

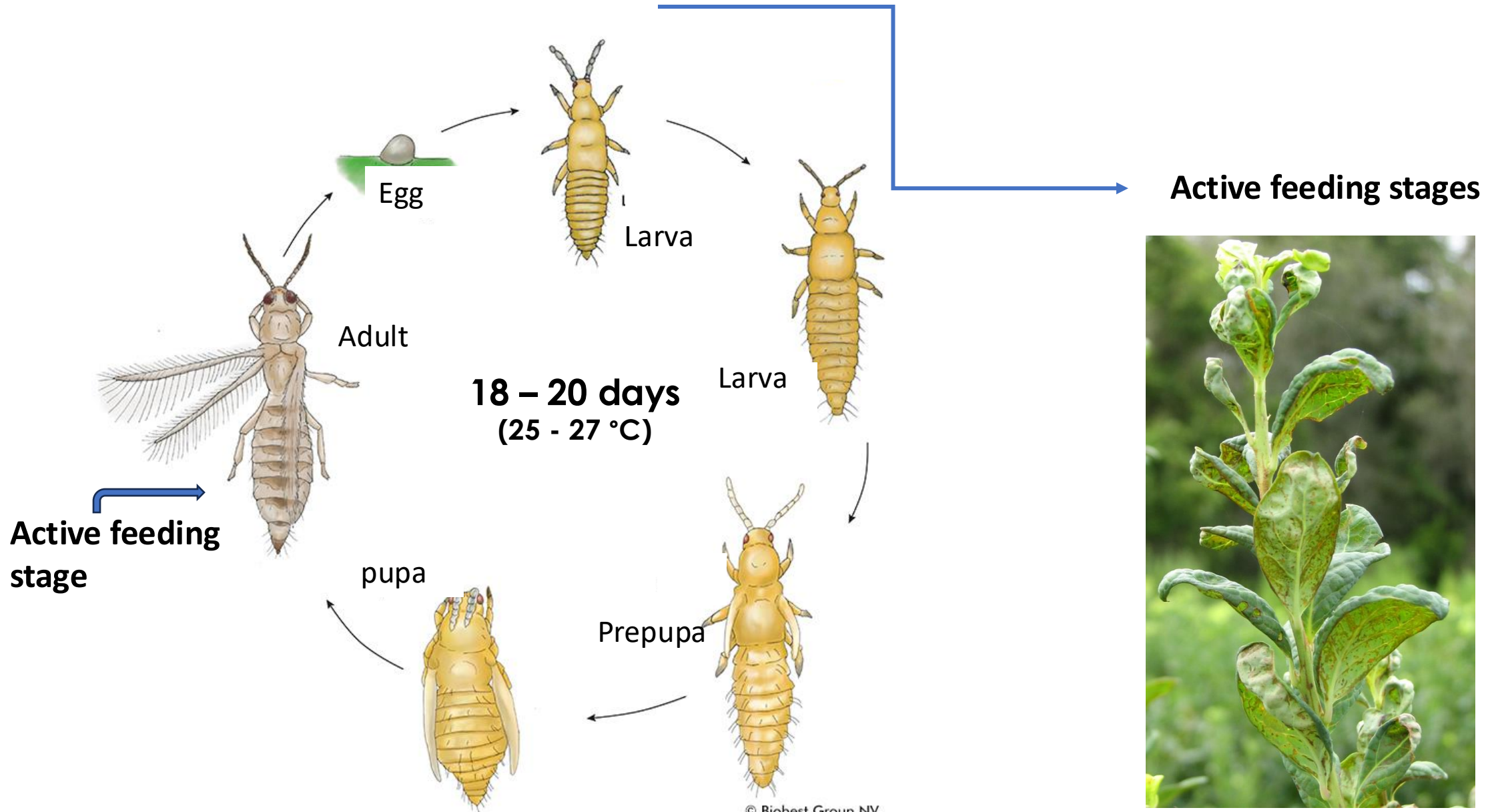
Research Update on Chilli Thrips Management - Blueberry IPM



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Life cycle of chilli thrips



(Kang et al. 2015)

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More feeding injury ... (2024)



(Avanti bushes in 2024. Credit: **Kendi Muthomi**)

- Initial injury symptoms: **bronzing** along leaf veins and petioles, leaf darkening and distortion
- Severe infestations: **leaf curling**, and **leaf defoliation**



Current management practices

Cultural control

- Removal of plant debris
- Elimination of weeds
- Elimination of infested plants
- Hedging/pruning young plants



(Hedged SHB in 2024. Credit: **Kendi Muthomi**)

Biological control

- **Natural enemies (NEs)**
- Predatory insects and mites
 - *Orius insidiosus*
 - *Amblyseius swirskii*
 - *Neoseiulus cucumeris*
- Mycoinsecticides
 - *Beauveria bassiana*
 - *Isaria fumosorosea*
- Nematodes

Chemical control

- **Pesticides (Organic & conventional)**
 - Pyrazole (e.g., Tolfenpyrad - Apta)
 - Diamides (e.g., Cyantraniliprole – Exirel)
 - Spinosyns (e.g., Spinosad & Spinetoram)
 - Insect Growth Regulators (IGR) (e.g., Novaluron – Rimon)
 - Organophosphates (e.g., Malathion)
 - Carbamates (e.g., Carbaryl)



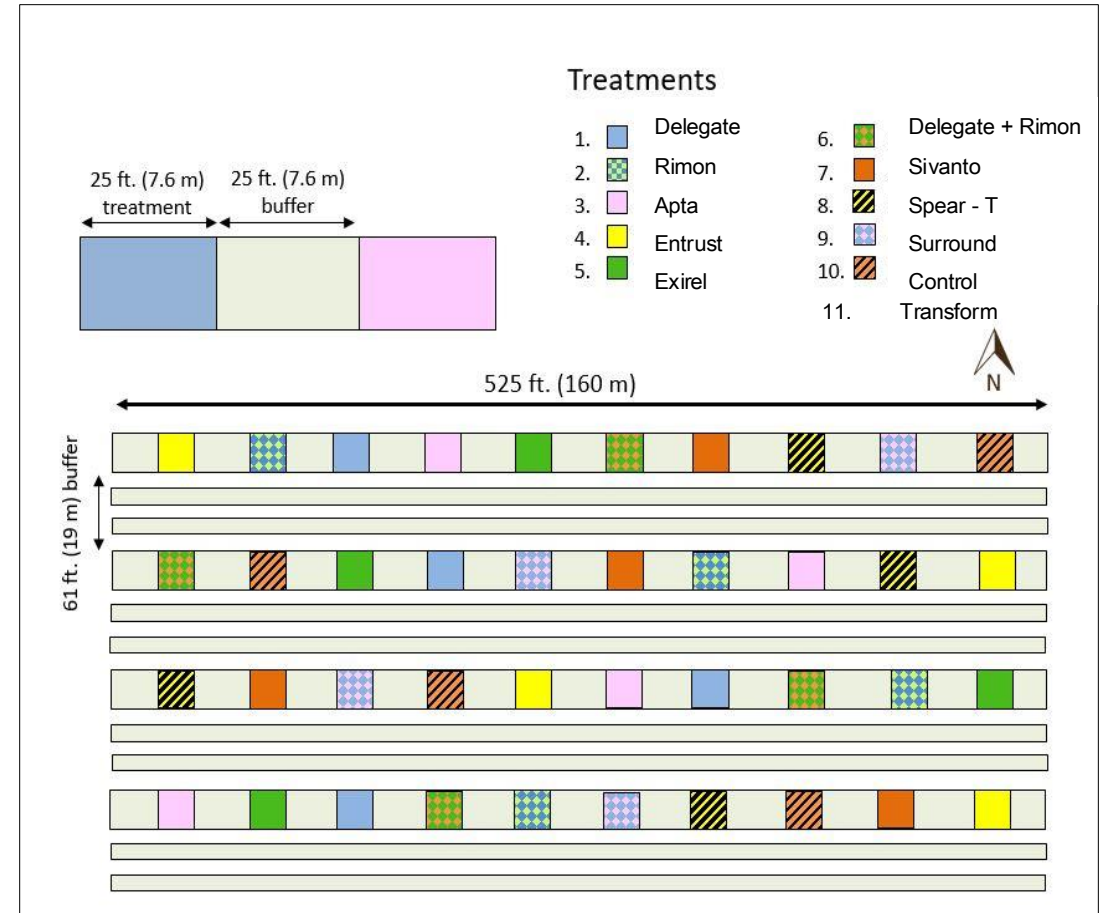
1. Efficacy trial 2024: Determine the effectiveness of selected insecticides against chilli thrips in SHB blueberries

Treatments	Active ingredient
Apta®	Tolfenpyrad
Entrust®	Spinosad
Exirel®	Cyantraniliprole
Delegate®	Spinoteram
Sivanto®	Flupyradifurone
Spear - T®	GS-omega/kappa- Hxtx-Hv1a
Rimon®	Novaluron
Surround®	Kaolin clay
Delegate® + Rimon®	-
Transform®	Sulfoxaflor

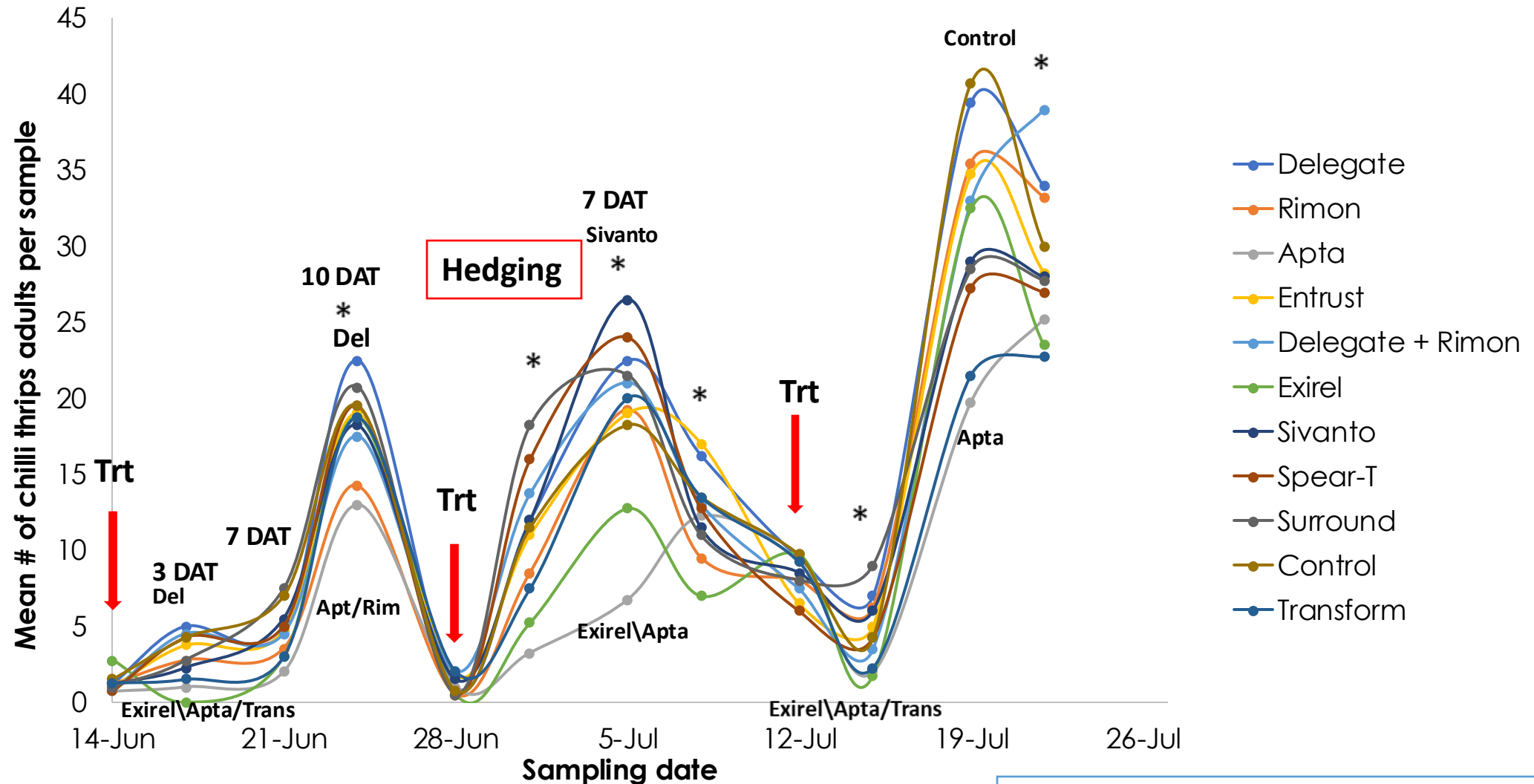


Research design

- Plant arrangement:
 - 5 blueberry bushes per plot
 - 5-plant buffer zone between plots
 - RCBD, 11 treatments, 4 replicates
- Insecticide application:
 - **Treatments were applied thrice, 14 days apart, using a CO2 sprayer**
- Sampling and analysis:
 - Leaf samples were collected **pre-treatment, 3, 7, 10, and 14 days after each application** (from the 3 inner bushes)
 - ✓ 6 young blueberry shoots/sample (5-6 leaves)
- Thrips were **counted** in the SFVIPM lab – Gainesville
- **One YST** was deployed/plot – **Natural enemies**
- Data analysis: repeated measures ANOVA; LSD; $\alpha=0.05$

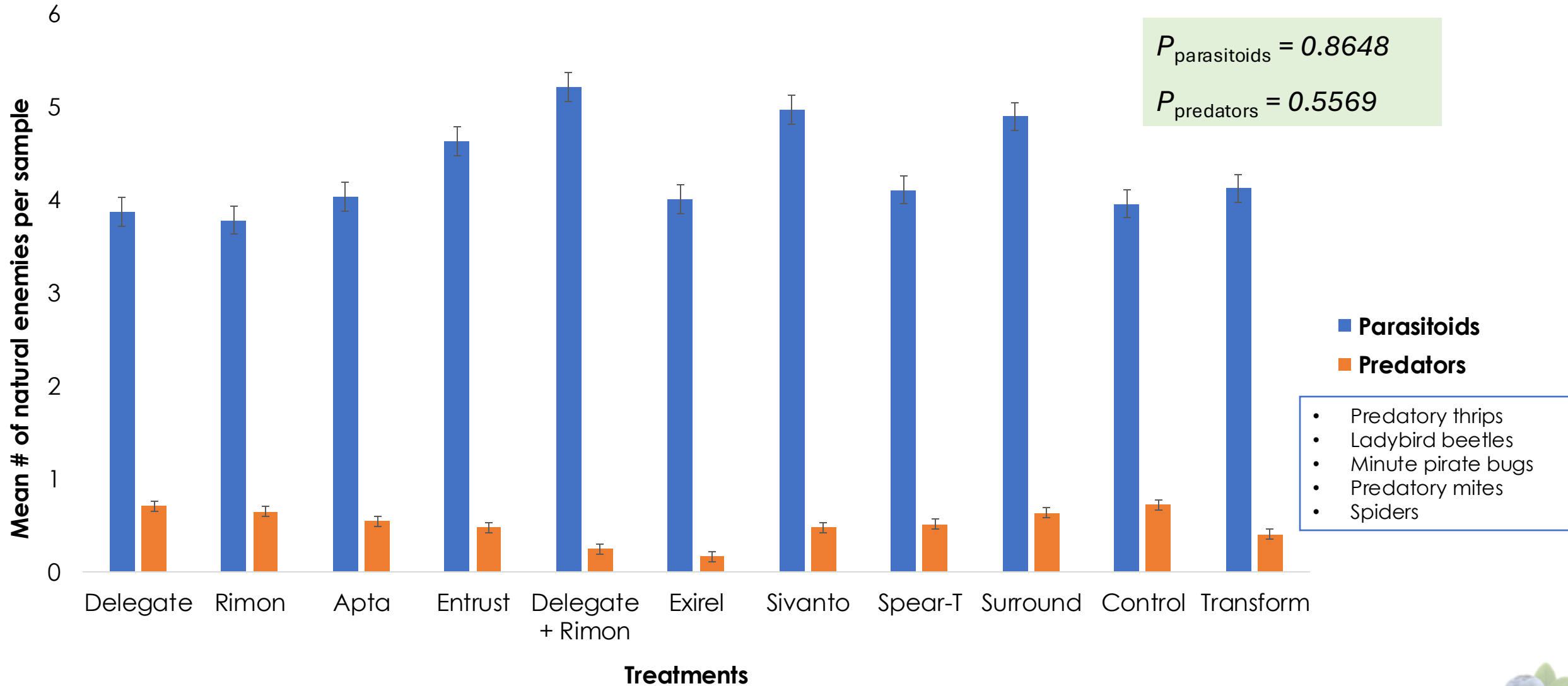


Weekly performance of selected insecticides on **chilli thrips** in SHB blueberries (2024)



Weekly means with * are significantly different

Overall natural enemies after insecticide application in SHB blueberries (2024)



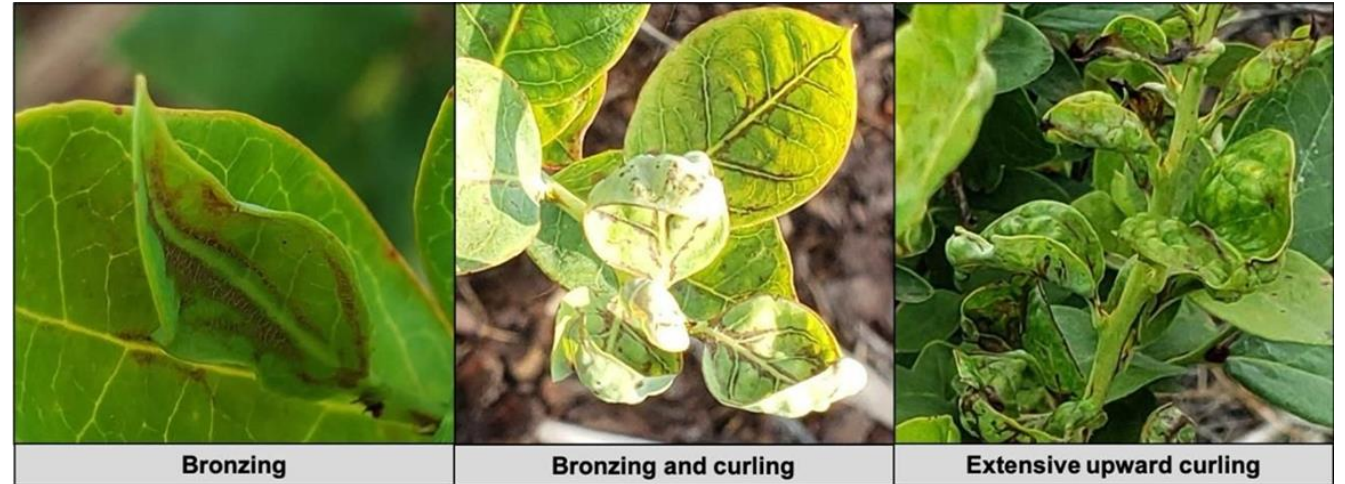
There were no significant differences in the # of natural enemies among treatments



SHB injury ratings (2024)

Assessment

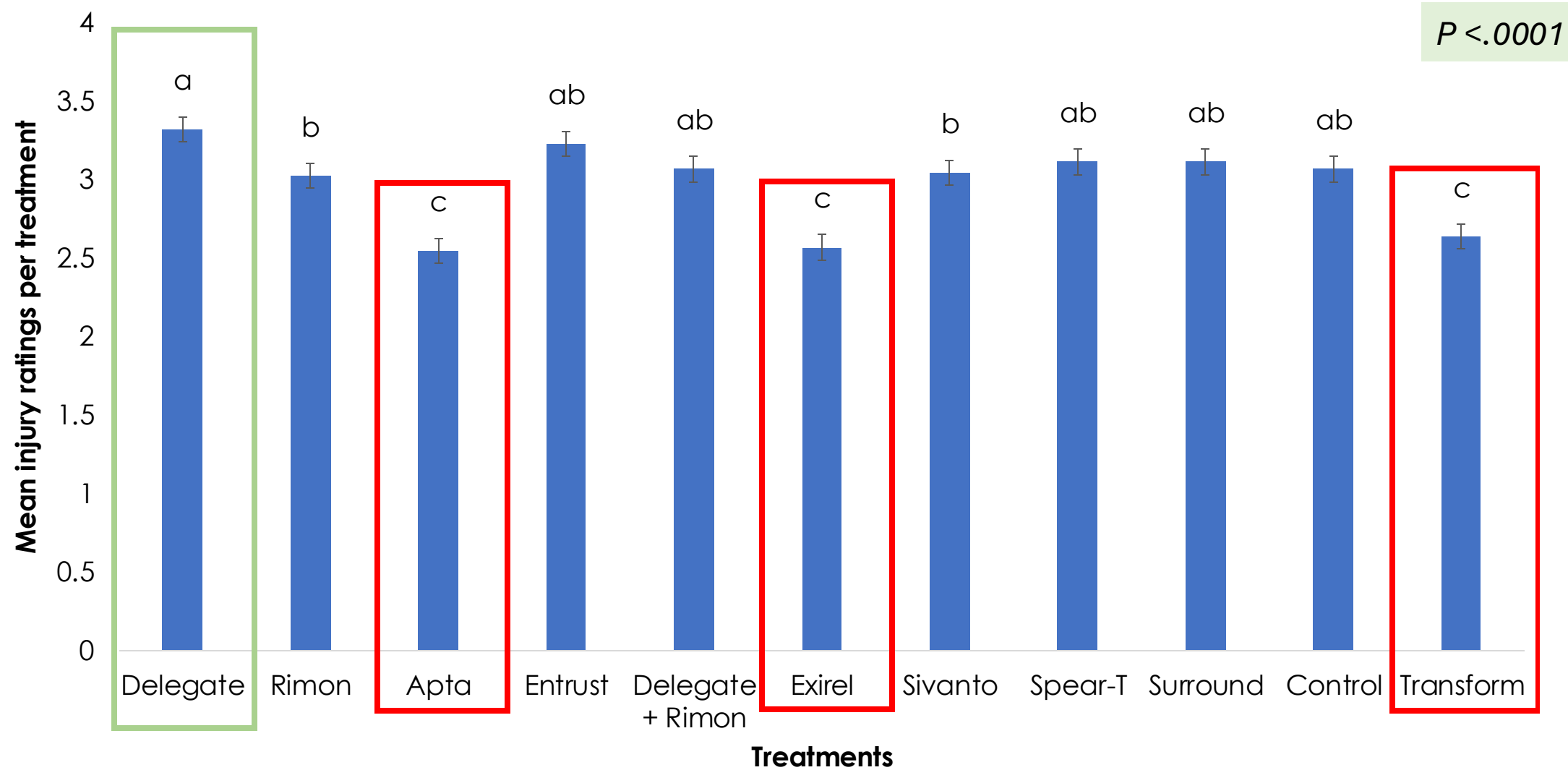
- **Damage ratings** were assessed based on the **amount of feeding injury**
 - 0 = no injury;
 - 1 = <10% (bronzing of leaf and petiole);
 - 2 = 10-30% injury (bronzing);
 - 3 = 31-60% injury (bronzing and curling);
 - 4 = > 60% injury
- Data were obtained from the **3 inner bushes of each plot**



(Liburd et al. 2020; Babu Panthi; Kendi Muthomi – images below)



Overall thrips **injury ratings** after insecticide application in SHB blueberries (2024)



Means on bars followed by the same letters are not significantly different



Findings & conclusions (2024)

- **Apta, Exirel, and Transform** demonstrated the **highest effectiveness** in controlling chilli thrips and resulted in the **lowest** damage ratings
- **Delegate** was the **least effective pesticide** in controlling chilli thrips and resulted in the highest damage ratings
- **No significant differences in the number of natural enemies (predators and parasitoids)** were observed across all treatments





**THANK YOU
QUESTIONS?**

Check out my lab and our work!

**UF IFAS Small Fruit and Vegetable IPM
Laboratory**



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