University of California Cooperative Extension
Santa Barbara

Quarterly Report July — September 2016

Nutrition Educator, Miguel Diaz, leading physical activity games with youth in Santa Maria.

For more information on the UC Cal Fresh Program Visit

http://cesanluisobispo.ucanr.edu/uccalfreshslosb/

Submitted by Mary Bianchi
County Director, Horticulture Advisor
Santa Barbara County
October 31, 2016

University of California Programs- Advisors and Specialists in Santa Barbara County

PLANT SCIENCES/HORTICULTURE, led by Mark Battany, Mary Bianchi, Dr. Surendra Dara, Dr. Ben Faber, and Dr. Mark Gaskell, specializes in the science and art of growing fruits, vegetables, flowers, and ornamental plants. Advisors conduct local field research to test new crops and varieties that are best adapted to local soil and water conditions and markets, implement improvements in cultural practices and pest control methods, and offer information that optimizes production, conserves natural resources, and protects the environment. Advisors are called upon regularly by growers and the general public to assist in enterprise planning and problem solving.

UC CALFRESH NUTRITION EDUCATION PROGRAM and UC MASTER FOOD PRESERVERS are led by Dr. Katherine Soule. UC CALFRESH is funded by the USDA and delivered by the UCCE to Santa Barbara County. In collaboration with local partners, UC CalFresh provides evidenced-based nutrition education to low-income individuals and families. The program provides high-quality nutrition education curriculum and training to educators at qualifying schools. UC Master Food Preservers respond to interest and concerns regarding home food preservation.

UCCE MASTER GARDENERS, led by Mary Bianchi, provide the primary outreach and extension method for improving horticulture and science literacy for homeowners and back yard gardeners. They provide research based information for home horticulture, pest identification, landscape management, and other environmental and natural resource information. Master Gardeners interact directly with homeowners and back yard gardeners to provide information on sustainable and edible landscapes, water conservation, and environmentally sound solutions for pest problems.

4-H YOUTH DEVELOPMENT PROGRAM, led by Dr. Katherine Soule

4-H is a positive youth development organization that empowers young people to reach their full potential. A vast community of more than 6 million youth and adults working together for positive change, 4-H enables America's youth to emerge as leaders through hands-on learning, research-based 4-H youth programs and adult mentorship, in order to give back to their local communities. 4-H is the youth development program of our nation's Cooperative Extension System. The 4-H Youth Development Program is brought to the counties by the University of California, Agriculture & Natural Resources.

FIRE ECOLOGY AND MANAGEMENT, led by Dr. Max Moritz, focuses broadly on scientific questions in fire ecology and management. Research includes analysis of where various fuel management techniques are likely to succeed and be sustainable, mapping of fire weather patterns, and quantifying linkages between fire and climate change. Outreach efforts emphasize fire-related policy decisions and education of the general public to live more safely on fire-prone landscapes.

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Administrative Accomplishments- County Director, Mary Bianchi

The Challenge

Communities beyond the reach of the land grant campuses of the University of California present special challenges for outreach and extension. Cooperative Extension is the public education arm of the University of California's Division of Agriculture and Natural Resources. Cooperative Extension provides a direct link between all citizens of Santa Barbara County and the research, teaching and public service activities of the University.

Our mission is to extend research knowledge and information to empower people to improve and enhance their lives. We represent a unique partnership between the University of California, the County of Santa Barbara, and the United States Department of Agriculture.

Photo by Mike Eliason Santa Barbara County Fire A C-130 makes a retardant drop Sunday near Camuesa Peak in the Los Padres Nat. Forest. Wildfire resources are available through the Fire Information Engine Toolkit at http://firecenter.berkeley.edu/toolkit/

Addressing the Challenge

County Director Mary Bianchi maintained contact with Agricultural Commissioner and County Administrative Office staff throughout the quarter as needed. Director Bianchi facilitated contract completion for the 2016/2017 UCCE Direct Support Contract with the Agricultural Commissioner's office.

As is noted throughout this report, UC Advisors and Specialists collaborated with the Santa Barbara County Nutrition Education Program and the Obesity Prevention Program, with Santa Barbara County Health Department, the Santa Barbara County Fire Safe Council, and Santa Barbara City Fire. Partnerships with the City of Santa Maria Recreation & Parks, Santa Barbara County Food Bank, Community Action Commission, and Dignity Health supported nutrition programs. New working relationships were begun with the Lompoc Museum and the Santa Ynez Botanical Garden.

Rangeland and Watershed Advisor Dr. Royce Larsen serves on the Santa Barbara Agricultural Preserve Committee and he attended two meetings during the quarter. Additionally, Dr. Larsen continues to build relationships with the Santa Barbara County Cattlemen's Association meetings, attending three meetings during this reporting period.

Santa Barbara County Agricultural Advisory Committee meetings in July, August, and September were attended by Mark Gaskell, Director Bianchi, and Katherine Soule, respectively. Updates were provided on UCCE activities and upcoming events, as well as the status of Advisor positions proposed to support agriculture in Santa Barbara County.

Public Value

The University of California Cooperative Extension programs in Santa Barbara County:

- Ensure that science-based information developed by the University of California is available to all the people of Santa Barbara County through outreach and education provided by UCCE programs
- Narrow the gaps in information needed by county agencies and constituents to inform policy and decision-making through local research into questions and issues unique to Santa Barbara County
- Bring together the resources and expertise of the University of California and local partners to develop solutions to local problems
- Provide research and information to local partners on practices or programs that reduce costs or increase benefits for the

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Watershed, Natural Resources, and Rangeland Management, Dr. Royce Larsen

The Challenge

There are close to one million acres of native pasture and forestlands in Santa Barbara County, which are collectively referred to as rangelands. Comprising approximately half of the acreage of the County, these lands provide opportunity for multiple purposes. Rangelands serve as watersheds to capture, store, and release water for downstream uses; they provide forage for grazing by livestock; and their diverse plant communities provide habitat for many species of wildlife and recreational uses.

The UC Cooperative Extension Watershed and Natural Resource Program provide educational programs to inform people who own and/or manage the land and the animals grazing these lands. This work also includes applied research to develop new knowledge to effectively and efficiently manage rangelands and livestock in today's competitive and regulatory environment.

Advisor Larsen collaborating with NRCS, Cachuma RCD, Legacy Works Group in setting up a Carbon Sequestration monitoring plot on the Chamberlain Ranch.

Addressing the Challenge

Dr. Larsen has just begun working in Santa Barbara County. During this quarter ne helped with setting up a carbon monitoring plot on the Chamberlain ranch with the Natural Resource Conservation Service, the Cachuma Resource Conservation District and others. This will be a long term monitoring site where a grazing treatment and addition of compost will be monitored to determine if extra carbon is being sequestered into the soil.

Royce is working with the US Forest Service, who have purchased materials for a Forage Production plot that he will monitor. This plot will be located on a USFS grazing allotment near Cuyama.

Royce attended multiple meetings, including APAC, Farm Bureau, Agricultural Advisory Committee and Santa Barbara County Cattlemen meetings for planning future events for his Range and Natural Resource Program.

Though programing is just beginning, some important steps have begun.
1) Worked with one ranch to initiate the Rancher Sustainability Self-Assessment project. This will be expanded by doing a work shop in fall 2016.
2) Working with the USDA NRCS and Cachuma RCD with their Carbon Sequestration Study. This study will include using addition of compost and grazing management over time to determine if rangeland can increase in carbon sequestration. This is an important component to study for potential future climate change.
3) Met with the USDA NRCS and Cachuma RCD to start planning the extension of the forage production project into Santa Barbara County.

Public Value

The University of California Watershed/Natural Resource program in Santa Barbara County focuses on developing and extending research based information to help ranchers, managers and owners of rangeland manage their land in a sustainable and productive manner. The livestock industry is an important economic part of agriculture in the County. Research and education helps sustain the livestock industry in Santa Barbara County through:

- Improving rancher sustainability by improving their practices which sustain their production, lands, and families.
- Promoting best management practices for helping ranchers survive through the drought.
- Providing research data demonstrating severity of the drought on forage losses, helping ranchers obtain financial help through USDA programs designed for drought relief.

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4-H Youth Development– Dr. Katherine Soule

The Challenge

Communities of scientifically literate, well-informed, and actively engaged citizens are essential to create positive changes needed to solve important issues facing our nation and help us to prosper in a global economy.

The University of California 4-H Youth Development Program provides training and resources to local volunteers who partner with youth to bring about positive change in our communities. The 4-H program equips youth with hands-on science activities, healthy living knowledge, leadership experiences, and service-learning opportunities. Participation in 4-H prepares youth to understand and acquire the skills that will allow them to become problem-solvers and astute leaders.

Playa del Sur and Goleta 4-H youth and adults, 4-H staff and Lockheed Martin employees and family members participated in a Day of Caring project at the Veteran' s Memorial Building in Santa Barbara.

Addressing the Challenge

4-H staff supported adult volunteers and youth members in delivering positive youth development programming to members and their families in 22 clubs throughout the county. Participants engaged in hands-on experiential learning projects in the focus areas of Science, Leadership, Healthy Living, and Citizenship. Countywide 4-H activities, training meetings, and educational outreach events were delivered to 4-H youth, families, as well as the community at large, including:

- Collaborating with our community partner, Lockheed Martin, to present *Rockets to the Rescue*, a hands-on 4-H science challenge, to 66 youth at a United Way Fun in the Sun and Lunch Bunch event.
- Youth members participating in the 2016 Santa Barbara County Fair. 4-H volunteer project leaders, 4-H members, and parents contributed a significant amount of their time and resources to the fair with a combined total of over 700 exhibits of livestock, hand-made items and educational displays.
- Camp Wahoo! providing 50 youth a safe and fun residential summer camp experience. Adult and teen 4-H volunteers led archery, beach trips, science, technology, engineering, math and traditional camp activities during the week.
- THRIVE Santa Maria-Bonita Healthy School Food Pantry where 4-H staff and volunteers present hands-on educational activities to 400 – 600 visitors at this monthly event.
- Over 125 visitors at the 4-H booth during the YMCA's Family Day in August and over 150 individuals at the Goleta Lemon Festival participated in the interactive Agua Pura watershed educational model.

Public Value

In Santa Barbara County, the University of California 4-H Youth Development Program is focused on providing youth with opportunities to develop strong, positive youth-adult partnerships while engaging in meaningful activities, which lead to:

- Reduced participation in risky behaviors (e.g. underage drinking, pregnancy, gang activity), which can decrease related public costs
- Increased academic success and/or science literacy, which contributes to a highly qualified and productive workforce
- Increased civic engagement, which can strengthen communities through youth training in leadership skills, innovation, critical thinking, and healthy living
- Increased youth literacy in science, engineering, and technology through special programming, projects, and access to University curricula
- Increased environmental stewardship and agricultural knowledge, which ensures a safe, sustainable, and secure food supply

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Master Food Preserver Program- Dr. Katherine E. Soule

The Challenge

A resurging interest in food preservation in Santa Barbara County in recent years highlighted the lack of local information and resources on up-to-date and safe food preservation practices, critical in reducing serious illness.

Responding to the community's interest and concerns regarding home food preservation, the UCCE in San Barbara County launched the Master Food Preserver program.

4-H Youth and leaders working together to blanch produce in order to prepare it for long term storage by freezing.

Addressing the Challenge

Currently, there are two certified Master Food Preservers (MFP) working in Santa Barbara County. The UCCE is looking into offering a MFP Training conducted in Santa Barbara County to recruit more local residents and to increase MFP outreach efforts in the summer.

Building on the success of the implementation of the Junior Master Food Preserver Program in local 4-H programs, enrollment has begun for another session of training opportunities. Currently, there are 13 youth enrolled for the upcoming training including clubs in Goleta, Lompoc, and Santa Maria. These youth will complete 12 lessons from the *PUT IT UP! Food Preservation for Youth* curriculum.

Additionally, three youth are now certified as Junior MFPs for Santa Barbara County. As Junior MFPs, these youth will be working in conjunction with an adult MFP to teach the new participants about safe home food preservation practices. As a Junior Master Food Preserver, one youth was able to attend the 2016 "Santa Barbara Fermentation Festival" in Goleta accompanied by an adult MFP to observe many different types of fermented food.

In August, one of our MFP volunteer, offered a "Fun Food" presentation for the Santa Maria Valley Discovery Museum's Summer Camp Program where 11 youth learned about some basic food preservation principles. There have been 17 hours of volunteer time accumulated this quarter exclusively working with the youth of Santa Barbara County.

Public Value

The UC ANR Master Food Preserver program is a public service for residents who want to learn safe methods of preserving produce sources from farmers' markets, local grocery stores, or gardens. These efforts benefit Santa Barbara County through:

- Decreasing health care costs by reducing instances of food borne illness through safe home food preservation practices
- Increasing community wellness by creating co-capacity building with volunteers who are trained to provide services at lower costs to community residents
- Increasing environmental sustainability through decreased food waste by teaching residents how to preserve food that might otherwise spoil before consumption
- Increasing economic stability by growing the purchasing power of residents who can use home food preservation techniques to maximize their food resources
- Increasing the economic vitality of resident food producers by empowering consumers to choose locally grown commodities

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Master Gardeners- Mary Bianchi & Program Director, Linda S. Baity

The Challenge

Communities beyond the reach of the land grant campuses of the University of California present special challenges for outreach and extension of research in new horticulture practices to home gardeners.

Research based information about home horticulture, pest management; sustainable landscape practices and other environmental and natural resource issues support informed decisions by home gardeners promoting healthy, safe and prosperous communities in Santa Barbara County. Local Master Gardener volunteers, trained by the University of California, provide information and problem solving opportunities.

Master Gardeners learn about weed identification and control from Dr. Cheryl Wilen, UCCE Integrated Pest Management Advisor.

Addressing the Challenge

Master Gardeners presented three workshops on Saturday, September 17. Goleta Library was the site of "Year-Round Edibles," presenting educational information on plants that grow well in this area, the local planting calendar, and gardening with edibles. For North County residents, two workshops were presented at Stone Pine Hall in Lompoc, including "Create a Water-wise Flower Garden" and "Eat What You Sow-Vegetable Gardening."

Master Gardeners also regularly staffed Help Tables at Santa Barbara Farmers' Market and Old Town Lompoc Farmers' Market, Santa Barbara Botanical Garden, and Mesa Harmony Garden, as well as during the Santa Barbara County Horticultural Society's annual plant sale on September 26 and at Carpinteria Valley Lumber on September 10.

On September 12, a veteran Master Gardener presented a training to 32 docents at Lotusland on the Asian Citrus Psyllid and Huanglongbing disease. This training equipped docents to convey the most current research on the spread and control of this fatal citrus to the 20,000 visitors who tour Lotusland every year.

A new partnership with the Santa Ynez Valley Botanical Garden in Buellton was launched this summer by a group of Master Gardeners who will be working closely with the garden staff and volunteers to develop and deliver evidence-based information on best gardening practices throughout the year.

These education activities and events reached a total of 520 residents as Master Gardeners donated a total of more than 800 hours of volunteer service during this quarter, representing a value of $22,623.80 to Santa Barbara County.

Public Value

The University of California Master Gardener Program is focused on promoting extending research based information on sustainable landscape practices. This effort benefits Santa Barbara County through:

- Safe gardening practices that help to protect water and water quality, support healthy ecosystems and enhance wildlife and biodiversity
- Sustainable local food systems that enhance food security for families, neighborhoods, and communities
- Sustainable landscape practices that create efficient communities by conserving water and energy, and reducing and reusing green waste
- Effective prevention, detection and management of invasive and endemic species through public outreach and education that helps to preserve a prosperous agricultural economy
- Increasing science literacy of Master Gardeners and their clientele through quality education and outreach

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UC CalFresh Nutrition Education– Dr. Katherine Soule

The Challenge

In 2009, the Santa Barbara County Department of Public Health reported that approximately 1/2 of adults and 1/3 of teens in the county are overweight or obese. Obesity is a contributing factor of disease and death. Rates of obesity are generally higher among low -income populations.

To improve the health of the public, the University of California CalFresh Nutrition Education Program (UC CalFresh NEP) provides high-quality, nutrition and physical activity education programs for youth and adults in Santa Barbara County, focusing on low-income populations.

UC Cal Fresh Team for both Santa Barbara and San Luis Obispo Counties!

Addressing the Challenge

During the summer months of July and August, the UC CalFresh Nutrition Education Program partnered with the City of Santa Maria Recreation & Parks, Santa Barbara County Food Bank, Community Action Commission, Dignity Health and Santa Barbara County Public Health to provide enrichment activities at the Safe and Strong All Summer Long summer food program in Santa Maria.

UC staff facilitated a one-day Coordinated Approach to Child Health (CATCH) Physical Activity training for over 20 Recreation & Parks staff. CATCH focuses on inclusive physical education that keeps youth engaged and active. After the training, UC staff provided programming at two park summer meal sites engaging approximately 200 youth and their families every week and encouraging them to get physically active together, drink water and eat healthy. Enrichment activities were provided for a variety of age groups. By the end of the summer, the older youth were teaching the younger youth and leading the CATCH activities. One parent at the summer food site commented, “I am really glad you are able to provide the equipment and participate with the kids.”

In September, UC CalFresh recruited 119 educator extenders at four schools in the Santa Maria-Bonita School District to participate in comprehensive nutrition education programming. Educator extenders, reaching approximately 3550 students, delivered evidence-based nutrition and physical activity curricula to students in grades K-6th. UC Educators provided hands-on food demonstrations in their classrooms, schoolwide food tasting and opportunities for youth leadership with partnering schools and the 4-H Youth Development Program.

Public Value

The UC CalFresh NEP is focused on improving the health of the public, which in turn reduces public costs by providing research-based quality nutrition education. These efforts include:

- Serving as a vital bridge between the learning and knowledge of the UC system and our community.
- Promoting healthy living, food safety, food budget maximization, and physical activity to CalFresh recipients and other low-income individuals, families, and youth.
- Tailoring the latest science, curriculum and information to the needs, culture and language of low- income communities to provide culturally sensitive programming that meets nutrition education and resource needs in Santa Barbara County.
- Enhancing individual efforts to make healthier lifestyle choices by utilizing the Socio-Ecological Model (SEM) to encourage social and environmental (e.g. home, school) changes.

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Viticulture– Mark Battany

The Challenge

Growers of wine grape vineyards throughout California face challenges with increased competition for limited water supplies and potential changing climate conditions.

Improved information on climate conditions resulting from local field research can provide growers with the knowledge to make the most informed decisions possible to ensure that their vineyards remain productive and economically viable under these changing conditions.

The efficient management of irrigation water will become increasingly more critical in the future. Limitations of water supplies will force all farmers and other water users to generate the maximum possible returns from their available water.

Pinot Noir vines in Santa Barbara County heavily infected with viruses.

Addressing the Challenge

A wide variety of grapevine viruses can be present in our commercial vineyards. The presence of these viruses can significantly reduce the quality of the fruit, in particular leading to reduced sugar accumulation, undesirable acid composition and very poor pigmentation in red varieties; all of these factors lead to lower quality wines. Severe virus infections can also weaken or kill vines. For all of these reasons the presence of grapevine viruses are undesirable in our commercial plantings.

Recently a new virus was identified in California, the Pinot Gris Virus. To determine whether or not this virus existed in our commercial plantings, Dr. Maher Al Rwahnih of Foundation Plant Services at UC Davis is testing grapevine samples from throughout the state. Farm Advisor Mark Battany has provided samples from 45 vineyard blocks from throughout Santa Barbara County as part of this survey effort. The lab tests for all common known viruses in addition to the Pinot Gris Virus. The results of these individual tests are shared with the growers of the corresponding vineyards, providing them with very useful information to help diagnose poorly performing vineyards.

This project has been an excellent example of how cooperative efforts between campus researchers, local Advisors and growers can provide useful and timely information that benefits research goals as well as practical vineyard management efforts.

Public Value

The University of California Viticulture/ Soils program in Santa Barbara County is focused on developing and extending critical research- based information to help wine grape growers maintain sustainable production. This effort benefits Santa Barbara County through:

- Achieving sustainable wine grape vineyards that enhance productivity, crop quality and economic returns to growers with benefits to the entire local economy.
- Vineyard irrigation and soil management practices that help reduce water use and maintain soil productivity, thus relieving the strain on impacted water resources and ensuring more reliable supplies for all water users.
- Improved understanding of frost conditions and protective measures to help achieve effective practices that minimize impact on water resources

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Small Farms and Specialty Crops – Dr. Mark Gaskell

The Challenge

Small-scale fruit and vegetable growers rely on relatively higher value, lower volume specialty crops to remain economically competitive. UCCE field trials and educational programs are focused on developing new crop alternatives and alternative cultural practices to make small-scale agriculture more viable and competitive in Santa Barbara County.

Field trials are conducted often and the results of these trials, associated greenhouse or laboratory studies, and the experiences of other specialists are then assembled into educational outreach programs to educate and guide growers and industry representatives on the best current science- based information.

Newly established trails to evaluate publicly available raspberry and blackberry cultivars.

Addressing the Challenge

Field sampling program for redberry mite occurrence. A project sampling for monthly redberry mite infestation in blackberries continued at multiple farm sites in Santa Barbara and San Luis Obispo counties. This survey sampling is comparing redberry mite occurrence between primocane and floricane blackberry fruiting types.

Blackberry production with a bioreactor – Oso Flaco. Continuing collaboration's with the Coastal San Luis Resource Conservation District and the Central Coast Regional Water Quality Control Board to establish and monitor a demonstration "Bioreactor" at a collaborating farm in Oso Flaco. This project is evaluating blackberry production over a bioreactor established to cleanse irrigation tail water of nitrate.

Initiation of a new project to evaluate public raspberry and blackberry cultivars at two central coast sites. Commercial production acreage of a range of berry crops have increased dramatically in recent years in Santa Barbara County and other Central Coast production areas. These crops are continuing to expand in response growing market demand for all berry crops. Working with Farm Advisor Oleg Daugovish, in a new 3- year research project funded by the Hansen Trust (Ventura Co.) twill evaluate raspberry and blackberry cultivars that are publicly available for planting by independent growers who are not associated with larger vertically integrated farming companies with their own proprietary varieties. Trials to compare a range of new raspberry and blackberry cultivars are being established on two farms representing a range of central coastal conditions. Initial harvest data collection will begin in late 2017.

Public Value

Small-scale agricultural producers need reliable and current information on the most promising crop alternatives and the most efficient cultural practices if they are to remain economically viable. Recent research and educational outreach programs have included:

- Development of alternative small fruit – berry crop varieties and cultural practices
- Contributed to establishment of blueberries, blackberries, and raspberries as profitable new crops in Santa Barbara County
- Development of new information and practices to guide organic strawberry and other long season organic fruit growers for efficient management of nitrogen and water
- Provided the research and educational base for establishment of coffee and tea as new crops in Santa Barbara County

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Strawberries and Vegetables – Dr. Surendra Dara

The Challenge

Public health and environmental resources are protected through efficient use of agricultural inputs and safe agricultural practices. Strawberry and vegetable growers and pest control advisors are continually in need of information on improved production technologies and strategies for managing endemic and invasive pests, diseases, and weeds. Optimizing inputs and maximizing returns with food safety in mind are key strategies for healthy, safe, and prosperous agricultural operations. The Strawberry and Vegetable program identifies growers' needs, develops solutions based on sound scientific research, and extends information in a timely and proactive manner.

Study evaluating beneficial microbes for plant protection at Manzanita Berry Farms

Addressing the Challenge

During this quarter Dr. Dara:

- Completed a strawberry field study on optimizing water and nutrient inputs and measure the impact on pests and diseases. Continued a field study in summer strawberries to evaluate beneficial microbes on soilborne, foliar, and fruit diseases. Completed a field study in celery to manage green peach aphids. Completed a greenhouse study to evaluate the potential of beneficial microbes in antagonizing *Fusarium oxysporum*.
- Continued the revision of lettuce and strawberry pest management guidelines. Authored/co-authored eight articles for my eNewsletters, five for other UCCE, county or other sources, one article each for CAPCA Adviser and Palm Arbor about the new IPMinfo app, ficus leaf-rolling psyllid, mechanical strawberry harvester, beneficial microbes for promoting plant growth or fighting diseases, and managing aphids in celery. Worked manuscripts for scientific journals and revised two submitted book chapters.
- UC ANR published two UC Delivers stories based on my IPM studies and micro-sprinkler research in strawberries.
- Released the new and improved version of IPMinfo smartphone app for Android devices.
- Articles on my two eNewsletters were viewed 21,674 (15,530+6144) times. Emailed Central Coast Agriculture Highlights newsletter to about 500 subscribers.
- Reached out to 95 people through direct contact.
- UCCE continues to provide timely information on production practices, pest, disease, and weed management to the clients.

Public Value

The UCCE strawberry and vegetable program promotes a prosperous local economy, as well as a safe and healthy food system through:

- Improved production practices by optimizing input costs and increasing yields
- Innovative research on alternatives to chemical fumigants, insecticides, miticides, fungicides, and improved Integrated Pest Management practices
- Efficient use of fertilizers and irrigation water which contribute to reduced leaching of nitrates, reduced ground water contamination, and water conservation
- Education on invasive pests and diseases that impact both the farming community and home gardeners better equips them to take appropriate preventive and/or control measures

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Fire Ecology & Management- Dr. Max Moritz

The Challenge

Understanding the nature of fire in California can help to save lives, minimize property damage, and protect the environment. Focusing broadly on fire ecology and management, this program brings UC research expertise to Santa Barbara County on the following topics:

- Quantifying the natural ranges of variation in fire regimes including frequency, size, seasonality and intensity) within fire-adapted vegetation.
- Understanding where and when various fuel management techniques are likely to succeed and be sustainable.
- Mapping fire weather patterns, which historically have been associated with the greatest losses.
- Modeling linkages between fire activity and climate change.

Photo from the Santa Barbara Fire Safe Council web-site http://sbfiresafecouncil.org

Addressing the Challenge

During this quarter Specialist Max Moritz continued working with local citizen science volunteers to maintain local Live Fuel Moisture (LFM) data sampling and processing, which feed into regular updates and distribution though the Santa Barbara Botanic Garden website.

As a board member of the Santa Barbara County Fire Safe Council, Moritz continued to work with local constituents on fire-related issues; with his support the website was also up-dated for general use
http://sbfiresafecouncil.org

Work has begun on the project submitted with UCSB col-leagues on restoration of big cone Douglas fir in the Zaca Fire area of Santa Barbara County and two personnel were hired.

Public Value

Fire is an important and natural process in almost every terrestrial ecosystem of California, yet it is one of the most persistent threats facing communities that live on fire-prone landscapes.

Communicating and implementing the latest scientific information about fire research is crucial for making communities safer, reducing property damage, saving lives, and protecting the environment.

UC Cooperative Extension helps Santa Barbara County create safer, healthier and more prosperous communities through efforts that emphasize the following:

- Education of homeowners about fire danger and preparedness steps
- Communication with fire managers, policy makers, and planners about long-term fire-related decision making.

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Soils, Water, Subtropicals- Dr. Ben Faber

The Challenge

Santa Barbara County's agricultural competitiveness depends on adopting new scientific and technological innovations derived from new knowledge in agriculture. Research and educational efforts must enhance the opportunities for markets and new products. Creating a sustainable local agricultural economy also depends upon improving water quality, quantity, and security; managing pests and diseases; and improving cultural management practices for subtropical producers.

The Soils/Water/Subtropical Program has a 60 year history of local research and extension that optimizes crop production, maximizes net farm income, conserves natural resources and protects the environment.

Several of the salinity meters being tested to help growers manage soil salinity in a more timely fashion

Addressing the Challenge

In the last quarter, Ben had face-to-face contacts with growers during 24 farm visits. One of the ongoing problems for growers after years of no rain has been the occurrence of a fungal blight that is affecting most major perennial crops. It affects citrus, avocado, blueberries, raspberries, as well as many landscape and native tress. There are other affects from the drought, as well, including fruit quality issues.

A workshop in July was attended by 83 growers covering the salt issue on all of our major crops. The July citrus seminar, attended by 92 growers, covered Asian Citrus Psyllid, salt and Dothiorella diseases. Our August Avocado meeting covered salt again and irrigation management. Ben helped organize a pitahaya workshop, and in September the Quarterly Topics in Subtropics newsletter was released.

The Topics in Subtropics Blog (http://ucanr.edu/blogs/Topics/) is now listed as a "Top Blog" in UC ANR. Ben also coordinated and/or authored 32 articles for the Topics in Subtropics blog with current Information for growers of subtropical crops. This readily accessed information on crop production had 41,183 direct hits during this report period. Typical viewership is more than 400 hits per day. Although this information is not specific to Santa Barbara County, it is information that is readily accessible and useful to Santa Barbara producers and is used by local growers.

Ben is continuing with an avocado pollination study in four orchards and research is continuing with trials on avocado and citrus rootstocks, and raspberry tunnel evaluation for sediment management. A new trial is evaluating fruit load effect on water requirement for avocado and lemon. A trial evaluating soil salinity meters was recently completed and is being written up now.

Public Value

Healthy people and communities, healthy food systems, and healthy environments are strengthened by a close partnership between the University of California and its research and extension programs and the people of Santa Barbara County.

The Soils/Water/Subtropical Program provides innovation in applied research and education that supports:

- Sustainable, safe, nutritious food production through the delivery of information on soil and water management
- Economic success in a global economy through production of high quality fruit
- A sustainable, healthy, productive environment through improved water and nutrient management
- Science literacy within the agricultural community promoted by rapid access to evidence based information

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