



# Insect and Mite Research Updates 2022

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# Oddballs of the Year

- SCM vs transplants
- SCM does not like warm soil temps
- Early bedding, recent incorporation of wind break or cover, transplant soon after bedding
- Salt marsh or 'wooly bear' cutting transplants



Photo by John Obermeyer, Purdue



Photo by Matt Daudt



# Watermelon - Stcb

- New research from Purdue suggests a threshold of 5 beetles per plant is valid and yields increased if insecticide use is limited
- When to scout?
- Between May 14 and 21, 2021
- May 23, 2020
- May 7, 2019
- Spray trial planted May 21: 14 June 1<sup>st</sup> trt



PNAS Proceedings of the National Academy of Sciences of the United States of America

Keyword, Author, or DOI

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## RESEARCH ARTICLE

### IPM reduces insecticide applications by 95% while maintaining or enhancing crop yields through wild pollinator conservation

Jacob R. Pecenka, Laura L. Ingwell, Rick E. Foster, Christian H. Krupke, and Ian Kaplan  
[+ See all authors and affiliations](#)

# Striped Cucumber Beetle – What We Want to Avoid

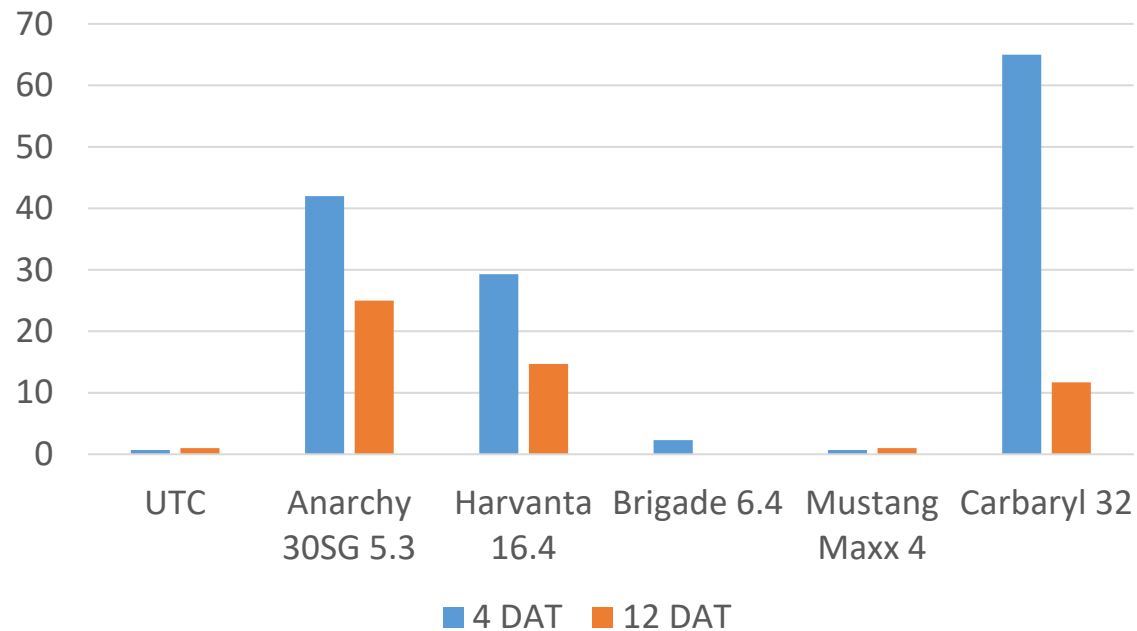




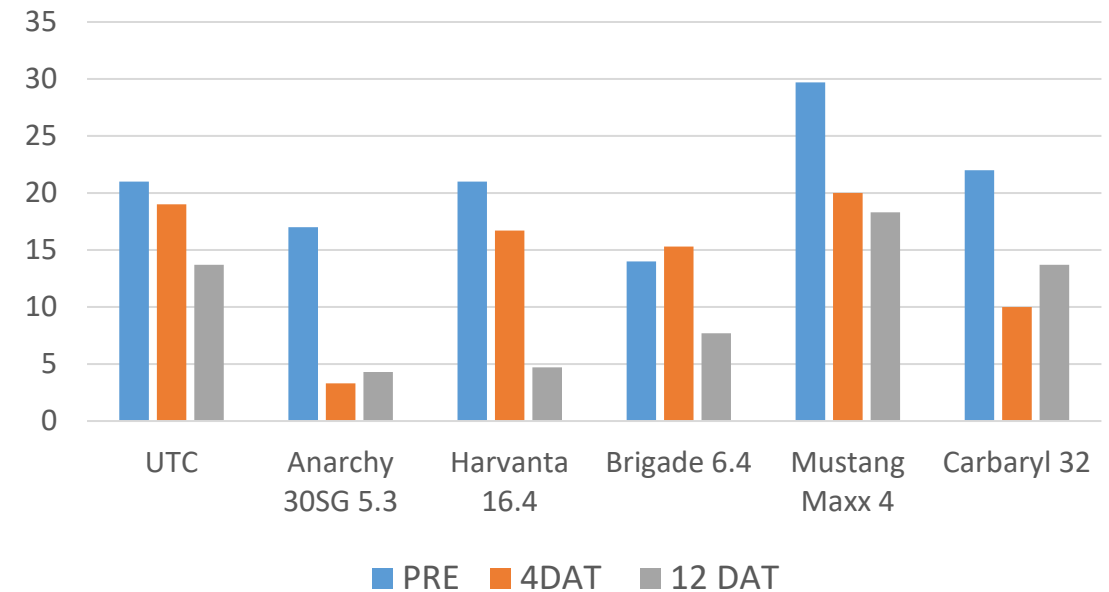
# Striped Cucumber Beetle

- F1 generation begins to emerge around the 4<sup>th</sup> of July; 13<sup>th</sup> July 2021
- Trt 22 July
- Carbaryl, Anarcy, Harvanta most effective; caution with carbaryl

Affected beetles / 12 row ft



Alive StCB / 12 row ft



# Rind Feeding WhoDunIt?

- StCB not the only rind feeders
- Check fruit rinds
- Worms vs Beetles. Beetle damage tends to look 'dirty'
- Neonics = beetles
- Pyrethroids = some worms (BUT NOT ALL!!!)
- Diamides = WORMS and some w/ beetles





# Watermelon – Spider mites



April 28 = no mites; 5 greenhouses

May 25 = mite city – 2 of 3  
greenhouses



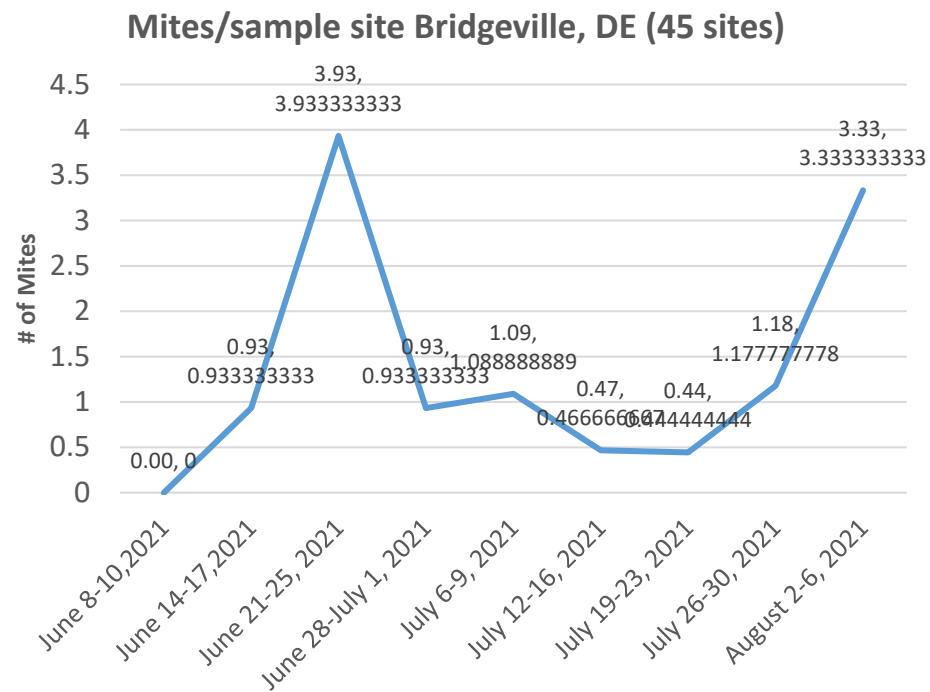
May 5, 2020





# Season Trends by Cody Stubbs

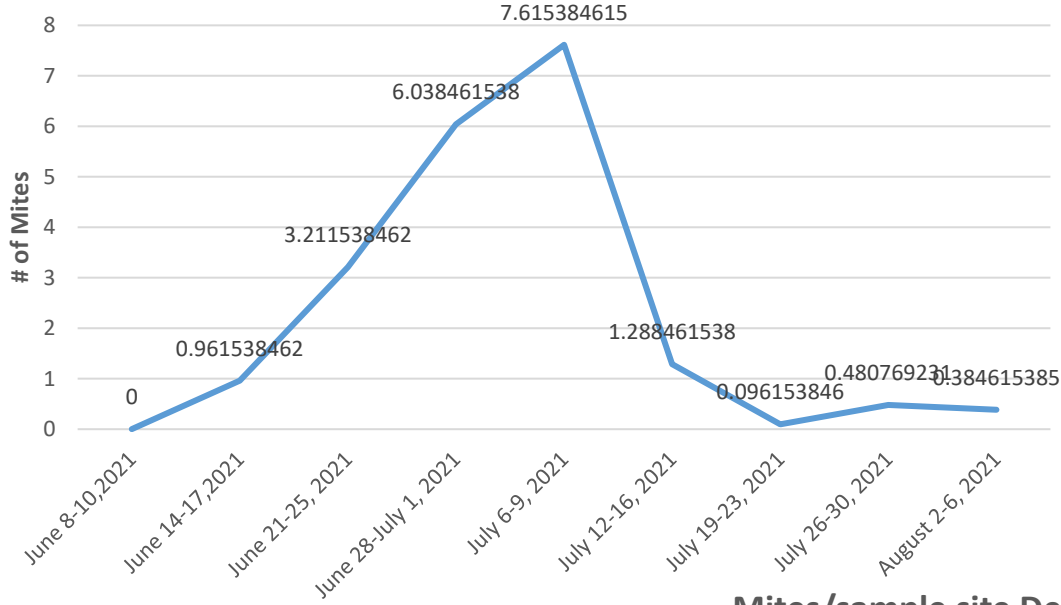
- Grid Sampled 7 fields, scouted weekly, sampled 5 leaves per field location



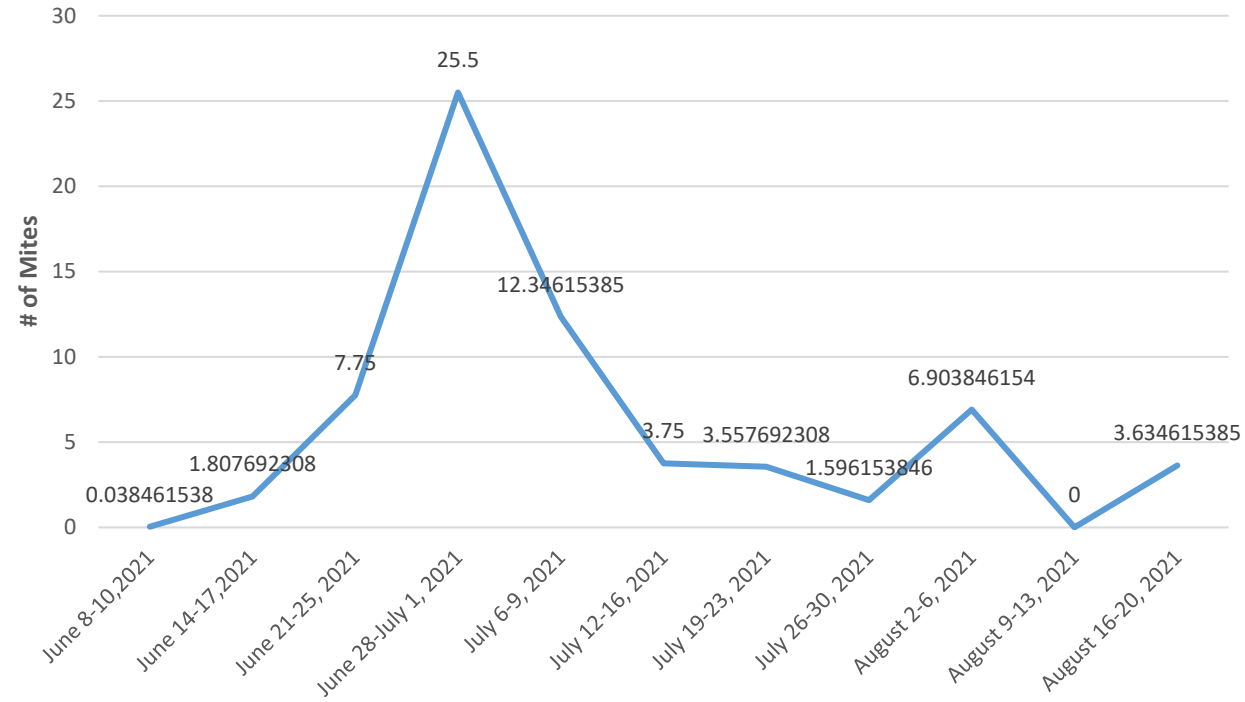


# Season Trends

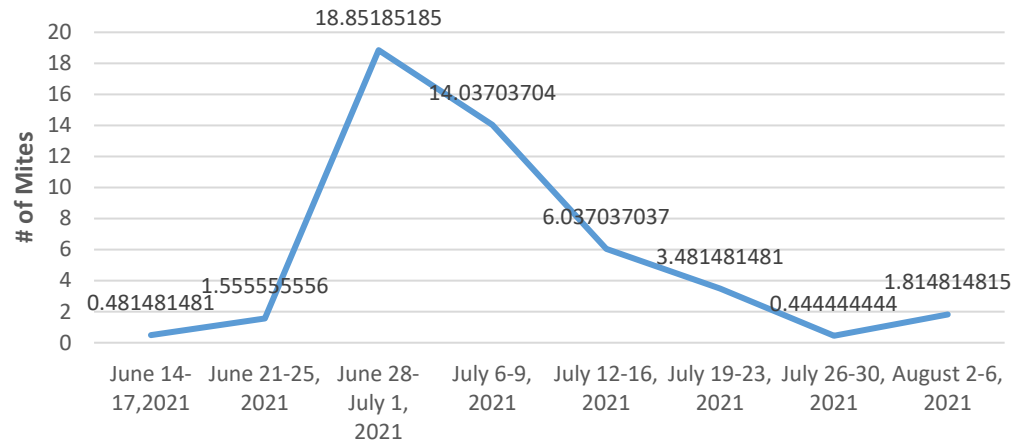
## Mites/sample site Laurel, DE 2 (52 sites)



## Mites/sample site Lincoln, DE (52 sites)

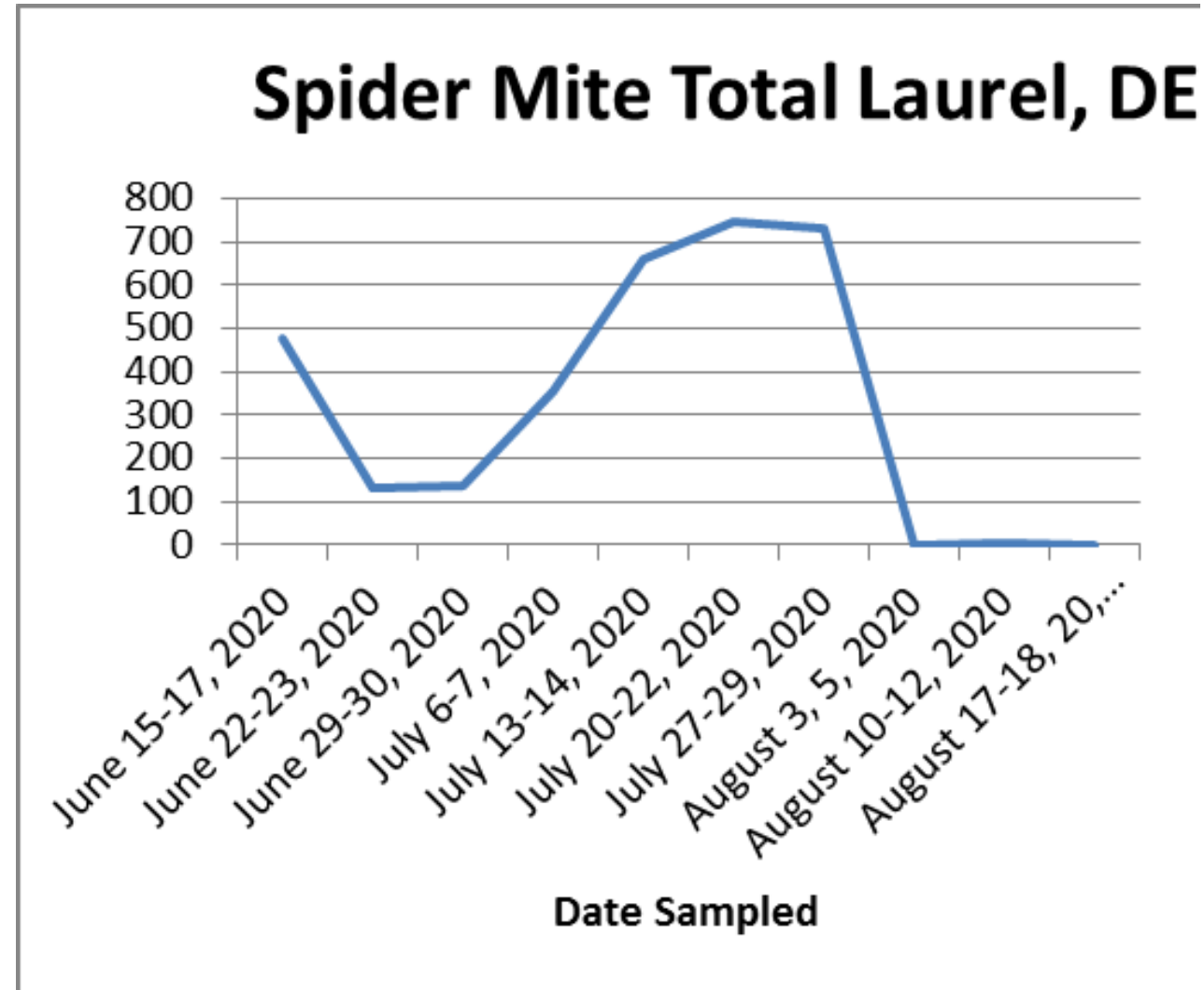


## Mites/sample site Delmar, DE (27 sites)



# Closing Mite Thoughts and 2020 Season Trend

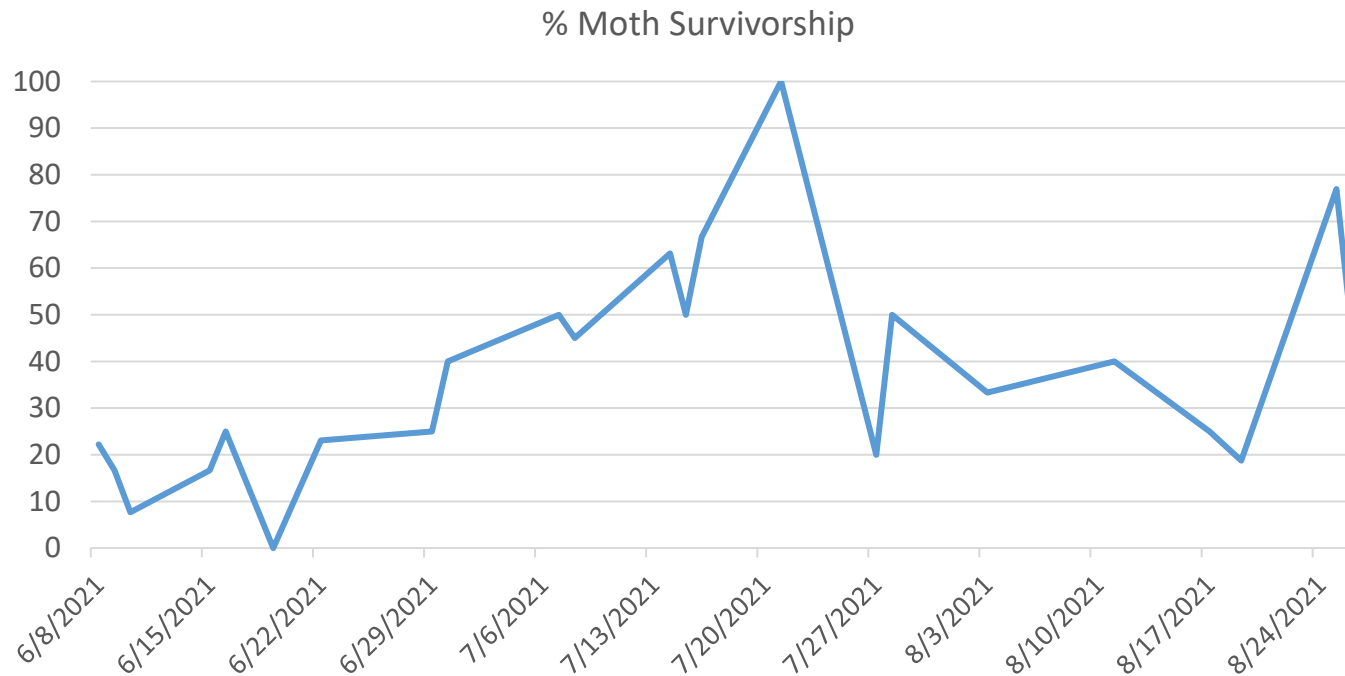
- Start with clean transplants
- July is mite month
- UD spider mite fact sheet:
- <https://www.udel.edu/academics/colleges/canr/cooperative-extension/fact-sheets/two-spotted-spider-mite/>
- Abamectin, fenpyroximate most consistent followed by etoxazole and acequinocyl. New: Fenazaquin
- Watch out for bee toxicities





# Sweet Corn

- One of my favorite crops. More pesticide applications applied for insects than anything else.
- Discussion will center on CEW, if you have any other insect pest questions, please put in the chat.

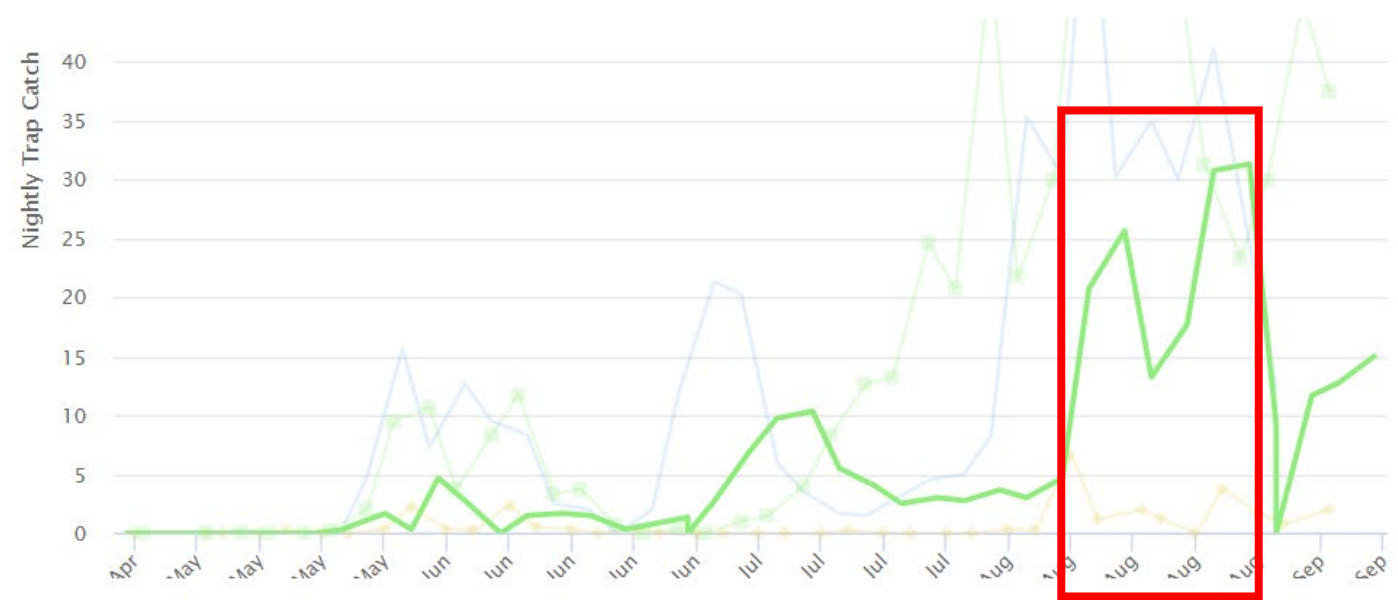




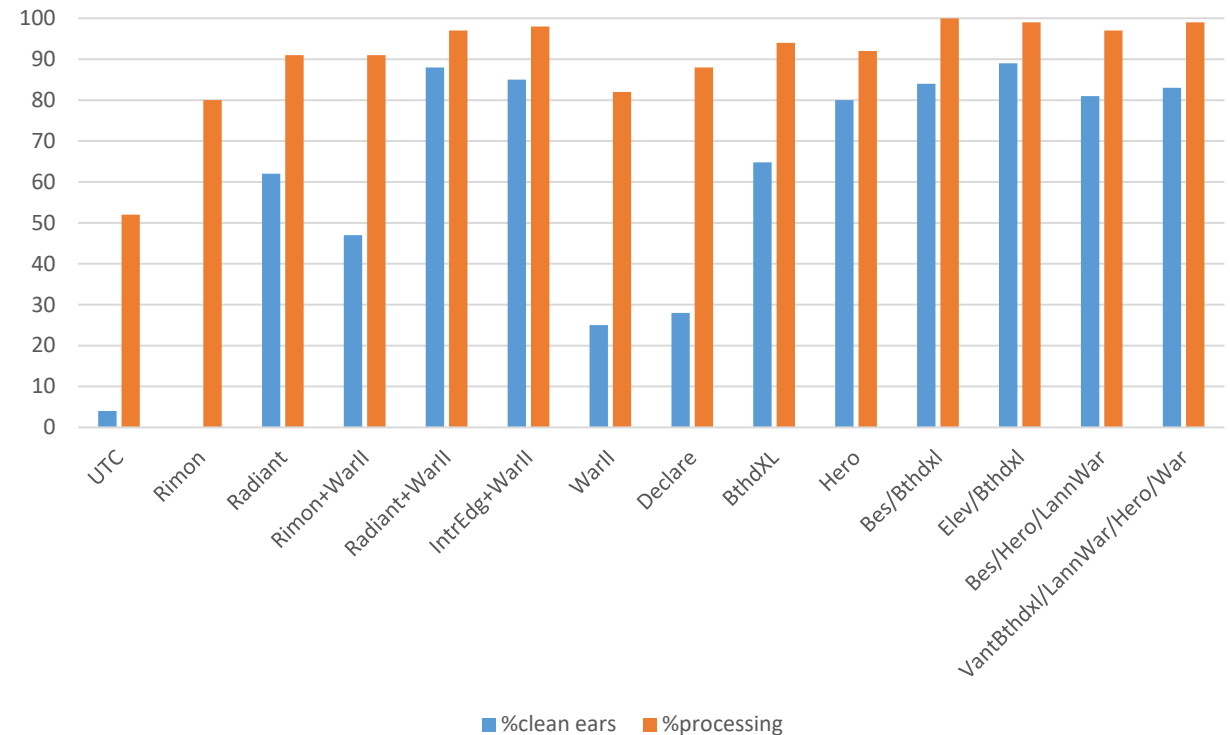


# CEW Spray Trials 2021: 3

- ‘American Dream’
- Moderate-high CEW, treated Aug 20 – Sept 4, 6 applications
- Harvested 7 Sept
- Treatments initiated at 50% silking
  
- Among pyrethroids:  
Hero>BthdXL>War=Decl
- Pyrethroid tank mixes: Radiant+War and Intrepid Edge + War performed well
- Bes/BthdXL and Elevest/BthdXL simple schemes performed as well as some more complex schemes

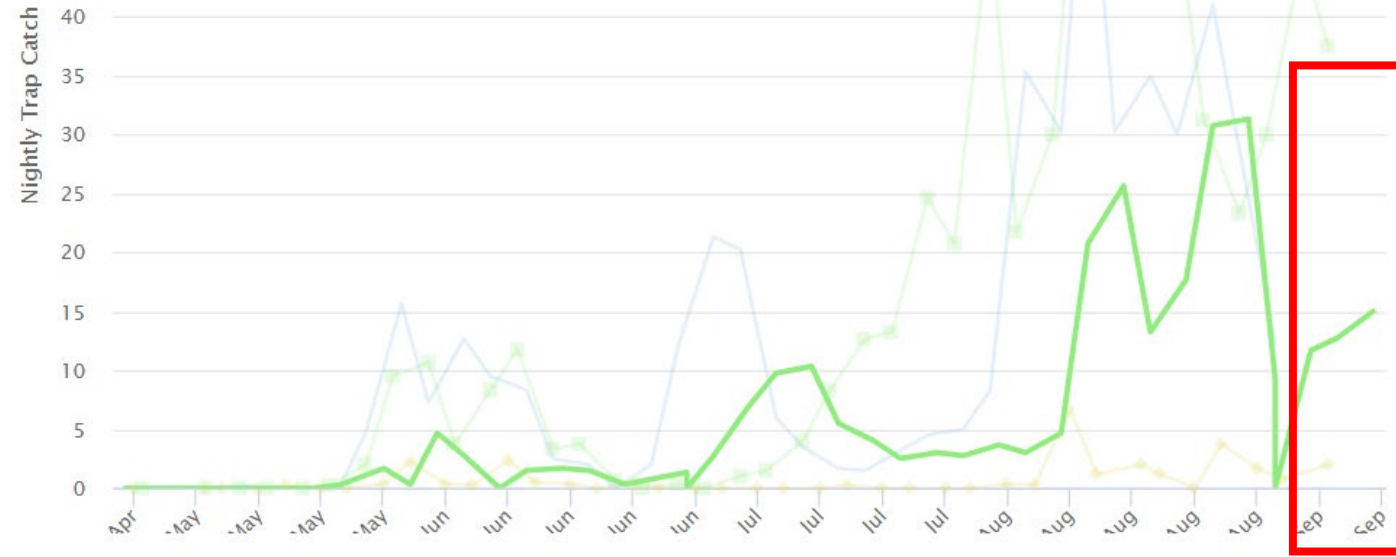


‘American Dream’ CEW3

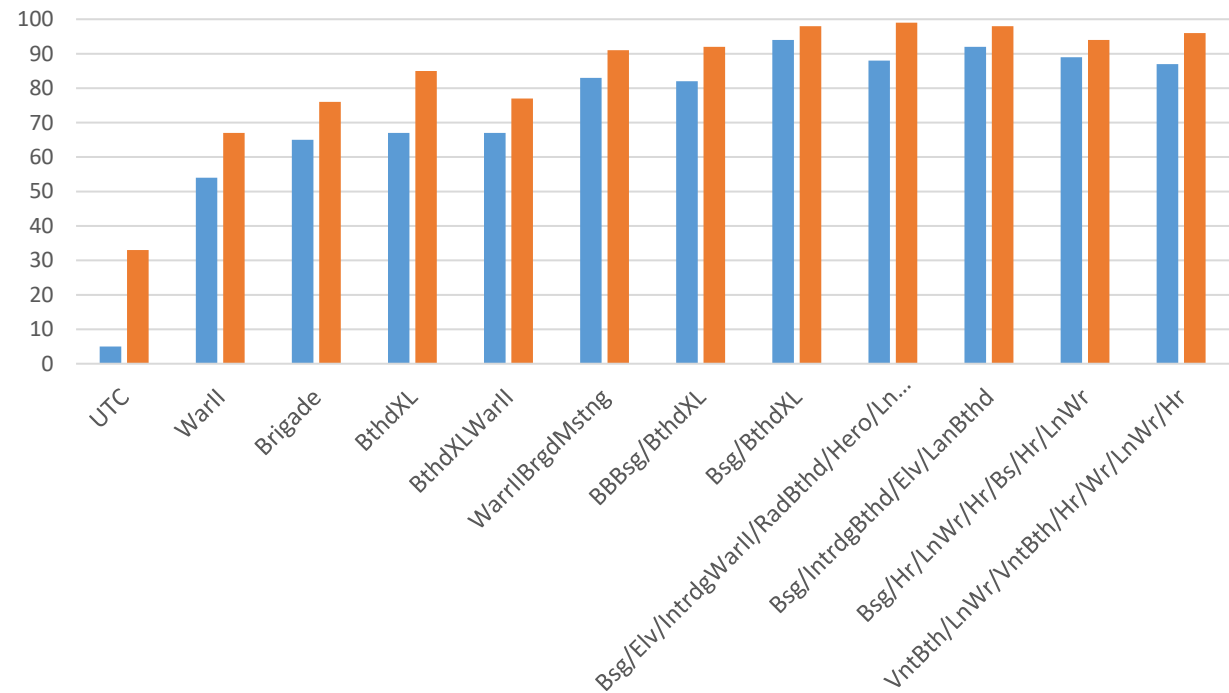


# CEW Spray Trials 2021: 4

- ‘Overland’
- Moderate CEW, treated Sep 4 – Sep 19; 6 applications
- Harvested 24 Sept
- Treatments initiated at 25% silking
  
- Among pyrethroids: Bthd=Brgd > Wrr, multi pyrethroid mixes: 3 way low > 2 way high
- Bes/Bthd slightly but not significantly better than Bes x 3/Bthd x 3
- Bes/Bthd as well as multi component schemes
- Initiating prior to silking = no improvement



Overland Sept4-Sept19





# What About Bt?

## The Handy Bt Trait Table - Sweet Corn Production

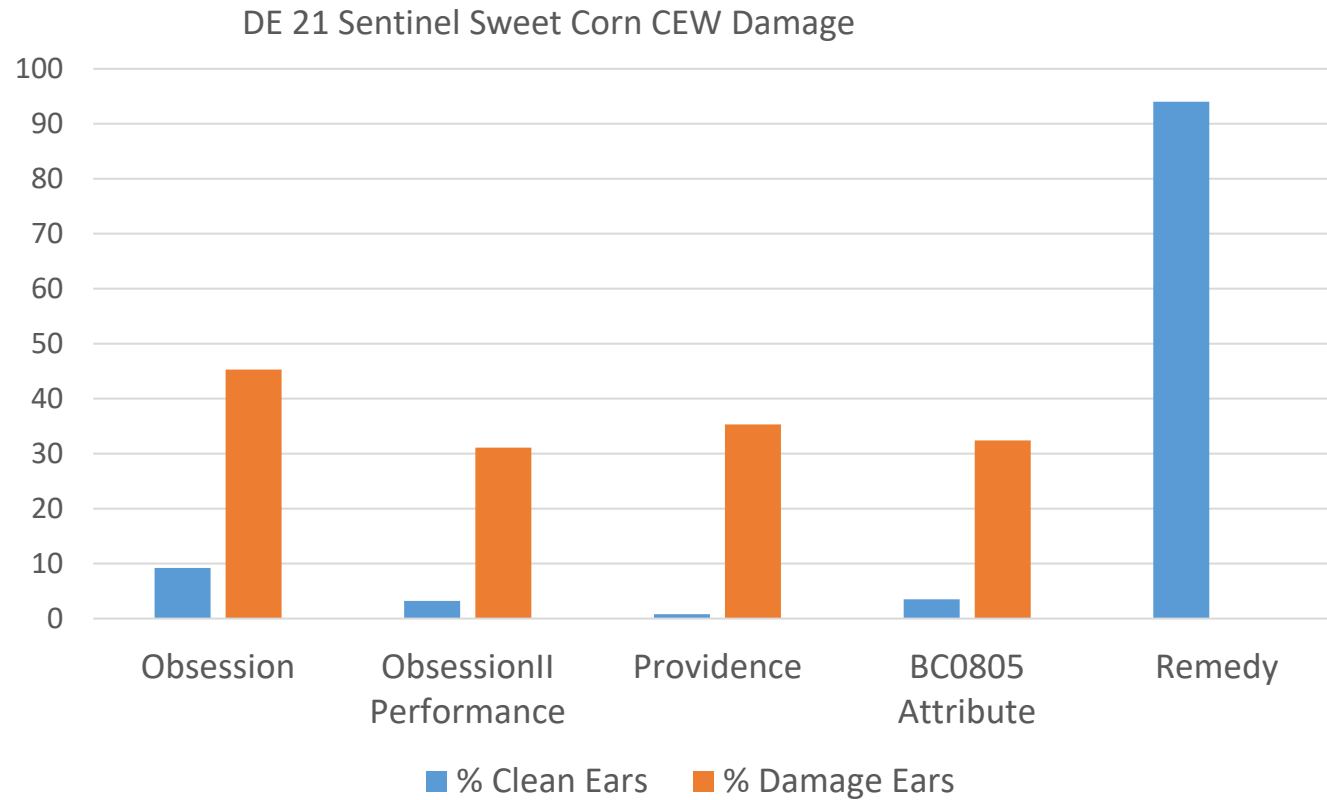
The latest version of the table is always posted at <https://www.texasinsects.org/bt-corn-trait-table.html>  
 For questions & corrections: Ben Phillips, Michigan State University ([phill406@msu.edu](mailto:phill406@msu.edu))  
 Contributor: Pat Porter, Texas A&M University (web site host) New February 2020

### Corn 'events' (transformations of one or more genes) and their Trade Names

Trade name for trait	Event	Protein(s) expressed	Primary Insect Targets, Herbicide Tolerance
Agrisure CB/LL	Bt11	Cry1Ab + PAT	corn borer + glufosinate
Agrisure GT	GA21	EPSPS	glyphosate
Agrisure Viptera	MIR162	Vip3Aa20	broad caterpillar control, except for corn borer
Roundup Ready 2	NK603	EPSPS	glyphosate
Yieldgard Rootworm	MON683	Cry3Bb1	rootworm
Yieldgard VT Pro	MON89034	Cry1A.105 + Cry2Ab2	corn borer & several caterpillar species

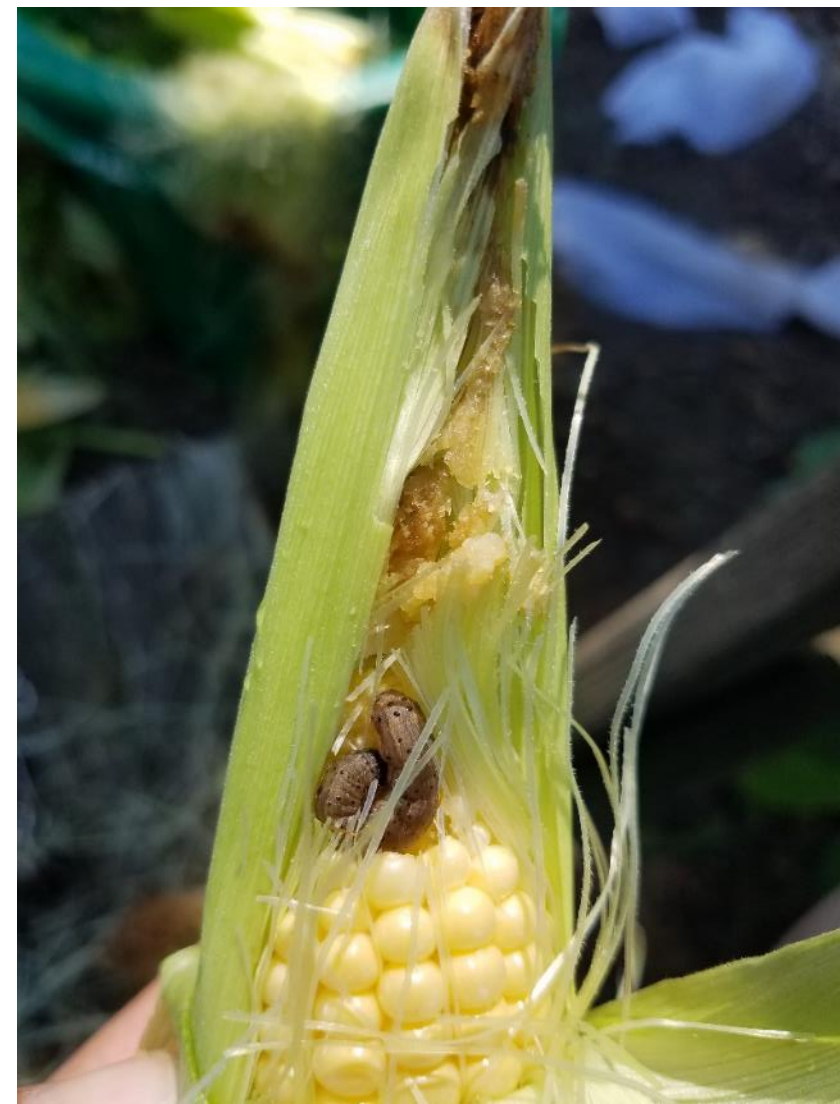
### Abbreviations used in the Table

RR Roundup Ready / glyphosate-tolerant	CEW corn earworm	SCB sugarcane borer
LL Liberty Link / glufosinate-tolerant	ECB European corn borer	SWB southwestern corn borer
CR corn rootworm	FAW fall armyworm	TAW true armyworm
		WBC western bean cutworm



Bt Sweet corn packages & associated varieties in alphanumeric order	Bt protein(s)	Marketed for control of:												Resistant populations	Herbicide protein(s)	Herbicide Tolerance				
		B		C		E		F		S		T				W	C	R	RR	LL
		W	W	B	B	W	W	A	A	B	B	W	C							
<u>Seminis Performance Series</u> Anthem II, sh2, bicolor Anthem XR II, sh2, bicolor Devotion II, sh2, white Obsession II, sh2, bicolor Passion II, sh2, yellow Temptation II, se, bicolor SV9010SA, sh2, bicolor SV9012SD, sh2, yellow SV9014SB, syn, bicolor	Cry1A.105 + Cry2Ab2 + Cry3Bb1	x	x	x	x	x	x						x	CEW	EPSPS	x				
<u>Syngenta Attribute I Series</u> BC0528, syn, bicolor BC0805, syn, bicolor BC0822, syn, bicolor BSS0977, sh2, bicolor BSS0982, sh2, bicolor GH0851, syn, yellow GSS0966, sh2, yellow WH0809, syn, white WSS0987, sh2, white	Cry1Ab	x	x	x	x									CEW	PAT		x			
<u>Syngenta Attribute II Series</u> Aspire, syn, yellow Milky Way, syn, white Protector, sh2, yellow Pursuit, sh2, bicolor Remedy, syn, bicolor	Cry1Ab + Vip3A	x	x	x	x	x	x	x	x	x					EPSPS + PAT	x	x			
<u>Syngenta Attribute Plus Series</u> BSS0761, sh2, bicolor Patriarch, sh2, bicolor	Cry1Ab + Vip3A	x	x	x	x	x	x	x	x						PAT		x			

# What Else is Bt Good For?



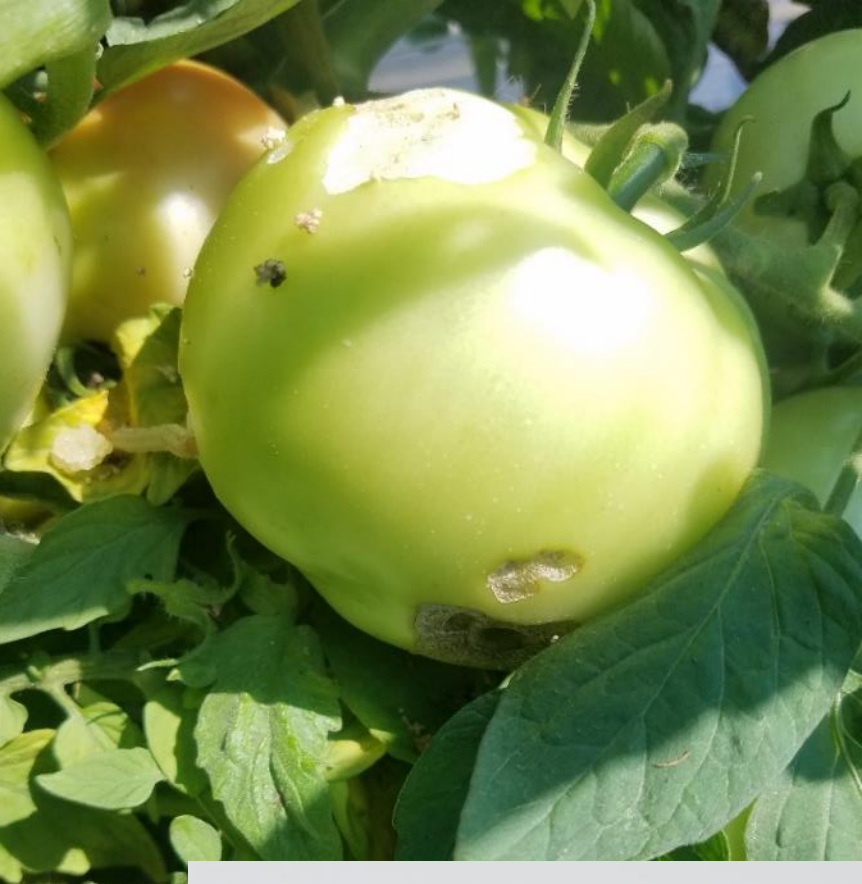


# What is Bt Not Good For?





# Tomato





# Cole Crops



Photos forwarded by  
Aaron Cooper





# Know Your Worms!



Imported cabbageworm



Cabbage Looper



Cross-striped - summer



Yellow striped armyworm – mid summer; watch transplants



Climbing cutworm – watch weedy fields, edges

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## Diamondback Moth



Corn earworm – post August



Beet armyworm – August, hot dry years, check pigweeds



Fall armyworm – late July



Webworm – Fall, can be numerous in VA





# Chemical Management – 11 MOAs

## **Bt products 11A**

Dipel, Agree, Javelin,  
Deliver, Crymax,  
**Xentari**, Thuricide, etc..  
(B.t.aizawi more effective)

Residual <3 days

## **Diamides 28**

Coragen, Exirel,  
Verimark, Harvanta

## **Spinosyns 5**

Radiant, **Entrust**,  
Blackhawk

## **Combo spinosyn product**

Intrepid Edge – 18 + 5

## **Avermectins 6**

Proclaim

## **Combo diamide products**

Durivo – 28 + 4

Besiege – 28 + 3

Minecto Pro – 28 + 6

## **IGRs 18, 15 – get small worms!**

Intrepid, Confirm

**15**

Rimon, Dimilin

## **METI's 21**

Torac

Also with powdery  
mildew activity

## **Pyrethroids 3A**

Bifenthrin, lambda-  
cyhalothrin,  
permethrin, many  
others

## **Organophosphate 1A/ carbamate 1B**

Orthene (not for CEW)

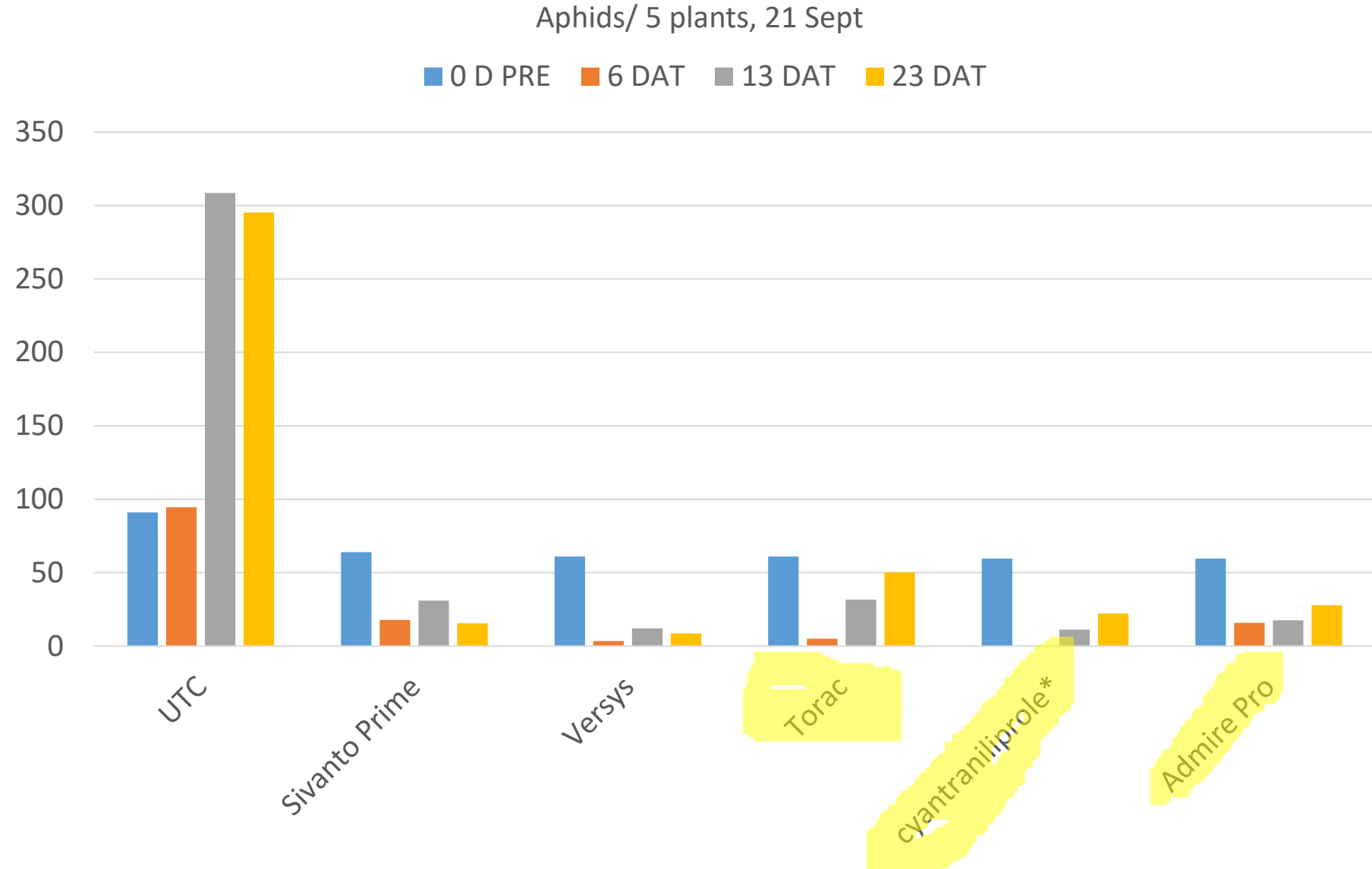
Lannate (no residual)

## **Na channel blocker, 22**

Avaunt, Avaunt eVo

# Cole Crops

- Destroy crop ASAP
- Good coverage, USE ADJUVANTS!
- Pay attention to Stink Bugs – pyrethroids and neonics
- Pay attention to aphids





# Welcome to Mike Crossley

- New ag research entomologist at UD: Mike Crossley  
[crossley@udel.edu](mailto:crossley@udel.edu)



Wisconsin and Georgia, Colorado potato beetle, peanut pests

# Ditch Survey



- How do ditches support beneficial insect communities?
- Can ditches be modified to enhance beneficial insects?
- Joint effort with UMD (Bill Lamp), UMES (Simon Zebelo)





# Program Updates

- Planning to provide scouting videos on extension webpage
- Pest Patrol: <https://www.syngenta-us.com/pest-patrol>

Label SDS | Find Resellers | Syngenta Global | Q

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syngenta  
United States

Syngenta US > Pest Patrol Alerts

### Pest Patrol Alerts

Pest Patrol offers timely updates from local university experts and Syngenta agronomic service representatives. Sign up to receive reports on insect and disease threat levels, outbreak predictions and more.

#### What is Pest Patrol?

Created in collaboration with leading experts across the South, Pest Patrol gives growers, consultants and retailers the valuable information they need to customize their pest management plans for maximum protection of crop yield and quality.

Show me alerts for

- Insect Reports: <https://www.udel.edu/academics/colleges/canr/cooperative-extension/sustainable-production/pest-management/insect-management-reports/>



# Chlorpyrifos Urgent Update



- <https://www.epa.gov/ingredients-used-pesticide-products/frequent-questions-about-chlorpyrifos-2021-final-rule#question-8>
- Food tolerances expire **Feb 28, 2022**
- Non ag, non-food uses can continue, but are also being reviewed (~Oct. 2022).
- Application to fruit tree bark is allowable IF trees do not and will not have fruit on them for 1 year after application





# Chlorpyrifos Urgent Update

- Due to the potential contamination of live poultry from Chlorpyrifos that could produce trace amounts of this pesticide in processed meat, growers should not use this pesticide in areas where live meat-producing animals are raised. = POULTRY
- Crop use for EXPORT ONLY is not subject to the Final Rule.
- Existing stocks CANNOT be used on food uses
- Chlorpyrifos may be used on heifers in a cow-calf operation as long as not offered for slaughter within one year of tag removal.
- What about pea seed already treated? EPA working with FDA, check FAQ periodically. Big GRAY area.

## Other updates

- Vantacor replacing Prevathon, use rate is roughly half that of Coragen's
- Portal XLO = Portal



# Acknowledgements

- The Crew: Joe Deidesheimer, Dylan Wilkerson, Cody Stubbs, Mary Chupp, Carson Mears, Calista Turman, Derrek Booth, Dick Monaco
- SARE, Sussex County Council, Delaware Dept. Agriculture, UMD LESREC, FMC, Syngenta, Seminis, Friel's





# Watermelon – Spider Mites

- Grid sampled several fields – Cody Stubbs

