

**University of California Cooperative Extension
Santa Barbara**
Quarterly Report April—June 2016



UC Master Gardener Anne Chewing presents "Grow Your Own Tea Garden" at Seaside Gardens in Carpinteria

For more information on UCMaster Gardener activities in Santa Barbara County, visit
http://cesantabarbara.ucanr.edu/Master_Gardener/

Submitted by Mary Bianchi
County Director, Horticulture Advisor
Santa Barbara County
July 22, 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.

Addressing the Challenge

County Director Mary Bianchi maintained contact with Agricultural Commissioner and County Administrative Office staff throughout the quarter as needed. Director Bianchi worked with the Agricultural Commissioner's office on the 2016/2017 projected contract for UCCE programs and attended budget hearings in April and June. Additionally, Director Bianchi and Dr. Larsen met with Ag Commissioner staff to discuss collaborations with IPM positions.

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.

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 began attending the Santa Barbara County Cattlemen's Association meetings, attending three meetings during this reporting period.

Santa Barbara County Agricultural Advisory Committee meetings in April, May, and June were attended by Mark Gaskell, Director Bianchi and Royce Larsen, and Mark Battany, respectively. Updates were provided on UCCE activities and upcoming events, as well as future Advisor positions proposed to support agriculture in Santa Barbara County.



UCCE Advisors and volunteers continue to work with clientele on providing strategies to address drought related impacts to landscapes, natural resources, and agricultural commodities.

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

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.

Addressing the Challenge

A new program for range and natural resources was started in Santa Barbara County this quarter.

A severe drought continued for the fifth year in a row, and has had monumental impacts on the livestock industry with approximately 65% - 75%, or more of all cattle being sold or moved out of state. This year brought about average forage production within the county. However, forage production county-wide had a lot of variation. An annual forage production report for San Luis Obispo county shows this variation, and this pattern is similar for Santa Barbara County. This report may be viewed at:

http://cesanluisobispo.ucanr.edu/Custom_Program355/Forage_Production_Report/

Though programing is just beginning, some important steps have begun.

These important steps include:

- 1) Worked with one ranch to initiate the Rancher Sustainability Self-Assessment project. This will be expanded by doing a work shop in August or September 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.



UCCE Advisor Royce Larsen maintaining a rain gauge at one of his forage production sites.

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.

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.

Addressing the Challenge

This quarter concluded the 2015-2016 program year for the 4-H YDP in Santa Barbara County. Our staff supported 224 adult volunteers in delivering positive youth development (PYD) programming to 830 youth members and families in 17 community clubs and 4 school clubs. Additionally, 76 youth participated in the Vandenberg Air Force Base Military Club. Opportunities for youth to participate in 4-H community programming were offered, including 4-H Agua Pura watershed education, and 4-H STEM education at SBCPHD and UC CalFresh classes. 4-H participants engaged in hands-on experiential learning projects in the areas of Science, Leadership, Healthy Living, and Citizenship through:

- *Food Smart Families:* 47 students from Rice, Bruce and Adam Elementary Schools, became peer educators, engaging and empowering peers to establish healthy school communities. This collaboration between UC CalFresh and 4-H touched over 1,696 youth providing training in nutrition, advocacy, and presenting.
- *Exhibit Day Horse Show:* 25+ youth members competed in categories including showmanship, fitting and grooming.
- *County 4-H Exhibit Day:* 150+ youth members came together at this annual 4-H educational event to show large animal, small animal, and still exhibits.
- *THRIVE Santa Maria-Bonita Healthy School Food Pantry:* 4-H staff and volunteers presented hands-on educational activities to 400–600 visitors monthly.



Members of Playa del Sur 4-H Club in Sacramento, at Cal Focus, experiencing California's government in action by participating in the legislative, political, and judicial processes.

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

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.

Addressing the Challenge

The implementation of the Junior Master Food Preserver (MFP) 4-H project was a success! In April, four youth working with four adults learned how to can green beans and Chili Con Carne using the pressure canning methods. Then in May, they were taught how to preserve refrigerator pickles and can pickled vegetables.

After completing the session in May, 4H youth from Santa Maria, Lompoc, Goleta, and Santa Ynez graduated from the food preservation 4-H project! These youth completed 12 lessons from the *PUT IT UP! Food Preservation for Youth* curriculum, which is "series of informal educational lesson that guide youth to explore and understand the science of safe food preservation."

In addition, three youth are now JR. MFPs for Santa Barbara County and are the first Junior MFPs in California. As Junior MFPs, these youth will be entitled to expand their knowledge of safe home food preservation methods by learning about their local food system; creating a display chart that shows fruits and vegetables pH values, along with their appropriate canning method; participate in local gleans in their communities; and partner with a certified MFP at community events such as Farmers' Markets.

Mary Thieleke Jackson, who is a certified UC MFP and 4-H volunteer for SB County, has done a phenomenal job in leading this project, as well as seeking further learning opportunities for these Junior MFPs. Additionally, another resident from Santa Barbara County has completed the 2016 Master Food Preserver Program Training. They graduated on April 19th as a certified UCCE Master Food Preservers (MFP) for Santa Barbara County. The UCCE is looking into offering a MFP Training conducted in Santa Barbara County in Fall 2016 to recruit more local residents and to increase MFP outreach efforts.



The 4-H Food Preservation project provides experiential learning within the four main methods of preserving.

• 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

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.

Addressing the Challenge

Master Gardeners presented four workshops on Saturday, April 2, as part of the weekend-long “Spring Fling” celebration at Seaside Gardens in Carpentaria. Additional workshops included “Secret Vices: Roses in a Time of Drought” on April 23 at Montecito Library; “Tuning Up Garden Tools” on May 14 at Mesa Harmony Garden in Santa Barbara; and “Growing Your Own Tea Garden” at Seaside Gardens in Carpentaria. These workshops reached a total of 141 county residents.

Master Gardeners also staffed Help Tables at Santa Barbara Farmers’ Market, Santa Barbara Botanical Garden, and Mesa Harmony Garden, providing evidence-based information on sustainable home gardening practices to a total of 73 residents.

Bilingual Master Gardeners provided instructions on growing food for home gardens to clients of the Santa Barbara Food Bank. Their “Grow Your Own Way” project at three events reached 206 primarily Spanish-speaking community members.

Master Gardener volunteers working at Alice Keck Park Memorial Gardens and La Huerta Garden at the Mission reached another 424 residents in on-going efforts to raise awareness of beneficial insects, sustainable methods of planting, seed identification and collection, and soil management.

The 2016 class of Master Gardener trainees graduated on June 15, adding 17 new volunteers to the ranks of active Master Gardeners. Recruitment efforts in northern Santa Barbara County succeeded in attracting new members from Santa Inez, Lompoc and Solvang, in addition to Santa Barbara and Goleta.

Master Gardeners donated a total of 1,150 hours of volunteer service during this quarter, representing \$31,728.50 worth of horticultural education and outreach.



UC Master Gardener, Joan Kreiss Presents “*Secret Vices: Roses in a Time of Drought*” at Montecito Library

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

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.

Addressing the Challenge

During the months of April, May and June, the UC CalFresh Nutrition Education Program strengthened collaboration with the 4-H Youth Development Program in Santa Barbara County to facilitate youth-led nutrition education activities at three participating schools in the Santa Maria-Bonita School District through the Food Smart Families project. In total this collaborative project reached more than 2,300 youth from low-income families through youth-led nutrition education activities and events.

The student leaders were engaged in the Student Nutrition Advisory Council (SNAC) where they were trained in youth leadership, presentation skills, recess activation, nutrition education and culinary skills. In addition, students co-authored and starred in a video production called “Get to Know Your Salad Bar,” a video that reinforces positive messages and encourages peers to try new foods in collaboration with the Santa Maria-Bonita District Food Services program. The video is posted on the National Extension website: <http://articles.extension.org/pages/73810/get-to-know-your-salad-bar-video>.

Additionally, 1,696 youth at participating schools took home all of the ingredients necessary to make two healthy recipes with their families, including *Make Your Own Oatmeal* and *Water with a Twist*. Student leaders participated in the recipe distribution through helping families “shop” for all of the ingredients and sampling the oatmeal recipe with participants.

UC CalFresh continued to provide comprehensive nutrition education programming at three school sites reaching approximately 2560 students and 84 teachers. In addition, families were invited to Garden Days after school where student leaders gave parents tours through their school garden and worked alongside them to beautify their outdoor classroom.



Youth leaders helping families “shop” for healthy recipe ingredients after school.

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.

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.

Addressing the Challenge

The vine mealybug continues to spread in vineyards in San Luis Obispo County. If new infestations can be found very early while the mealybug populations are still relatively small and isolated, they will be easier to manage and will have minimal impacts on production. If infestations are not found until after they have become very large, they will be more difficult to manage and will more likely disrupt harvest, and will also pose more risk to spread the pest to other area vineyards.

Inadequately controlled infestations of the vine mealybug can directly reduce fruit quality with their feeding activity, and can indirectly and irreversibly reduce fruit quality by spreading viruses between vines. Allowing high populations of this pest in a vineyard will impose a cost on the operation that may not be evident until years later. Therefore it is in the best interest of all growers in the region that populations of this pest be kept as low as is practically possible; finding new infestations early is a key part of this strategy.

Field workers are in the best position to find new infestations early on because they see and touch every single vine. If they can be trained to recognize the pest and to inform management when they see something suspicious, this can help growers respond to new infestations as quickly as possible. Farm Advisor Battany developed a bilingual vine mealybug identification poster for this purpose over a decade ago, and continues to distribute it to the vineyard industry.



A cluster of Cabernet Sauvignon wine grapes heavily infested with the vine mealybug

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

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.



Mark Gaskell provides field site training as part of annual USDA Field Loss Adjusters Training

Addressing the Challenge

USDA Field Adjuster Annual Training Update. On May 23 and 24, 2016, Small Farms and Specialty Crops Advisor Mark Gaskell assisted USDA trainers with site visits and training at several specific farm sites in Santa Barbara and San Luis Obispo counties. This training updates existing and new field adjusters on details of field conditions and microclimates in key areas of these counties. The adjusters evaluate claims or financing renewal as part of USDA Farm Service Agency programs in California and Gaskell provided an overview of coastal weather patterns, microclimate conditions, and potential effects on fruit and vegetable crops.

Raspberry and blackberry production acreage continue to increase in the coastal valleys of California including Santa Barbara County. An **Annual Caneberry Grower Meeting was held April 13, 2016 in San Luis Obispo** and attendees included growers, plant breeders, pathologists, and other technical services people from Santa Barbara, Ventura and Monterey counties. Topics included a range of updates on new varieties, cultural practices, and pest management themes for raspberry and blackberry production and copies of the presentation can be viewed at: http://cesanluisobispo.ucanr.edu/Small_Farms_and_Specialty_Crops/Grower_Meetings/

A field trial on organic fertilization practices was conducted during the reporting period on a Santa Maria strawberry farm. Data collection continued from weekly injections of different types of organic nitrogen fertigation materials to evaluate efficient alternatives of in-season management of organic strawberries. This trial will last for a total of 18 weeks, during which the total nitrogen applied is determined from each weekly injection. Data collection and summarizing will continue during 2016.

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

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



Participants at the May 2016 Strawberry Field Day

Addressing the Challenge

The Strawberry and Vegetable research and extension program accomplished the following activities during this review period:

- Continued a strawberry study on optimizing water and nutrient inputs and measure the impact on pests and diseases. Started a new study in summer strawberries to evaluate beneficial microbes on soilborne, foliar, and fruit diseases. Made preparations for studies in strawberry and celery for managing lygus bug.
- Co-authored an article on a new invasive pest, ficus leaf-rolling psyllid and onion/garlic pest management guidelines (PMGs) revision, revised lettuce PMGs, started the revision of strawberry PMGs. Also authored two CAPCA Adviser articles on lygus bug damage and IPM studies in strawberries. Authored two handouts about arthropod pest management, irrigation and nutrient management in strawberries. Worked on two manuscripts for scientific journals and authored and submitted two book chapters.
- Organized the Annual Santa Maria Field Day that provided updates on several crop production and protection issues.
- Articles on my two eNewsletters were viewed about 14,330 (10,609+3,729) times.
- Provided input about beneficial microbes in agriculture to news stories published in Los Angeles Times and Times Record.
- Reached out to 112 people through direct contact and 132 through the extension meeting.
- 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



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.



Burned landscape in El Capitan Canyon, approximately 2 weeks after the Sherpa Fire. Although much of the area burned in high severity, which is typical of chaparral scrubland's, unburned sections of vegetation along creeks were also evident, demonstrating the natural heterogeneity in severity that wildfires often exhibit. (Photo: Max Moritz)

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 through the Santa Barbara Botanic Garden website.

Experimental burn continue for local fuel types, to determine how variation in LFM relates to plant flammability. As a board member of the Santa Barbara County Fire Safe Council, Moritz continued to work with local constituents on fire-related issues. The proposal he submitted with UCSB colleagues on restoration of big cone Douglas fir in the Zaca Fire area of Santa Barbara County was selected for funding, and hiring local research assistants will begin as soon as the award paperwork goes through the UC.

Moritz also hosted a visiting Australian fire ecologist (Michael Clarke; La Trobe University, Melbourne) and arranged a field tour of the Sherpa Fire, led by USFS Los Padres National Forest personnel

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.

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



Fast-Moving 'Sherpa Fire' Forces Mandatory Evacuations in Santa Barbara County (image courtesy of KTLA, 5)

Addressing the Challenge

In the last quarter, Ben had face-to-face contacts with growers during 28 farm visits, and met with three growers affected by the Sherpa Fire.

The April avocado seminar was attended by 80 growers. The topics were avocado pollination by native bees, as well as honeybees. Two additional avocado grower meetings had 80 participants each. Ben collaborated with the Citrus Research Board to develop and present a yearly Citrus Growers Education Seminar to be held in July. A presentation on citrus and avocado disorders associated with the drought reached 100 producers and pest control Advisors.

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 22 articles for the Topics in Subtropics blog <http://ucanr.edu/blogs/Topics/> with current Information for growers of subtropical crops. This readily accessed information on crop production had 43,219 direct hits during this report period; with mobile hits included the total number of views equals 73,389. Typical viewership is more than 1000 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, raspberry tunnel evaluation for sediment management. A new trial will be evaluating fruit load effect on water requirement for avocado and lemon.

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