UC CE UNIVERSITY OF CALIFORNIA Agriculture and Natural Resources Cooperative Extension

2023 Initial Needs Assessment - UCCE North Bay Specialty Crops

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Background

My Cooperative Extension and research program serves a diverse community of specialty crop growers of orchard crops, vegetables, berries, and other high-value and niche crops. This does not include grapes because UCCE Viticulture Advisors serve vineyards. I partner with local technical service providers, organizations, processors, and marketers as well as other UCCE Advisors and Specialists to promote commercial specialty crop production and the expansion of growers' contributions to our local food system.

North Bay specialty crop growers are diverse in terms of demographics, crop types, needs, constraints, strengths, and goals. While there are some large and mid-scale growers, most farm on a small scale. Approximately 95% use organic, regenerative, and/or agroecological practices. The most common organic certification agency reported is California Certified Organic Farmers (CCOF). Some are new farmers while others are experienced. Approximately 50% qualify as historically underserved farmers.

Specialty crops in our region include apples, olives, pears, citrus, plums, berries, lettuce, tomatoes, peppers, cucurbits, brassicas, culinary herbs, and cut flowers. Most vegetable farms are diversified. Each crop has its own set of pests as well as nutrient and water demands. Growers reported sales outlets such as farmers markets, Community Supported Agriculture (CSA) programs, FEED Cooperative (a local aggregator/distributor), farm stands, grocery stores, restaurants, chefs, wineries, wholesale, and local processors.

The UCCE North Bay Specialty Crops program directly addresses high-priority sustainable production needs through diverse outreach and advising methods, robust science-based education, and applied multidisciplinary research focused on growers' key questions. This program advances climate-adaptive strategies, sustainable management of plant health, water and soil resources, and ecologically oriented Integrated Pest Management.

Initial Needs Assessment

I began this position in January 2023 and started by conducting an Initial Needs Assessment to introduce myself, identify growers' needs, broadly learn about farms, orient my program, and start building professional relationships. I gathered direct and detailed input from 109 commercial growers. I reached out via county office lists, online resources, word of mouth, introductions by partner organizations, and at grower meetings. I asked lot of questions and did a lot of listening. I cast a wide net and proactively reached out to many growers. This helped promote equity at this formative stage of my program and hear diverse perspectives and needs.

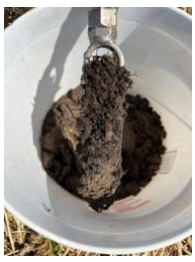
I conducted in-depth informal interviews to discuss needs via 101 farm visits plus phone and Zoom calls and emails. These one-on-one conversations helped me establish good connections and produced critical needs information. I took time to learn about many facets of growers' operations, their challenges, and support needed. I hosted 5 Meet & Greet events to

learn about needs from 47 growers. I used surveys that produced needs information from 78 growers. These activities established a participatory approach, built positive relationships, and increased growers' understanding of my role and UCCE. Many growers expressed enthusiasm about my program, and several said they feel informed and encouraged by my personalized approach as a UCCE Advisor. This Initial Needs Assessment guided the development of Extension educational events, resources, and applied multidisciplinary research projects in 2024.

Key Needs

Specialty crop growers are diverse and have diverse needs, but there were some common themes across many types of crop systems. Growers described the following topics most often as areas of need to prioritize through my program.

Soil & Nutrient Management is widely important to growers. Many already use soil health building practices and need to know how to assess effects. They want more information and training about soil assessment options, costs, how to collect samples and interpret tests to guide management decisions. Growers ask for guidance on the use of organic matter amendments like compost and mulch as well as cover crops, fertilizers, and no/low-till practices across scales. Several small-scale vegetable growers describe a tradeoff between soil health and farmer physical health in hand-scale no-till farming. Growers express the need for more consistent, affordable, high-quality compost. Some farms are managed as low-input systems with minimal nutrient additions due to high input costs, which can cause severe nutrient deficiencies that limit plant health and yield. Some farms that only rely on organic inputs report deficiencies in nitrogen and other nutrients. Some growers have used sustainable nutrient/soil practices for many years, while others are beginning to use these practices. Many growers convey a clear commitment to soil health practices, increasing soil carbon, and a need for more soil/nutrient trainings.



Collecting soil samples.




Cover crops and composted mulch build soil health.



Symptoms of nutrient deficiencies and drought stress on an apple leaf and in the tree canopy.

Water Management is on many growers' minds considering drought related challenges in recent years. Many growers express the need for more dry farming educational opportunities to learn strategies for effective implementation to reduce water use and improve climate resilience. Several growers are interested in phenology-based deficit irrigation to reduce water use. Many growers ask about crop-specific water requirements which can be difficult to manage on farms with diverse crops. Growers want affordable, easy-to-interpret decision support tools to assess soil and plant water status and help guide irrigation. Questions come up about irrigation quantity, quality, duration, frequency, and automation. Some growers need improved water access while others have reliable source(s) of water. There is wide interest in strategies for water conservation and climate resilience in general.



Tools to assess soil and plant water status: soil moisture probes (left), stem water potential (right).



Drip irrigation (left) and dry farmed tomato seedling with mulch at the base (right).

Integrated Pest Management (IPM) includes all pests--insects, diseases, rodents, weeds, etc.--that cause economic losses in specialty crop systems. Growers want to learn how to identify insects and diseases and their symptoms and damage in the field. There is strong need for effective IPM plans for key regional pests that include organic product options. Growers have questions about natural predators and biocontrol options. Several growers express the need to better understand the safe and effective use of organic pesticides. Gophers are the most common pest mentioned across all crop systems. In apple orchards, codling moth and a suite of diseases are major pests causing economic losses. In olive orchards, olive fruit fly is the primary pest followed by diseases. Pests in vegetable crop systems range widely since most systems are diversified and each crop has its own group of pests. However, symphylan is the most common arthropod pest across diverse annual crops followed by cucumber beetles, and soil-borne diseases such as *Fusarium* and *Pythium* are common too. Growers need affordable and ecologically oriented IPM strategies to address pests and reduce economic losses. The following photos show examples of pests that damage plants and reduce yield in our region.



Symptoms of diseases: *Fusarium* sp. causing discoloration in vascular tissue of tomato plant (left) and *Fusarium* sp. causing leaf wilt and dieback in strawberry plant (right).



Symphylans on a potato bait (left) and crop stunting due to symphylans damage in the field (right).



Olive fruit fly larvae (left) and disease symptoms of peacock spot caused by a fungal pathogen (right).



Symptoms of apple branch canker diseases (left) and a codling moth caught on a monitoring trap (right).

Equipment & Labor is a significant need, particularly scale-appropriate tools and equipment to improve efficiency, farmer and farmworker physical safety, and reduce labor. Several growers emphasize the need for equipment that improves farmer health and reduces risk of injury and burnout. Since farms grow diverse crops and implement diverse practices, equipment selection needs to be tailored to each individual farm's needs—there is no one-size-fits-all solution. However, many growers are interested in equipment sharing and technical assistance and training when using new equipment. Some pieces of equipment are only needed for a brief amount of time and could be shared. This would require equipment maintenance and scheduling coordination.

Examples of equipment: two types of compost spreaders shown by David Klein (Ambix Spirits, left) and at another local apple orchard (right).

Examples of equipment: a walk-behind tractor operated by Reyna Yagi (Yagi Sisters Farm, left) and greens harvester operated by Tealy Gapinsky (College of Marin Indian Valley Farm, right).

Crop Selection is on many growers' minds, and they often shared interest in more options for low water-use, climate-resilient, high value, high quality, culturally relevant crop types and varieties. Some farms are highly diversified while others specialize in a smaller number of crops and sometimes specific varieties/cultivars/rootstocks. Some growers are experimenting with crops new to our region such as agave, perilla, and truffles. Many growers share how they weigh the ecological and economic costs and benefits of how much to diversify or specialize.

Examples of diverse crops. Top row, left to right: tomatoes, perilla, agave, cut flowers. Bottom: lettuce.

Examples of diverse crops. From left to right, top row: citrus and feijoa. Bottom row: apples, pears, olives.

Mentorship comes up in many conversations and there is strong interest in farmer-to-farmer learning and community building. Growers are interested in learning from each other and seeing examples of sustainable production strategies across different farm scales, crop systems, and management approaches. There is a strong interest in building community, sharing knowledge, and networking. Farming can be isolating, but several farmer groups help bring North Bay growers together in a spirit of mentorship and community (examples in photos below). Growers want and need more opportunities to connect with each other and learn together.

Farmers at Winter Sister Farm host a farm tour and potluck with the North Bay Farmers Group.

Farmers at Meadowood Farm host a farm tour and potluck with the Napa Farmers Guild.

Next Steps

These needs guide science-based advising, Extension educational events and resources, as well as applied research projects tailored to growers' key questions. The goal of these activities is to promote sustainable crop production and advance North Bay specialty crop growers as critical members of our food system and leaders in sustainable agriculture. I work closely with growers and local partners to continue learning about and addressing needs as they evolve over time. This is a creative, collaborative, and continual process.

Intended impacts of the UCCE North Bay Specialty Crops Program include:

→ Increased crop system resilience, innovation & climate adaptation

→ Increased implementation of sustainable farming approaches

→ Increased plant health, crop production, yield & contribution to food system

Thank you!

I would like to thank all growers who shared their needs and the many technical service providers and partners working in the local food system who helped orient me and and connect me with growers. I appreciate the openness, talent, innovation, and collaborative spirit of local growers and partners. I look forward to continuing to work together to address key priorities.

Get Involved!

Please visit the UCCE Sonoma County Specialty Crops website for educational events, resources, and funding opportunities. To receive updates, you can sign up for my newsletter at this link on the UCCE Sonoma County website (select Specialty Crops). You can follow me on Instagram and find educational content on my YouTube channel. You can email me at eandrews@ucanr.edu.

"In multiple conversations with local farmers I have heard people express lots of appreciation/gratitude/excitement that you are our extension agent." – Local specialty crop grower

Partners & Collaborators

- Community Alliance with Family Farms (CAFF)
- Kitchen Table Advisors (KTA)
- Resource Conservation Districts (RCDs)
- North Coast Soil Hub
- Conservation Works
- FEED Cooperative
- Agriculture Institute of Marin (AIM)
- Santa Rosa Junior College Shone Farm
- Sonoma County Farm Trails
- Natural Resources Conservation District (NRCS)
- Local processors
- Local Pest Control Advisors & consultants
- County Offices & Staff
- County Agricultural Commissioners Offices
- Local Tribes & Intertribal Organizations
- Local Spanish Interpreters
- County Farm Bureaus
- UCCE Advisors & Specialists
- UC Master Gardeners
- UCANR Organic Agriculture Institute
- Southwest Regional Food Business Center
- UC Sustainable Agriculture Research & Education Program (SAREP)
- California Farm Demonstration Network