Diversified Agricultural Systems Area Program **Research and Outreach**

Clebson G. Gonçalves, Ph.D. Diversified Agriculture Advisor, Lake & Mendocino Counties, **UC Cooperative Extension**



Needs Assessment Results

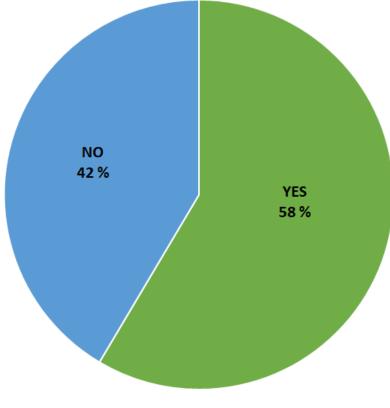
July 2022 - Current

Diversified Agricultural Systems Advisor

- Replaced CE Advisors
 - Rachel B Elkins
 - (Pomology Farm Advisor)
- I cover two counties:
 - 1. Lake
 - 2. Mendocino







Received advice from- UCCE



Educational Events Examples:

- Pear grower and PCA meetings
- **Lake County Walnut Update**
- Lake Small Farm Organic Workshop
- Vertebrate Pest Workshop
- **Pruning Olive Trees Day**
- Olive and Grape Day
- **Grapes and Pear Field Day**
- Strategies for Drought Resilient Agriculture Workshop
- **Home Orchard Pruning Workshop**





Integrated Weed Management (IWM)

Use of Organic Herbicides in Perennial Crops:

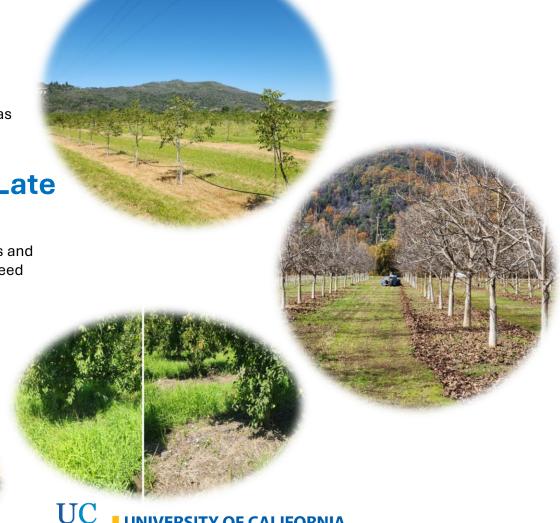
Application programs of organic herbicides for long-lasting weed control in organic orchards and as a potential alternative to glyphosate in conventional orchards.

Consider Adding PRE-emergent Herbicides in Late Spring Spray Programs:

Effectiveness of glyphosate and glufosinate sprayed side by side and evaluation of the advantages and disadvantages of (PRE and POST) herbicide programs with different modes of action to improve weed management in pear orchards.

Low-input Strategy:

Ongoing field research trials are being conducted to assess the walnut leaf biomass mulch thickness required for weed suppression throughout the growing season and to evaluate soil moisture and temperature at different walnut mulch depths.





Research

Emerging Technologies

Hyper-precise Spray Technology:

Compare weed control effectiveness using hyper-precise pinpoint spray technologies and traditional broadcast application systems.

Sterile Insect Technique (SIT):

Assessing compatibility of mating disruption and sterile insect technique for codling moth (Lepidoptera: Tortricidae) in California pear orchards (Research collaboration with Cindy Kron, UCCE and Charles Burks, USDA).









Integrated Pest Management (IPM)

Control of Branch Dieback Disease Fungi in California Pear Orchards:

The knowledge of the presence of fungicide resistance in the orchard and the identity of the causal agents of branch canker and dieback will help pear growers to make a better decision for the best management practices controlling these important diseases (Research collaboration with Eskalen Lab - UC ANR).





Flatheaded Borer Damage in Pear Fruit:

In 2023, an unknown flatheaded borer species was found feeding on pear fruit in Lake County. In collaboration with Tennessee State University, have taken all necessary steps to correctly identify this species. The results from molecular analysis and taxonomic identification confirmed this species as the Pacific flatheaded borer (*Chrysobothris mali*) (Research collaboration with Cindy Kron, UCCE.



Water Conservation

Plant-based Irrigation Management in Walnuts:

The use of an automated device (microtensiometer) to continuously monitor stem water potential (SWP) in walnuts (Research collaboration with Kenneth Shackel, UC Davis).









Agriculture and Natural Resources

Rootstocks and Variety Selection

Rootstocks for European Pears:

The overall objectives of the project are to evaluate potential precocious, size-controlling rootstocks for varying locations, vigor, growth habit, productivity, compatibility with major varieties, susceptibility to diseases and pests, propensity to sucker, etc.



Agave Selection:

For 2025-2027 we will starting a research collaboration to explore Agave variety selection and production in in Lake County (Research collaboration with Paula Guzmán-Delgado, UC Davis).



Establish collaborations with <u>external organizations</u> and <u>industry partners</u>.

























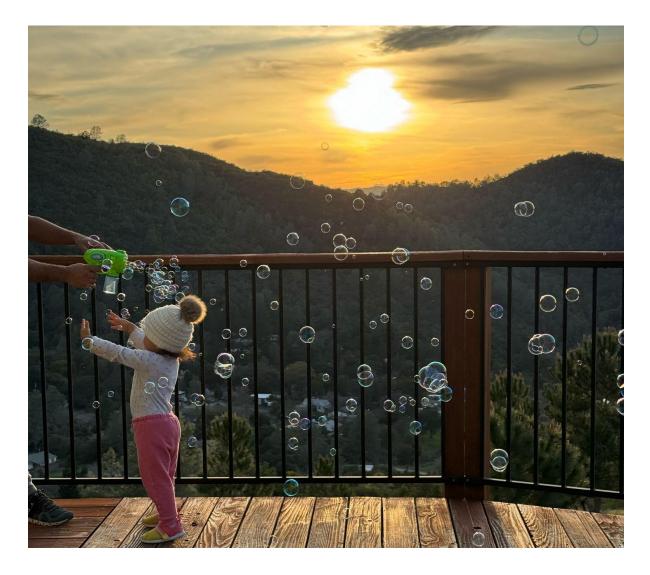








Thank You Jesus Christ for Everything.



Thank you!

Clebson G. Gonçalves, Ph.D. **Diversified Agriculture Advisor**

I CAN BE REACHED AT:

883 Lakeport Blvd. Lakeport, CA 95453 (707) 263-6838 Office (707) 263-6963 fax (707) 972-9495 Cell

E-mail: goncalves@ucanr.edu