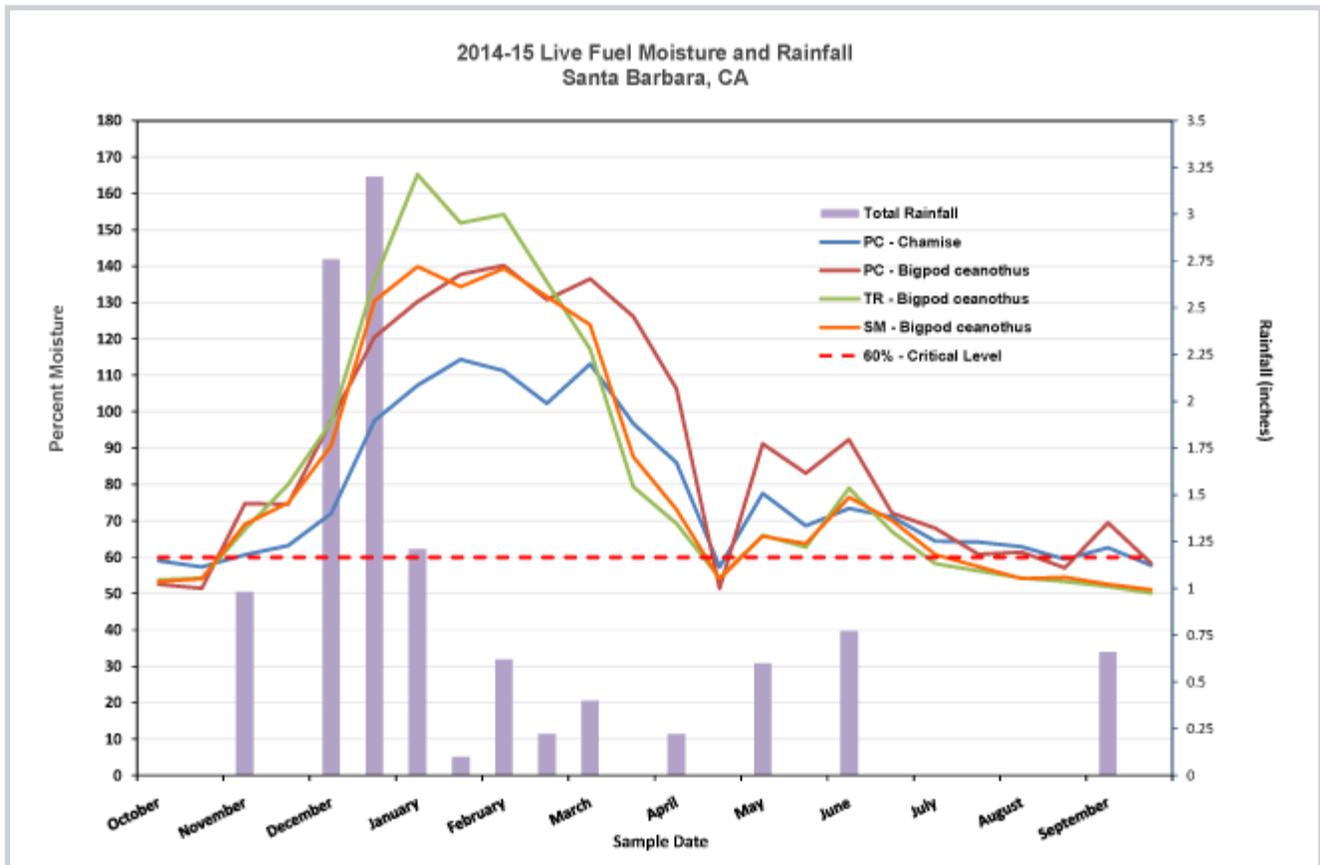


Santa Barbara County Cooperative Extension Quarterly Report July– September 2015



Dr. Max Moritz with the University of California Cooperative Extension, in collaboration with the Santa Barbara Botanic Garden, has been working with citizen scientists to measure Live Fuel Moisture in vegetation at Painted Cave (PC), at the top of Tunnel Road, (TR) and at St Mary's Seminary (SM) on Las Canoas Road.

Live Fuel Moisture (LFM) is one measure of fire risk that agencies use in planning how to allocate their resources. LFM is simply the amount of moisture contained in fine fuels (living foliage and twigs less than 1/8 inch diameter) expressed as a percent of the dry weight of that fuel. Fire agencies typically consider 60% to be a critical moisture level where fire behavior can become more extreme. (From <https://www.sbbg.org/about/onsite-weather-station-live-fuel-moisture>)

Submitted by Mary Bianchi
County Director, Horticulture Advisor
Santa Barbara County
Oct 29, 2015

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.



UCCE Advisors and volunteers celebrated local activities with an outreach and education booth at Santa Barbara County Farm Bureau's Celebrate Harvest event August 22nd in Los Alamos.

Addressing the Challenge

County Director Mary Bianchi maintained contact with Agricultural Commissioner and County Administrative Office staff throughout the quarter, adapting our 2015/2016 contract for final submission to and approval by the Board of Supervisors on August 25.

On August 21st, continuing UCCE long-range planning for program support for Santa Barbara County, Mary Bianchi, Agriculture and Natural Resources Vice-Provost Chris Greer and Dr. Royce Larsen met with Ag Commissioner Cathy Fisher to discuss contract support for Livestock and Natural Resources and Watershed Advisor positions and Oak Rangelands Specialist programs.

Vice-Provost Greer and Director Bianchi began discussions with Santa Barbara County Long Range Planning Director Schneider regarding support for Energy and Climate Action Plan's implementation.

Director Bianchi represented UCCE program resources as a member of the Santa Barbara Food Action Plan Ag Viability Subcommittee at meetings in July and September. Mark Battany, Mark Gaskell and Surendra Dara, Mary Bianchi, and Royce Larsen represented UCCE at Ag Commissioner Plant Health Forums for viticulture, strawberries and vegetables, citrus and avocados, and livestock and range, respectively.

Rangeland and Watershed Advisor Dr. Royce Larsen serves on the Santa Barbara Agricultural Preserve Committee and he attended all the meetings during the quarter.

Santa Barbara County Agricultural Advisory Committee meetings in July, August, and September were attended by Mary Bianchi or Small Farms Advisor Mark Gaskell, providing updates on UCCE activities and upcoming events, as well as potential UCCE Advisor activities that respond to the Livestock industry 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 people and environment of Santa Barbara County

4-H Youth Development— Advisor, 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

4-H staff supported adult volunteers and youth members in delivering positive youth development programming to members and their families in 18 local community clubs throughout the county. Within each club, participants engaged in hands-on experiential learning projects in the focus areas of Science, Leadership, Healthy Living, and Citizenship. Several countywide 4-H activities, training meetings, and educational outreach events were delivered to 4-H clubs, families, as well as the community at large, including:

- Hands-on learning activities presented by 4-H staff, volunteers and youth members to over 500 visitors at the THRIVE Santa Maria's Healthy School Pantry (HSP) program, including displays on cavies (guinea pigs), nutrition, arts & crafts, and gardening.
- Santa Barbara County 4-H youth exhibited more than 700 projects in the 2015 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 and by providing exhibits of livestock, hand-made items and educational displays.
- 4-H volunteers participated in the programs annual 4-H Camp Wahoo! This program provided a safe and fun residential summer camp experience for 52 youth.
- A delegation of nine teens and two adult chaperones attended the California 4-H State Leadership Conference at UC Irvine, July 23 – 26, 2015. High school 4-H youth from across California are provided leadership training, networking, and learning experiences.
- Agua Pura watershed education activities were provided to over 500 visitors at the 4-H booth during the YMCA's Family Day in August and over 300 individuals at the Goleta Lemon Festival.



La Graciosa 4-H'ers at YMCA Family Day in the Park on Aug. 16.

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 Master Food Preserver Program (MFP) in Santa Barbara County continues to develop and seek opportunities in extending research based knowledge to the community.

In September, the MFP program partnered with Growing Grounds Farms, Transitional-Mental Health Association, in Santa Maria to provide an information booth about the MFP program. Canning equipment and various preservation products were also displayed to illustrate the variety of products one can make by using a water bath canner.

During this period the advisor and program coordinator have been working with the statewide programs to develop and offer a joint program between the MFP and the UC ANR 4-H Youth Development Program. As a result of these efforts beginning in Fall, San Luis Obispo and Santa Barbara Counties will serve as a pilot for the Junior Master Food Preserver 4-H Project. Through this project, 4-H members will work with Certified MFP to develop their leadership and citizenship skills by teaching community members how to safely preserve foods at home.

To recruit more volunteers for the Santa Barbara County MFP Program, the UCCE of San Luis Obispo County hosted an orientation to those interested in becoming a certified MFP. This orientation was recorded for those who were unable to attend. The orientation is available for review online for the public. We have received applications from Santa Barbara residents who are interested in becoming a certified UCCE MFP. The next training will begin January 2016.



University of California
Cooperative Extension

**Master
Food
Preserver**

The UCCE Master Food Preserver program offers research based education and training for community members who are interested in safely preserving foods.

• **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- Advisor, Mary Bianchi & Program Director, Fiona Brennan

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

In September, Master Gardeners presented “Be a Hero to the Pollinators” to 34 attendees. The workshop highlighted the importance of native pollinators, how they affect pollination and which species are present in our environment. The workshop focused on native bees and provided ways to help the backyard gardener care for these type of pollinators, the best plants to attract them and how to build a native bee house.

Master Gardeners staffed an information table at the City of Lompoc Wellness Health Fair and met with 50 community members. To support the Fair’s focus on good nutrition strategies for employees and residents, the Master Gardeners were joined by several Master Food Preservers from San Luis Obispo in presenting information on nutrition and growing edibles.

Information tables at Santa Barbara Farmers’ Market, the Water Conservation Summit and the Santa Barbara County Horticulture Society Plant Sale reached 200 home gardeners by answering questions on the Asian Citrus Psyllid (ACP), drought tolerant landscapes, pests, mulch, and lawn removal.

Our volunteer work at Alice Keck Park Memorial Gardens and Huerta Garden at the Mission reached 138 community members and helped raise awareness of beneficial insects, sustainable methods of planting, native plants for butterflies and soil management in collaboration with other community organizations.

Master Gardeners volunteered 823 hours to community education representing \$22,114 in educational activity on water conservation and integrated pest management.



Master Gardener Joan Calder presents Be a Hero to Pollinators. Photo courtesy of Steven Lewis

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— Advisor, 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.



Summer school students at Mary Buren Elementary School hop, skip and jump through the fun physical activity day obstacle course, July 2015

Addressing the Challenge

In July, UC CalFresh staff collaborated with Santa Barbara County Public Health and Mary Buren Elementary school to promote physical activity through *Summer Fun Day* in Guadalupe. The physical activity promotion event reached over 800 summer school students with the message of fun ways to increase physical activity. The event included stations for students to try Zumba dance fitness, obstacle courses, a garden activity, a smoothie blender powered by 6-grader stationary bike riders, and a Rethink Your Drink station.

In August, UC CalFresh kicked off a new school year by meeting with educators at Bruce, Rice, and Adam Elementary schools in Santa Maria. The UC CalFresh program is starting a new and promising program delivery model and are serving over 80 classrooms at the three schools, representing over 80% of the classrooms at these schools. The new program delivery model is based on the Social Ecological Model for behavior change, recognizing that food and physical activity decisions are complex and involve more than just individual knowledge and skills. The program will be delivered in line with the research-tested Shaping Healthy Choices program which has shown positive results related to improvements in nutrition knowledge, increases in fruit consumption and decrease in Body Mass Index.

In the first two months of the school year, UC CalFresh provided 84 research-tested “No-Prep” curriculum kits and nutrition education lessons to approximately 2560 students. In addition, staff began working with student leaders at two of our schools. The student leaders will work with UC CalFresh staff to gain expertise in nutrition, physical activity, cooking and community health advocacy.

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— Advisor, 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.

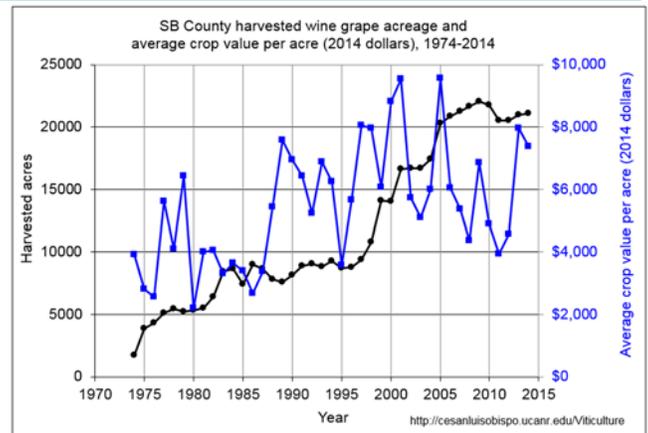
Improved information on climate conditions resulting from local field research can provide growers with the knowledge to make the most informed decisions possible to ensure that their vineyards remain productive and economically viable under these changing conditions.

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 historical data for wine grape production and economic conditions that have been collected by the County Ag Commissioners Offices every year are a valuable data source to monitor the long-term trends for crops. Crop Report data has been analyzed for the past several decades (since the crops began being reported individually) for both Santa Barbara and San Luis Obispo Counties, and the historical trends have been compared to statewide averages. The dollar amounts have been adjusted for inflation, to allow for relevant comparison over time. These reports have been posted to the UC ANR Grape Notes Blog, an updated outreach method that replaces the former Grape Notes Newsletter written by Mark Battany.

The Santa Barbara County data follows the same broad trends observed in the state during the past several decades. Wine grape acreage increased gradually from the 1970s into the 1990s, after which a strong planting boom occurred which doubled the acreage in a decade. Per-acre crop values were relatively high from the late 1980s through early 2000s, but then mostly decreased due to the much higher supply of grapes statewide and the economic recession. In the 2013 and 2014 seasons the Santa Barbara County wine grape crop values have recovered quite strongly, particularly as compared to San Luis Obispo County where the prices still remain low, likely due to the even larger increase in acreage that was observed there during the planting boom period. The summary article can be viewed at the [Grape Notes Blog](#) website.



SB County harvested wine grape acreage and average crop value per acre (2014 dollars) 1974-2014

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:

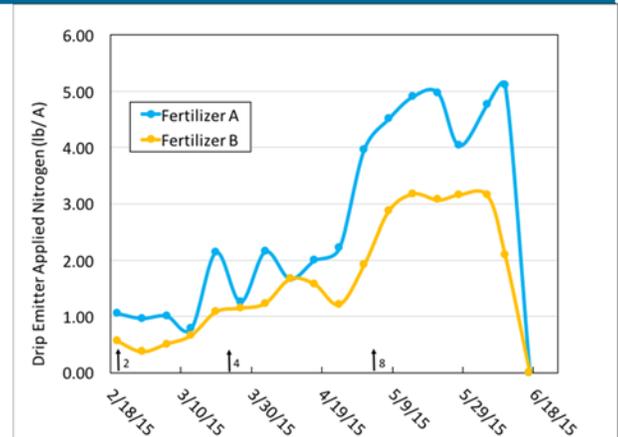
- Achieving sustainable wine grape vineyards that enhance productivity, crop quality and economic returns to growers with benefits to the entire local economy.
- Vineyard irrigation and soil management practices that help reduce water use and maintain soil productivity, thus relieving the strain on impacted 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— Advisor, 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.



Nitrogen applied by weekly one-hour fertigation / irrigation runs without filtering of injected material. Weekly values for each fertilizer material represent means of 5 replicate samples. Arrows indicate rates (lb N per acre) of fertilizer injected beginning on that date. Experiment terminated in week 17 because of deterioration in emitter flow due to plugging of emitters.

Addressing the Challenge

Yields of organic strawberries are typically half of conventionally grown strawberries. Local research in 2014/2015 looked at nitrogen (N) when typical organic liquid fertilizers are injected above a disc filter. Results found that the amount of N passing the emitter to the crop was only 10-20% of the N injected. Recent results from a field study from early 2015 (Fig. 1) show that, in the absence of filtering, much of the N still does not make it to the crop. Poor N application is due to a build-up of material behind the drippers. The build-up eventually leads to plugging which reduces uniformity and eventually shuts down the system. This is consistent with anecdotal information from growers in many production situations that indicates they have responded by changing drip tape during the season.

The 2014/2015 results showed that when organic fertilizers are injected above a filter a substantial amount of fertilizer nutrients do not get to the crop at the time of injection. Results from the most recent study show that when no filter is used, plugging of emitters results. Plugging is from the same organic particles being in-effect, “filtered” by the drip emitters. In both situations, the system flow uniformity declines and the system fails to function.

It is clear that organic strawberry growers now using organic liquid fertilizers have serious challenges to their ability to apply nutrients and supply crop N needs in a timely, efficient manner. In many cases, these materials are also causing damage to the system and crop. It is important to educate growers generally to these potential problems. Future studies will evaluate management options for improving nutrient use efficiency with organic strawberry production.

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 extends information in a timely and proactive manner.



Annual Santa Maria Vegetable Meeting
September 24, 2015

Addressing the Challenge

Field Trials: Completed four studies in strawberries to identify effective IPM strategies for managing lygus bug, spider mites, and other pests; determine the role of lygus bug and other factors in deformation of berries; and to compare lygus bug and natural enemy populations in organic and conventional strawberries in an effort to evaluate the impact of natural enemies in lygus management. Made arrangements to initiate a study in organic zucchini and tomato to manage the tomato bug. Continued monitoring for the brown marmorated stink bug.

Completed irrigation and nutrient management studies in six strawberry fields and a broccoli and a cauliflower field. Planned for additional studies in strawberries and vegetables.

Outreach: Authored three extension articles about spider mite management in strawberry, root aphid management in organic celery, and registration status of a popular microbial pesticide used in organic agriculture, completed the revision of Spanish strawberry manual and the first version of English strawberry manual produced in collaboration with Cachuma RCD. Published three UC Delivers stories to document the impact of my research and extension efforts in vegetable and strawberry pest management

Articles on two eNewsletters were viewed 16,670 times and the IPMinfo app was downloaded 88 times during this quarter. Provided input for seven media enquiries about various crop production and protection topics, reached out to 233 people through direct contact and 421 through extension meetings.

Meetings: Organized annual vegetable meeting and a workshop for strawberry and vegetable growers on using CropManage, an online tool for irrigation and nutrient management.

Public Value

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

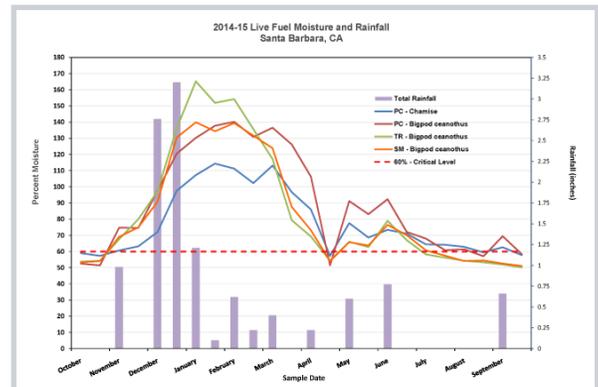
- Improved production practices by optimizing input costs and increasing yields
- Innovative research on alternatives to chemical fumigants, insecticides, miticides, fungicides, and improved Integrated Pest Management practices
- Efficient use of fertilizers and irrigation water which contribute to reduced 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.



From latest LFM sampling, indicating even lower moisture levels than shown by USFS station at San Marcos Pass.

Addressing the Challenge

Specialist Max Moritz continued working with local citizen science volunteers to maintain local Live Fuel Moisture (LFM) data sampling and processing. This effort produces high quality information that supports regular updates that appear on the Santa Barbara Botanic Garden website. A Memorandum of Understanding was initiated with various local agencies to support this as an ongoing effort.

As a board member of the Santa Barbara County Fire Safe Council, Dr. Moritz continues to work with local constituents on fire-related issues. The “Environmentally Sensitive Habitat” designation for certain chaparral types dominated these discussions during this quarter.

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/Subtropicals 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.

Addressing the Challenge

Ben Faber continues his extension work with Santa Barbara County subtropical fruit growers, providing evidence based information via phone and email regarding production issues and water delivery cutbacks, with more than 40 grower contacts during this quarter.

Ben also coordinated and/or authored 30 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 15,581 direct hits during this report period. Typical viewership is more than 200 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.

The Avocado Grower Seminar in August reached 50 growers with information on the Top Ten Hot Topics in production. These included Polyphagous Shothole Borer, food safety, water – availability, price, quality, reclaimed and grants available to growers, irrigation management, nutrition, labor adequacy and immigration, organic production, harvest costs, and pest control – ants, perseia mite, avocado thrips, and weeds.

The drought has resulted in appearance of some unusual pests on citrus. Recently we have seen a lace bug and a relative to stink bug – leaffooted bug – appearing on citrus. Through our blog – Topics in Subtropics – we have been alerting growers to their appearance and the low likelihood that they will be a major commercial problem. Both can cause leaf damage, and the leaffooted bug can cause feeding damage on fruit and esthetic defects.



Uncommon pests have been seen on citrus due to current drought conditions.

Left: Lacebug on lemon leaf

Right: Leaffooted bug on mandarin orange

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