



Images (starting top left and going clockwise): Honey bee pollinating almond blossoms; program logo; elementary school students participants in the "Pollinator Education Program"; beekeeper stakeholders attending an in-person apiculture training.

PROJECT TITLE: The California Master Beekeeper Program  
PROGRESS REPORT FOR YEAR 4 OF 4  
STRATEGIC INITIATIVE(S): Honey bee education, outreach and stewardship  
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## Summary

Honey bee health is essential to productive agriculture and food security in California and across the country. California has approximately 500,000 resident colonies which are rented out for pollination of more than 30 crops in the state, including high value contributions to the three of the State's top 5 commodities (almonds, strawberries, dairy). For example, the almond industry, and its \$21 billion total economic output, relies heavily on honey bee pollination. The mission of the California Master Beekeeper Program (CAMBP) is to provide research-guided education and management practices for stakeholders in California, thereby contributing to resilient agricultural output and food safety and security.

CAMBP is a continuous train-the-trainer educational effort designed for a number of stakeholder groups including beekeepers, veterinarians, growers, apiary inspectors, pest control advisers, pesticide applicators, and other speciality groups, as well as the general public. Participants receive an outstanding apiculture and pollinator education and have access to the most current research findings directly impacting their management decisions and community outreach efforts. CAMBP member volunteers increase UC ANR's science-based apiculture and other pollinator extension reach across the state by providing practical education, outreach, resources, and practices that the general public and beekeepers understand, implement and trust. The CAMBP has continued to expand its reach since its establishment in 2016 and is now present throughout California via several satellite hubs.

The CAMBP is committed to the vision that all people in California live healthy lives. Through evidence-based scientific curriculum and community building strategies and outreach, the program offers preventative and proactive practices at the individual, organizational and community level. In 2021 The CAMBP increased its virtual engagement, its programmatic personnel through volunteer engagement, augmented its education and outreach materials and delivery strategies, and made the program available to underserved community members through offering 3 scholarships.

For details on prior years' outcomes see reports: [Year 1](#) (2018-19), [Year 2](#) (2019-2020), [Year 3](#) (2020-2021)

## Objectives

- ❖ *Education:* The CAMBP's comprehensive, science-based, state-wide apiculture curriculum and beekeeping resources are provided to the public to help minimize possible negative consequences, such as increased pest and pathogen transfer, and the spread of the *Apis mellifera scutellata* hybrid, an overly defensive honey bee sub-species that pose public health risks, due to lack of understanding of proper honey bee husbandry.
- ❖ *Standard Setting:* CAMBP's certifications set the standards for individuals' beekeeping knowledge and its partner program sets standards for beekeeping organizations.
- ❖ *Community Volunteerism:* The CAMBP's continuous train-the-trainer model for California beekeepers (hobbyist, sideliners and commercial beekeepers) fosters honey bee health and supports effective pollination of specialty crops, as well as food security, through the volunteer education and outreach member network at the local community level.
- ❖ *Partner Organization Support:* CAMBP develops beekeeping curriculum development materials (slide decks, teaching guides, connections, tech support, etc) for partners including UCCE offices throughout the state. This includes a comprehensive digital curriculum.

## Deliverables

- ❖ The California Master Beekeeper Program provides California-centric, contemporary, research-based training in apiculture to backyard and small-scale beekeepers.
  - Train the trainer: Since 2016, 533 Apprentice Assistants, Apprentices, Journey level and Master beekeepers have performed Beneficial Education Experiences (BEEs) as 30,292 service hours in science-based education, outreach and support in beekeeping and environmental stewardship service serving 176,068 people at a value to the state worth \$770,236 (\$25.43/hr is value placed on volunteer time in the county of San Diego) in the following areas:
    - Presenting a bee-related lecture or workshop to a non-beekeeping group (youth or adult).
      - Holding office in a local beekeeping association.
      - Assisting members of youth organizations (4-H, Scouts, FFA), etc. with a bee-related project.
      - Successfully mentoring a new beekeeper through at least one season.
      - Giving a public demonstration on beekeeping topic at fair, festival, or similar public event (working from a stage, booth, or table)
      - Swarm removal with emphasis to underserved communities.
      - Writing a science-based honey bee or beekeeping article for a newsletter or a trade journal.
      - Social media support/online mentoring of new beekeepers and answering hotline questions (where available).
      - Ride-a-longs with county apiarists (where available).
- ❖ CAMBP Lectures in 2021 were online. Our program offered 58 hours of lectures from our UC Davis and South Coast Research and Extension satellite hubs. Science-based beekeeping and honey bee health lectures support the train-the-trainer model, and help beekeeping ambassadors and environmental stewards to develop and maintain a supportive and interactive beekeeping network of mentorship across the state.
  - [Webinars](#) – are valuable teaching and community building tools offered to our membership and are available for view on YouTube. In 2021 the CAMBP hosted 6 guest speakers.
  - Advisory board members, composed of industry experts, offer ongoing support and accountability. Read our [2021 Advisory Board presentation](#) here.
  - ["Online Field Day"](#): We give back to our volunteers by hosting a free Pest and Diseases workshop to thank our members for their generosity of time in service of science-based beekeeping and honey bee health education and outreach. CAMBP members participate in active learning and presenting.
  - [CAMBP website](#) – updates and additions include governing structure, satellite lead portal, exam details page, and the rubric details for all levels of the program are now online behind our member portal.
  - Social media metrics: Weekly newsletter, CAMBP Facebook, YouTube and Instagram accounts have over 1200 followers.
  - CAMBP leadership contracted a co-manager in March 2022 with a specialization in technology program planning and development to enhance infrastructure, organization and planning.

## Outcomes

- ❖ The CAMBP expanded to include 9 extension hubs at the South Coast Research and Extension Center in Irvine, UCLA Bruin Beekeepers, The Valley Hive, Mount Diablo Beekeepers Association, Humboldt County Beekeepers Association, UC Riverside, CSU Channel Islands, CSU Fullerton, Cal Poly Pomona. In collaboration with the program co-managers, volunteer leads at these extension hubs support our education and outreach efforts and offer proctored practical certification exams for the Apprentice Assistant (AA), Apprentice (AL) and Journey (JL) levels of the program. As science-based beekeeping education is local it is vital to have teaching apiaries in Southern and Northern California.
- ❖ The CAMBP delivered 58 hours of online science-based beekeeping lectures due to COVID restrictions in 2021, and our membership increased by 188 beekeepers.
- ❖ Our master level certifications grew from 1 certification in 2020 to 11 awarded in 2021-22. Our inaugural 2021 Apprentice Assistant level recruited 48 beekeeping ambassadors, and we engaged 61 Apprentices and 19 Journey level beekeepers.
- ❖ Social media outreach engages members through YouTube, Instagram, Facebook, LinkedIn, Twitter, and Pinterest. Aggregate total following was 755 in 2021 and 1777 YTD in 2022.
- ❖ Our 533 members in 2021-2022 from 2021/10/01 - 2022/09/30 reported hours of service doing in person and online education, outreach and mentoring as follows: (Beneficial Educational Experiences, or *BEEs* are a requirement of the program. One hour of service equals one BEE. Members are accountable to upload their service records through their new member portal on our website).

<b>Metric</b>	<b>2021</b>	<b>2022</b>
<b>BEEs</b>	3338.65	4314.85
<b>CEs</b>	1034.14	2235.15
<b>Number People Served</b>	45,472	60,757

- ❖ The CAMBP positively impacts community safety through better beekeeping husbandry and volunteer community outreach from our members. Member volunteers follow the “Safety in the Apiary” [presentation, manual](#) and pass the [quiz](#). CAMBP is currently updating this manual to share with 4H and all beekeeping clubs across the state.
- ❖ CAMBP launched its beta interactive Apprentice Level Certification Study Guide (a self-paced program with an online exam) Updates are underway based on member feedback and the full independent study online program will be ready in 2023. Practical exams for this format are submitted via YouTube and graded by CAMBP admin.
- ❖ The CAMBP improved the [website](#) by adding a Satellite Administration area, a member general information area to provide guidance on education and outreach, test prep, communication, knowledge, volunteer opportunities, and mentorship.
- ❖ The CAMBP members participated in the California State Beekeepers Association convention in Santa Barbara hosting “A Day in the CAMBP” education and outreach for the 273 convention attendees.