

# Florida row crop nematode management update

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UF Row Crop Short Course





# Outline

1. Target nematodes
2. Review of nematicides
  - Aldicarb(Aglogic 15GG) permits
3. Peanut nematode management
4. Cotton nematode management



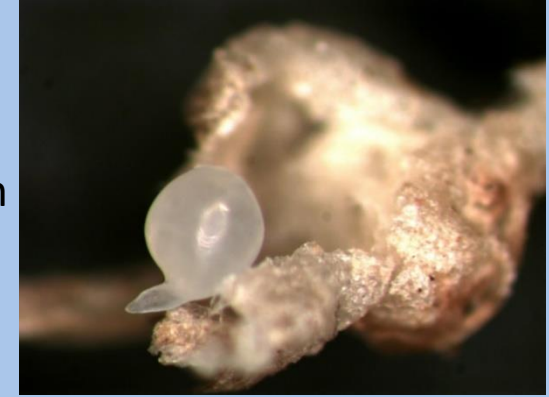
# Root-knot nematodes

- Different species for cotton than peanut
- Common and damaging (galling)



Patchy stunting from root-knot nematode

Female root-knot  
nematode excised from  
roots



Galled peanut pods (left)



# Reniform nematode

- Affects cotton & soybean
- Subtle symptoms
- Can thrive in heavier soil
- Other nematodes also infect row crops.
- **If you suspect a nematode problem, sample!**



Reniform nematode females and egg masses



Stunting from reniform nematode (right) vs healthy rows treated with Telone (left)

# Conventional nematicides

## Liquid



Fluopyram

- In-furrow cotton or peanut



Fluopyram+Prothioconazole

- Peanut at pegging (primary) or in-furrow

Cost/acre:

- \$10-15 seed treatments (May be rolled into seed costs)
- \$25-45 in-furrow
- \$45-70 in-furrow+foliar
- \$90+ fumigants



- Cotton (foliar only) and peanut
- Generics also available



- Cotton only
- NOT EVALUATED YET

## Granular



## Fumigant



Probably not realistic this year  
due to cost/supply

# Aldicarb permits



NICOLE "NIKKI" FRIED  
COMMISSIONER

Florida Department of Agriculture and Consumer Services  
Division of Agricultural Environmental Services

## APPLICATION FOR PERMIT TO APPLY ALDICARB (TEMIK)

Chapters 487.042 & 487.051, F.S., Rule 5E-2.028, F.A.C.  
Telephone (850) 617-7870; Fax (850) 617-7895

### Submit To:

Pesticide Certification Section  
Attn: Temik Coordinator  
3125 Conner Blvd., Bldg. 8 (L8)  
Tallahassee, FL 32399-1650

Permit applications may also be submitted  
online at [www.flpesticidepermits.org](http://www.flpesticidepermits.org).

### Applicant Information

Licensed Applicator's Name: \_\_\_\_\_  
Last First Middle Suffix (Jr., etc.)

Mailing Address: \_\_\_\_\_  
Street City State Zip Code

Business Phone: (\_\_\_\_\_) Cell Phone: (\_\_\_\_\_) Home Phone: (\_\_\_\_\_) \_\_\_\_\_

License Type: ☐ Commercial ☐ Public ☐ Private License No. \_\_\_\_\_ Expiration Date \_\_\_\_\_

- Growers need a [permit](#) for each field they are applying AgLogic 15GG

UF IFAS Extension  
UNIVERSITY of FLORIDA



ENY2095

<https://doi.org/10.32473/edis-IN1388-2022>

## How to Obtain an Aldicarb Application Permit for Florida Cotton or Peanut<sup>1</sup>

Zane J. Grabau, Ethan Carter, Libbie Johnson, Jay Ferrell, Dale Dubberly, and Tamara James<sup>2</sup>

- EDIS that walks through all steps of submitting form

# Key points for aldicarb permits

1. Submit form early as possible (but within 6 months before application)
2. Complete form fully and accurately to avoid delays
3. Forms are being routed through AgLogic reps this year
  - [applicationforpermit@aglogicchemical.com](mailto:applicationforpermit@aglogicchemical.com)  
or [tamara.james@fdacs.gov](mailto:tamara.james@fdacs.gov)
4. EDIS addresses key choke points (finding township, missed lines, outdated links)

Site Information			
Contact (property owner/manager/caretaker, if different from applicator): _____			Phone: (____) _____
Address: _____ Street		City	Zip Code
Application Site County: _____		Field/Grove/Block: _____	
Township: _____	Range: _____	Section: _____	# Site Acres: _____ # Drinking Wells: _____ # Non-Drinking Wells: _____
Crop: (check only one) <input type="checkbox"/> Citrus <input type="checkbox"/> Cotton <input type="checkbox"/> Peanuts <input type="checkbox"/> Potatoes <input type="checkbox"/> Pecans <input type="checkbox"/> Sorghum <input type="checkbox"/> Soybeans			

Figure 2. The "Site Information" section of the aldicarb permit. Applicators sometimes have questions about the location and drinking well sections.

Credits: FDACS

Drinking Well Information			
Complete the table below for all drinking wells that determine application setbacks. See back of form for more information. Until July 1, 2007, if latitude and longitude coordinates are not available, write in or attach a written description of each well location.			
Drinking Well Information Table			
Entry #	Latitude*	Longitude*	Approved Setback (FDACS Use)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

\*In decimal degrees to 5 decimal places (required as of July 1, 2007).

Section Diagram (required as of July 1, 2007)			
Complete the section diagram below by putting an "X" in all 1/4 of 1/4 sections in which any part of the application site is situated.			
NW			NE
SW			SE

Figure 3. Sections of the aldicarb permit on drinking well information and application site within the township section.

Credits: FDACS



# Cotton nematode management: resistant cotton



- Resistance to southern root-knot nematode has been here a few years
  - Level varies by cultivar, newer cultivars with double-gene resistance better

## Root-knot nematode resistant/tolerant cultivars

- Phytogen
  - All cultivars (360, 400, and **443** in this area) with some level
- Deltapine
  - **2141NR, 2349NR**
- Stoneville
  - 4946, 5600
- Dyna-gro (listed as tolerant)
  - 3421 and 3422



# Stacked nematode resistance in cotton



- New in 2021: stacked resistance to both southern root-knot nematode reniform nematodes
  - Phytogen 411 and 443
  - Deltapine 2141NR
  - Dyna-gro 3421 and 3422 listed as tolerant
    - (Have not tested)
  - Reniform resistance probably from common source

**How effective is resistance against reniform nematode, especially relative to nematicides?**

# Quincy Deltapine reniform nematode small plot study (2021-22)

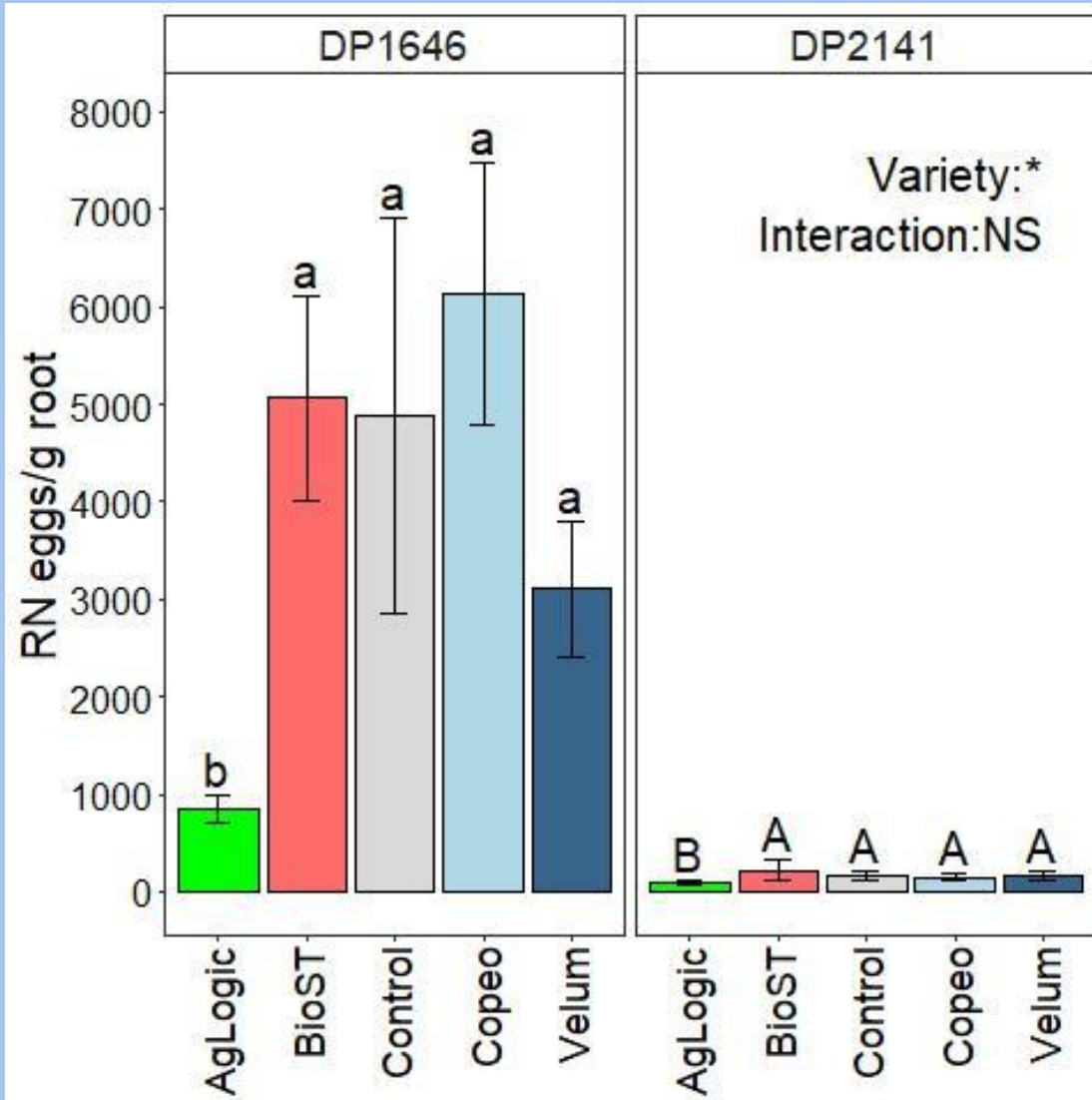
Treatment	Product	a.i.	Type	Product rate
1	AgLogic 15GG	Aldicarb	In-furrow granular	5 lb/a
2	BioST Nemat. 100	Dead <i>Burkholderia</i> bacteria	Seed treatment	7 oz/cwt
3	Control	-	-	-
4	Copeo	Fluopyram	Seed treatment	0.2 mg a.i./seed
5	Velum	Fluopyram	In-furrow liquid	6.5 fl. oz/a

- Treatments 1-5 crossed with:
  - **DP1646 (susceptible) and DP2141NR (resistant)**
- Admire Pro for thrips control in all treatments except AgLogic 15GG
- Compared nematicide within cultivar if interactions

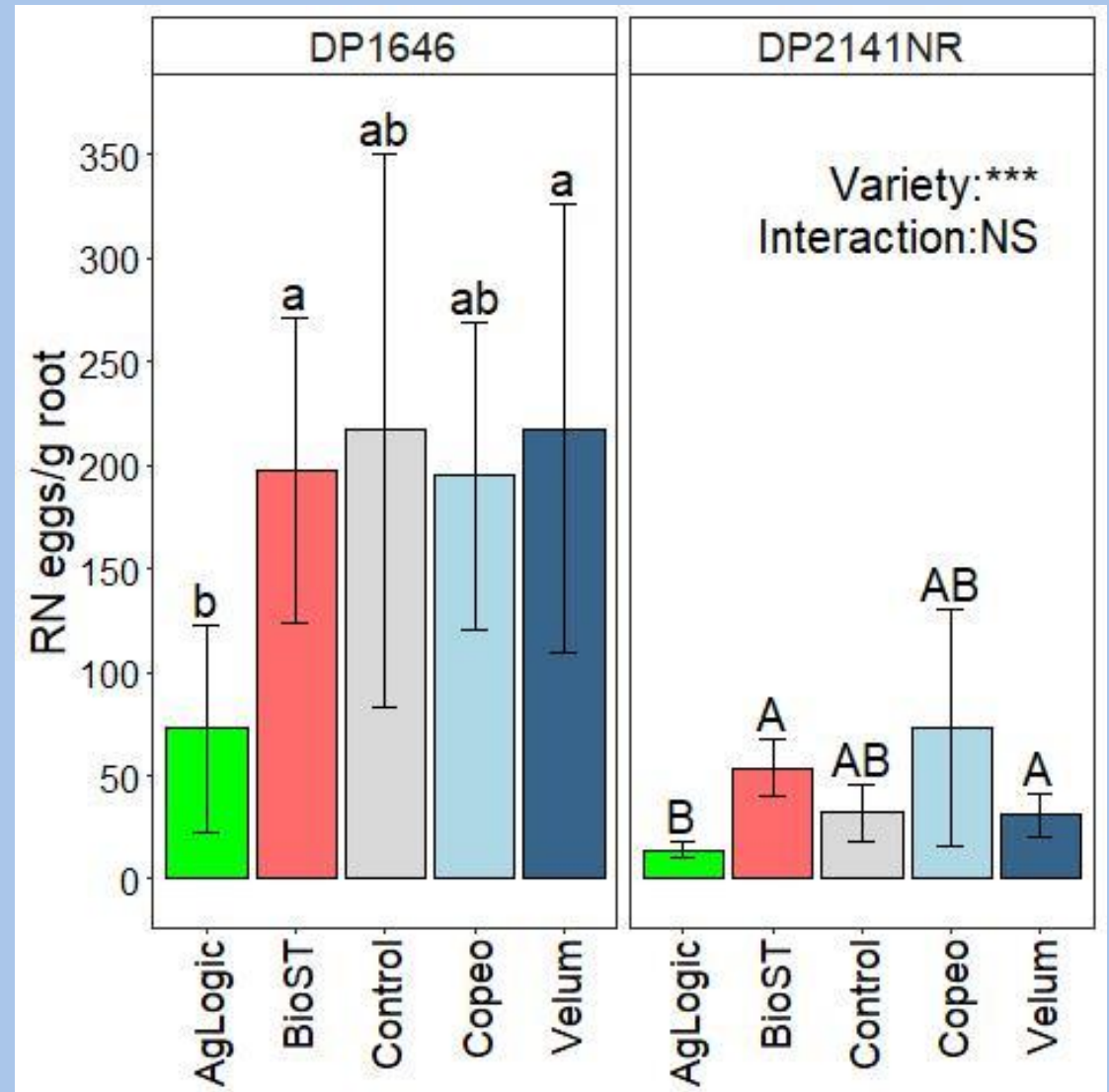


# Resistance and AgLogic 15GG managed reniform nematode at midseason

2021



2022





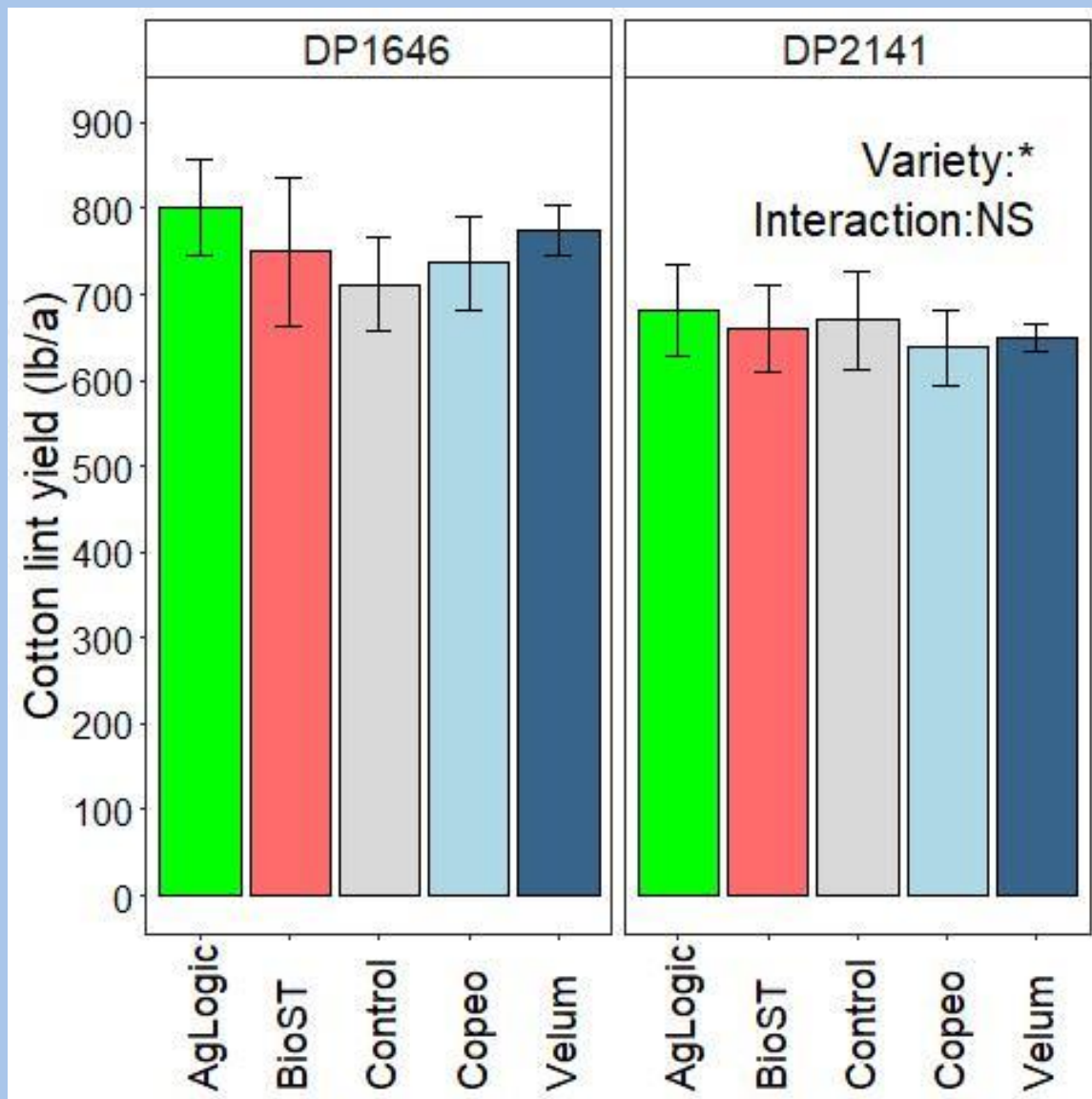


Oct 27, 2022: bigger, less mature resistant cultivar

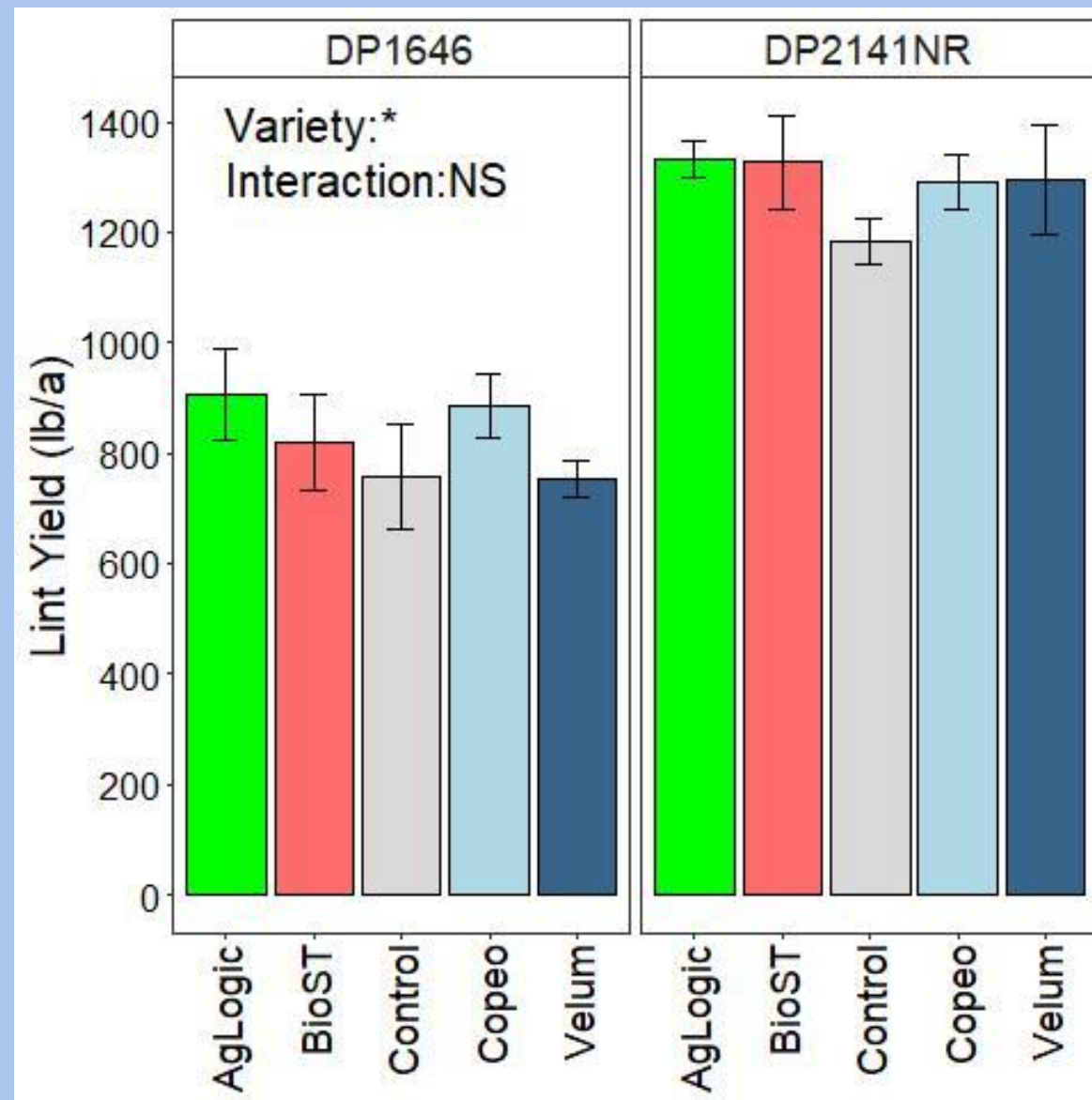


# Yield varied by year

2021

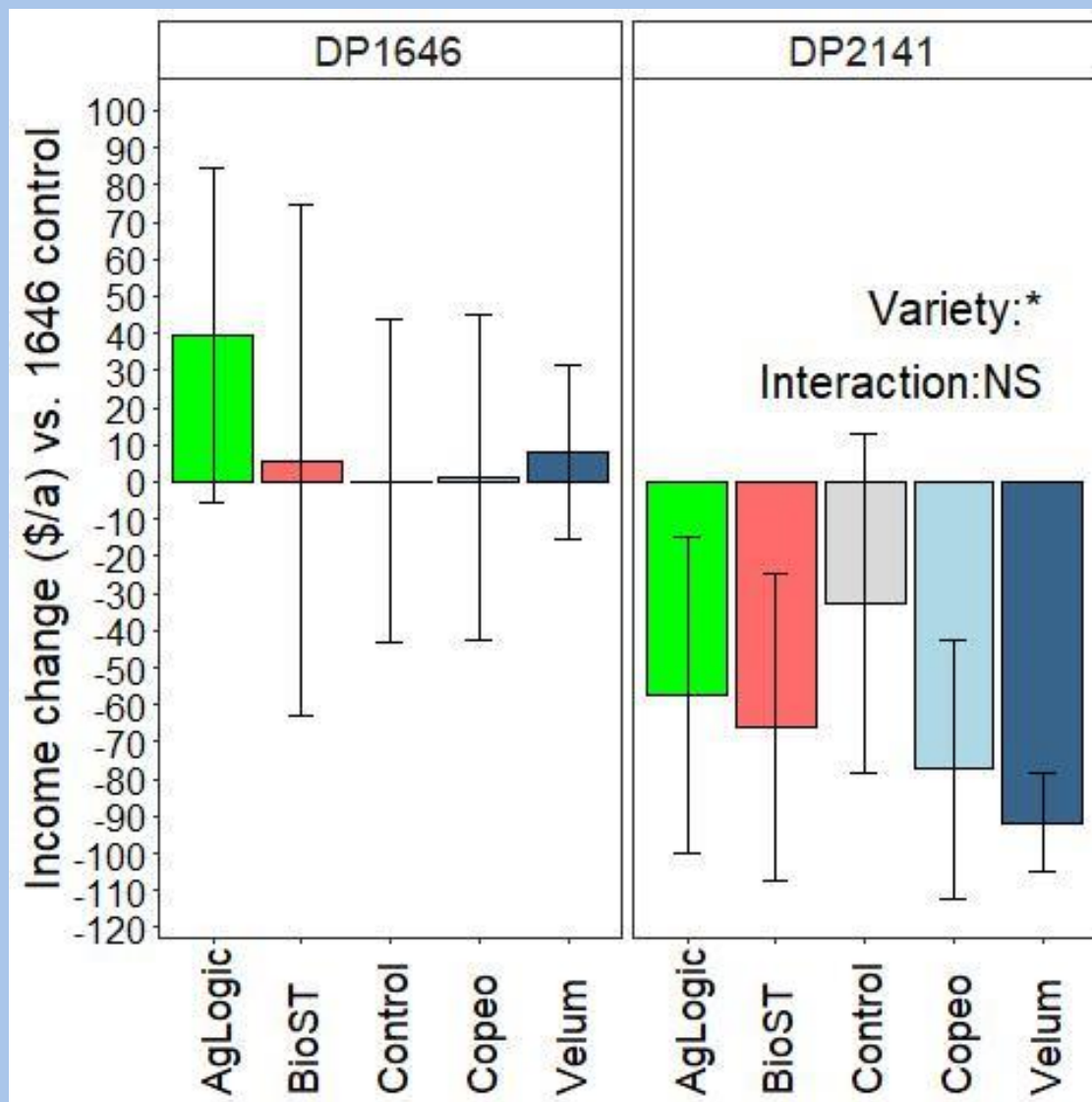


2022

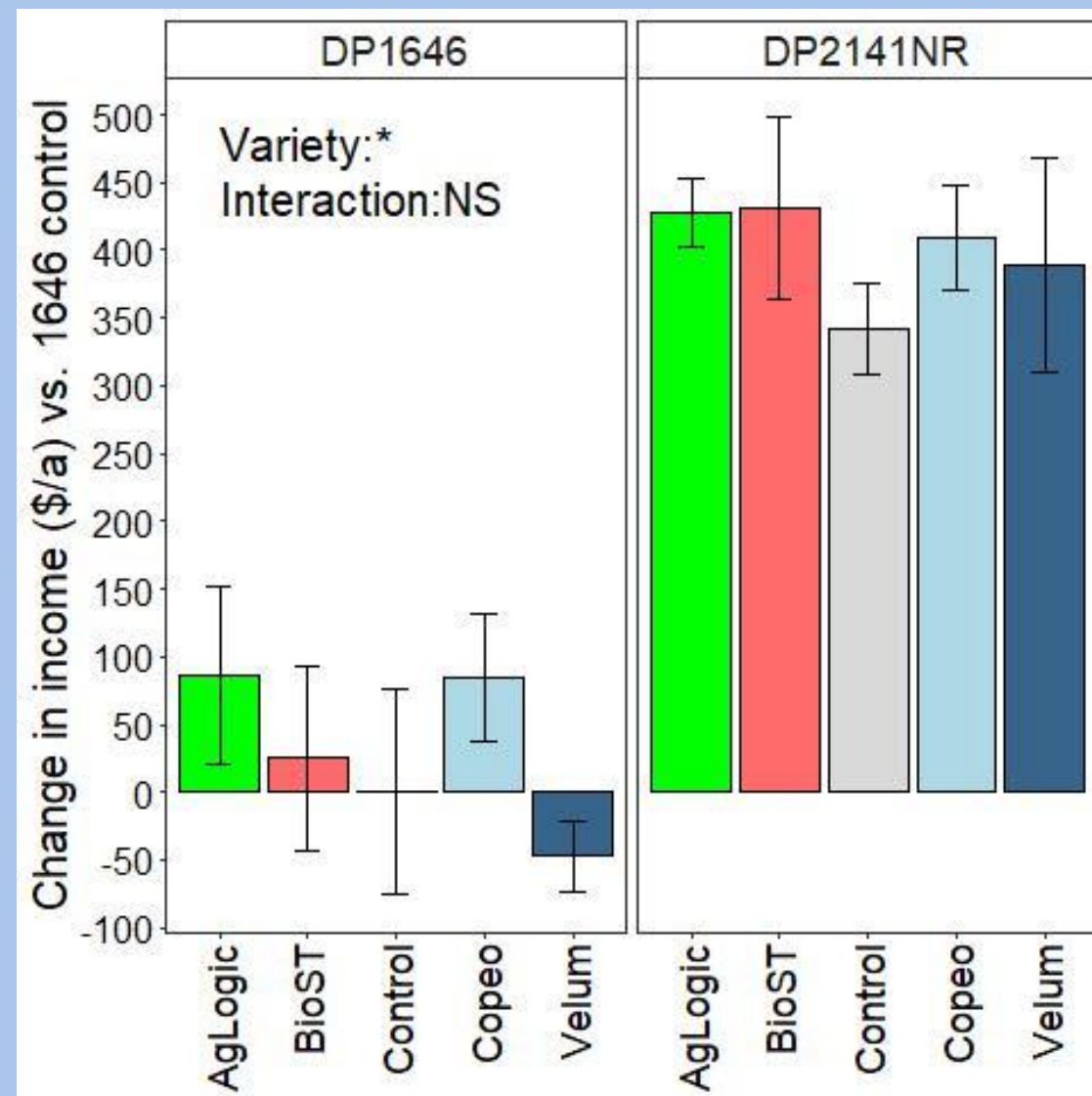


# Wide swings in economic returns

2021



2022





# Phytogen small plot trial at Quincy (2021-2022)

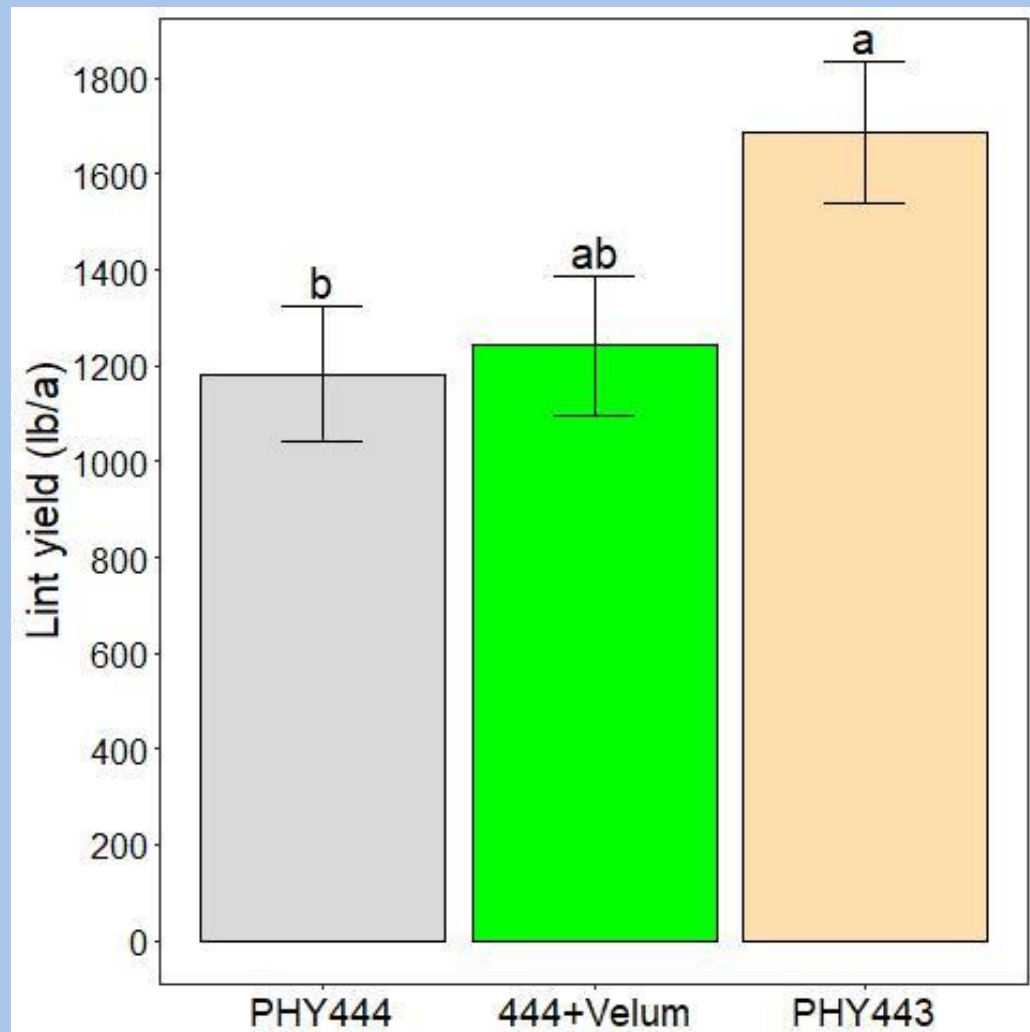


Aug 24, 2022: resistant cultivar much bigger canopy

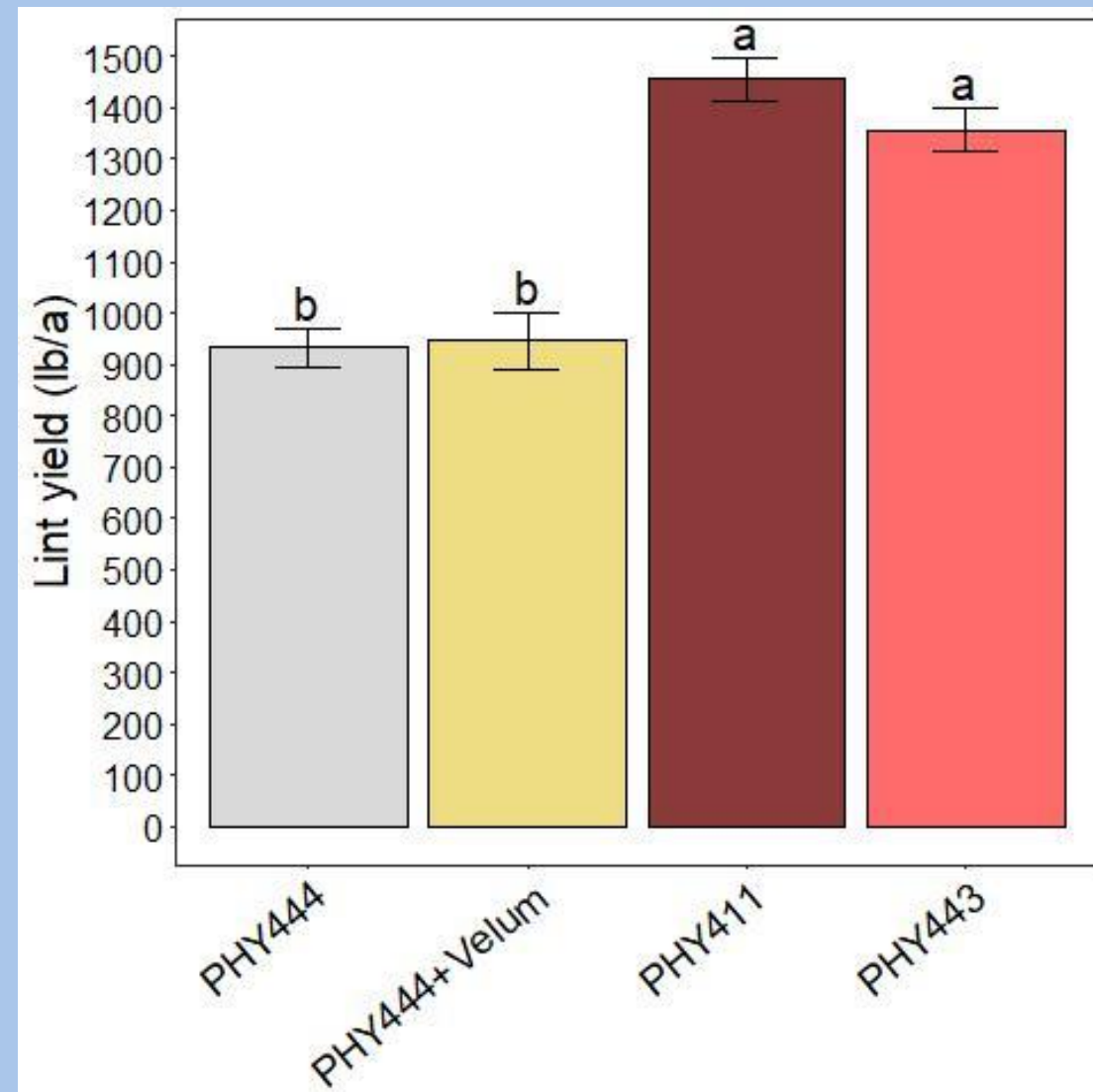


# PHY resistant cultivars increased yield

2021



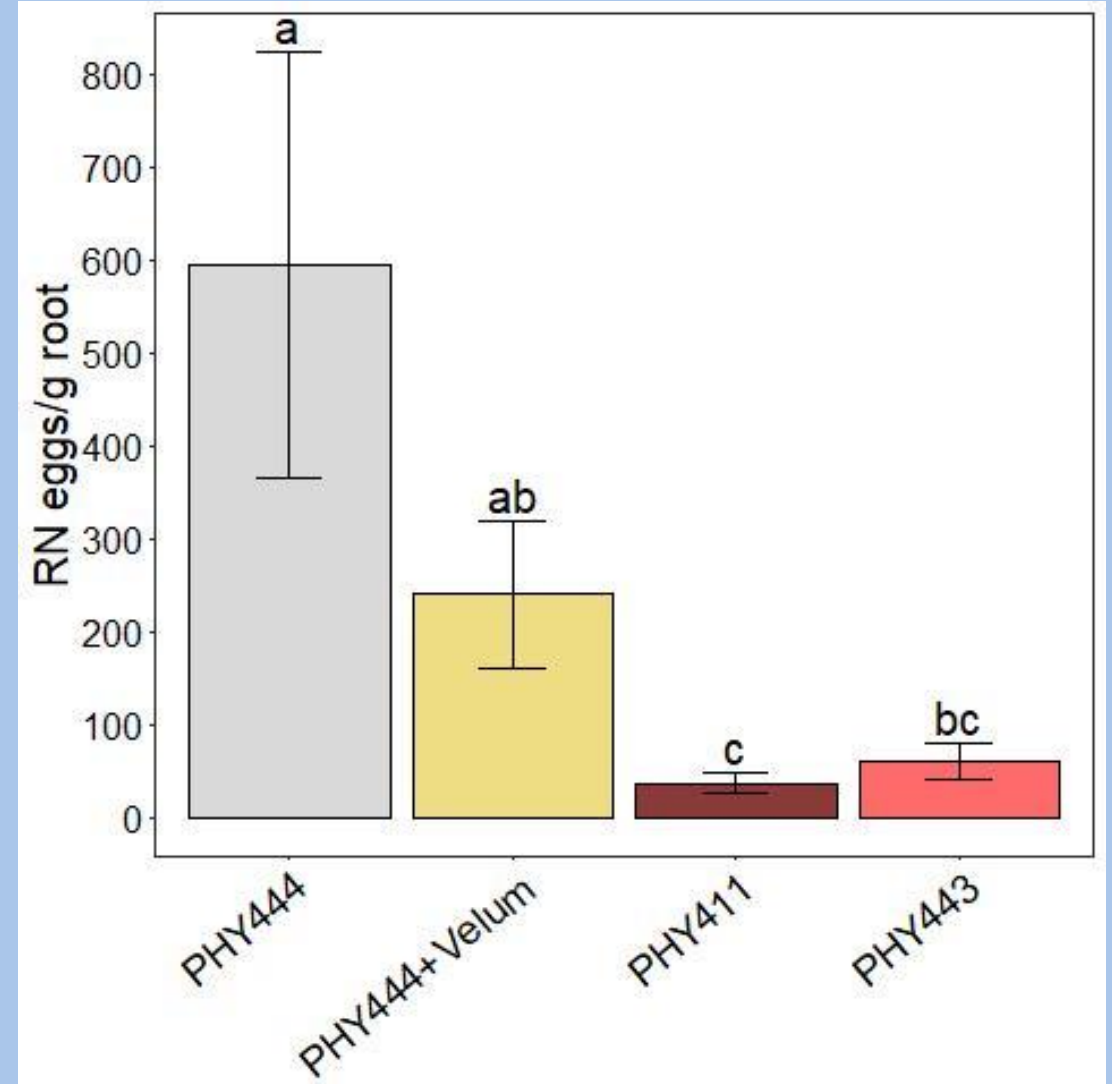
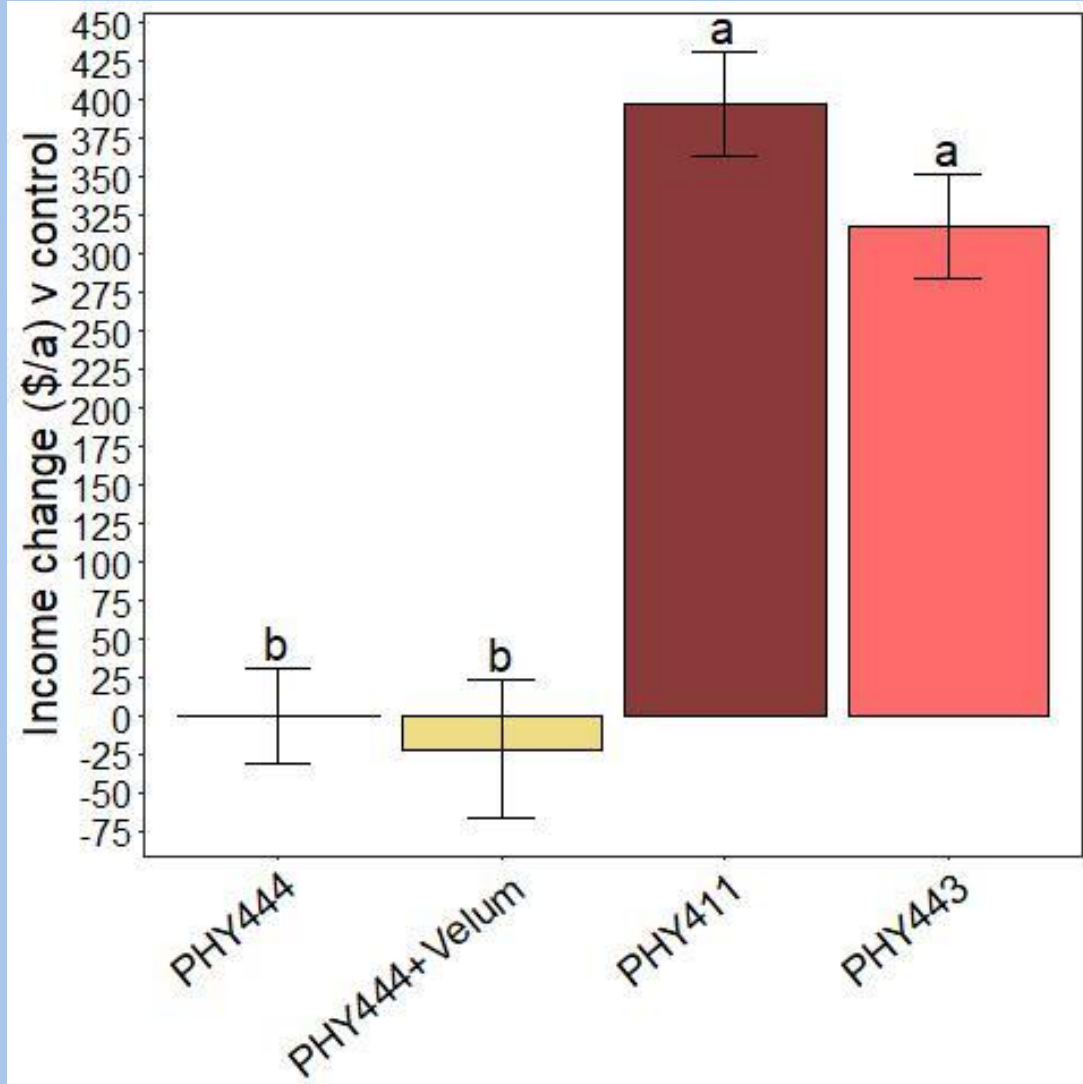
2022





# Resistance increased income, decreased infection (2022 shown)

Midseason



# Cotton resistant cultivars against reniform nematode:

- Reduce reniform infection (in-season)
- Reduce final counts (year over year control)
- Generally increase yield/income
  - DP2141NR more variable
- More effective than nematicides
  - AgLogic 15GG best non-fumigant option on reniform





# Peanut nematode management





# Root-knot nematode resistant runner peanut cultivars available

Cultivar	Status
TifNV-High O/L	Most readily available
GA 14N	Available
TifNV HG	Limited (better grade/yield TifNV HiO/L)

- All current resistant cultivars from same source of resistance
  - Highly effective
- Potentially more nematode runner varieties coming
- Resistance available in other types:
  - Virginia (TifJumbo, GA 19HP)
  - Spanish types (GA-SP/RKN)



Resistant (TifNV-High O/L) vs susceptible cultivar (GA 06G) in 2019 on-farm trial



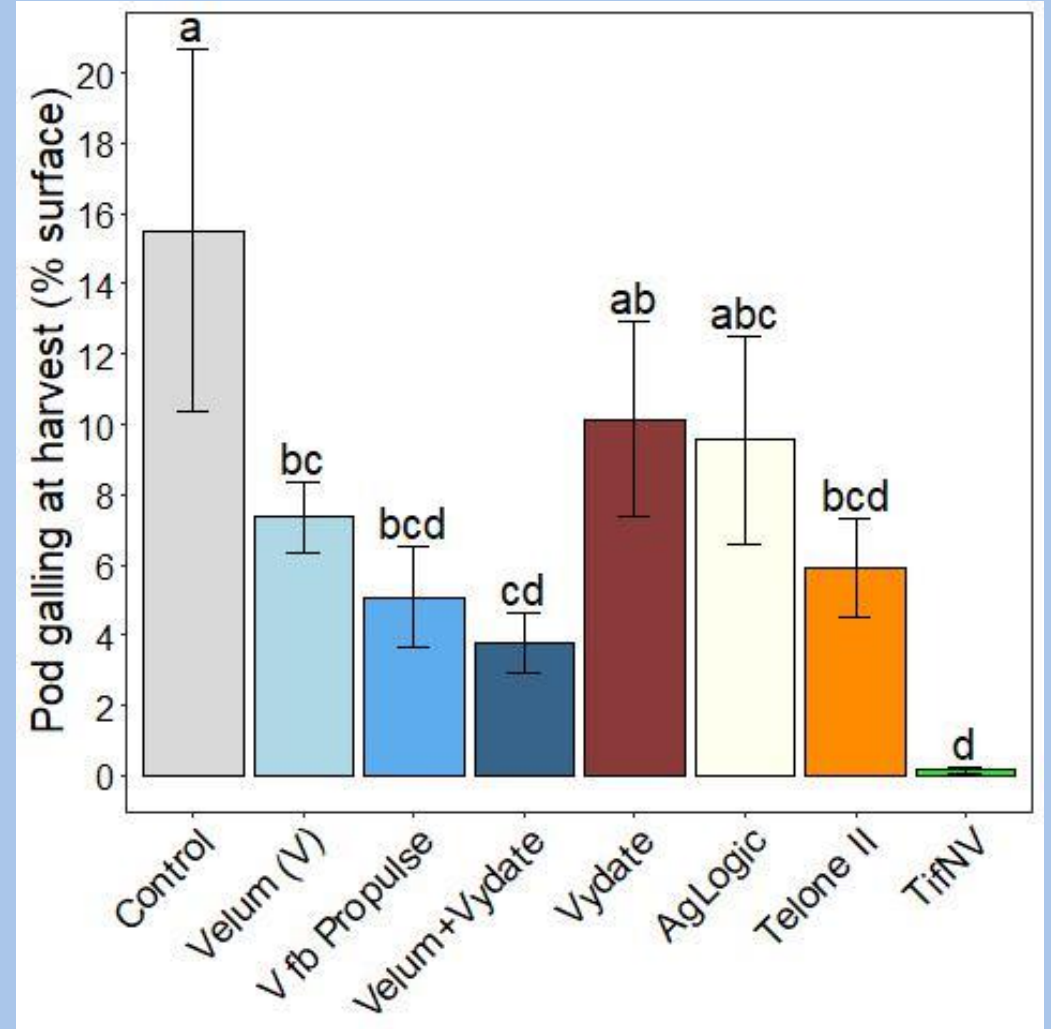
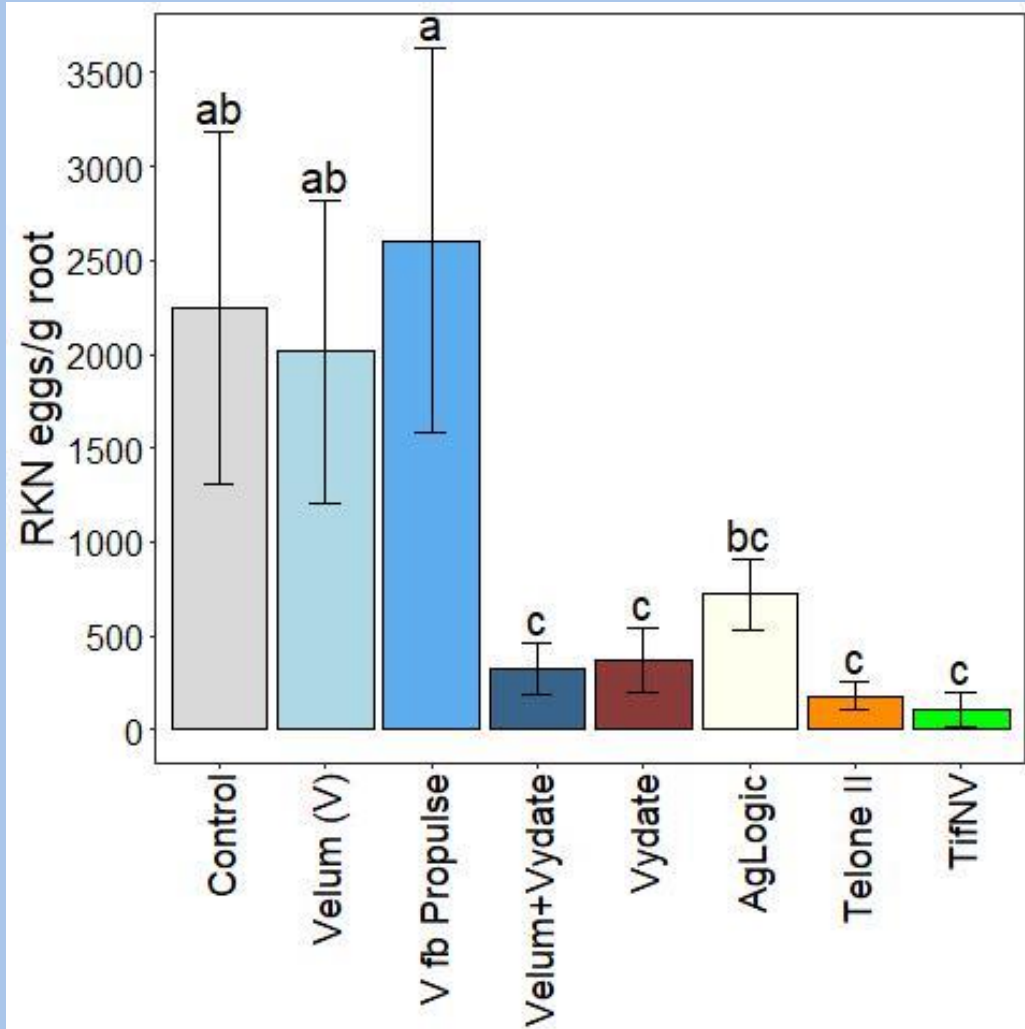
# Live Oak small plot peanut field trial 2022

	In-furrow treatment	At pegging treatment (42 DAP)	Cultivar
1	Untreated control	-	GA 06G
2	Velum 6.5 oz/a	-	GA 06G
3	Velum 6.5 oz/a	Propulse 13.6 oz/a	GA 06G
4	Velum 6.5 oz/a + Vydate C-LV 68 oz/a		GA 06G
5	Vydate C-LV 68 oz/a		GA 06G
6	AgLogic 15GG 7 lb/a		GA 06G
7	Telone II 3 gal./a (preplant in-row shank)		GA 06G
8	-	-	<b>TifNV High O/L</b>

- 06G is root-knot nematode susceptible, TifNV High O/L is resistant
- Velum, untreated, and Telone got Admire Pro at 9 oz/a for thrips

# Resistance managed nematode infection best

Midseason (44 days after planting)



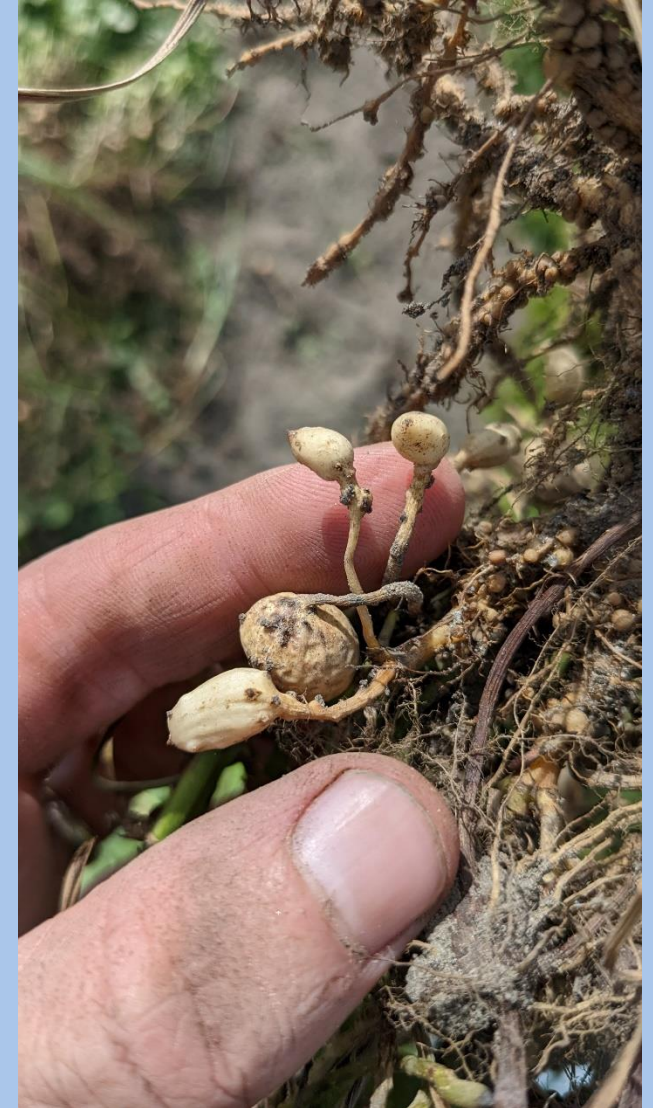
Letters indicate significant differences (Fisher's protected LSD,  $P < 0.05$ )



# Live Oak trial: substantial root-knot nematode pressure



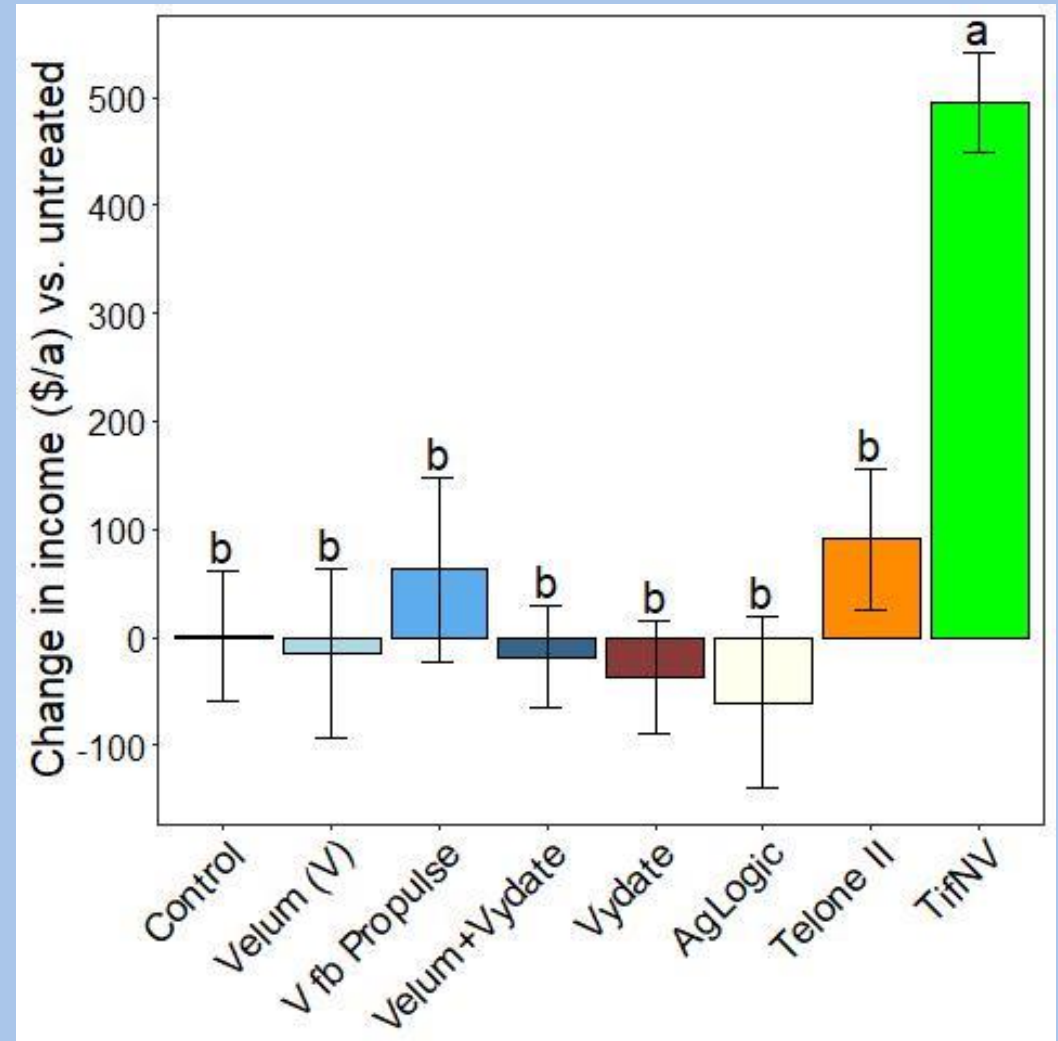
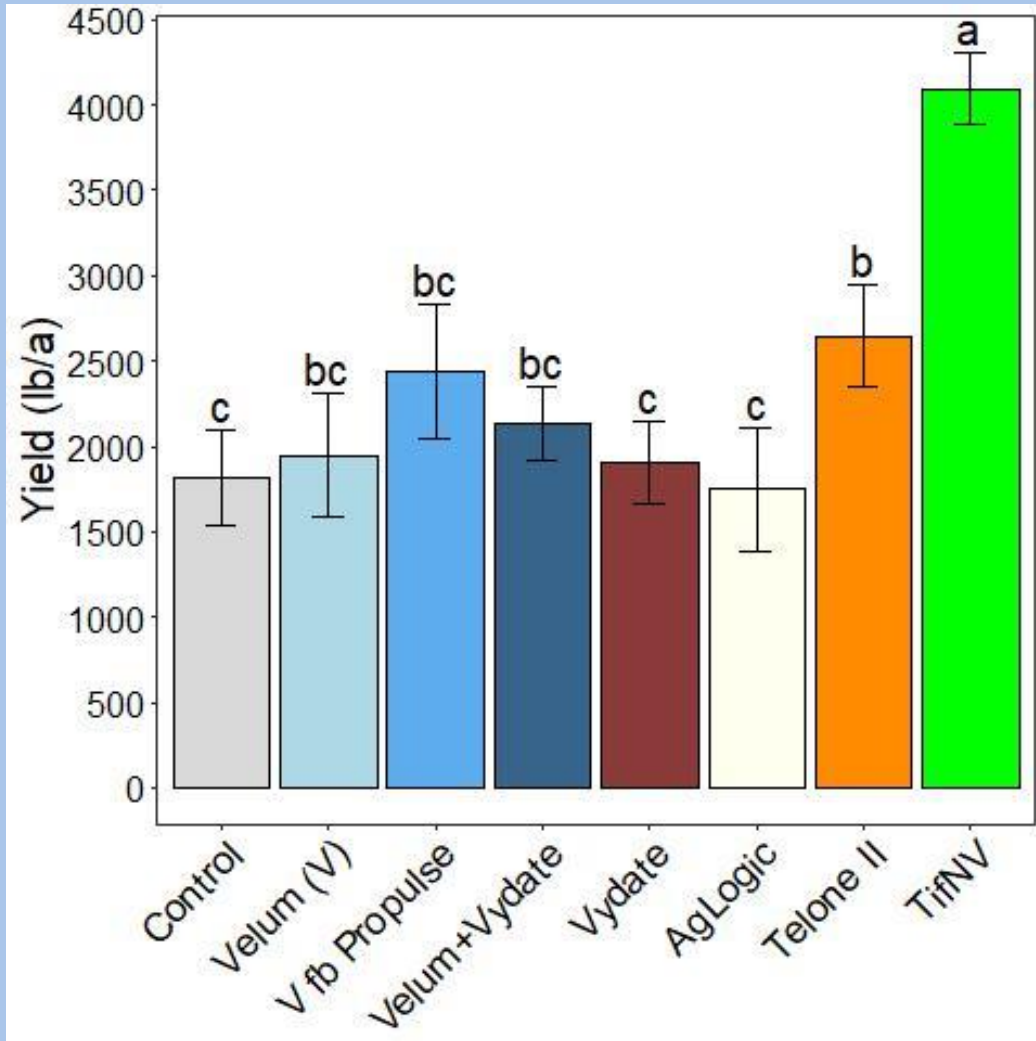
Poor canopy closure in susceptible peanut at 119 DAP



Pod/peg galling at harvest

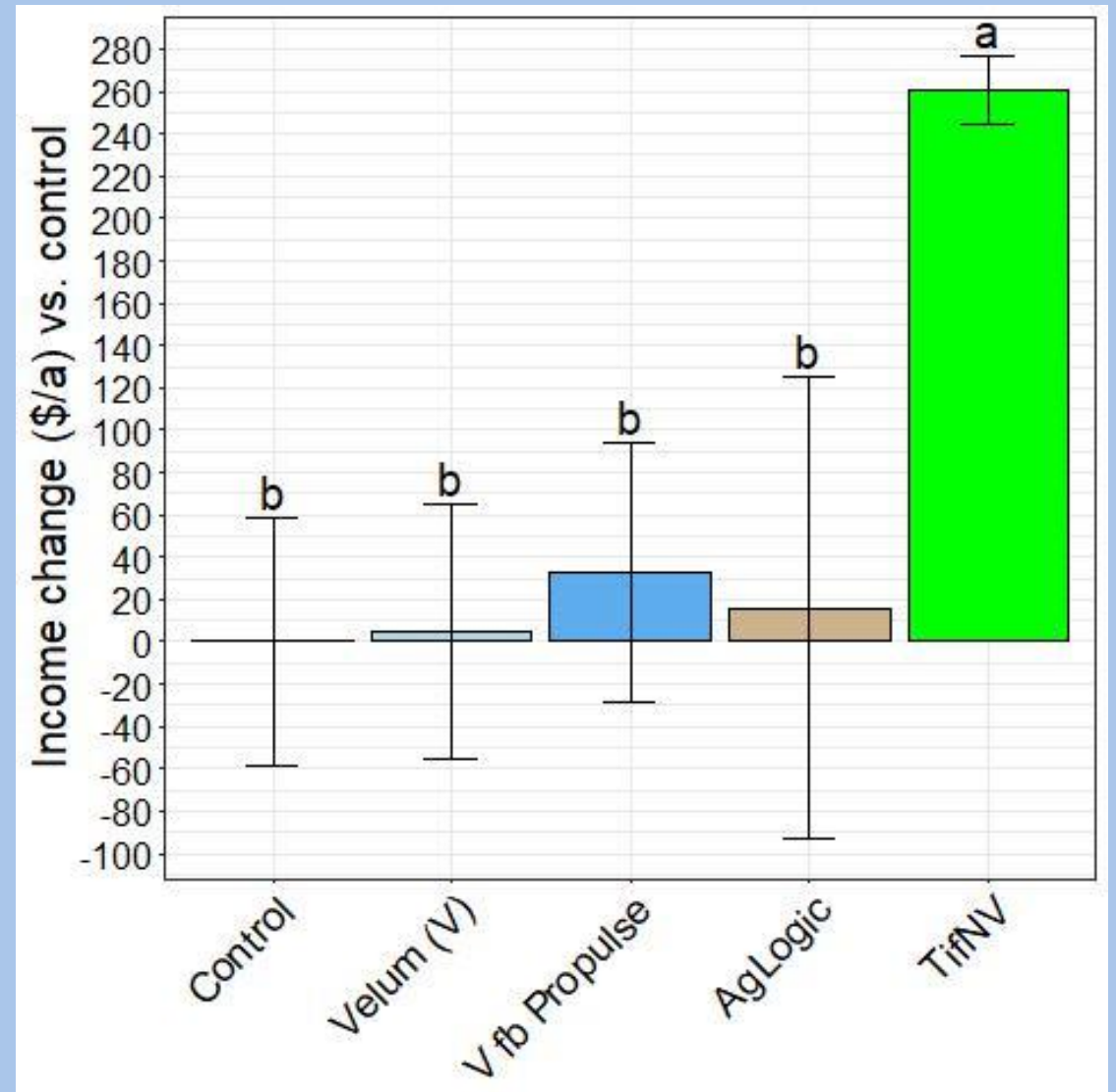
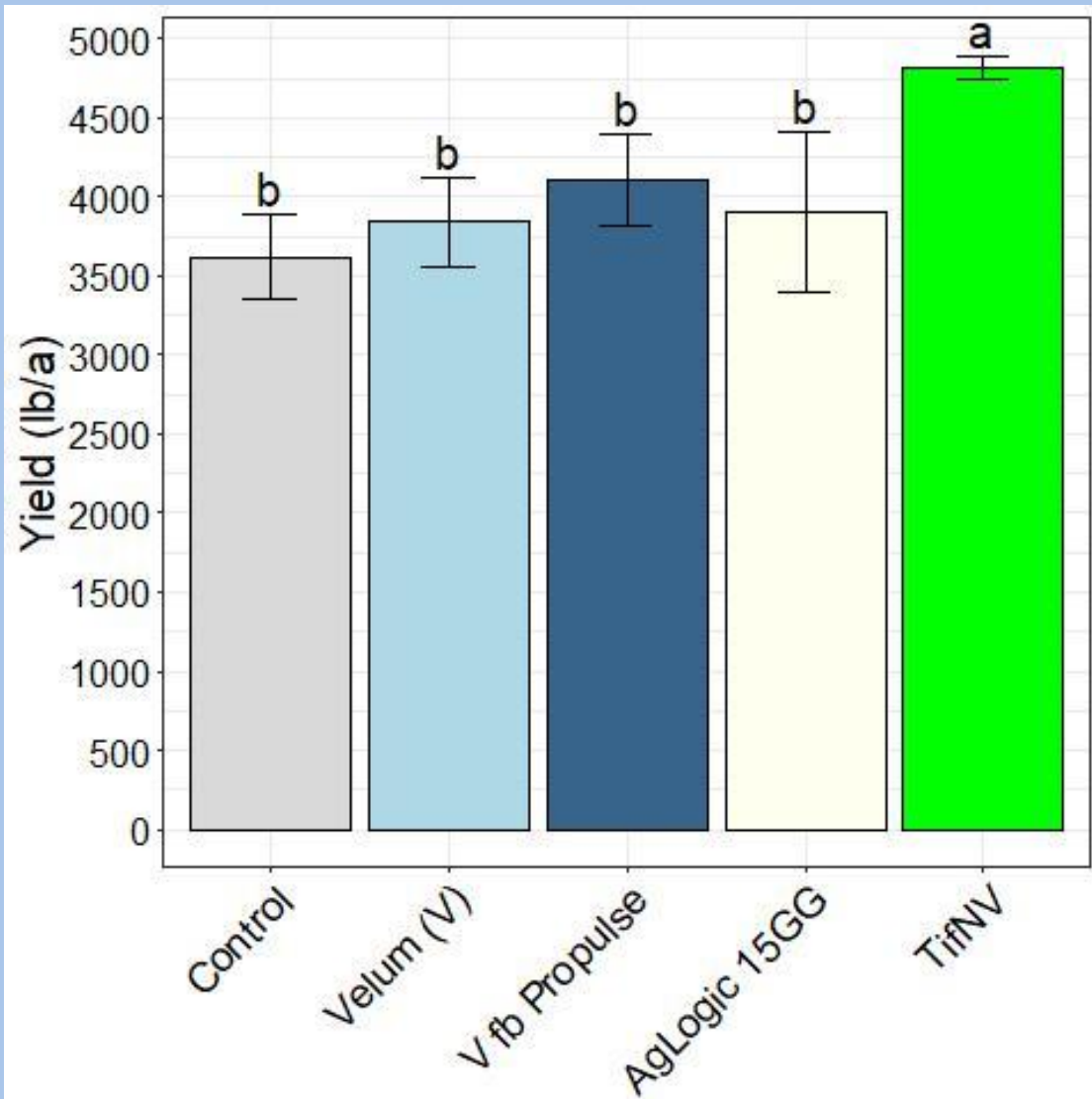


# Substantial yield and economic benefit from resistance





## Similar data from 2021 trial



# Citra small plot field trial

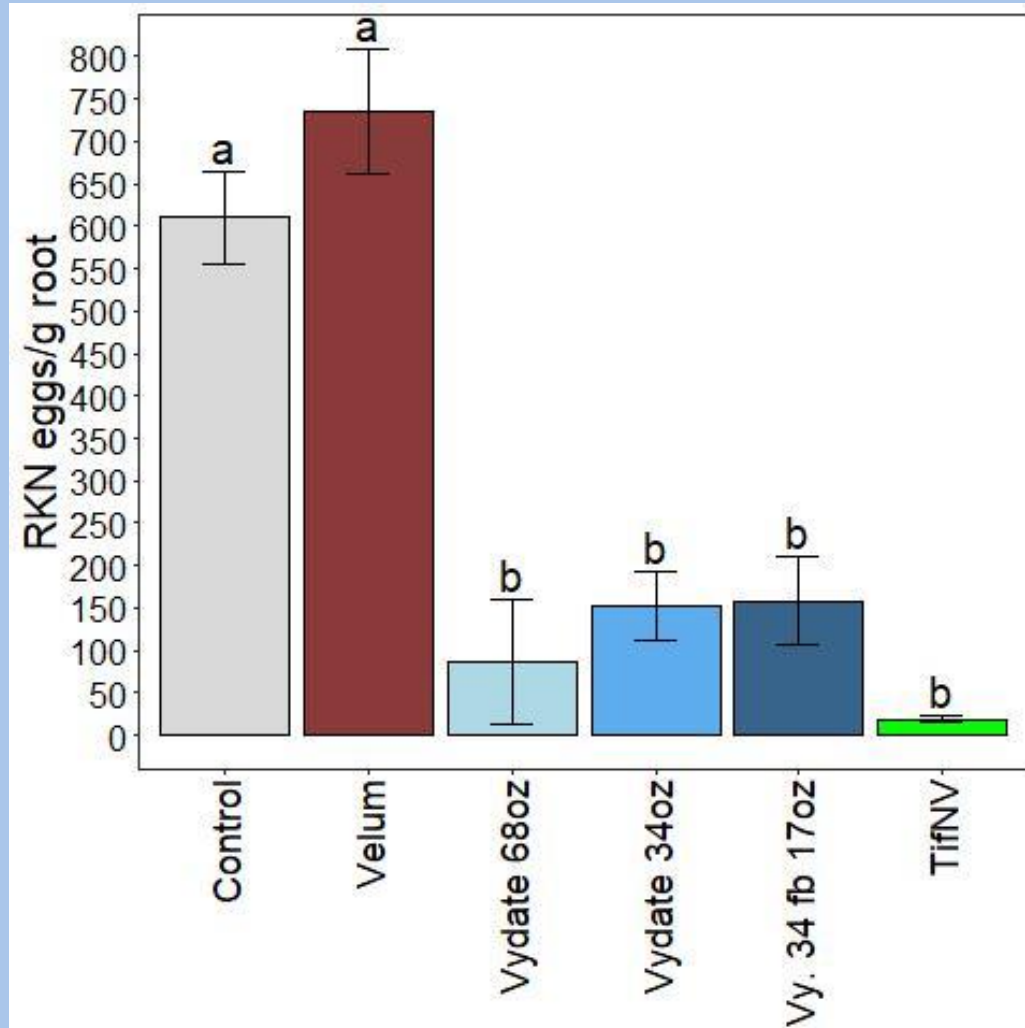
	In-furrow treatment	At pegging treatment (42 DAP)	Cultivar
1	Untreated control	-	GA 06G
2	Velum 6.5 oz/a	-	GA 06G
3	Vydate C-LV 68 oz/a		GA 06G
4	Vydate C-LV 34 oz/a		GA 06G
5	Vydate C-LV 34 oz/a	Vydate C-LV 17 oz/a	GA 06G
6	-	-	<b>TifNV High O/L</b>

- Sandy loam (86% sand), continuous peanut
- Substantial peanut root-knot nematode populations\*\*



# TifNV or Vydate managed nematodes

Midseason

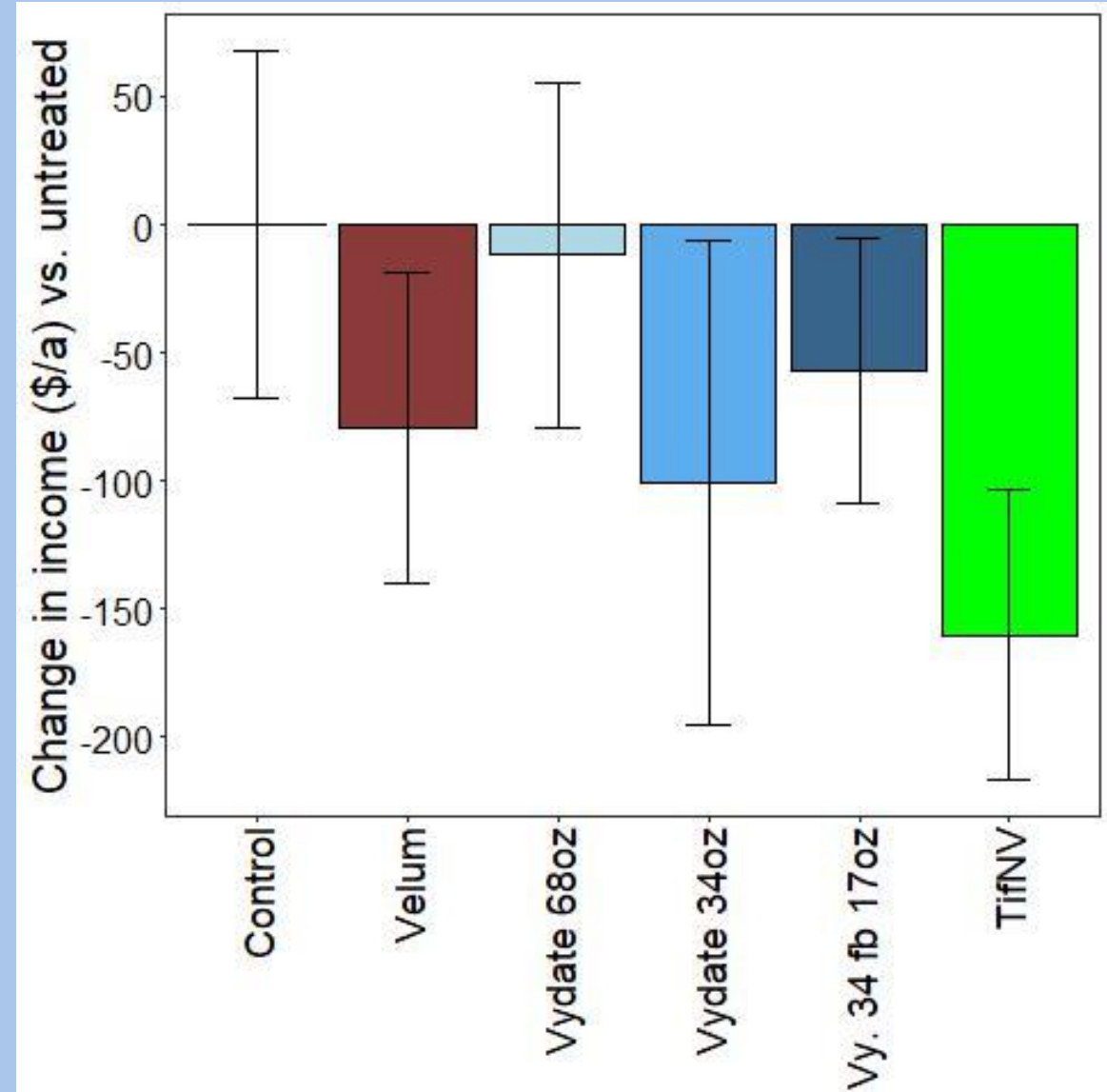
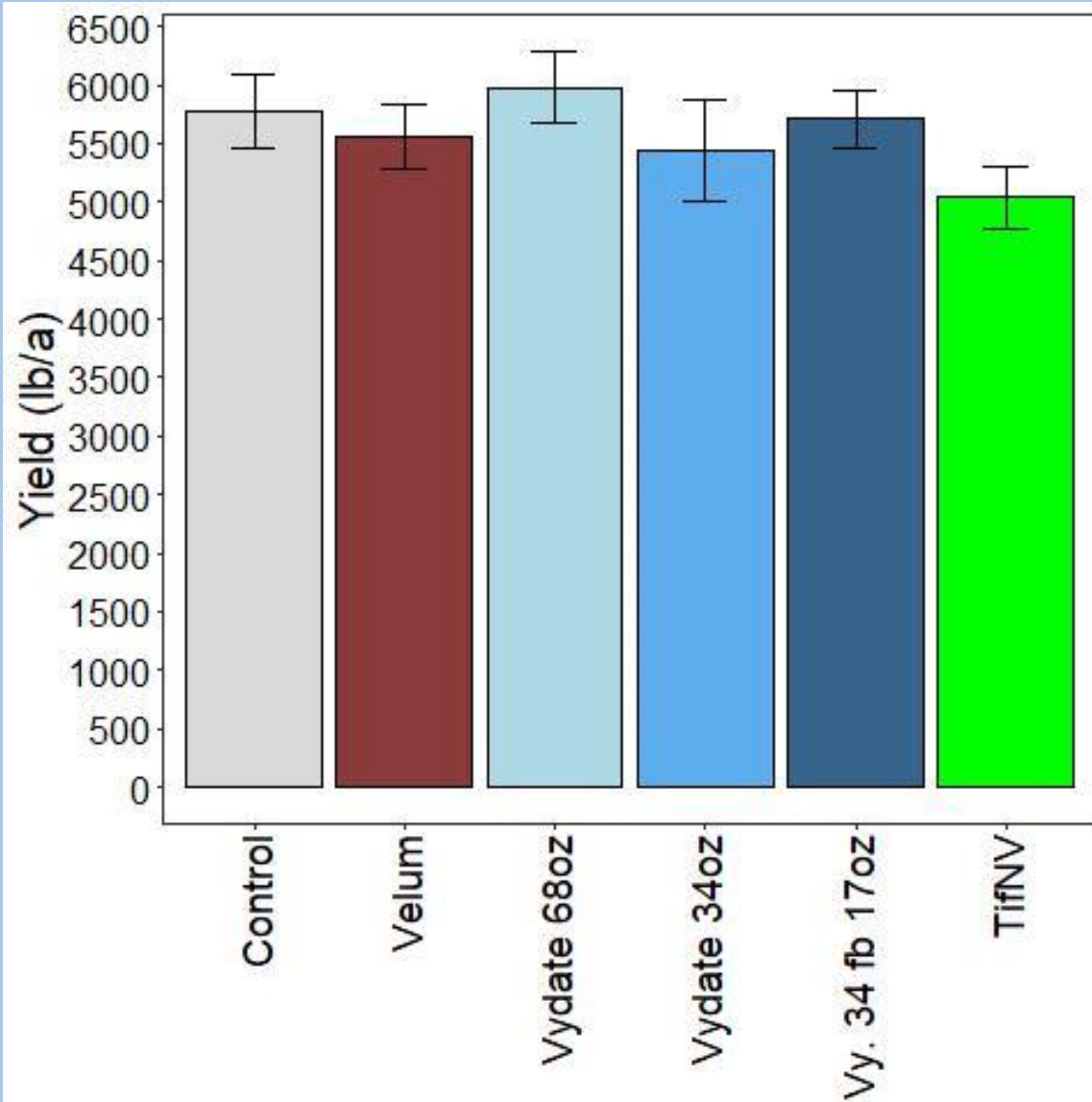


Midseason (49 days after planting, 5 days after pegging trt)



Generally healthy plants with no root galling at harvest

# No significant differences in yield or income





# Peanut nematode efficacy summary

- Resistance best option for severe root-knot nematode pressure
- Telone II likely better than non-fumigants
  - Not realistic for most growers
- Efficacy of non-fumigants similar?
  - Vydate C-LV consistent **population** management
- Rotation (including cover crops) is also important



# Questions?

Support from:



Resources on EDIS and Panhandle Ag

