



# Cranberry Tipworm 2023 Summer Trials

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# Cranberry Tipworm Damaged Upright



## Cranberry Tipworm

- Small gall midge fly
- Damages uprights by causing them to create new offshoot growth

# Cranberry Tipworm – Is it really a pest?

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- Pest – an animal, disease, or plant that causes damage that reduces yield
- Wisconsin – Yes
- Massachusetts - No

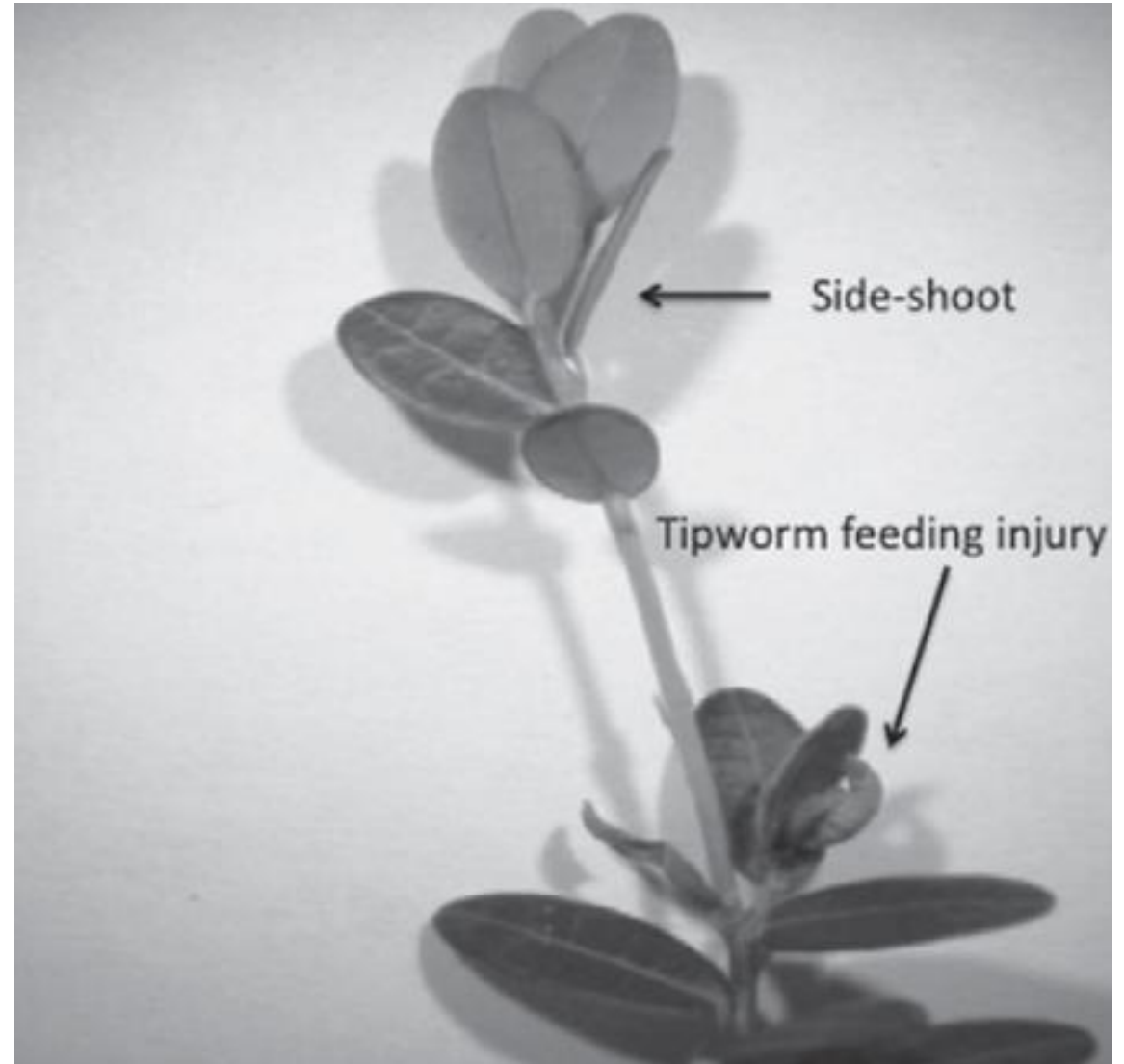



Image by S. Tewari

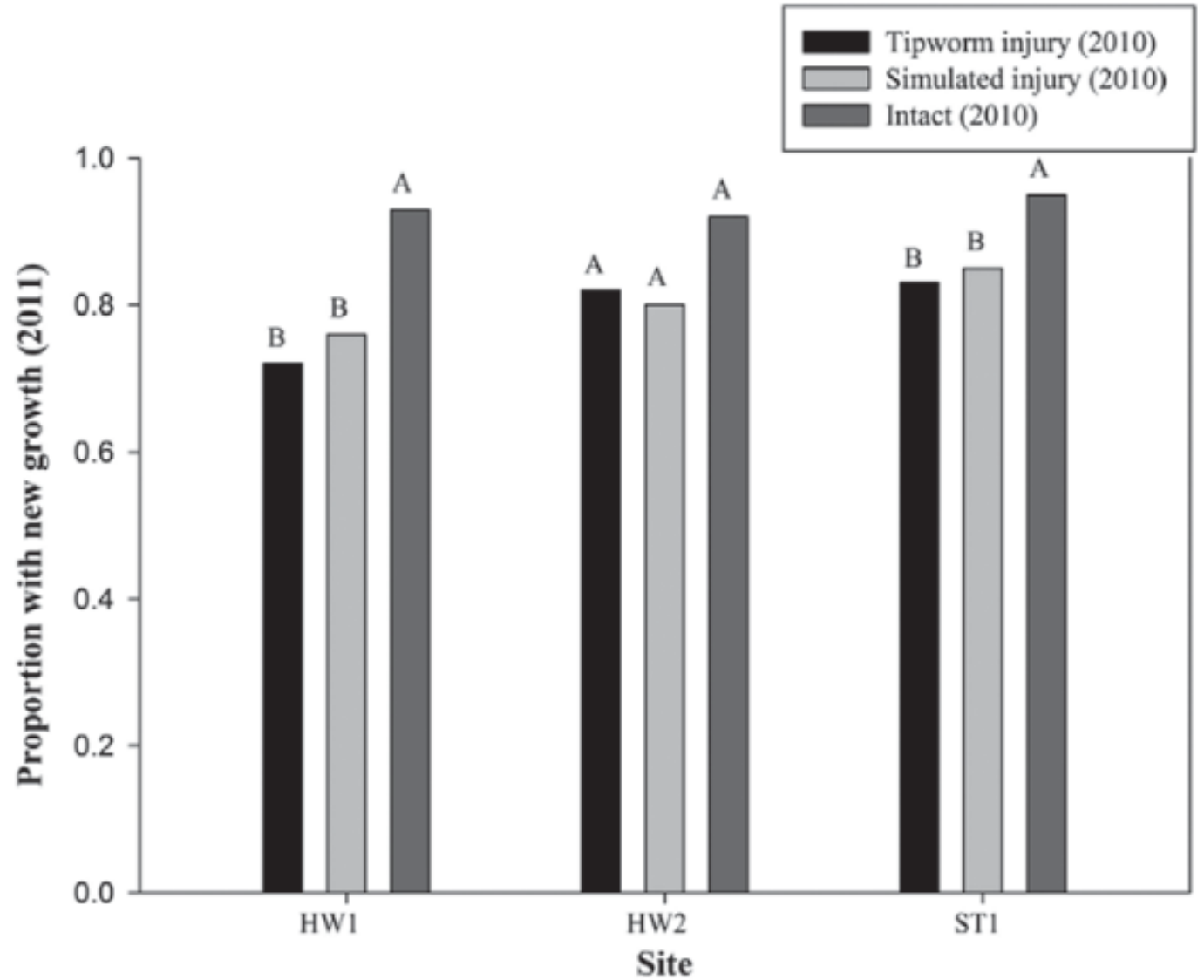
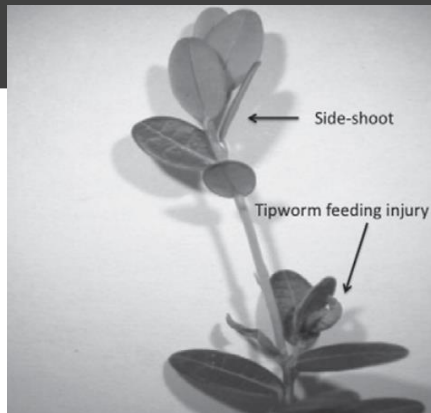




# Massachusetts Research

- Anne Averill and Sunil Tewari in 2010 and 2011
- Used commercial field sites growing 'Howes' and 'Stevens'
- Tagged individual uprights to follow
- Simulated tipworm damage by pinching

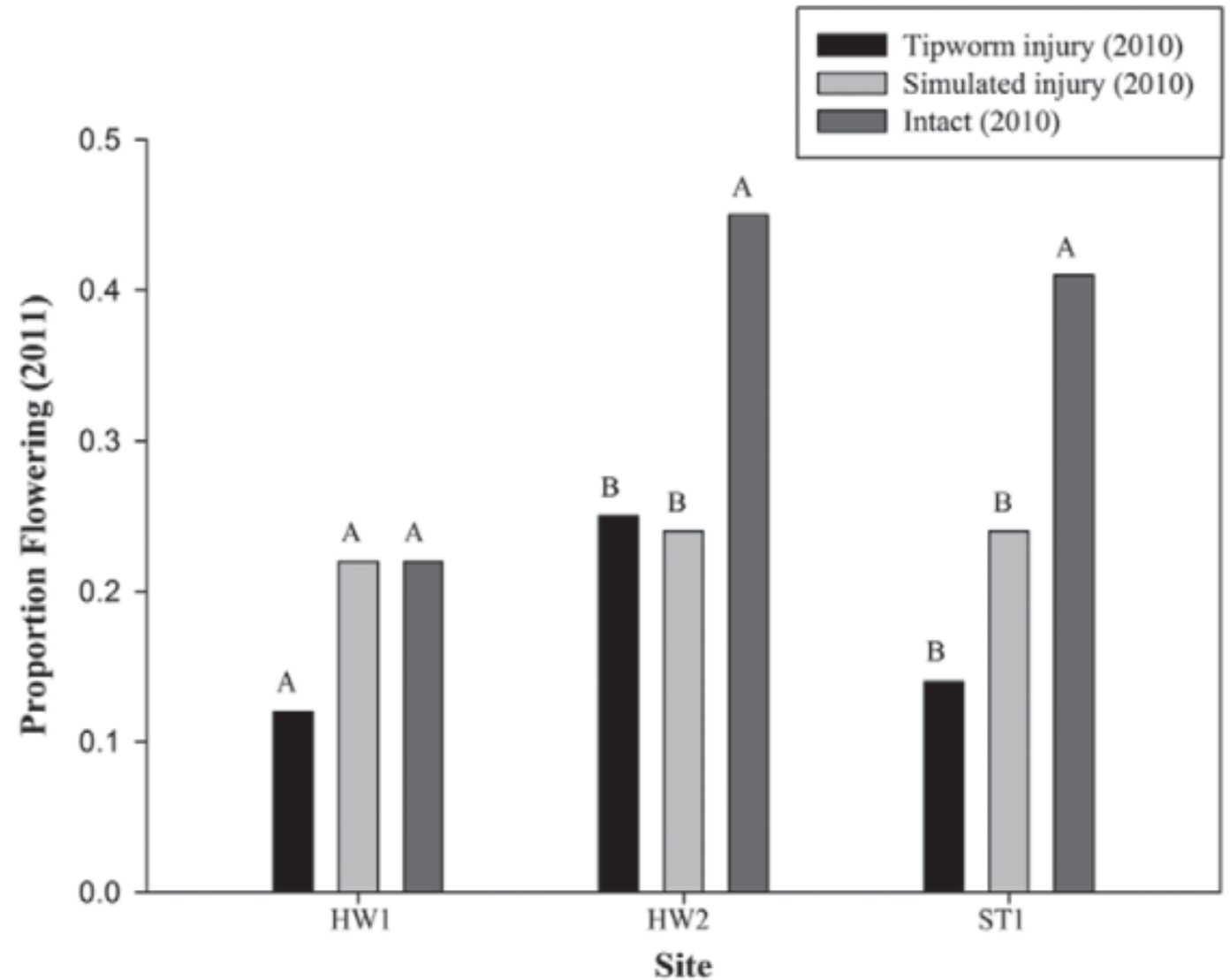
# Massachusetts Research



Proportion of uprights with new growth (2011) that were either intact, or with simulated and tipworm feeding injury in 2010 at sites HW1, HW2, and ST1. At each site, bars with the same letter above are not significantly different ( $\alpha = 0.05$ )



# Massachusetts Research



Proportion of uprights with flowers (2011) that were either intact, or with simulated and tipworm feeding injury in 2010 at sites HW1, HW2, and ST1. At each site, bars with the same letter above are not significantly different ( $\alpha = 0.05$ )

# Other Results

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- Cranberries in Maine saw worse damage from tipworm
- Developing fruit on the year following tipworm damage controls the carbohydrates within the plant





# Past Research Conclusions

- Tipworm damage may affect yield, but it is likely dependent on other factors including climate in the growing region, carbohydrate stores in the vines, etc
- Research is needed over multiple growing seasons



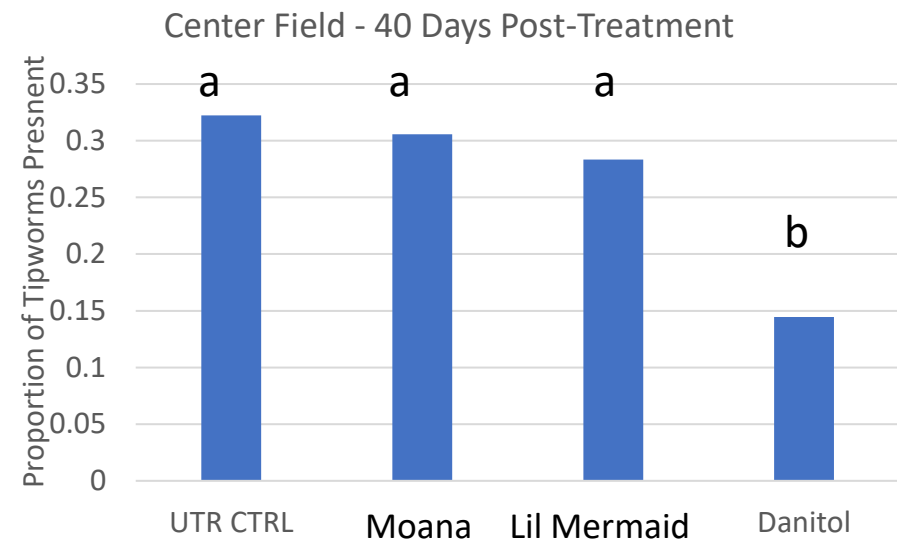
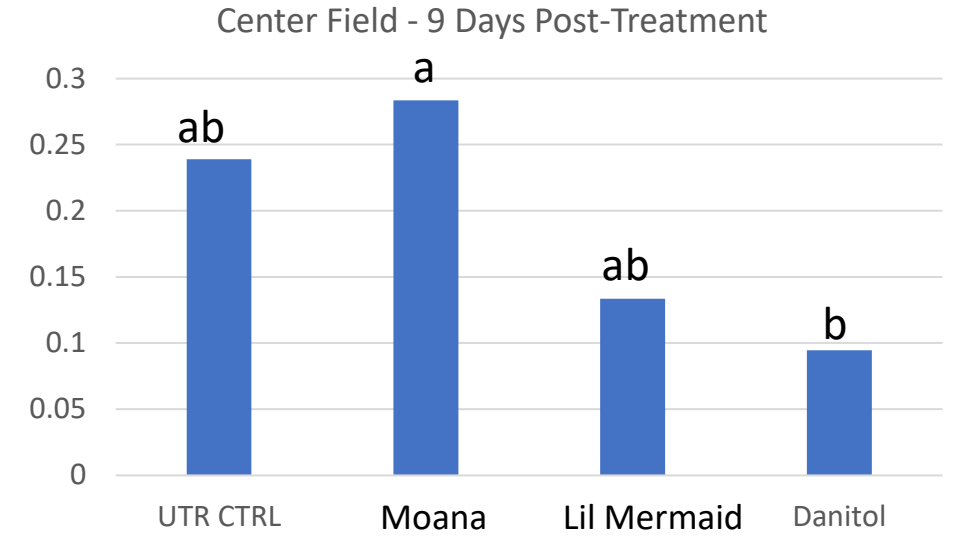
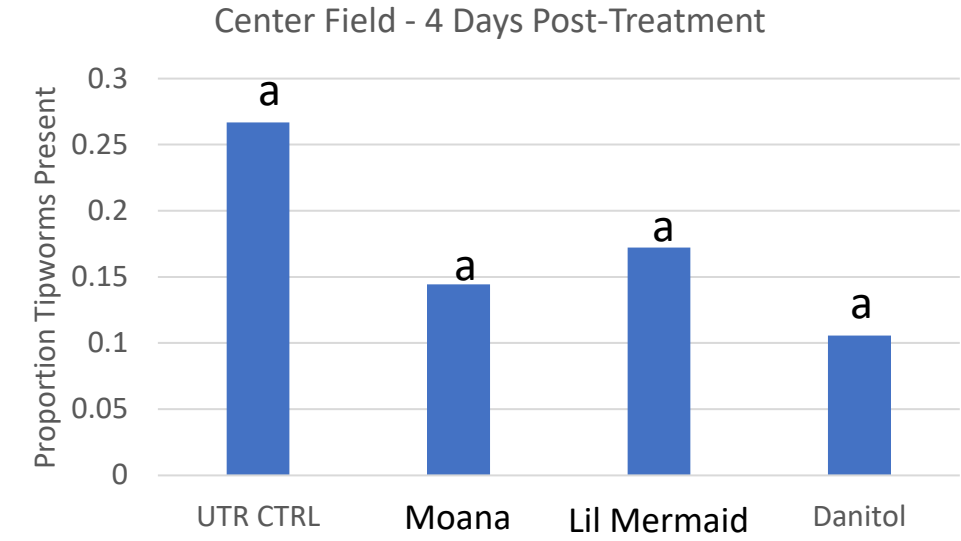
# 2023 Washington Tipworm Trials





# Methods

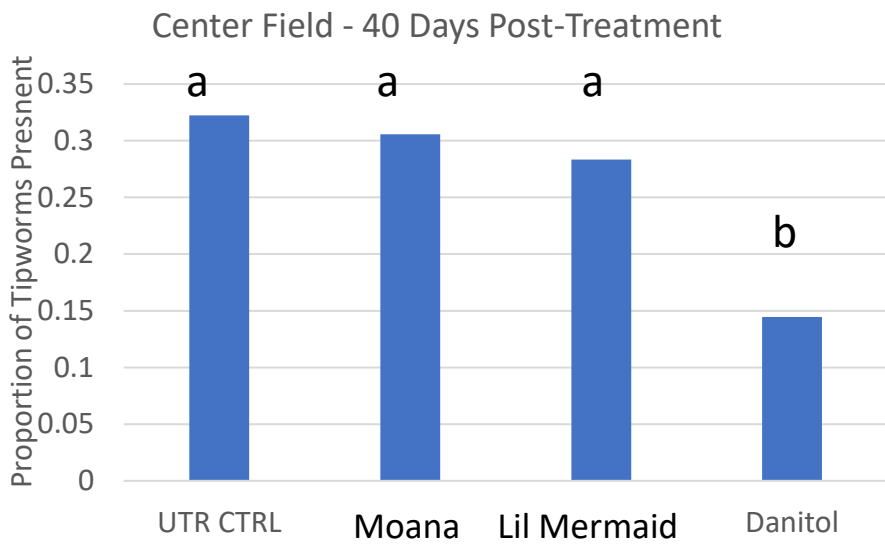
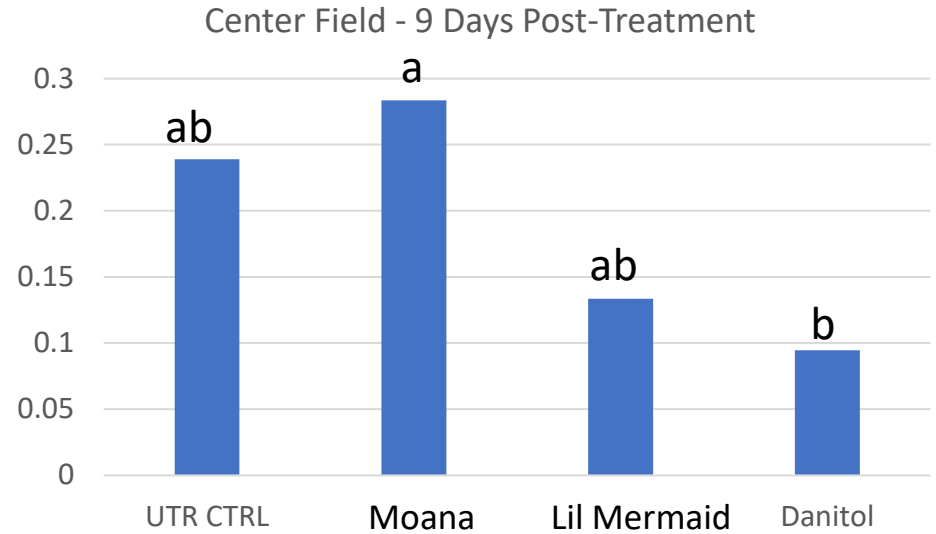
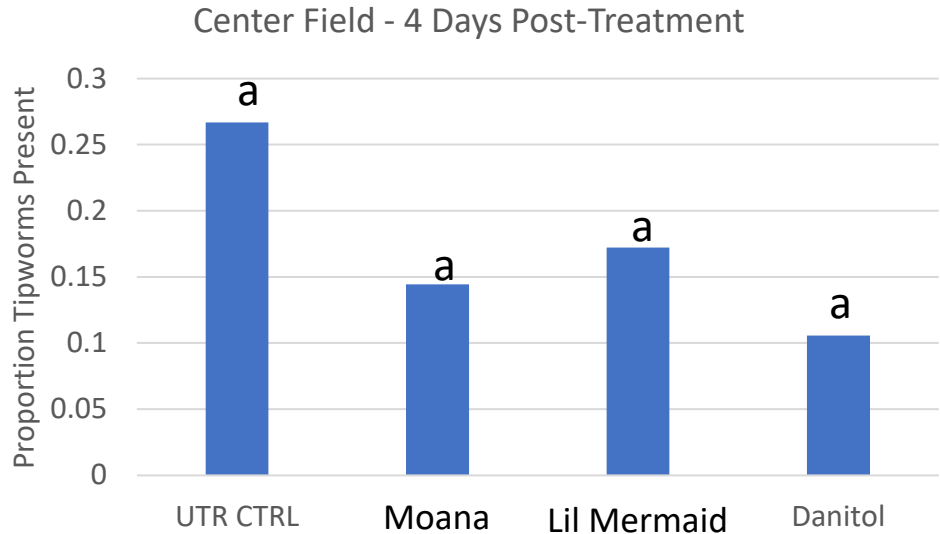
- 9 foot x 3 foot plots
- Tested 6 replicates at the PCCRF research station and a grower field
- Looked at presence of tipworm following treatment as well as damage
- Center of Field: Organic
- Edge of Field: New, unregistered products



Test of organically-registered products at PCCRF





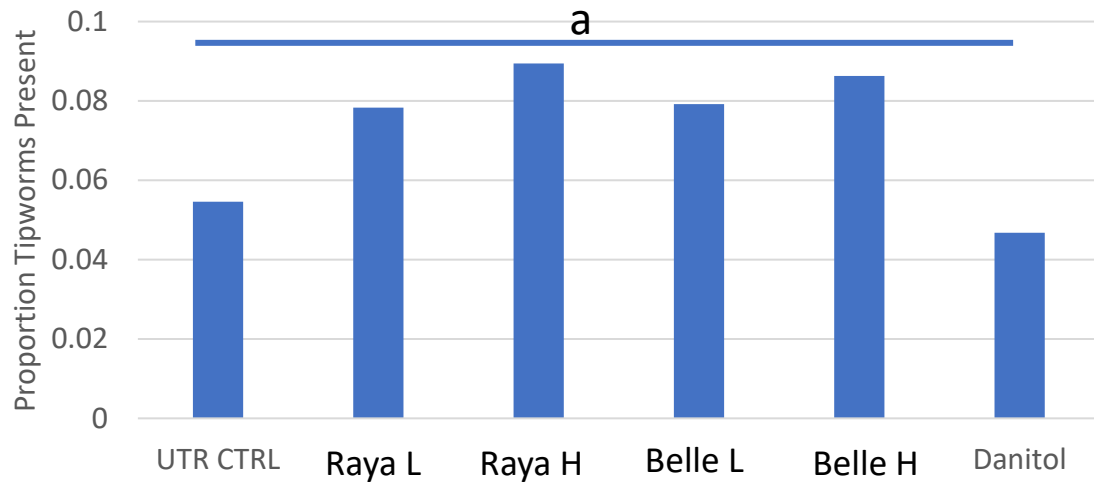


Test of organically-registered products at PCCRF

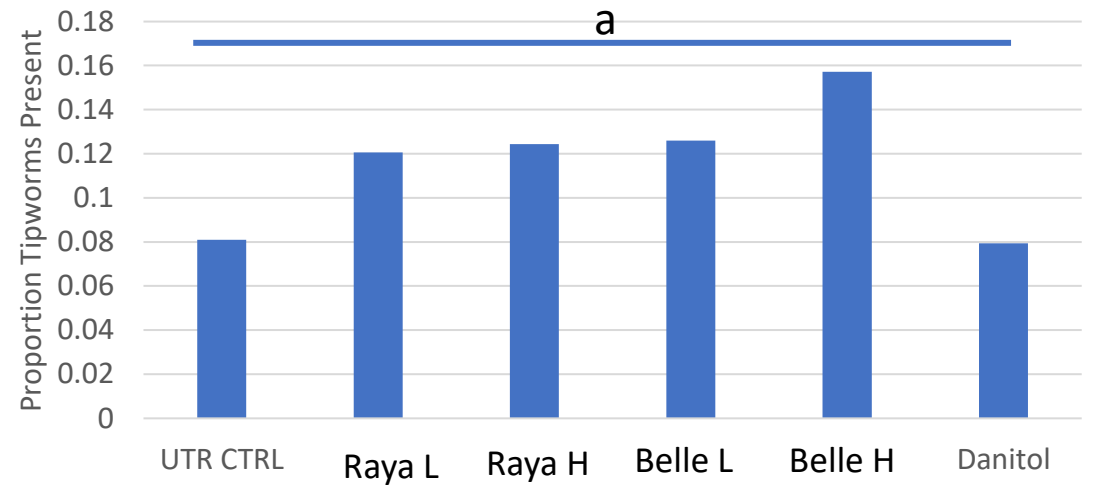
Organic Growers – Do you have a better “Grower Control” product that I should be testing that isn’t Danitol?

Text me at 503-836-7736

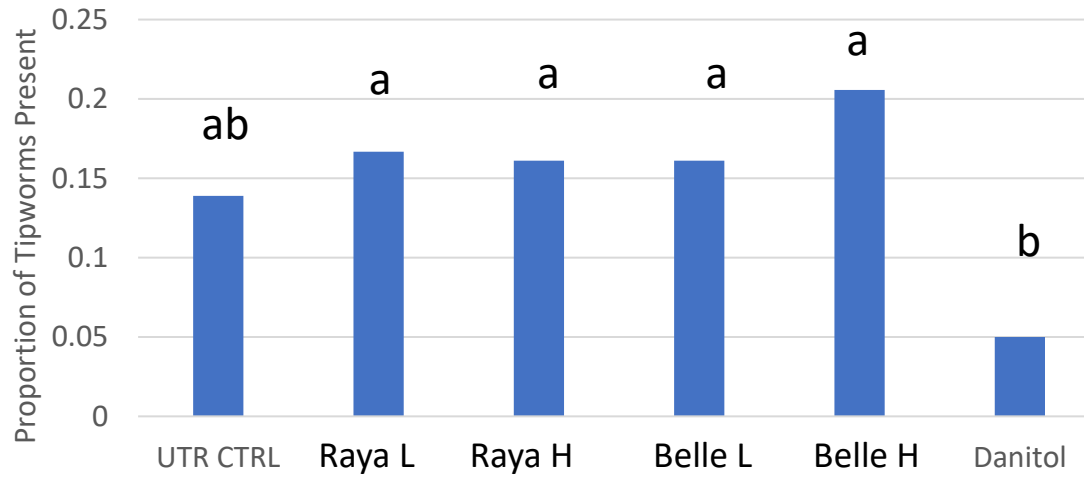
Edge Field - 4 Days Post-Treatment



Edge Field - 9 Days Post-Treatment



Edge Field - 40 Days Post-Treatment

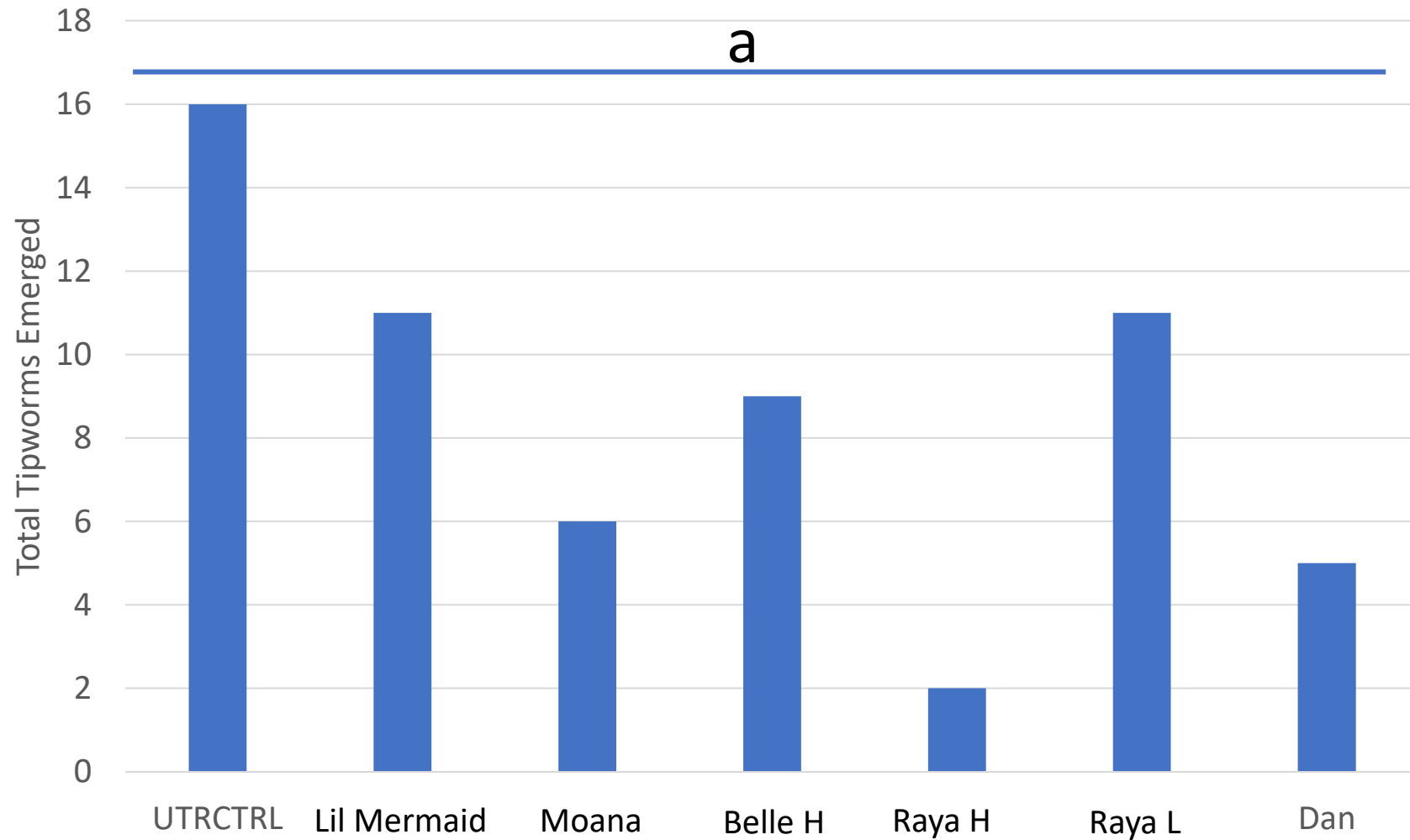




# Bioassay



# Mini-Greenhouse Bioassay





# Methods Adjustments for 2024

- Presence of tipworms seems better than damage
- No significant data at the 4 day post-treatment mark
- 9" x 3" may have been too small, so we propose 9" x 9" in future
- In 2025+ Can we reduce treatments to be biannual?

# Products we will test in 2024

- OMRI Moana
- Conventional Raya, Low and High
- **Organic Product: Lil Mermaid...?**
  - Text now or forever hold your peace
  - 503-836-7736





# Quick Google Forms Needs Assessment Poll

What activities in your growing operation do you find most challenging to do?

Contact Me:

[Laura.kraft@wsu.edu](mailto:Laura.kraft@wsu.edu)

503-836-7736



**Come to the Virtual  
2024 Cranberry  
Congress Feb 29 and  
March 1– Look for a  
link from Cyrus or  
Cassie!**

# References

- Buckshaw, S., & Henderson, D. (2008). Biology and lifecycle of the cranberry tipworm in BC cranberry beds and the relationship to cranberry plant phenology and growing degree days.
- Tewari, S., Buonaccorsi, J. P., & Averill, A. L. (2014). Developing fruit inhibit the regrowth of cranberry shoots after apical meristem injury by larvae of *Dasineura oxycoccana* (Diptera: Cecidomyiidae). *The Canadian Entomologist*, 146(6), 630-638.
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- DeMoranville, C., & Averill, A. (1994). 173 Cranberry plants compensate for upright tip destruction by cranberry tipworm. *HortScience*, 29(5), 453f-453.
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- Tewari, S., Buonaccorsi, J. P., & Averill, A. L. (2012). Injury to apical meristem of cranberry by *Dasineura oxycoccana* (Diptera: Cecidomyiidae) reduces production of floral-units in the next growing season. *Journal of economic entomology*, 105(4), 1366-1378.
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- Tewari, S., Buonaccorsi, J. P., & Averill, A. L. (2013). Impact of early season apical meristem injury by gall inducing tipworm (Diptera: Cecidomyiidae) on reproductive and vegetative growth of cranberry. *Journal of economic entomology*, 106(3), 1339-1348.



# A note on methods

- We measured both presence of live tipworms and damage to tips. We found that measuring presence of live tipworms is a better method to measure and that damage to tips seems more variable and less dependable. Therefore, we are only presenting presence of live tipworms in these data
- We did not see any changes at the 4 day mark for either species and will remove this data point from future studies
- We used 3x1 meter plots for this experiment based on other research but have heard that larger plot sizes (3x3 meter sq plots) are needed for tipworm