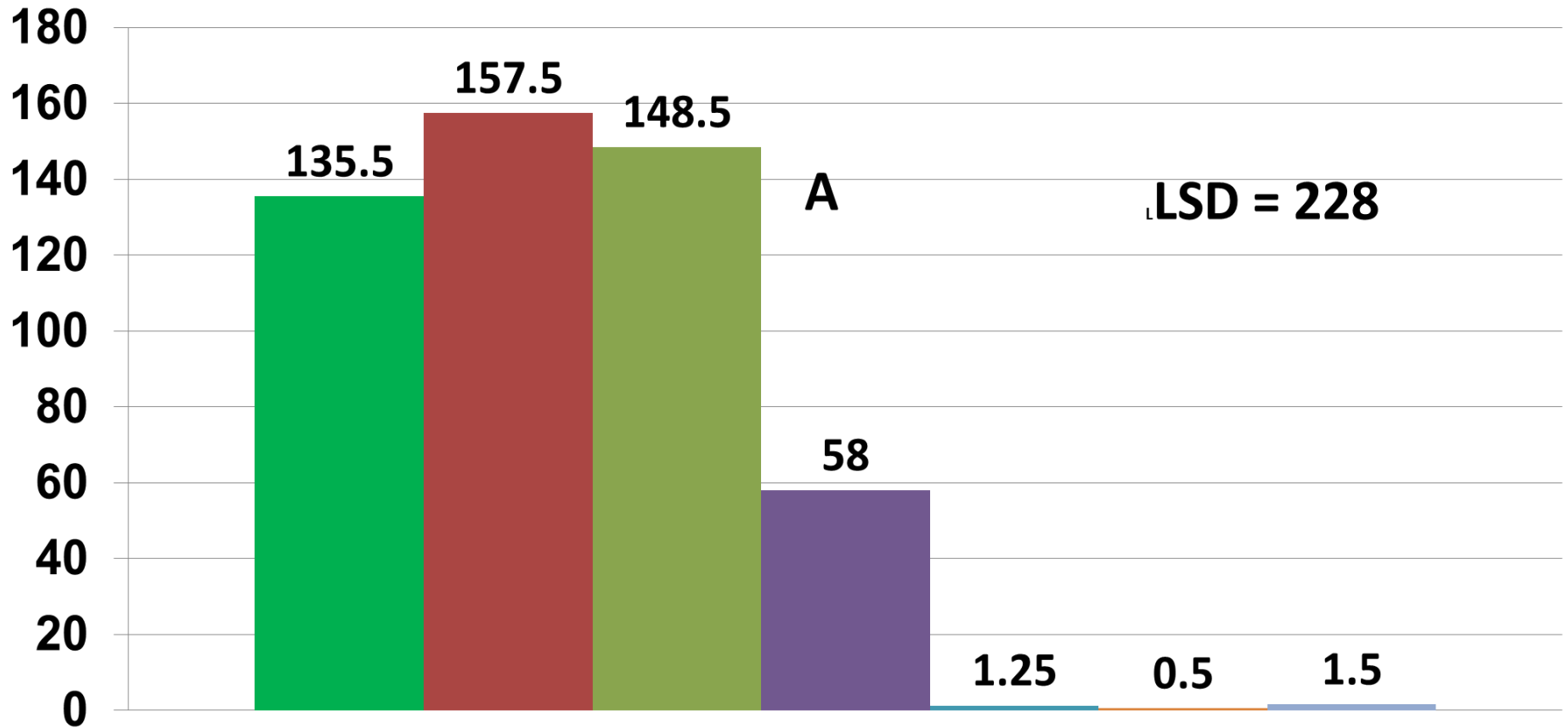
- Abamectin formulation for in-furrow use on corn (6 fl oz/A)
- Testing continues on corn
- “Claim to fame”:
 - Nematicide
 - Can be mixed with in-furrow fertilizer at plant
 - It was compatible with:
 - Riser (2.5 gal/A)
 - **Octane (1 gal/A)**
 - **Corn Mix (1 qt/A)**





Root-knot Nematodes and Cotton

2022 Post Harvest Nematode Populations



■ 1646 + Aglogic 3.5 lb

■ 1646 + Aglogic 5 lb

■ 1646 + Aglogic 5 lb + Vydate

■ PHY 443

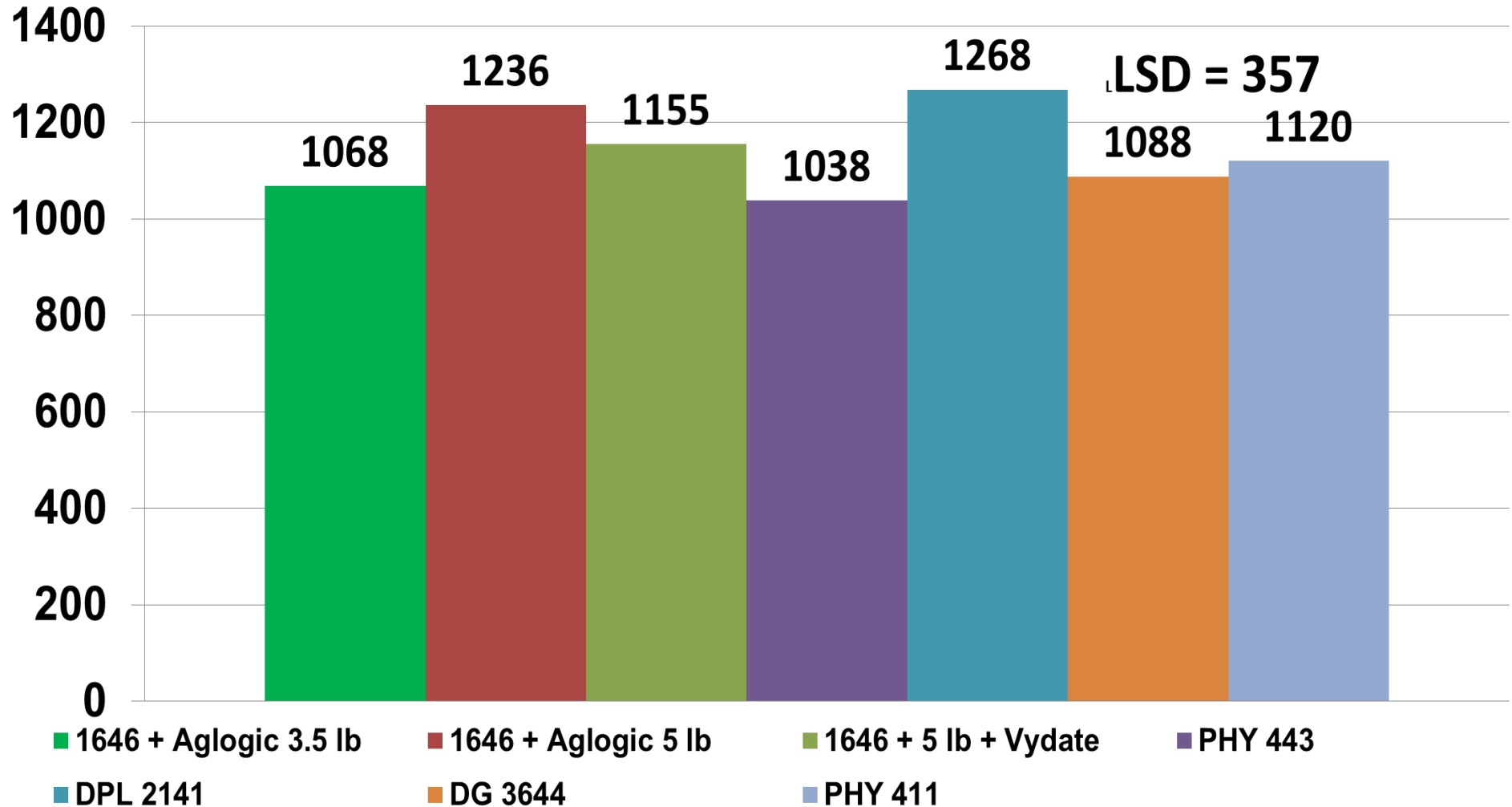
■ DPL 2141

■ DG 3644



Root-knot Nematodes Colquitt County

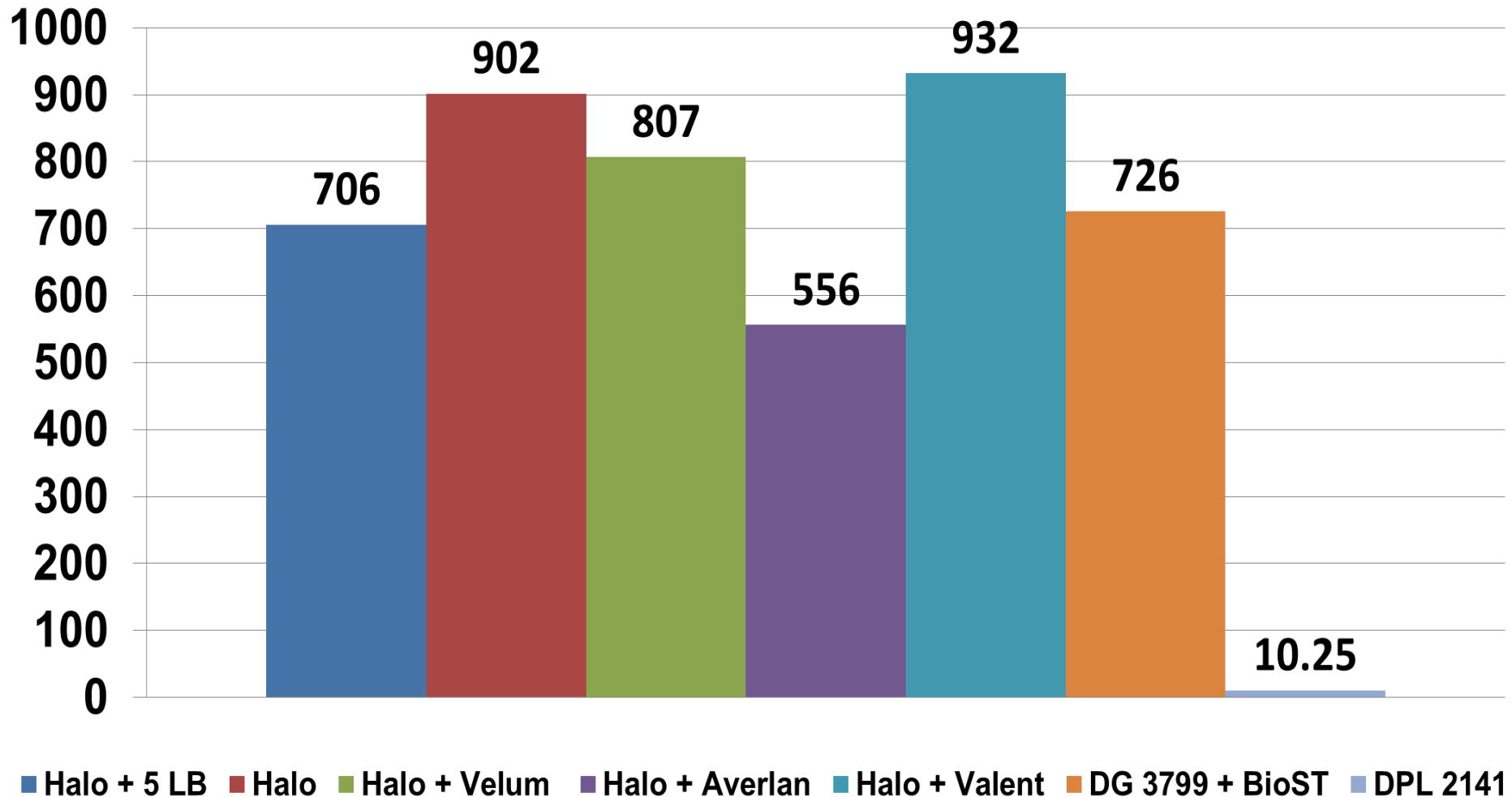
2022 Lint Yields





Root-knot Nematodes Colquitt County

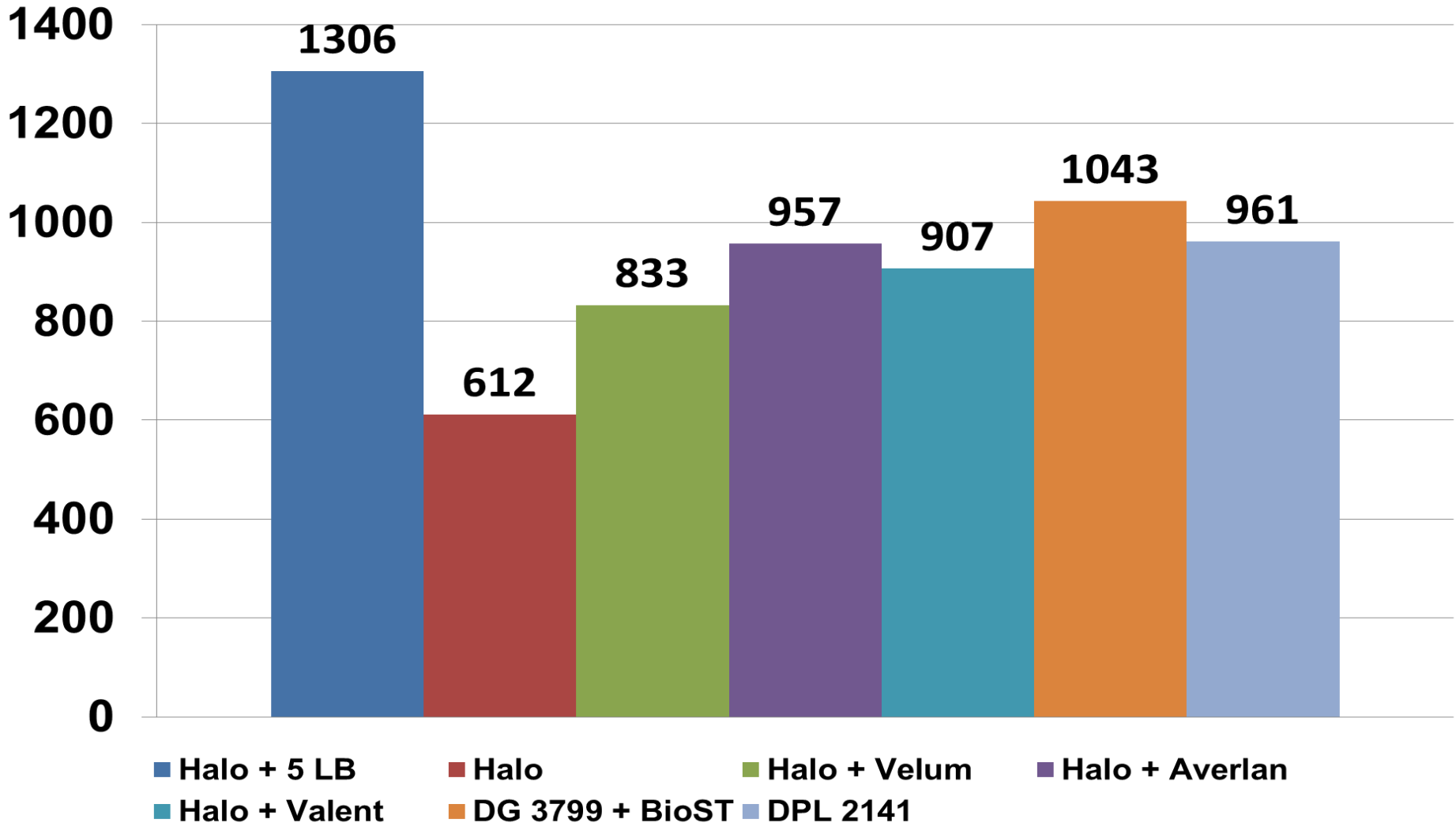
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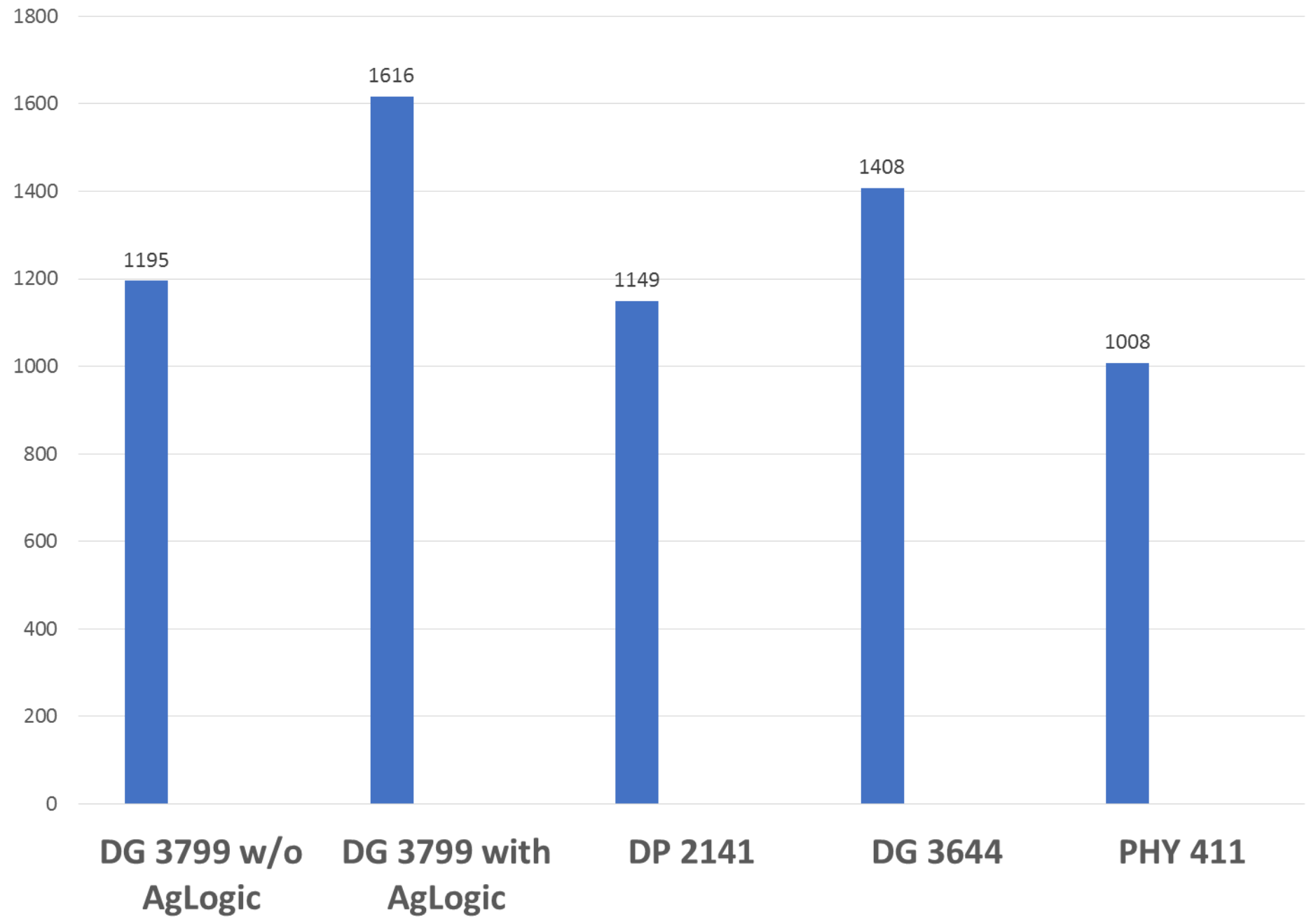


Root-knot Nematodes Colquitt County

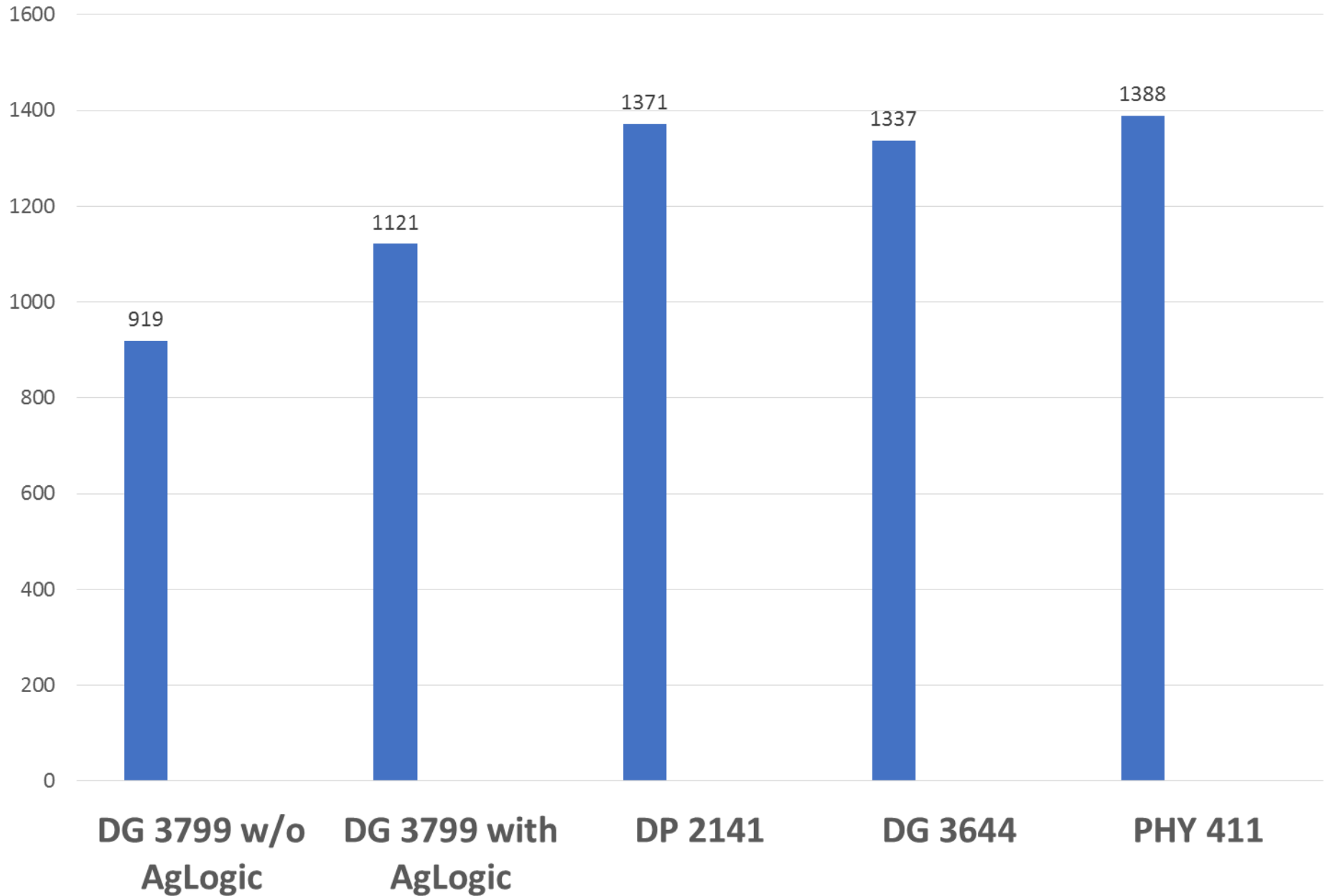
2023 Lint Yields



Reniform Nematode Counts (# reinforms per 100cc soil)



Reniform Nematode Trial Yields (lbs/acre)



DP 1646 and Root-knot nematodes

Grower didn't get bacterial blight..

Bulloch County 2017

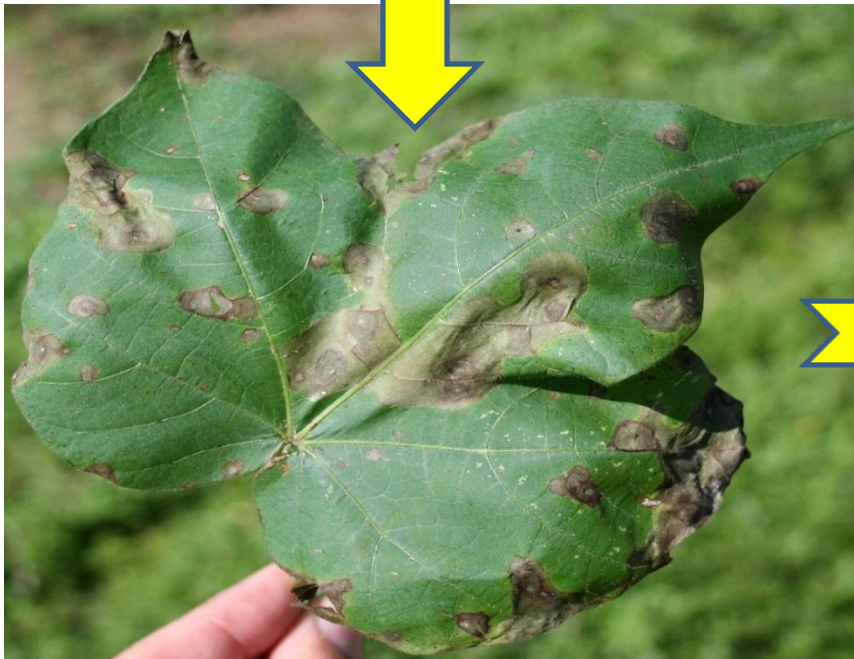
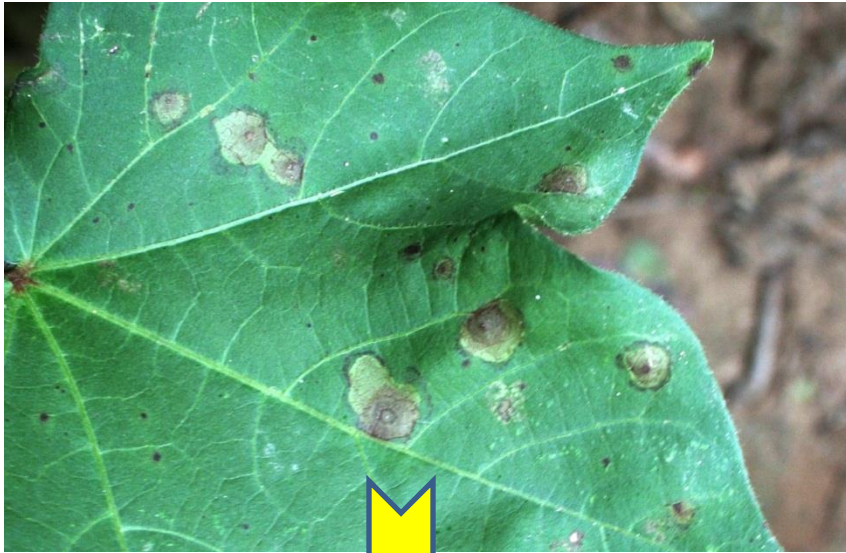


Areolate Mildew



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TARGET SPOT



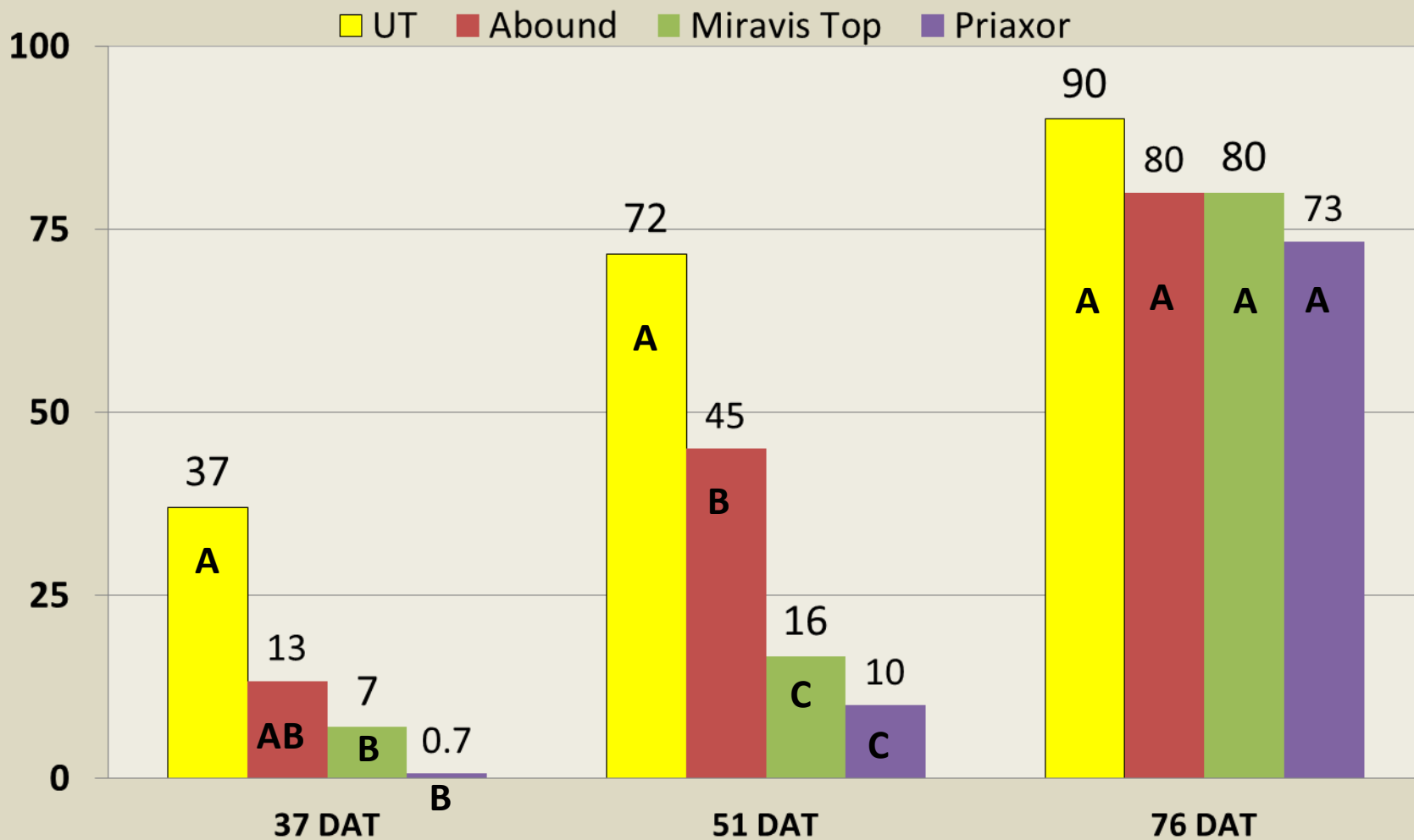
Fungicides for Foliar Diseases of Cotton

- **Headline** (pyraclostrobin) (**6 fl oz/A**)
- **Twinline** (pyraclostrobin + metconazole) (**7-8.5 fl oz**)
- **Quadris** (azoxystrobin) (**6 or 9 fl oz/A**)
- **AzoxyStar** (azoxystrobin)) (**6 or 9 fl oz/A**)
- **Tebuzol 3.6F** (tebuconazol) (**6-8 fl oz/A**)
 - Labeled for control of southwestern cotton rust
 - *Puccinia cacabata*
- **PROLINE** (prothioconazole)) (**5.0-5.7 fl oz/A**)
- **PRIAXOR** (**4.0-6.0 fl oz/A**)
- **MIRAVIS TOP** (**13.6 fl oz**)
- **Elatus**
- **TOPGUARD** (flutriafol)



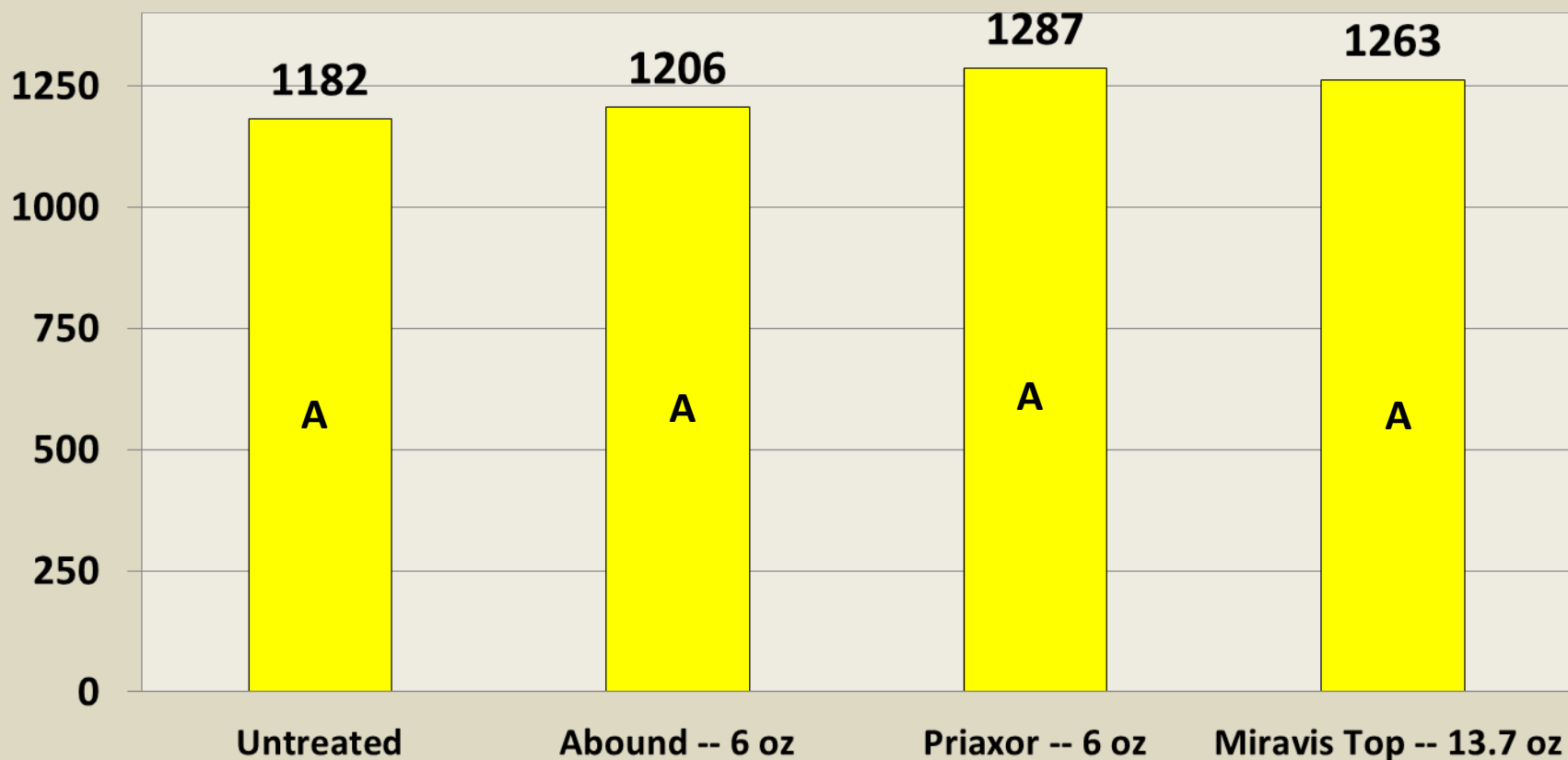
2021 Colquitt County Cotton Fungicide Plot

Bay, Georgia Percent Defoliation



2021 Colquitt County Cotton Fungicide Plot

Bay, Georgia Lint Yield (lb/A)

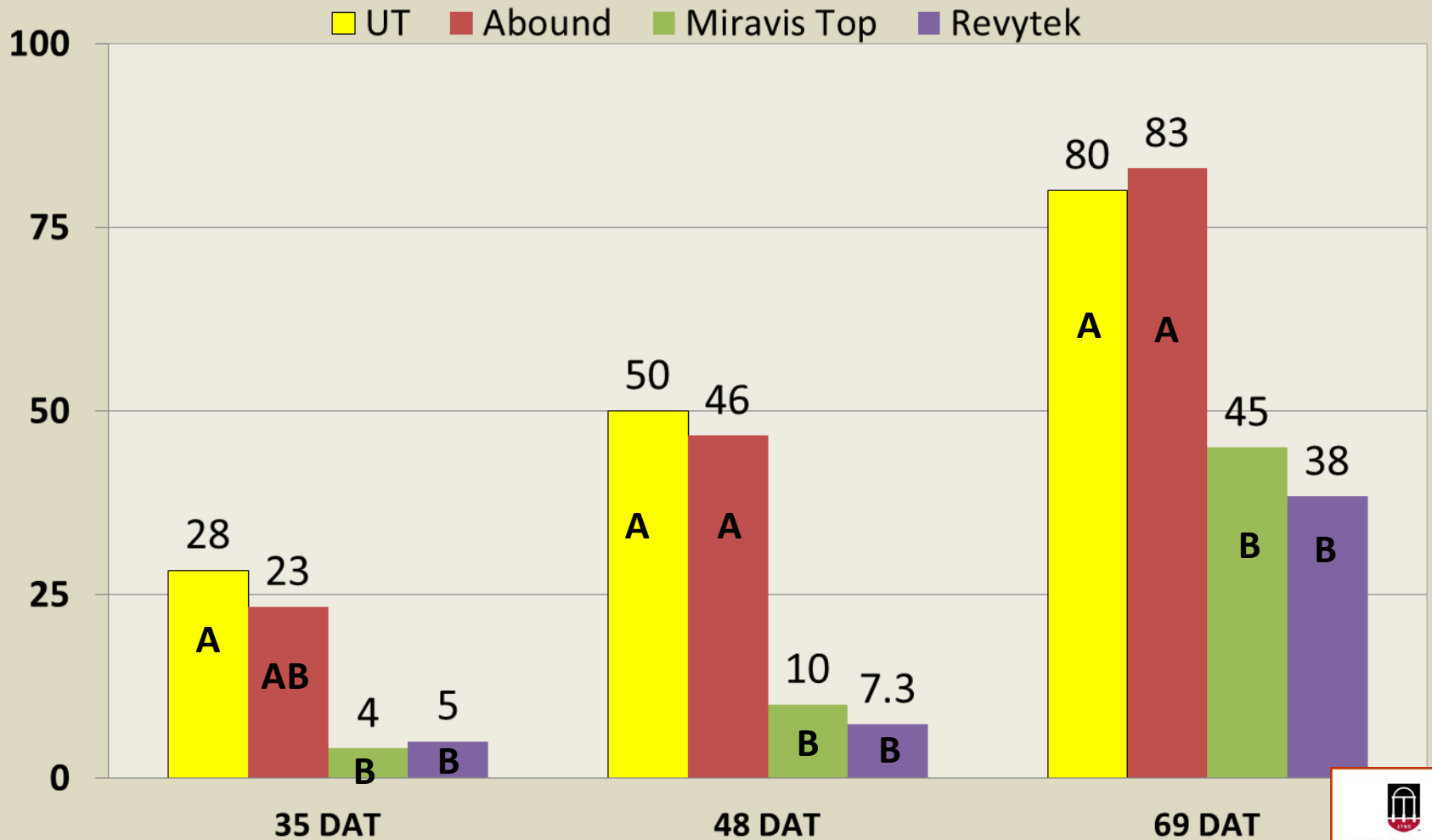


Fungicide Application 3rd week of bloom. DG 3615

2023 Colquitt County Cotton Fungicide Plot

Bay, Georgia

Percent Defoliation



2023 Colquitt County Cotton Fungicide Plot – 50 DAT



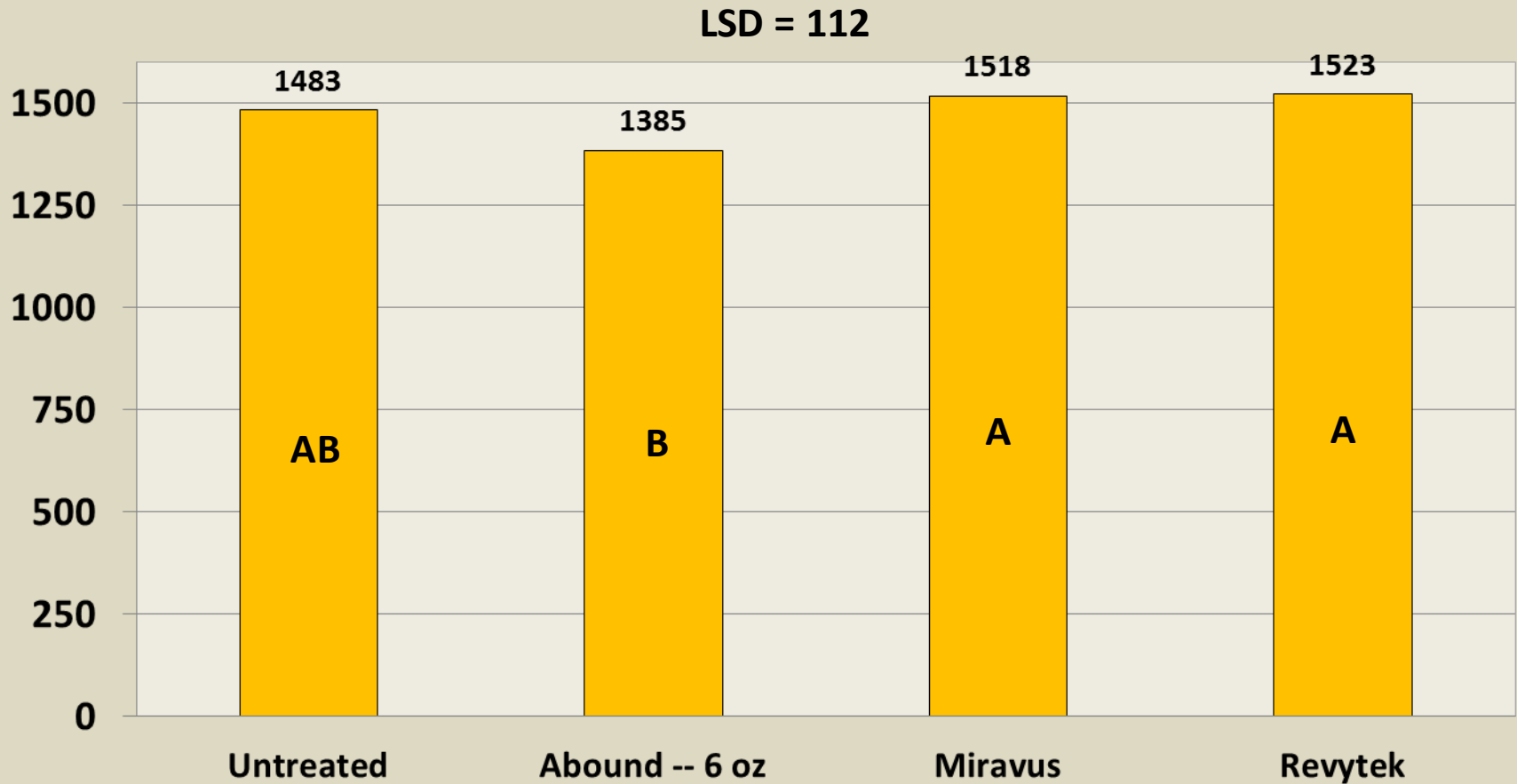
2023 Colquitt County Cotton Fungicide Plot – 69 DAT



2023 Colquitt County Cotton Fungicide Plot

Bay, Georgia

Lint Yield (lb/A)



Fungicide Application 3rd week of bloom. DG 3799 Assuming 40% Turnout

Conclusions for Areolate Mildew

- Until 2023, use of fungicides always reduced defoliation.
- In 2023, azoxystrobin did not reduce defoliation.
- Until 2023, Priaxor and Miravis Top were best, azoxystrobin better than untreated check.
- In 4 out of 5 trials, yields increased by at least 100 lb lint/A, sometimes more.
- Concern now is that growers likely not able to use azoxystrobin for management of Areolate Mildew.

What I need you to know now...

- Climate/El Niño will be generally good for cotton
- Opportunities for nematode control end with closed furrow
- Bacterial Blight- plant resistant varieties
- Fusarium wilt management- manage nematodes
- Target spot management-1st to 6th week of bloom
- Areolate mildew control- caution about azoxystrobin
- Boll Rot- not much we can do

Corn Disease & Nematode Update



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Damage from root-knot and stubby-root nematodes in Georgia



Nematode Damage on Corn 2023

UGA Tifton



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Nematicides for Field Corn

- **Telone II**
 - 3 gal/A
 - Proper soil conditions
 - ~10 days pre-plant
- **Counter 20G**
 - 5 lb/A
 - Herbicide considerations
- **Avicta Complete Corn**
 - Seed treatment



Additional Nematicide Options

- Propulse (fluopyram + prothioconazole)
 - Liquid in-furrow application
 - Rate: 4.0-8.0 fl oz/A
 - Trial work continues
- Velum (fluopyram)
 - Liquid in-furrow application
 - Rate: 3.0 fl oz/A
 - Trial work continues



Averland FC from Vive

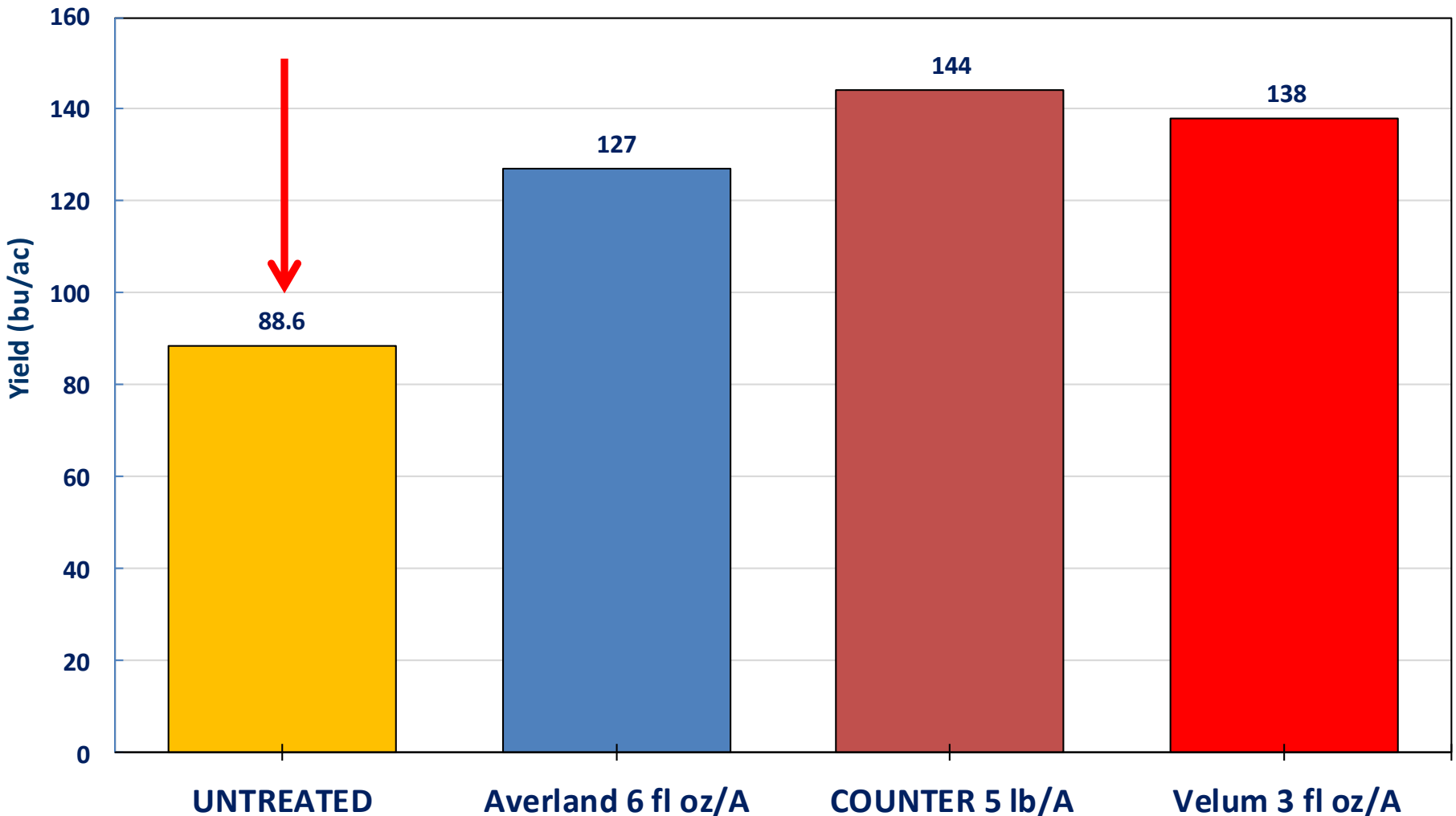
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Yield (Sting and Root-knot) (bu/A)



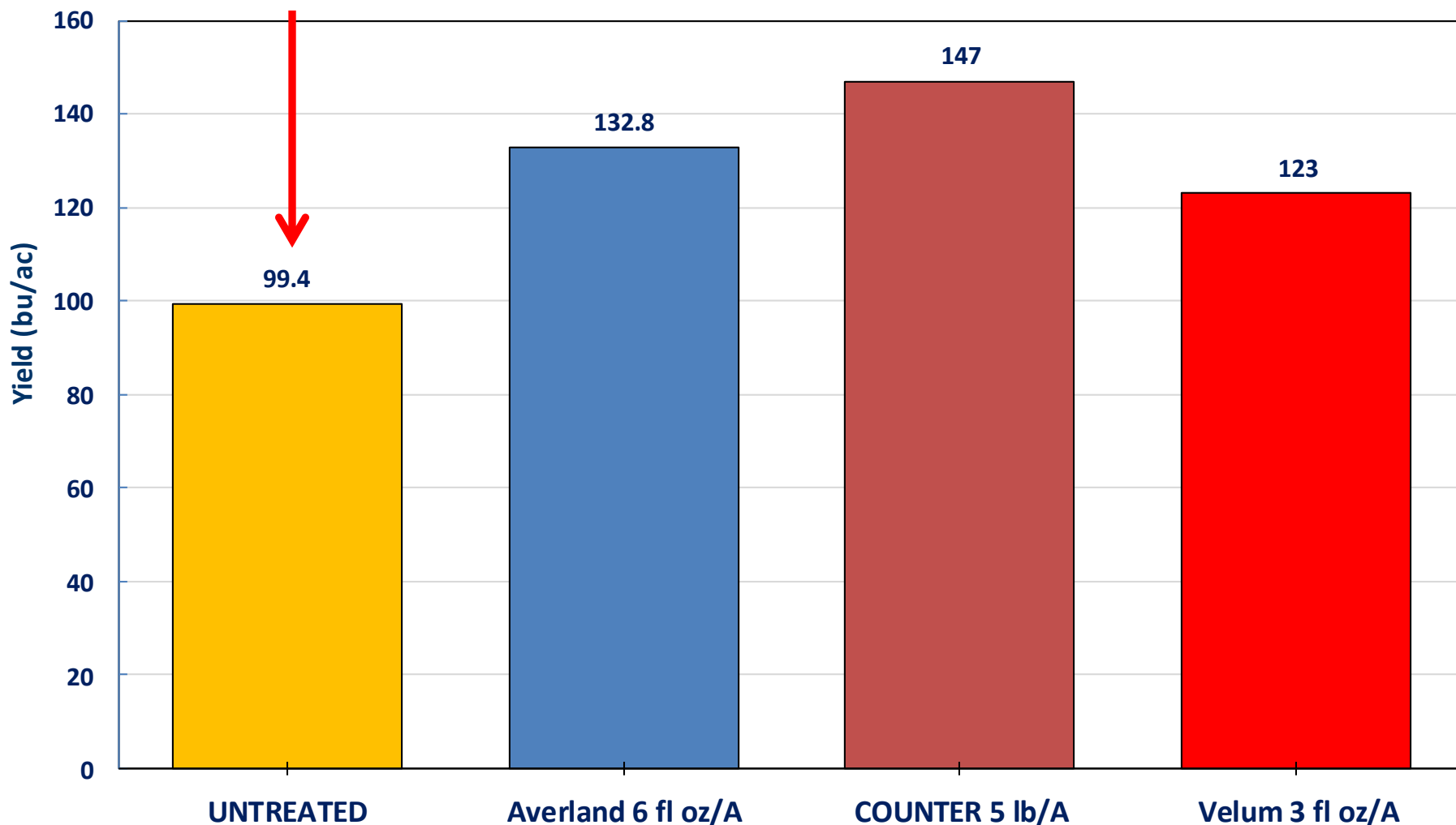
2023 Corn Nematicide Study, LSD = 34



Yield (Sting and Stubby Root) (bu/A)



2023 Corn Nematicide Study, LSD = 29



Fungicide At-Plant

- **XYWAY LFR (FMC)**
 - Flutriafol
 - **2 X 2 application at plant**
 - **NOT In-furrow, at-plant**
 - 5.8-11.8 fl oz/A

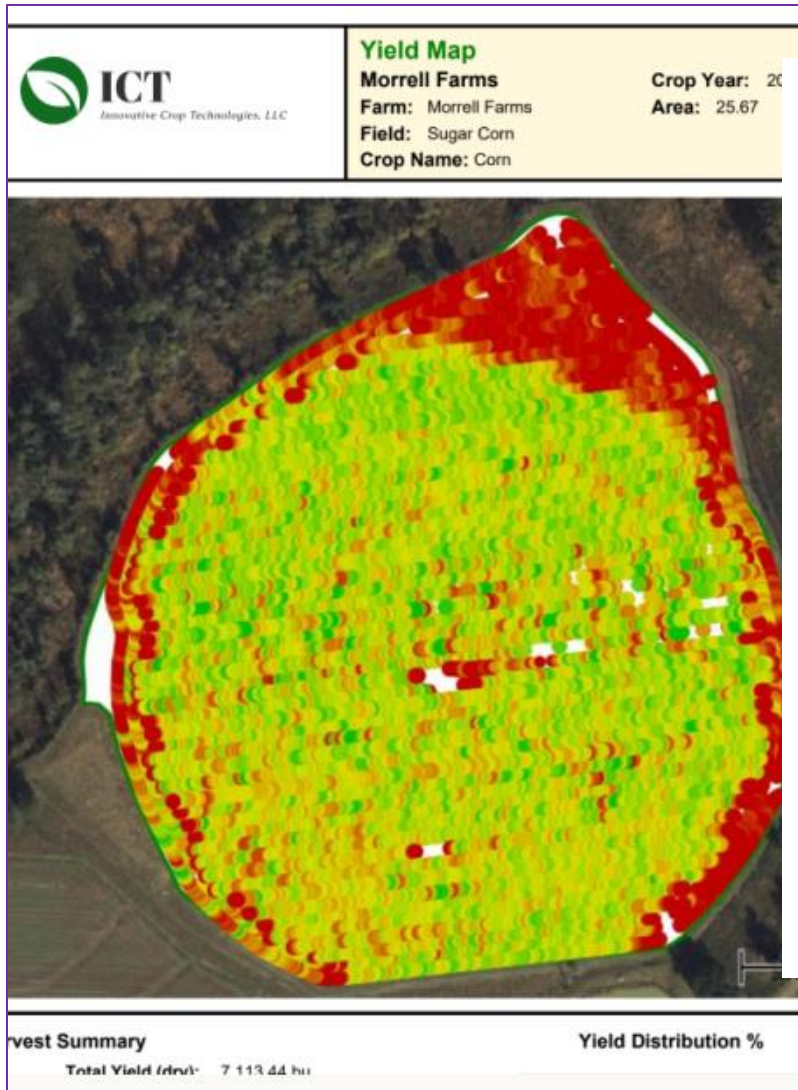


Varietal differences in Northern Corn Leaf Blight



Grower Testimonial from 2022

XyWay LFR



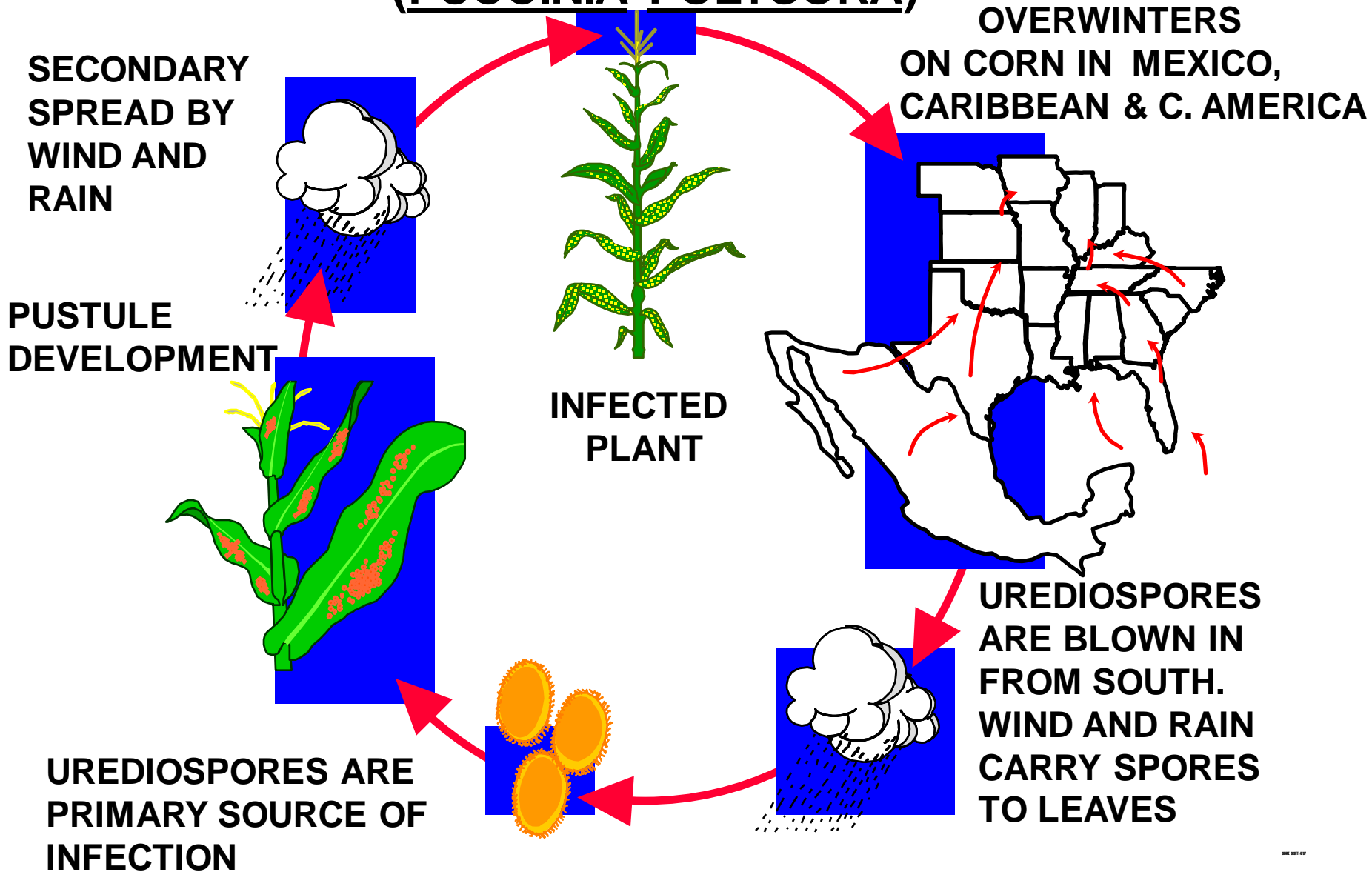
Meant to share that with you when I got it but I forgot. This is the field with the Xyway plot. The north half had Xyway, the south half didn't. Even though the actual plot showed no difference, the yield map looks like there was a little difference. Plan to try it again next year.

Not a huge difference, but noticeable.



SOUTHERN RUST DISEASE CYCLE

(PUCCINIA POLYSORA)



Late Planted Corn, Irwin and Thomas Counties



Abiotic Symptom



Tar Spot




Tift County, September 2022

Variety A



Variety B



A close-up photograph of a corn plant. The leaves are mostly green with some minor yellowing and small brown spots. The plant appears healthy and is in the V5 growth stage.

**Approach 6 floz at V5 fb
A. Prima at R1 chemigated**

**So. Rust severity
40% at 28 dat**

A close-up photograph of a corn plant. The leaves are heavily damaged, showing extensive yellowing, browning, and necrosis. The plant appears severely affected by rust and is in the R1 growth stage.

Untreated

**So. Rust Severity
86% at 28 DAT**



UNIVERSITY OF
GEORGIA
EXTENSION

DK 687

Pio 32W86

Pio 31G98

Untreated



Two fungicide
applications



2003 Terrell County, Southern Rust

Less affected



Severely affected



Risk Assessment to Determine Likely Response to Foliar Fungicides in Corn

Factors that Increase Risk

- Susceptible hybrid (primarily GLS)
- Continuous corn
- No-till
- Late planting
- High plant population and/or yield potential
- Irrigation
- Disease activity at tasseling
- Disease-favorable weather forecasted
- Field history of disease and lodging



Newer Fungicides for Corn

- **Miravis Neo (Syngenta)**

- MIRAVIS + azoxystrobin + propiconazole



 **Miravis[®] Neo**

- **Lucento (FMC)**

- Bixafin + flutriafol


LUCENTO[™]
FUNGICIDE

- **Veltyma (BASF)** (7-10 fl oz/A)

- MEFENTRIFLUCONAZOLE + PYRACLOSTROBIN

Veltyma[™]
Fungicide

Newer Fungicides for Corn

- **XYWAY LFR (FMC)**

- Flutriafol
- 2 X 2 application at plant
- NOT In-furrow, at-plant
- 5.8-11.8 fl oz/A



- **DELARO Complete**

- Prothioconazole + trifloxystrobin + fluopyram
- 4.0-6.0 fl oz/A for V4-V7
- 8.0-12.0 fl oz/A for VT and beyond



QUESTIONS

