

Improving Integrated Pest and Disease Management with Modern Technologies

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Virtual Strawberry Field Day, 14 July 2021

 [@calstrawberries](https://twitter.com/calstrawberries) [@calveggies](https://twitter.com/calveggies)

 [strawberriesvegetables](https://www.facebook.com/strawberriesvegetables)

eJournals: ucanr.edu/JEB 

and ucanr.edu/pestnews 



IPMinfo app

New IPM Model



Modern technologies in IPM

- Products and technologies that improve monitoring or detection of pests and diseases
- Products and technologies that directly suppress pests and diseases
- Technologies that improve the delivery and/or efficacy of a product

Some examples of modern technologies

Drones

- Monitoring crop health and areas under stress
- Releasing biocontrol agents

Entomovectoring

- Releasing biopesticides with the help of pollinators

UV Light

- Attract and kill insect pests
- Suppress arthropod pests and diseases

Disclaimer

- Educating, not endorsing

Releasing predatory mites







Take home message

- Drones release biocontrol agents in a fast, uniform, and efficient manner
- Growers have to consider operational costs relative to manual release

Entomovectoring or beevectoring



Entomovectoring



Pollinators



Microbial pesticides



Pollination and inoculation

Entomovectoring

- Both biofungicides and biopesticides can be delivered
- Some biopesticides could potentially help control bee parasites



Photo courtesy: Bee Vectoring Technology

UV Light Trap

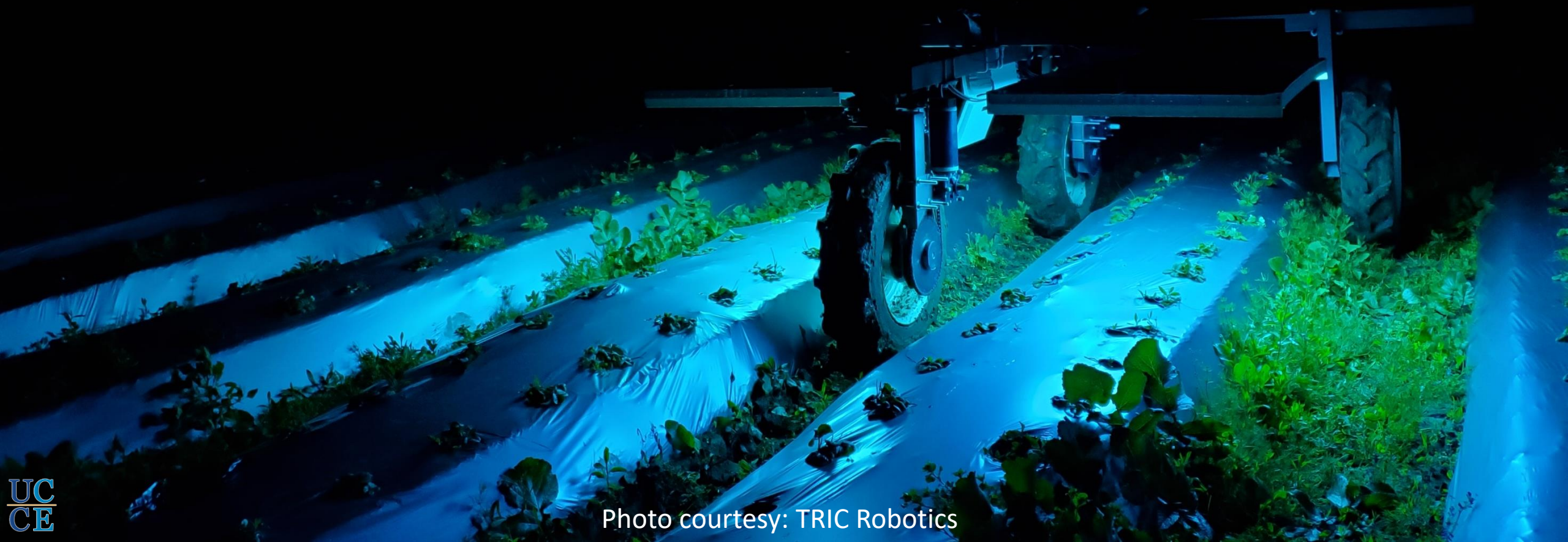


Take home message

- Can be an effective IPM tool for managing moths and pests that are attracted to UV light

UV Light Treatment

- Impact on spider mites, predatory mites, and botrytis fruit rot
- UV-C 254 nm twice a week for 15-60 sec



UV Light Treatment

- Monitoring mite populations and botrytis infection
- *Phytoseiulus persimilis* released in both sections
- Six 50'-long plots in each section

Grower Standard Organic Monterey

UVC Treated Monterey

UV Light Treatment

- Monitoring mite populations
- *Phytoseiulus persimilis* released only in grower standard
- Six 50'-long plots in each section

UVC Treated Monterey

UVC Treated Albion

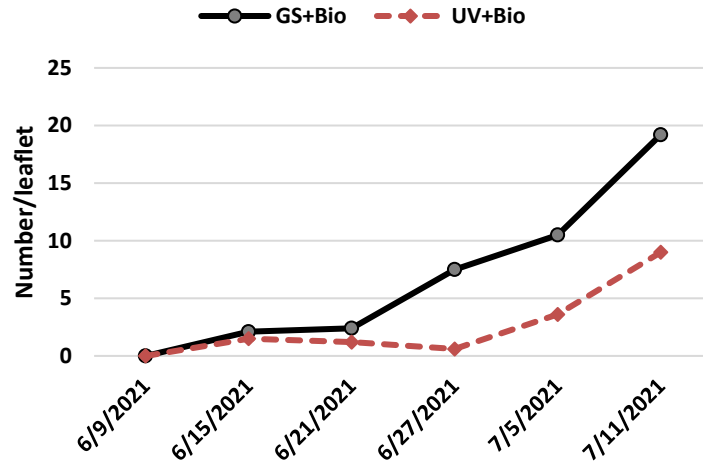
Grower Standard Organic Monterey

Grower Standard Organic Albion

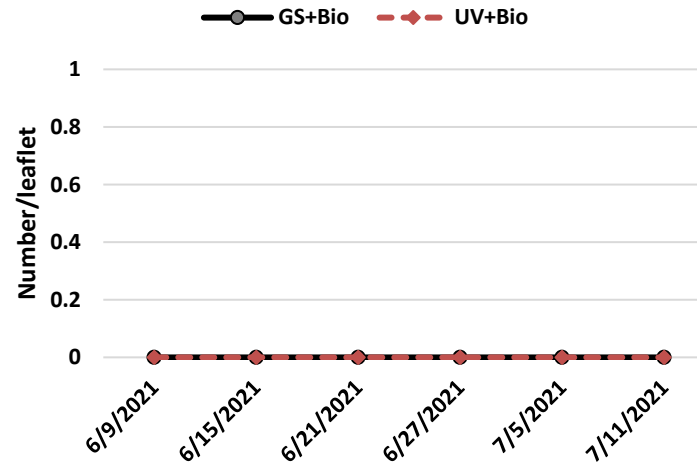
Prunedale

UV Light Treatment-Santa Maria

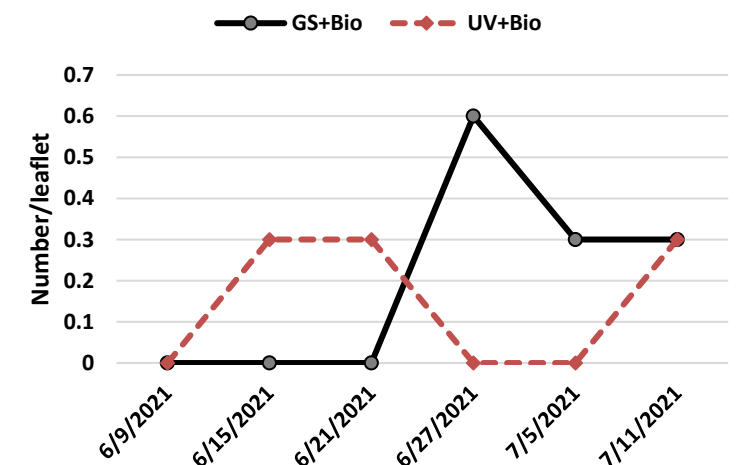
Santa Maria: TSSM eggs



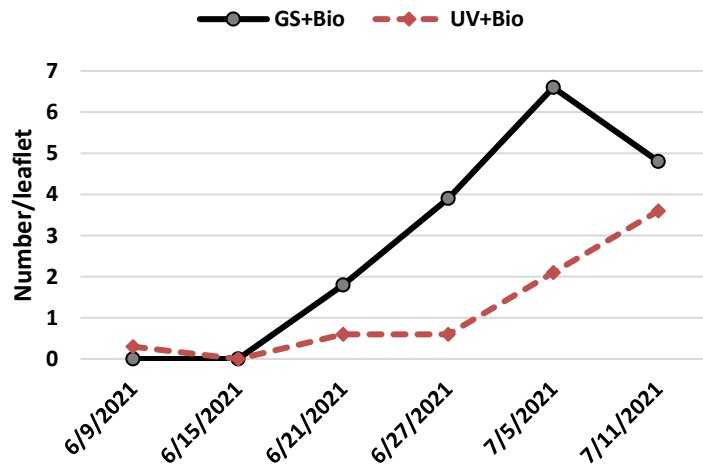
Santa Maria: Lewis mite eggs



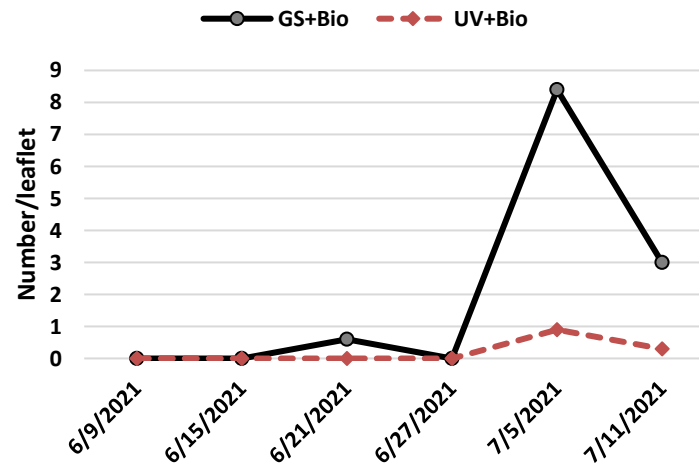
Santa Maria: Predatory mite eggs



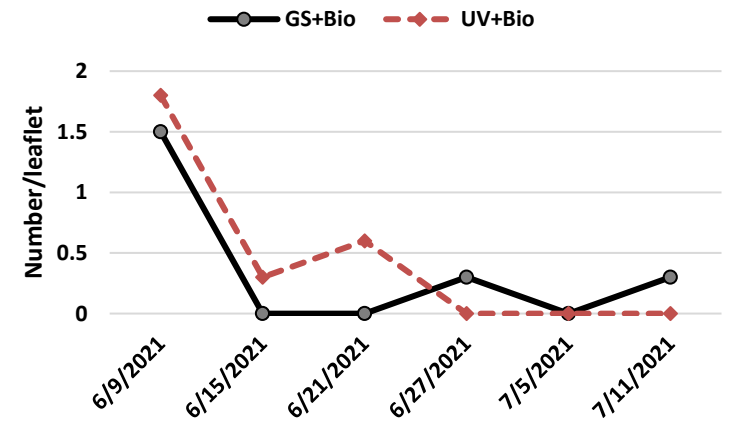
Santa Maria: TSSM mobile stages



Santa Maria: Lewis mite mobile stages

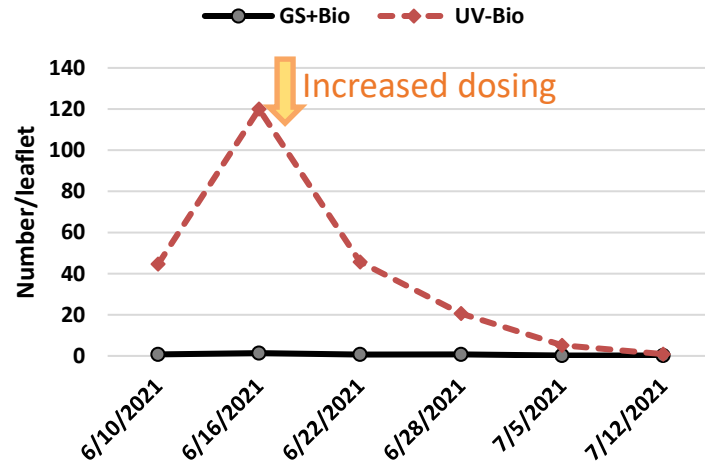


Santa Maria: Predatory mite mobile stages

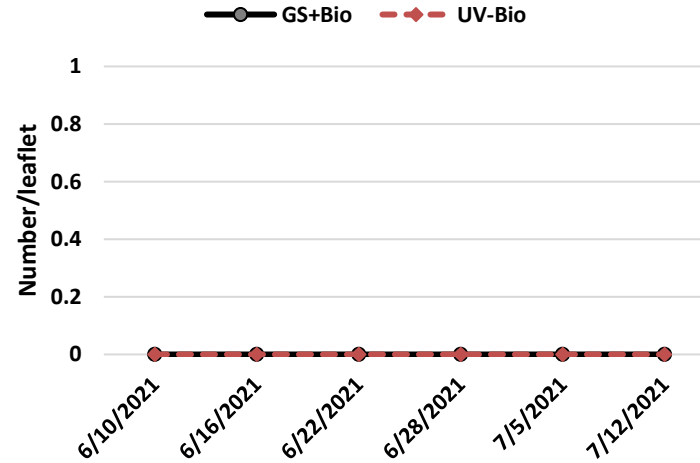


UV Light Treatment-Prunedale

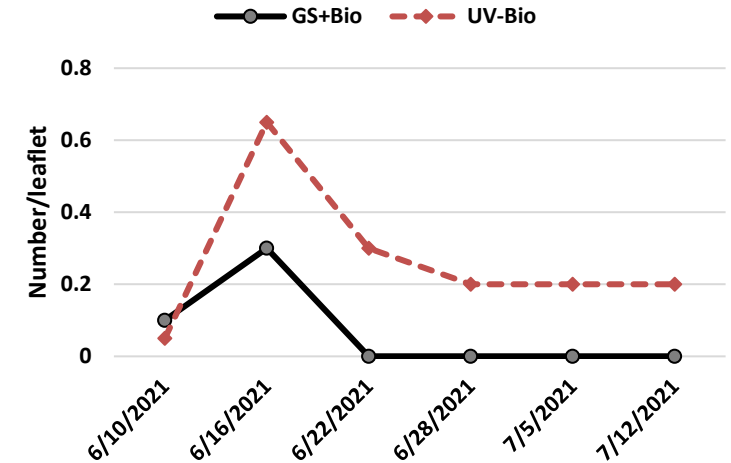
Prunedale: TSSM eggs



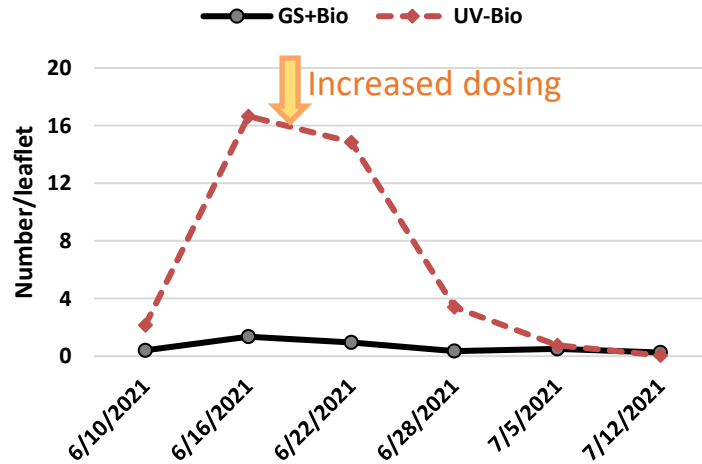
Prunedale: Lewis mite eggs



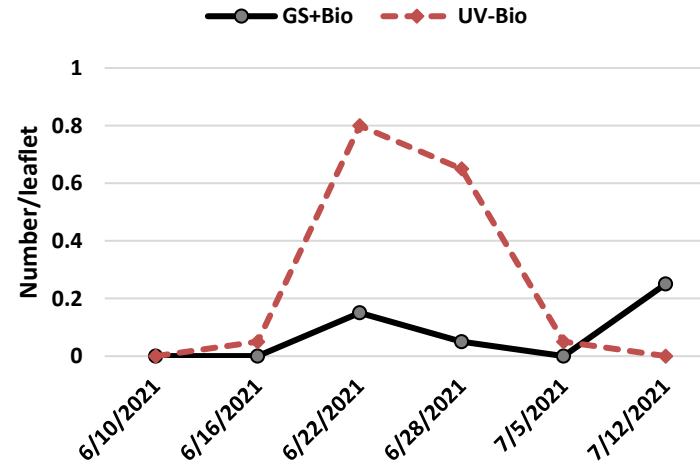
Prunedale: Predatory mite eggs



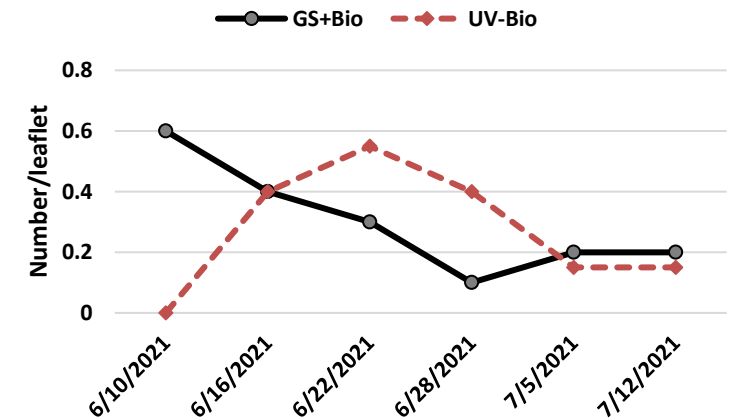
Prunedale: TSSM mobile stages



Prunedale: Lewis mite mobile stages

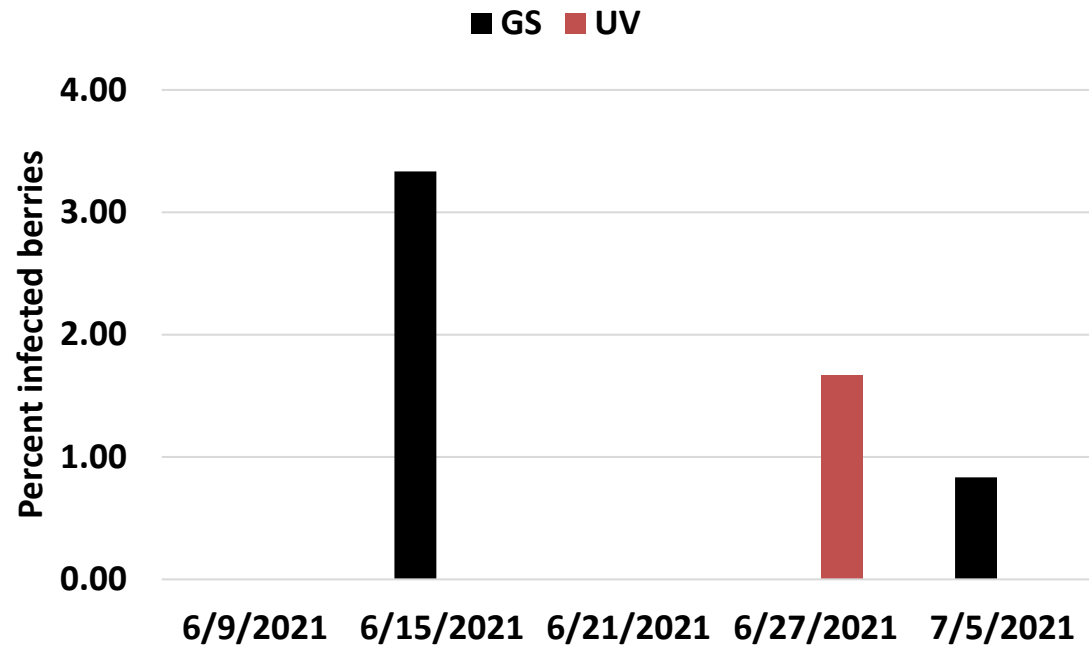


Prunedale: Predatory mite mobile stages

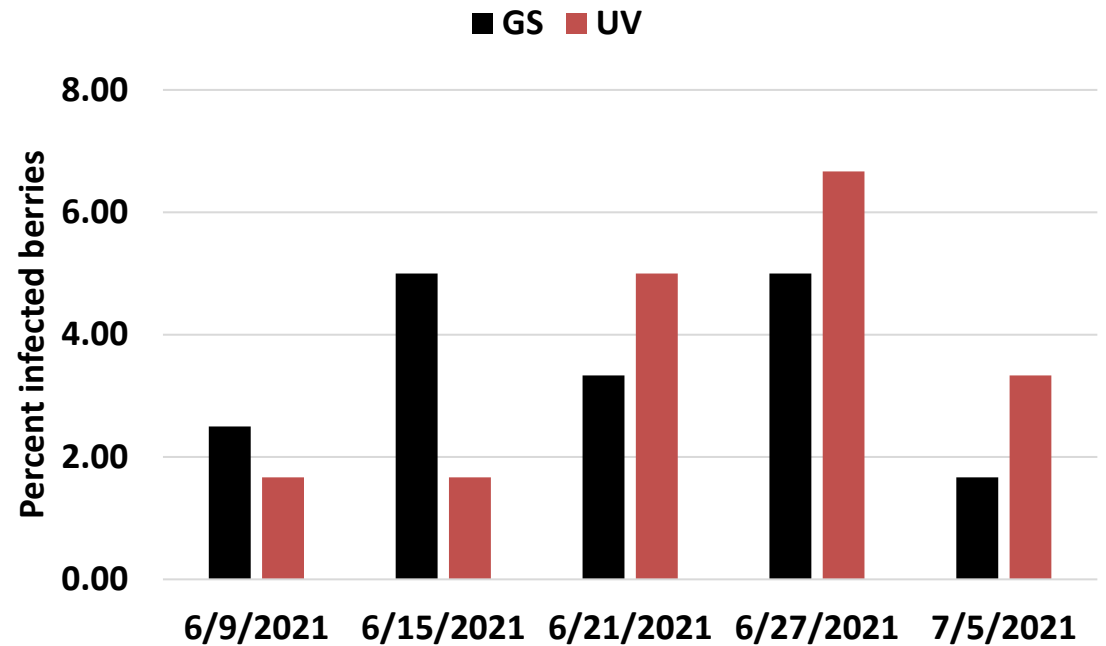


UV Light Treatment-Santa Maria

Botrytis infection 3 DAH



Botrytis infection 5 DAH



Take home message

- UV treatment protocols are still under development
- Could enhance IPM strategies
- Botrytis control was variable
- Efficacy needs to be further investigated for the suppression of multiple pests and diseases

Acknowledgements

- Tamas Zold

Thank you!



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Surendra Dara's Profile:

eJournals:

Meeting presentations:

Meeting handouts:

Strawberry manuals:

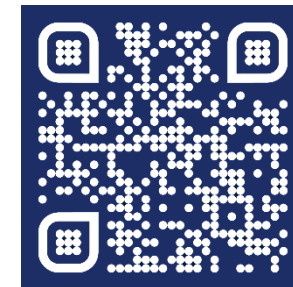
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