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## Cranberry Toad bugs: What are they?

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The background of the slide is a solid red color. A large, faint watermark of the Rutgers University seal is visible, centered behind the text. The seal features a sunburst design with the words 'RUTGERS UNIVERSITY' and 'EST. 1823' around the perimeter.

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# **CRANBERRY TOAD BUGS: WHAT ARE THEY?**

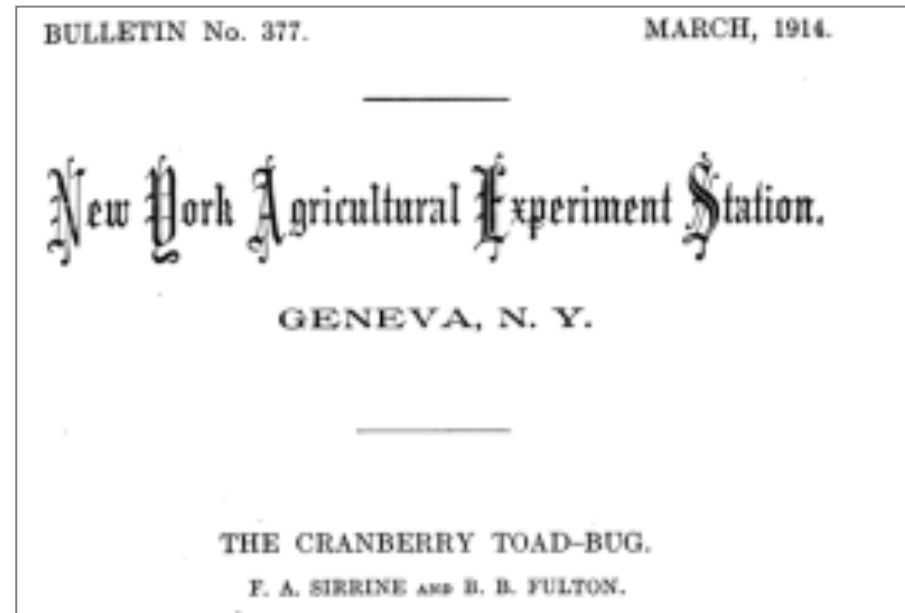
**Cesar Rodriguez-Saona**

Vera Kyryczenko-Roth, Robert Holdcraft,  
and Dan Schiffhauer

**P.E. Marucci Blueberry and Cranberry  
Research and Extension Center**

# Cranberry Toad bug

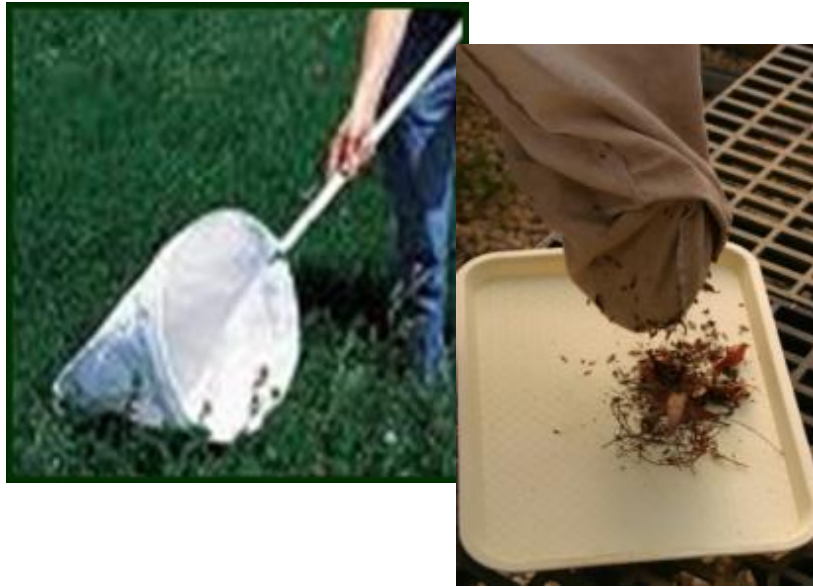
- *Phylloscelis atra* (Dictyopharidae).
- Feeds only on cranberries.
- Single generation a year.
- Overwinters as eggs.



# Objectives

- **Establish phenology of toad bugs in cranberries**
- **Characterize toad bug injury to cranberries**
- **Evaluate efficacy of various insecticides**

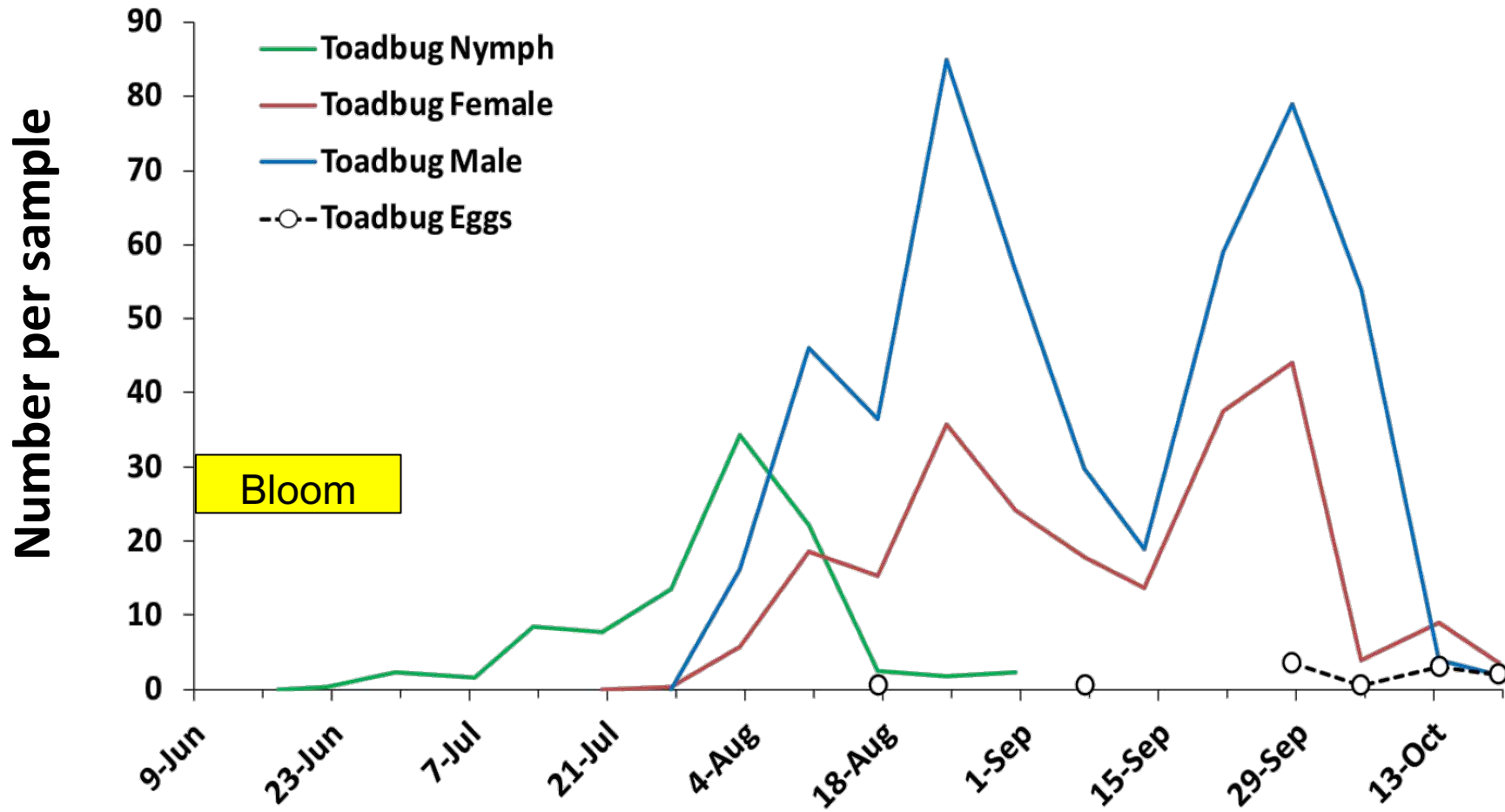
# Phenology



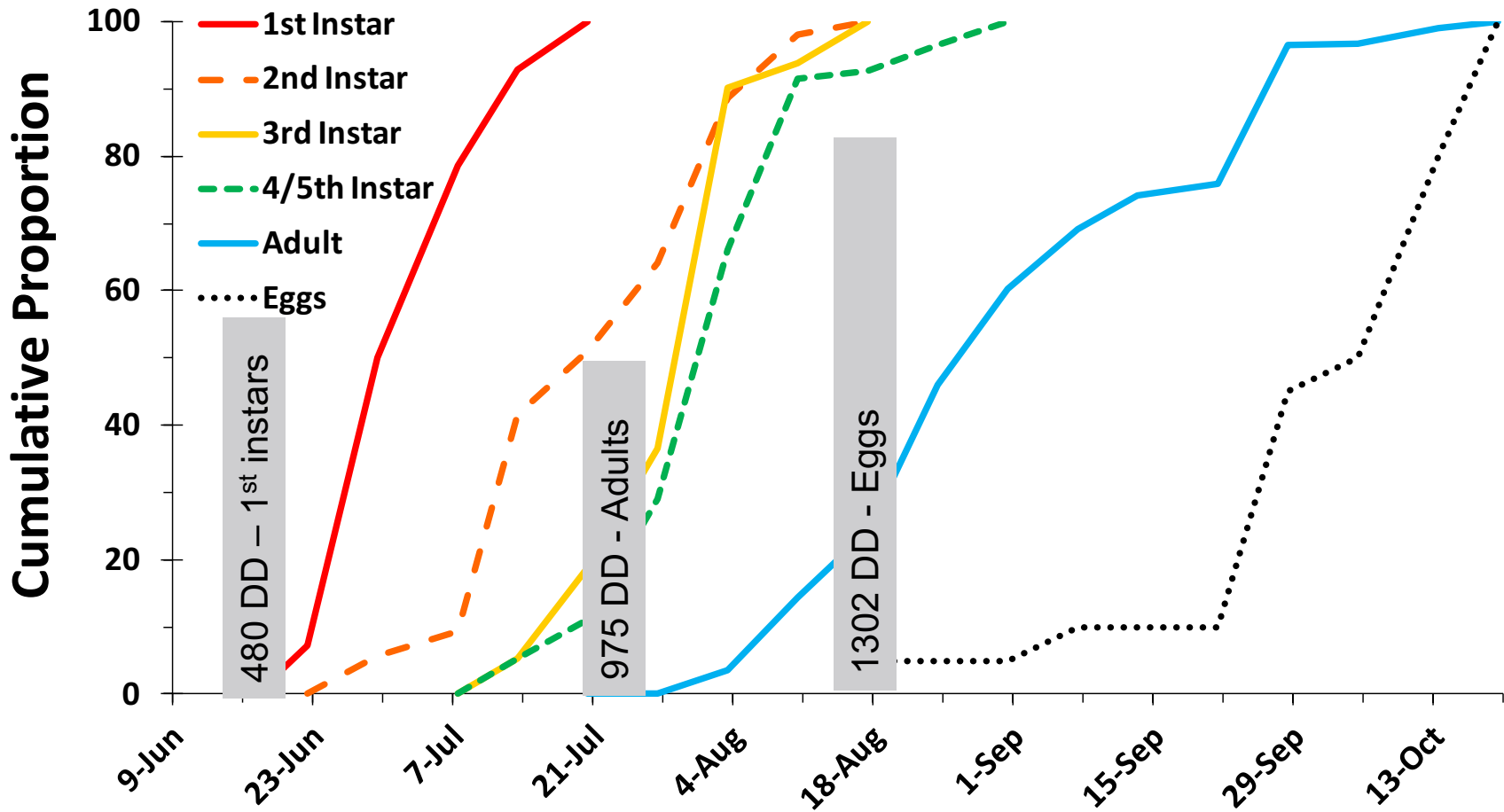
- 3 commercial bogs and 1 research bog
- Sampled once per week June through October
- 3 sweep sets per bog
- Samples evaluated under dissecting microscope in lab



# Toad bug Phenology



# Toad-bug Phenology



Biofix = 15 April; Threshold = 10°C

# Objectives

- Establish phenology of toad bugs in cranberries
- **Characterize toad bug injury to cranberries**
- Evaluate efficacy of various insecticides

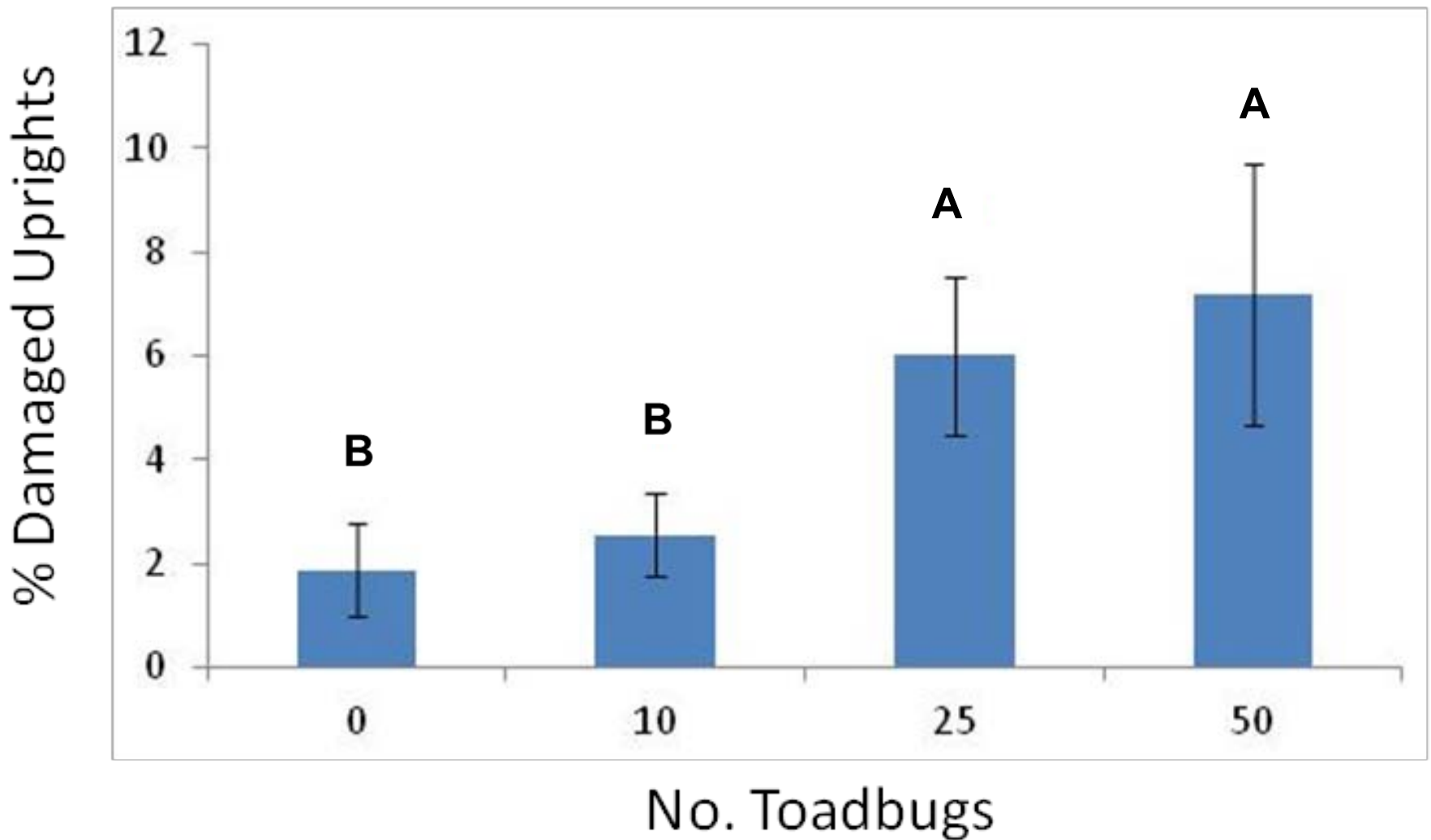


# Greenhouse Study



- Cages with 30 x 30 cm tray of cranberries per cage
- Treatments: 0 (Control), 10, 25, 50 toad bugs per cage
- Toad bugs collected from research bog at P.E. Marucci Center
- 5 replicates per treatment
- No. damaged uprights and berries, and berry weight after 6 wks

# Toad bug Damage: Uprights

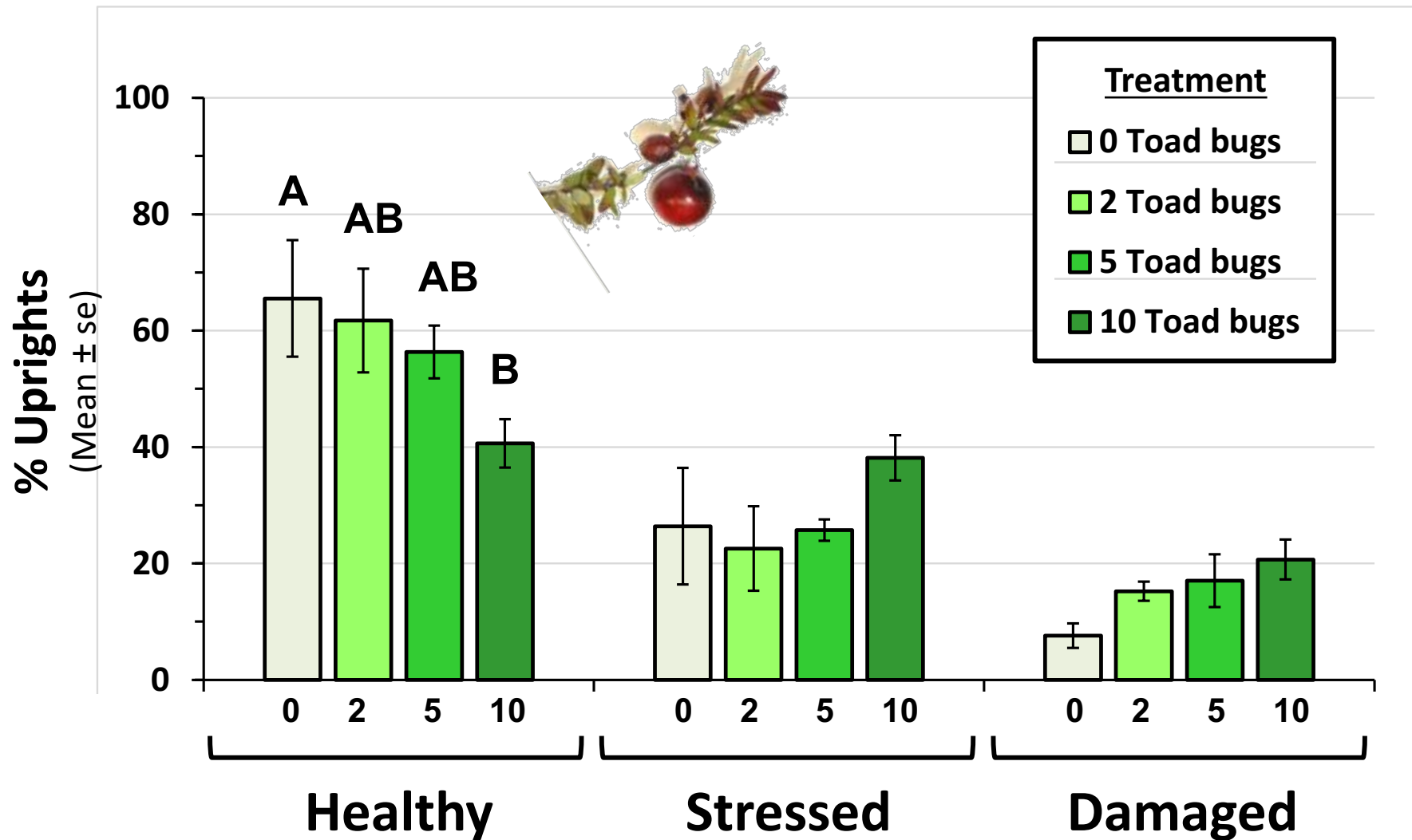


# Field Study

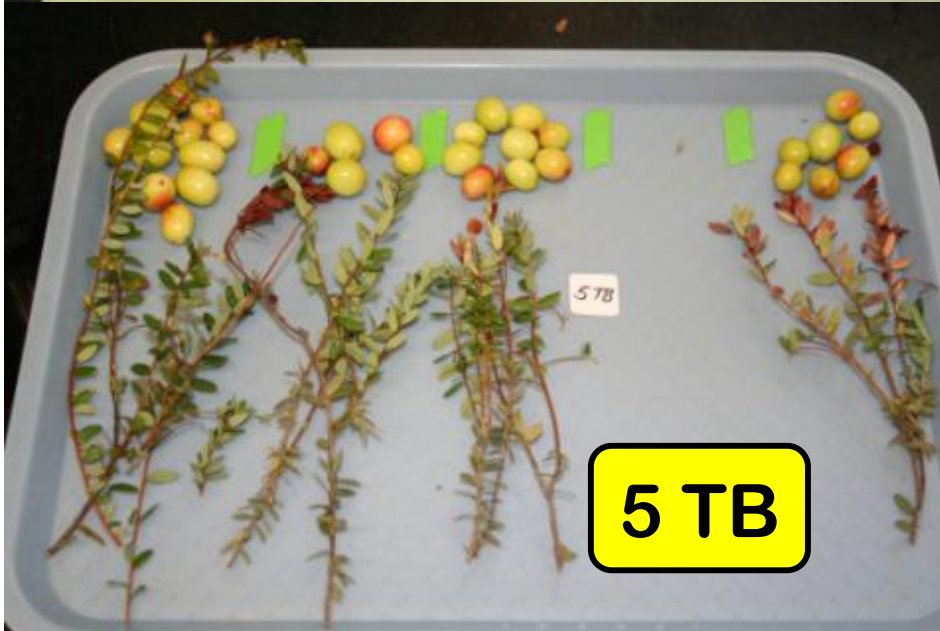


- Seven uprights enclosed per fabric sleeve on 18 July
- Treatments: 0, 2, 5, and 10 toad bugs per fabric sleeve
- Toad bugs collected at P.E. Marucci Center
- 5 replicates per treatment
- No. damaged uprights and berries, and berry weights recorded after 4 wks

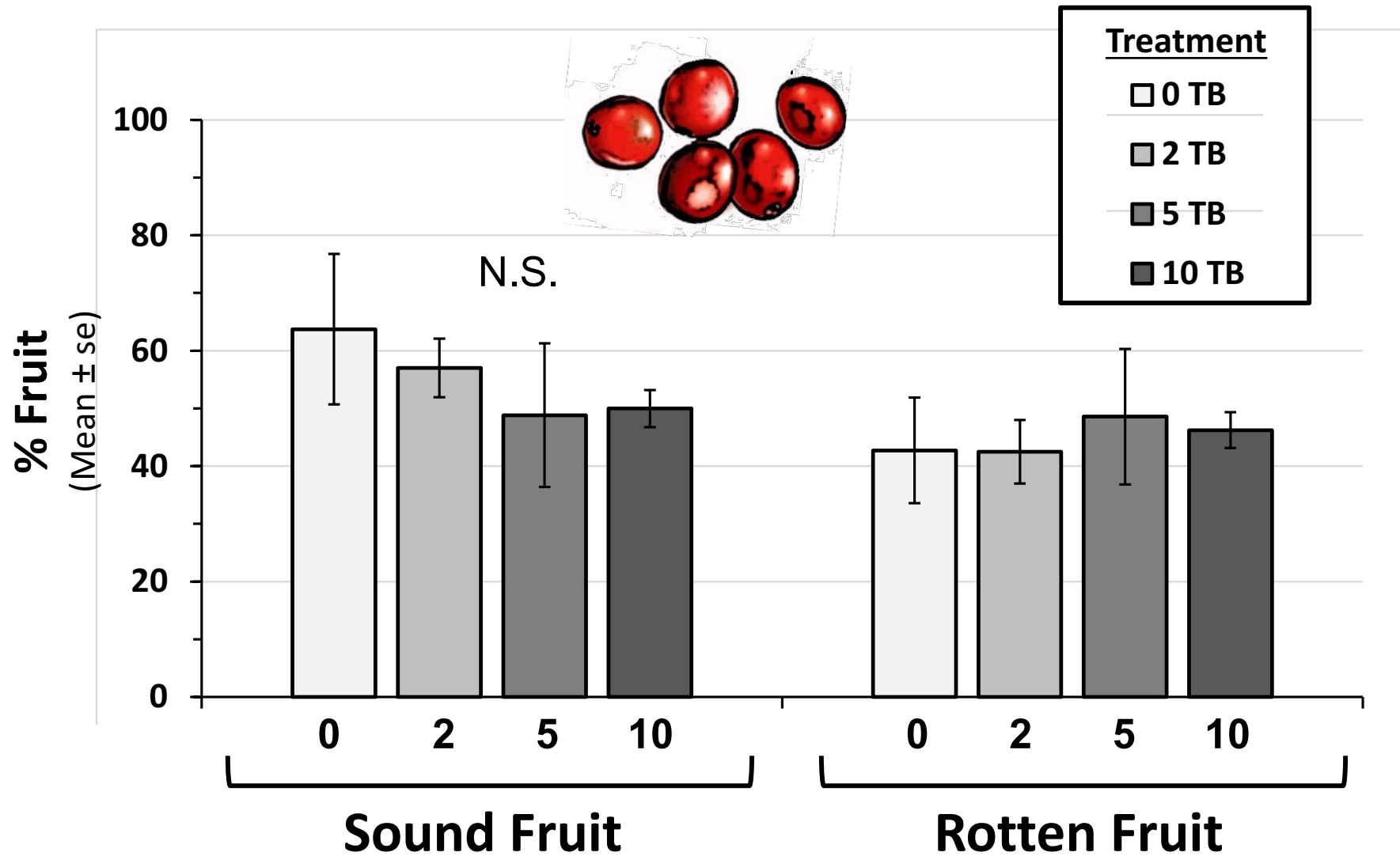
# Toad bug Damage: Uprights



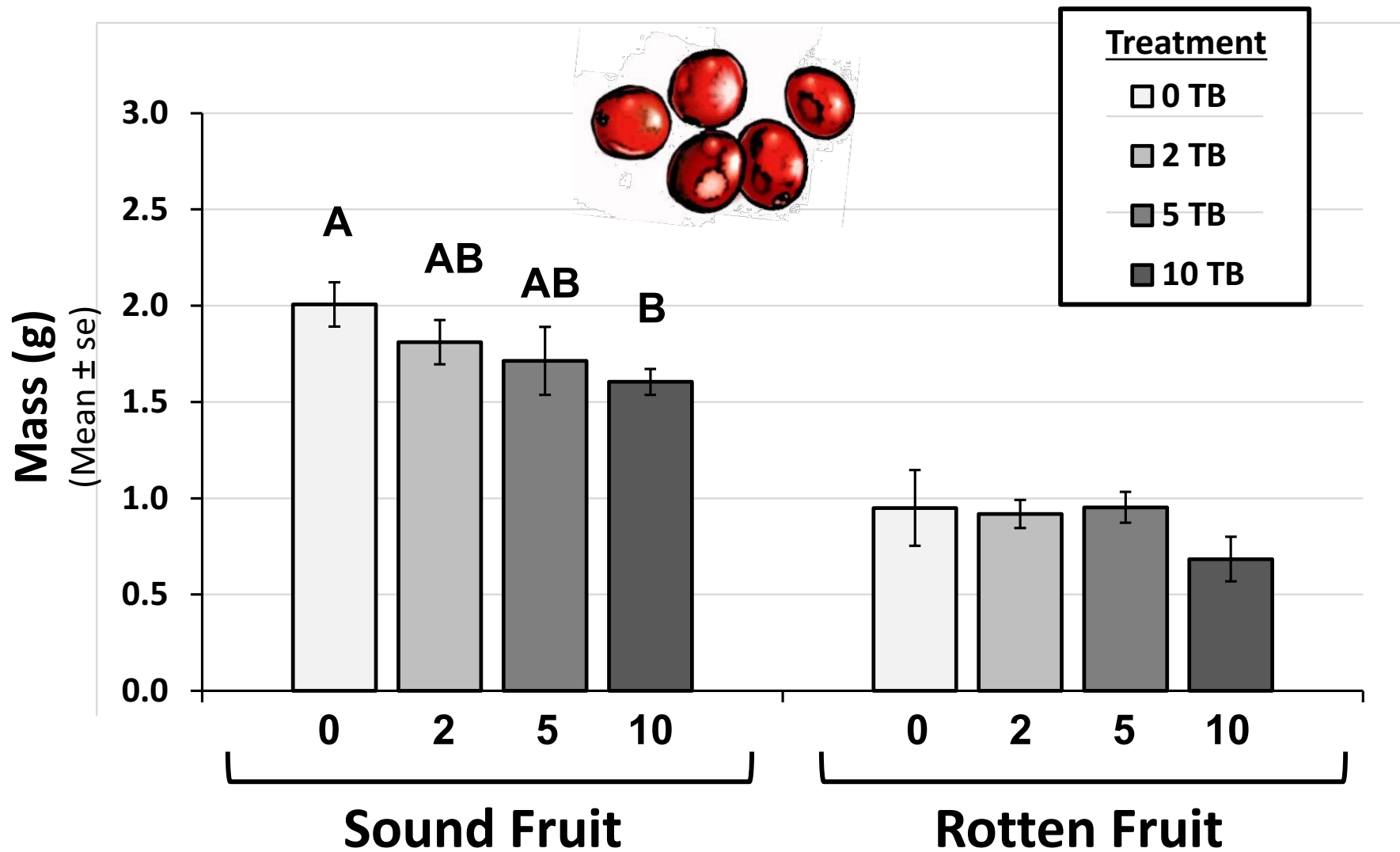
# Toad bug Damage



# Toad bug Damage: Fruit



# Toad bug Damage: Fruit



# Objectives

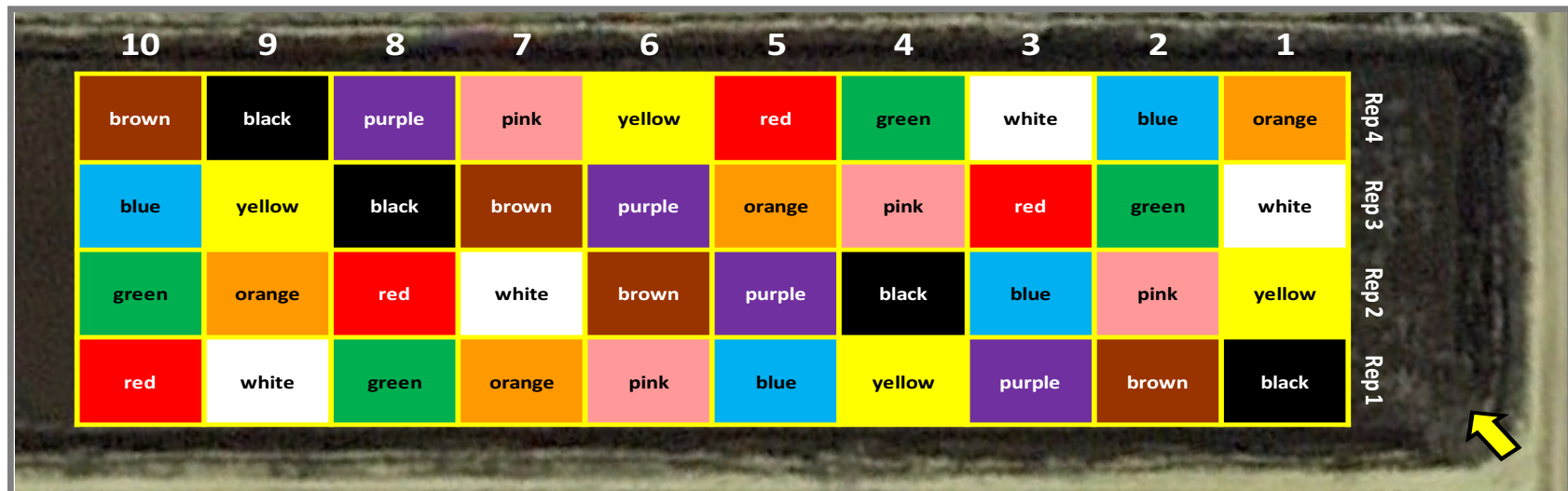
- Establish phenology of toad bugs in cranberries
- Characterize toad bug injury to cranberries
- **Evaluate efficacy of various insecticides**



# Field Trial: Methods



- 6 m x 4.5 m plots divided by silt fence
- Bog at P.E. Marucci Center
- Sprayer: custom-made 8 foot boom (CO<sub>2</sub>)
- 50 gal/ac



# Field Trial: Treatments

Treatment	Rate /Acre	Status	Group
Beleaf 50SG	2.8 oz	Registered	Pyridinecarboxamide
Exirel	13.5 fl oz	Unregistered, IR4	Diamide
<del>Closer SC</del> *	4.25 fl oz	Reassess *	Sulfoximine
Assail 30SG	6.9 oz	Registered	Nicotinoid
Agri-Mek SC	3.5 fl oz	Registered	Miticide
Brigade 2EC	6.4 fl oz	Unregistered, IR4	Pyrethroid
Lorsban 4E	3 pt	Registered	OP
Sevin XLR	3 L	Registered	Carbamate
Diazinon AG500	3 qt	Registered	OP

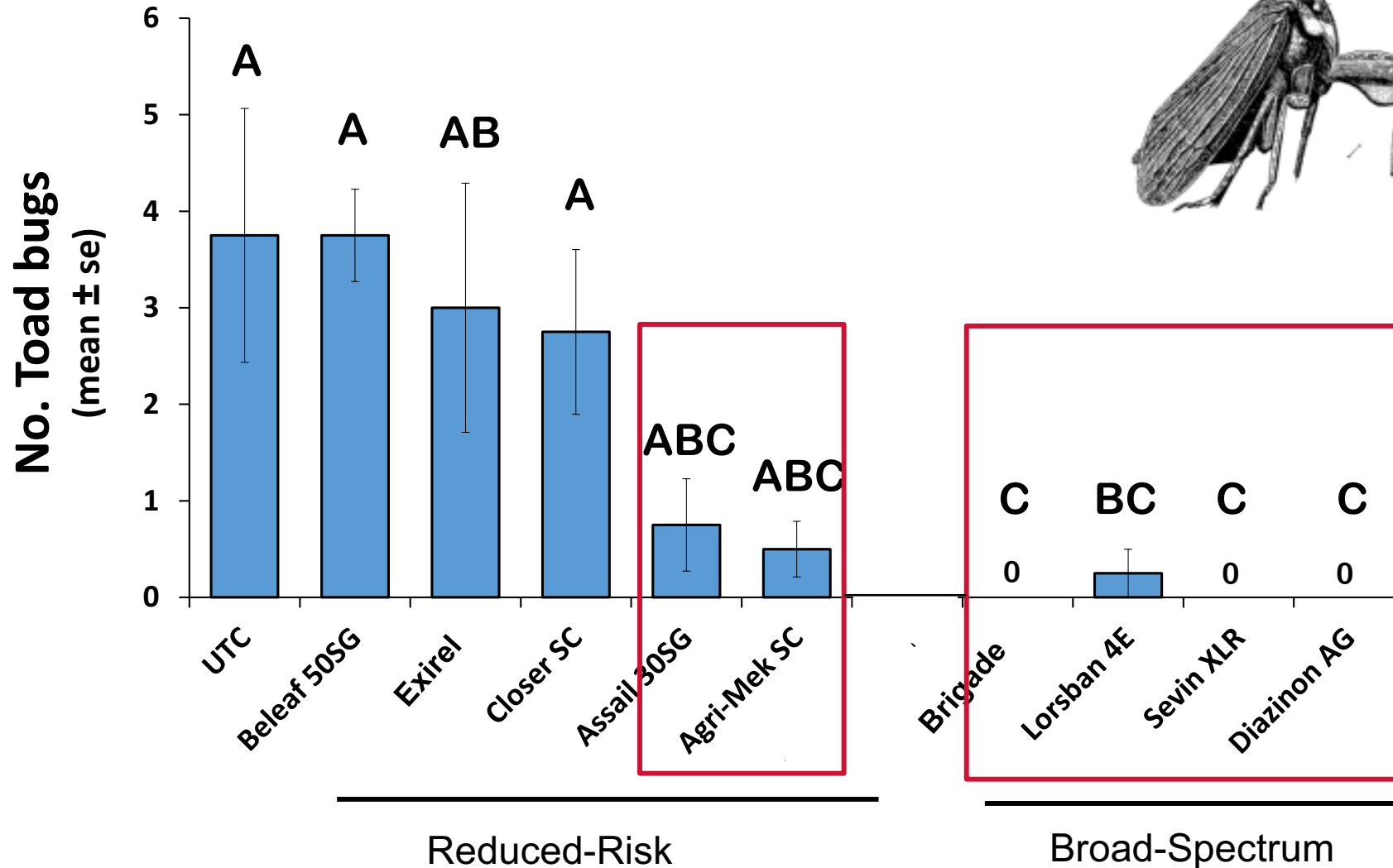
# Field Trial: Methods



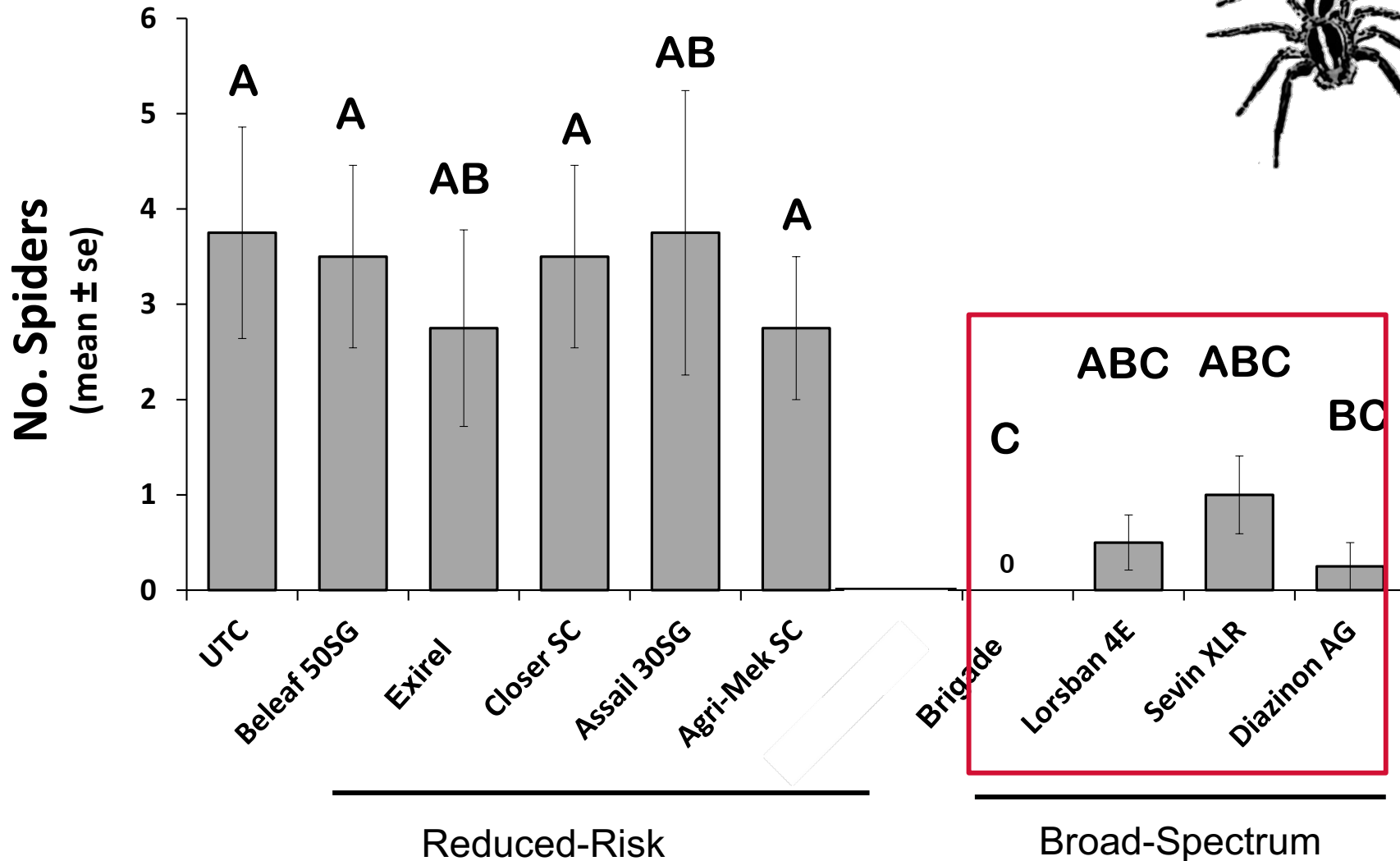
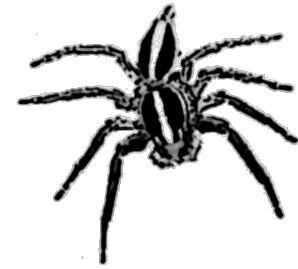
- Plots sampled (area = 1 m<sup>2</sup>) via backpack vacuum
- Pre- sample 3 August (2 days pre-spray)
- Application on 5 August
- Post-sample 12 August (7 days post-spray)
- Samples evaluated in lab under dissecting scope



# Field Trial: Results



# Non-Target Effects: Spiders



# Conclusions I



Nymphs: end of June (865 DD)-August



Adults: end of July (1755 DD)-October



Eggs: mid-August (2344 DD)-October

Pre-bloom

Bloom

Post-bloom

Harvest

## Conclusions II

- Toad bugs cause injury to cranberry uprights leading to lower fruit quality.
- Lorsban, Sevin, Diazinon, Brigade, Assail, and Agri-Mek worked well against toad bugs.
- Beleaf, Closer, and Exirel were not effective.
- Assail and Agri-Mek had lower toxicity on spiders.

NJ Blueberry/Cranberry  
Research Council

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Cranberry Institute

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