

Horticulture and Small Farms



Cindy Fake became the Horticulture and Small Farms Advisor for Placer and Nevada Counties in 2001. Over the course of her 22-year career with UCCE, she served approximately 1,000 specialty crop farmers who operate from the Sacramento Valley to the upper foothills (~3,000 feet above sea level), producing citrus, pome and stone fruit, winegrapes, specialty fruit, cool and warm season vegetables, cut flowers, and ornamentals.

As a result of her UCCE programs, many farmers adopted sustainable farming practices. These have improved soil health, increased water use efficiency, and reduced the environmental impacts of pesticide use while improving produce quality and yields and increasing farm profitability. These practices have become standard for many farms. For example:

- Over the last two decades, about 2,400 growers attended on-farm and practical workshops. Peer-to-peer learning in these workshops catalyzed widespread changes in production practices, including soil and nutrient management practices, irrigation monitoring and scheduling, pruning, composting, and mulching.
- Soil management practices have led to healthier, more resilient, and productive soils. Benefits include maintaining vegetative cover in orchards and vineyards to prevent erosion, capture and store rainwater, increase soil organic matter, foster soil microbial populations, and provide habitat for natural enemies.
- Growers are more knowledgeable about irrigation needs in variable weather and monitor soil moisture and crop status more carefully.
- As a result of collaborative research on mulch in multiple orchards, the application of mulch and/or compost in tree and vine rows has been adopted across many perennial crops. Biologically active mulch reduces water and herbicide use; improves soil health and microbial diversity; maintains soil moisture; and mitigates soil and canopy temperature fluctuations. Cindy's research has also shown mulching to be an important tool for reducing tree and vine stress and maintaining yield in our current variable climate.
- UCCE Placer/Nevada Horticulture and Small Farms program trained farmers and coordinated releases of parasitic *Aphytis* wasps to control California red



scale instead of applying pesticides. Since 2005, 22.9 million wasps have been released in 64 small-scale foothill citrus orchards, covering a total of 2,677 acres. As a result, approximately 22,808 pounds of carbaryl (carbamate pesticide) and 47,851 gallons of horticultural oil were not applied to these orchards. Growers also saved about 7,361,750 million gallons (22.6 acre-feet) of water as well as reducing labor costs. Over 90% of foothill citrus growers now release *Aphytis* to control California red scale as standard practice. More than 80% of citrus growers do not use pesticides at all, and those who do, use horticultural oils.

- Over two decades, more than 1,100 growers participated in hands-on pest management workshops, improved their practices, and disseminated these practices throughout foothill agriculture. Department of Pesticide Regulation records from 2001 to 2019 show significant decreases in the use of broad-spectrum pesticides and pesticides of concern for water quality in Placer and Nevada Counties. UCCE programs contributed to reducing organophosphate use: diazinon use declined by 99.8%, phosmet by 99.0%, and chlorpyrifos by 97.2%. Mancozeb, a fungicide which disrupts soil biota, also declined by 98.5% in the same period. Widespread use of mulch in orchards helped reduce glyphosate herbicide use by 69.5%.

With Cindy Fake's retirement in June 2023, UCCE Placer-Nevada is working to ensure that the Horticulture and Small Farms Advisor position remains a high priority for UC ANR funding.

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