Hamutahl Cohen, Entomology Advisor

Research and extension focused on arthropod management in agricultural, natural, and urban areas in Ventura and LA. Projects include identification and monitoring, biology and phenology, pesticide resistance monitoring, pesticide application safety, pest control technology, conservation of endangered insects, control of invasive insects, and development and evaluation of integrated pest management methods with an emphasis on biological and cultural controls.

UC CE | UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

Revisiting best management practices for Asian Citrus Psyllid

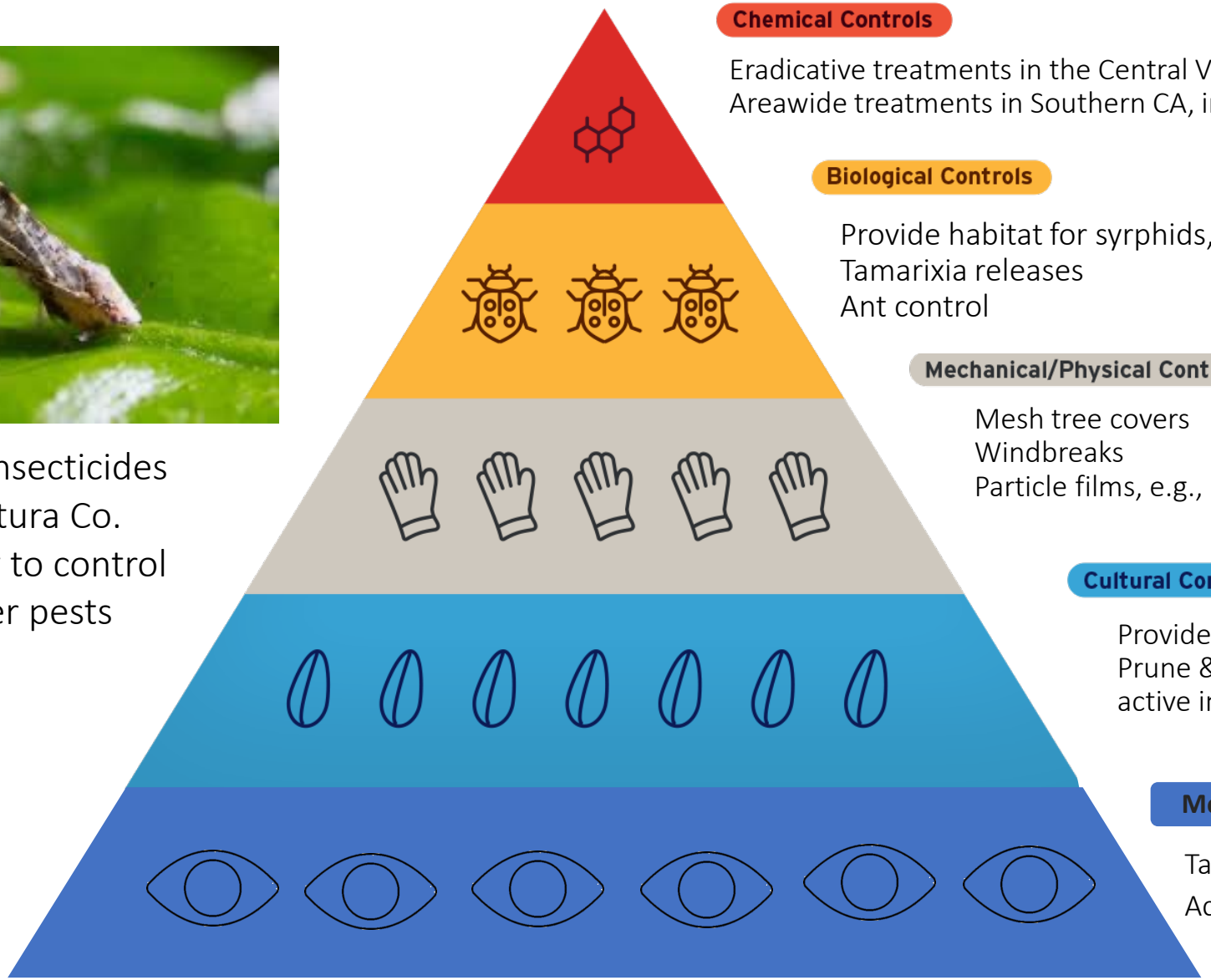
ACP transmits a deadly virus called HLB

ACP has spread in Ventura since 2010

However….

- UC PMGs have not been revisited in >10 years
- Pesticide resistance not being monitored
- Low grower compliance with treatment schedule
- Unknown which regional and weather factors determine ACP dynamics

~530,000 lbs insecticides applied in Ventura Co. citrus annually to control for ACP & other pests



Chemical Controls

Eradicative treatments in the Central Valley
Areawide treatments in Southern CA, including a winter spray

Biological Controls

Provide habitat for syrphids, lacewings, and natural enemies
Tamarixia releases
Ant control

Mechanical/Physical Controls

Mesh tree covers
Windbreaks
Particle films, e.g., Kaolin clay

Cultural Controls

Provide conditions for healthy citrus growth
Prune & fertilize to encourage flush when ACP less active in spring/early summer

Monitoring

Tap Sampling & Flush Surveys
Action thresholds

Adapted from Penn State IPM Brochure

UC ACP Workgroup is updating the PMGs

- Tailor recommendations to region and cultivars
- Extension of biocontrol research
- Update pesticide list to include impact to nat. enemies
- Get feedback from local communities on what's missing

Neil McRoberts
Plant Pathology
UC Davis

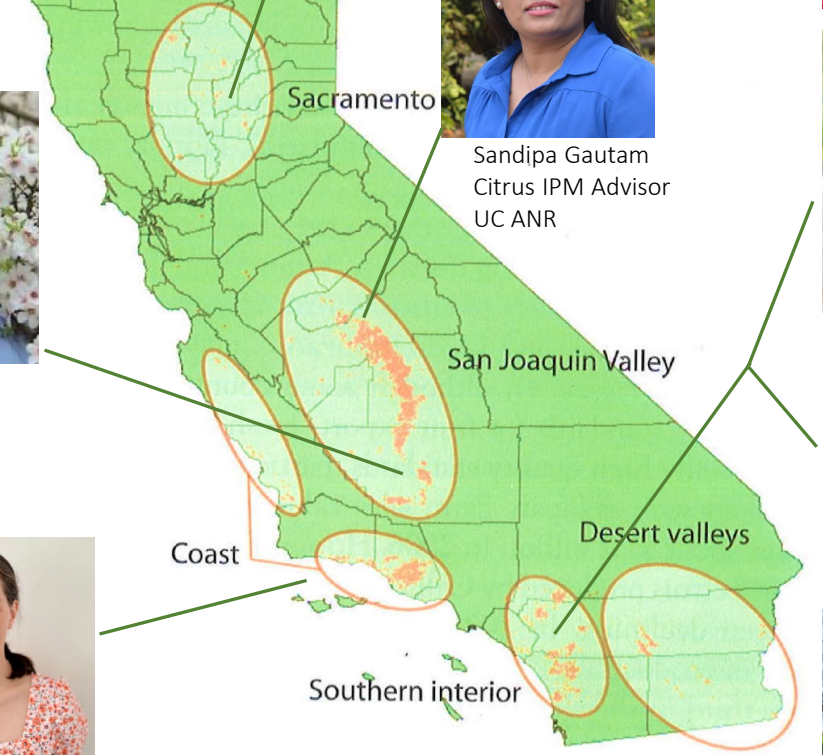
Matt Daugherty
Entomology
UC Riverside

Sandipa Gautam
Citrus IPM Advisor
UC ANR

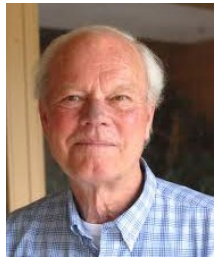
Mark Hoddle
Entomology
UC Riverside

David Haviland
Farm Advisor
UC ANR

Bodil Cass
Entomology
UC Riverside



Beth Grafton Caldwell
Emeritus
UC Riverside



Ben Faber
Subtropical Advisor
UC ANR

Hamutahl Cohen
Entomology Advisor
UC ANR

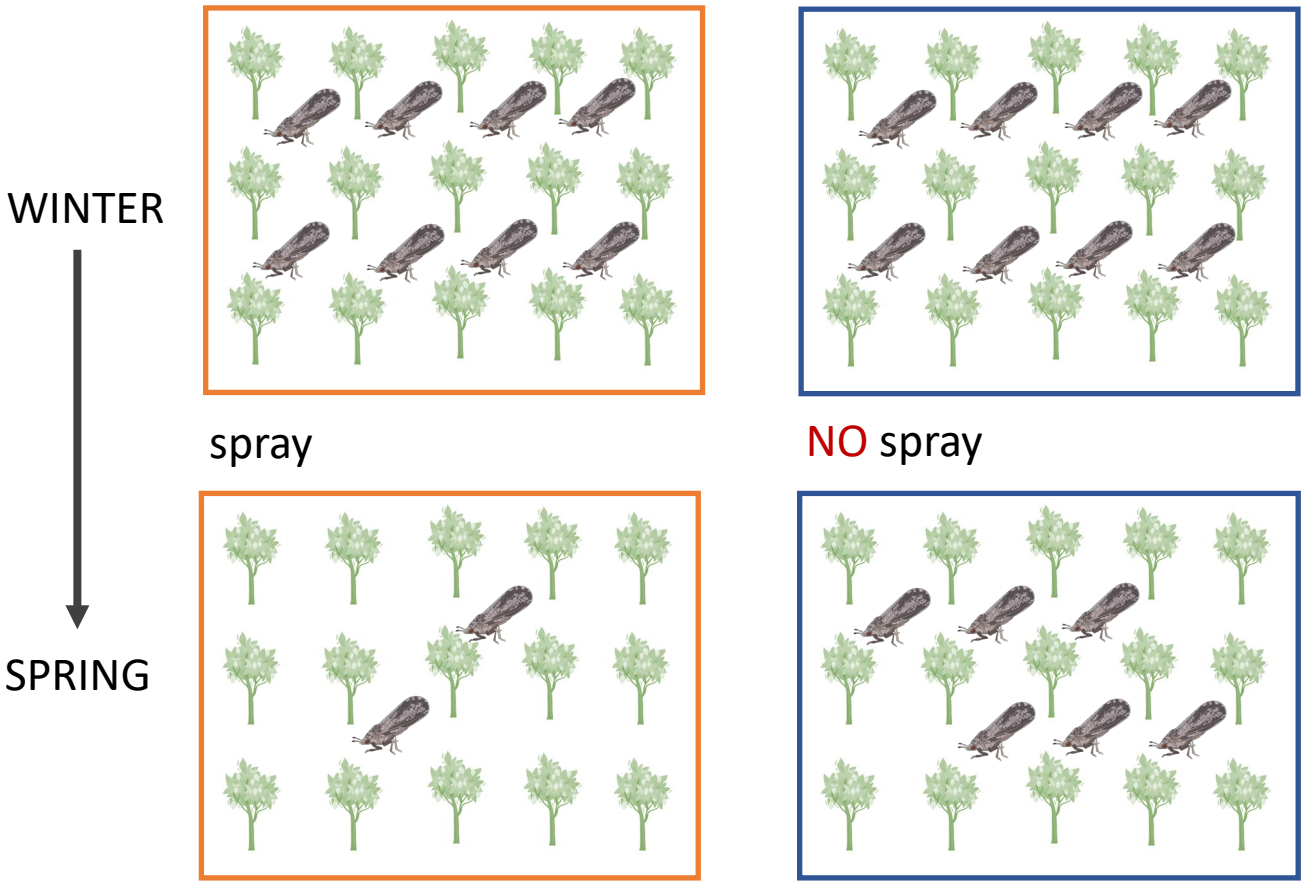
Evaluating Efficacy of Winter Sprays

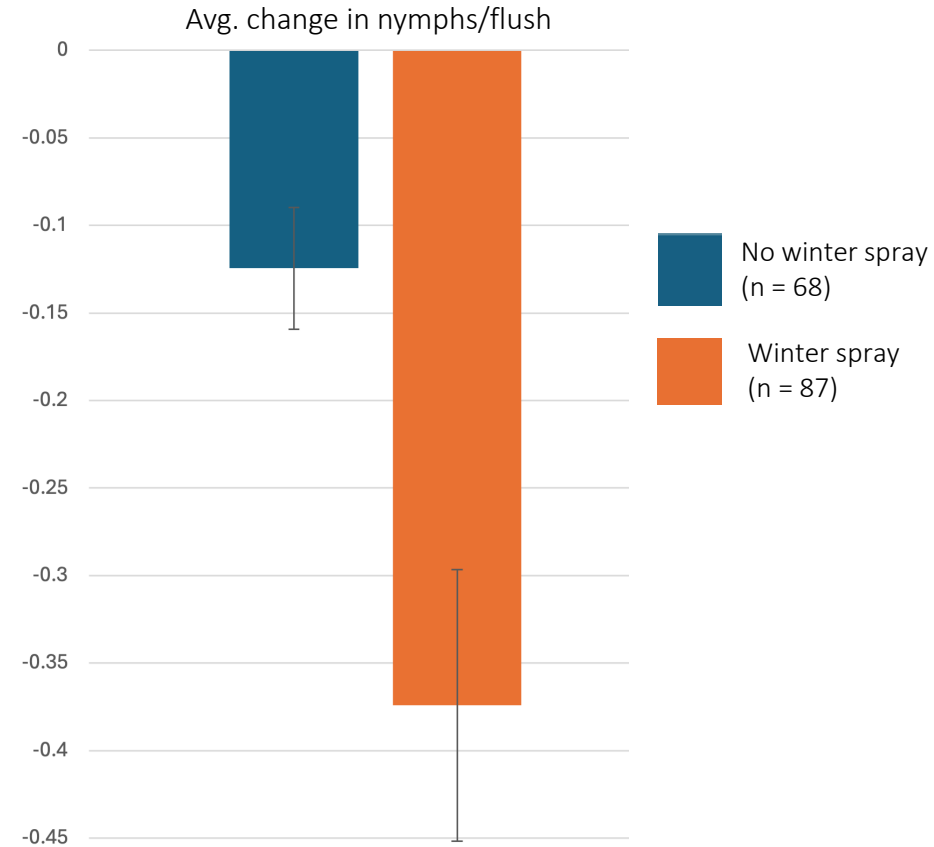
Neil McRoberts
UC Davis Professor

Dr. Bodil Cass
UCR Specialist

Dr. Matt Daugherty
UCR Specialist

- Citrus groves with winter sprays and without
- Collected data on ACP density, 2016-2019





About a 3-fold difference

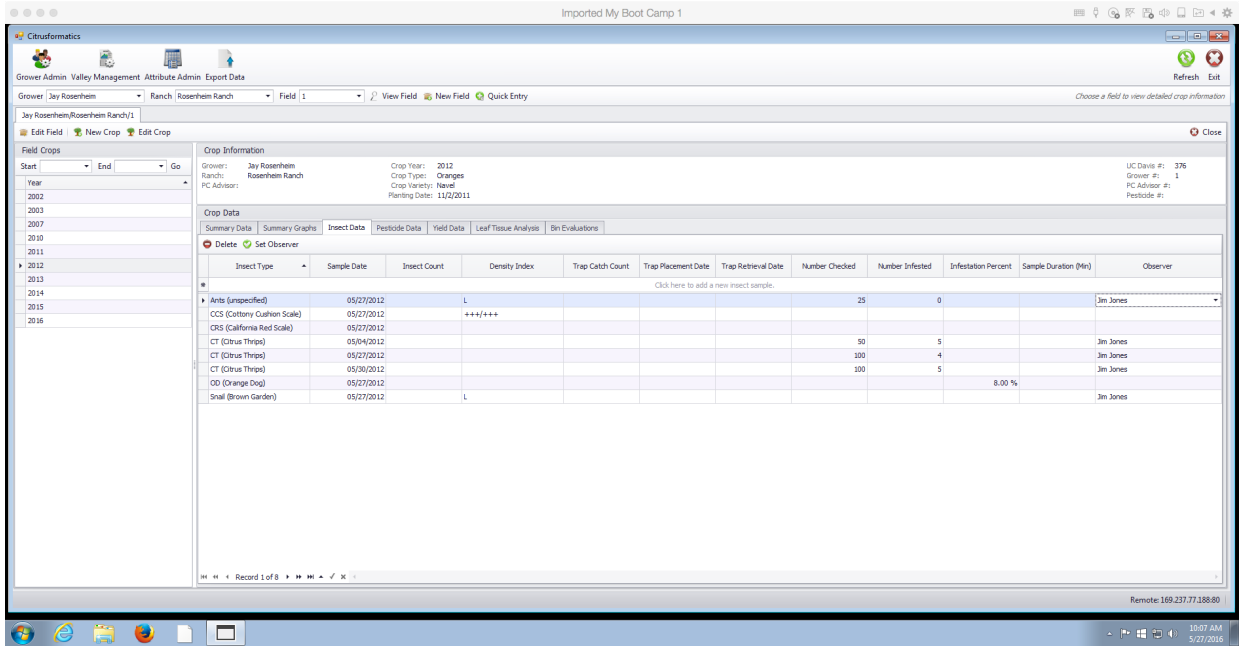
Understanding regional drivers of ACP dynamics

Dr. Bodil Cass,
UCR Specialist

Dr. Jay Rosenheim
Emeritus, UC Davis

Ecoinformatics

- Data mining approach for ecological questions
- Collect VERY large amounts of historical data so that we can statistically control for confounding variables
- Collect from broad temporal and spatial scales, from a full range of field conditions



We acquired Hrdy funding to implement a software for entering and bridging together PCA scouting records, pesticide use records, and weather data statewide for ACP from 2010 – 2028. Our key collaborator is the ACP-HLB taskforce, a grower group in Ventura.

Collaborative ACP projects

- Pesticide resistance monitoring
- Evaluating cover crops for attracting natural enemies
- Outreach with backyard citrus growers, maintaining UC ACP websites
- Collaborators: researchers, growers, CDFA

Developing methods for testing pesticide resistance in ACP. We knock them out with CO2, apply insecticide on each individual, then conduct a mortality assay.

Anticipated Outcomes

Protecting California's natural resources

- Improved management and use of land
- Increased ecological sustainability of agriculture

Thank you!

DPR published a roadmap for sustainable pest management in 2023 that motivates this work