

UC | University of California
CE | Agriculture and Natural Resources | Cooperative Extension

ANNUAL REPORT

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Farm and Home Advisors

Practical - Trusted - Connected

Serving Kern County Since 1914

From the County Director:

Our commitment is to lead the way with innovative researched-based answers, to reach out with new methods and to new clientele. Advisors and their staff, housed in the County of Kern Farm and Home Advisors Department, are a Practical, Connected and Trusted resource for science-based information in agriculture, natural resources, community resource management, nutrition, family and consumer science, and 4-H youth development.

It is impossible to fully convey the hard work and the myriad of projects of our highly dedicated and talented advisors and staff and their impact on individuals and communities.



This is but a snapshot of the extensive work performed by UC Cooperative Extension — Kern County. Our research and education programs develop and promote

Healthy Food Systems,
Healthy Environments,
Healthy Communities and
Healthy Californians.

While these four phrases describe the areas in which we work, they do not stand alone but are unified, codependent and interconnected, describing the holistic manner in which we address issues.

Dr. Brian Marsh

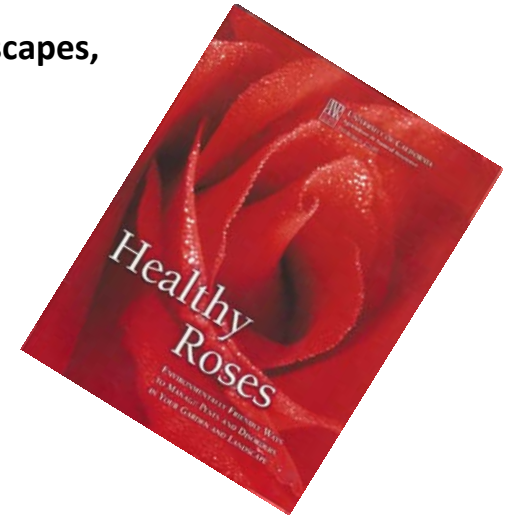
Horticulture Education

Horticulture Classes for Landscapes, Orchards, and Gardens

Horticulture classes were conducted in Bakersfield, Ridgecrest and Tehachapi.

Topics discussed included:

- Soil properties and their modification
- Plant selection and placement
- Tree planting and staking
- Pruning practices
- Small-scale fruit, citrus, and vegetable production
- Irrigation and water conservation
- Non-chemical pest management
- Plants and air quality



This publication discusses the culture of outdoor roses, including plant nutrition, pruning, and pest management using non-chemical methods for weed, disease, and insect control.

Arid Landscape Demonstration



Demonstration area with 92 plant species that can be used in a dry landscape.

Plant selection and irrigation management can result in significant water savings.

Exotic & Invasive Pests

The development and implementation of management programs that are effective and affordable while minimizing risks to humans and the environment.

Research programs focus on a management technique called mating disruption. Over the past decade, University of California researchers have identified the pheromones produced by many insects.



These pheromones can now be mass-produced in laboratories and applied to fields to inhibit males of pests like vine mealybug (grapes) and navel orangeworm (almonds and pistachios) from being able to find females. Without mating these insects cannot produce offspring, resulting in significant pest control without the use of traditional pesticides.



Pheromone puffer in grape vineyard

ORCHARD MANAGEMENT

Whole Orchard Recycling & Anaerobic Soil Disinfestation to control almond replant disease.

Improving soil and air quality and reducing the carbon footprint .



Whole orchard recycling involves grinding and incorporating the removed orchards instead of burning them or hauling them to co-generation plants. The process can:

- ◆ Increase soil organic matter
- ◆ Improve soil fertility
- ◆ Increase water holding capacity
- ◆ Increase carbon sequestration
- ◆ Reduce gas emissions

This is a sustainable method to manage wood and trees removed from old orchards.

Replant disease is a complex soil disease that results in poor root and tree growth. An alternative to soil fumigation is incorporating a carbon source to create anaerobic conditions when the soil is covered with a clear tarp and kept moist.



Vegetable Crops

The Annual Potato Variety Trial Field Day is an opportunity to see tubers of potential new varieties, how they performed this year, and how they perform compared to standard varieties. Entries include varieties from numerous USDA, state, and private breeding programs.



This year's entries include russets, reds, yellows, and specialty types.

Tubers were shown as how they looked straight from the field after being washed.



Attendees observe the tubers on display at Hart Park.

Citrus

Invasive Pest and Disease

California just wouldn't be California without its citrus industry, and this industry is important to the Kern County economy.



California is under threat from bacterial Huanglongbing disease spread by an insect called the Asian Citrus Psyllid. Kern County Farm Advisors are involved in activities assisting growers to organize into area-wide management teams to more efficiently control the psyllid.

Fundamental to effective control of this insect in commercial orchards, is preventing the psyllid in making its home in urban areas.

Kern County farm advisors are educating the general public on the seriousness of this problem, the identification of the insect vector, symptoms of the disease and what they can do to prevent the Asian Citrus Psyllid and Huanglongbing from becoming established anywhere in Kern County and California.

save our
CITRUS

Join our Community of Practice to spread the word about the Asian citrus psyllid and the bacteria named Huanglongbing that causes Citrus Greening Disease and threatens California citrus!

What is a community of practice?
A community of practice is a group of people who share common interests. Through this community of practice we can share our knowledge about this pest with others who love to garden as much as we do.

How will we share?

- 📍 Trainings held throughout the state.
- 🌐 Online at the California Garden Web <http://cagardenweb.ucdavis.edu/>
- 🐦 Follow us on Twitter @ACPoutreach.

Help us understand how to teach gardeners about this insect and disease!
Take our survey to share with us your knowledge of this disease at <http://ucanr.edu/cagurvey> or use the QR code above.

Your answers will help guide our outreach to California homeowners and gardeners.

How can you share?
If you see or post something about Asian citrus psyllids or Citrus Greening, pass it on to us and we'll move it along.

#1 crop in Kern County 106,200 acres \$1.64 Billion

UCCE Advisors conduct research on:

- ◆ Growth regulators & girdling
- ◆ Canopy & cluster management
- ◆ Pest & disease resistant rootstocks
- ◆ Irrigation management
- ◆ Pruning
- ◆ Plant nutrition



Pruning is one of the main practices that determines grape yield and quality.

Pruning systems are being evaluated for the new table grape varieties, such as 'Autumn King', 'Scarlet Royal' and 'Valley Pearl'.

Pierce's Disease (PD) caused by the bacterium *Xylella fastidiosa* is transmitted from diseased vines to healthy vines by the glassy-winged sharpshooter (GWSS).

There is no cure for PD, which can kill grapevines within 1-5 years.



An ongoing survey is monitoring the spread of PD in southern Kern County and assisting grape growers in disease identification and management.

Water and Salinity Management



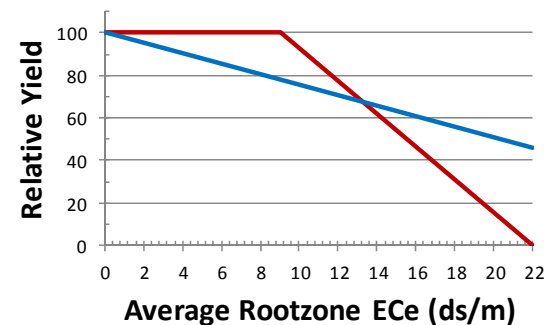
Previous research indicated pistachio salt tolerance was more than 4 times greater than almonds.

Recent research included areas that have 10 times the salt load considered safe for almonds.

Research Results

Results show that pistachio yields start to decline when the salinity is 5 to 6 deciSiemens per meter, which is only 2 to 3 times the amount that negatively impacts almonds. Research also shows a lower rate of decline as salts increase.

Even though this means reduced yields on some fields, pistachio production in high saline areas of Kern County is still possible and profitable.



Salt Tolerance Function

Old — red line
New — blue line



Improving California's Health Through UC CalFresh Nutrition Education

UC CalFresh helps families and individuals manage their resources and stretch food dollars by teaching goal setting, planning and shopping skills; thereby improving their ability to purchase healthy food.

Serving the Community

- ◆ Kern County 2014 median family income was 30% lower than the state median.
- ◆ In 2014, over 74,000 children under age 18 living in Kern County households experienced limited or uncertain access to adequate food.
- ◆ Obesity in Kern County adults is over 75%.

Education Programs

- ◆ *Making Every Dollar Count* classes teach participants:
 - ◇ Goal setting and how to make sound choices.
 - ◇ How to stretch personal and community resources.
 - ◇ Strategies to save money on food.
- ◆ *Plan, Shop, Save & Cook* classes teach participants:
 - ◇ Meal planning using MyPlate guidelines.
 - ◇ Techniques to save money on food.
 - ◇ How to understand food labels.



Serving Individuals

- ◆ 800 adults reached through direct education.
- ◆ 350 adults reached through health and resource fairs.
- ◆ 6000 youth reached through direct education.



Impacting Lives

- ◆ 82% of adult participants reported being more knowledgeable about easy ways to save money on food.
- ◆ 84% of adult participants showed improvement in one or more nutrition practices.
- ◆ 84% of youth participants showed improvement in their abilities or knowledge to choose foods according to Federal Dietary Recommendations .
- ◆ 50% of youth participants reported improving or gaining knowledge with regards to physical activity practices

Participant comments:

"I will cook more, make better choices and save money."

"I will shop smarter. I will cook more. I will compare what I need and what I want."

"I will cook more, walk places instead of driving."

What is most exciting about partnering with the Dignity Health Homemaker Care program is the knowledge that the information provided to the participants not only provides an opportunity for improvement in their lives, but also in the lives of those to whom they will provide service – the elderly and disabled adults in our community.

Building Partnerships

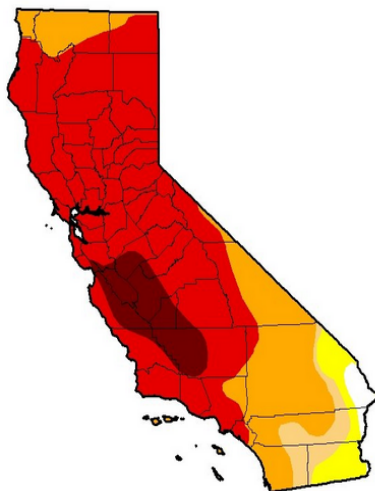
Kern High School District
Community Action Partnership of Kern Head Start
Dignity Health Homemaker Care Program
Bakersfield City School District
Housing Authority of the County of Kern

Natural Resources

Drought Assessment

Vegetation assessment data are evaluable to determine actual forage production and loss due to drought. This information supports the Non-insured Crop Disaster Assistance Program through the USDA Farm Services Agency and assists ranchers and decision makers in managing stocking rates, risk assessment and preserving the long-term health of range and pasture ground.

U.S. Drought Monitor
California



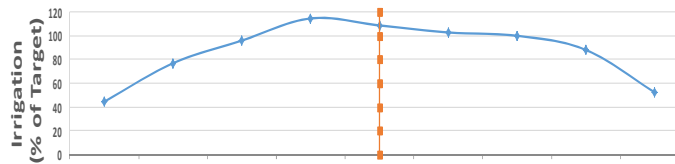
Kern County is one of the top sheep producing counties in California.



In support of this important industry, a *Sheep Producer's Forum* was held in December 2016. The forum focused on risk management, ranch economics, and sheep health and reproduction.

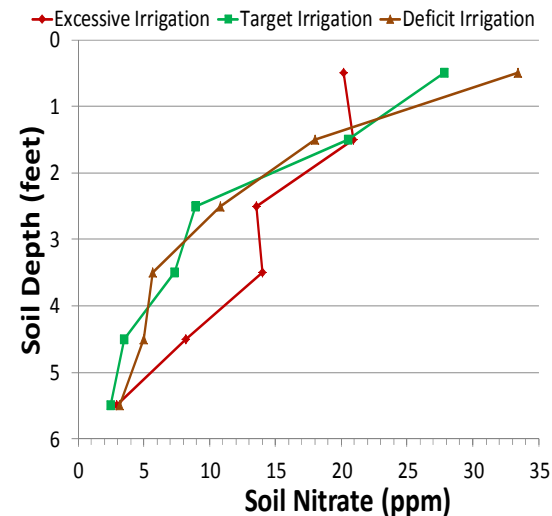
Nitrogen Management

Nitrogen fertility is essential to plant growth as is maintaining proper soil water status. Thus, irrigation management is crucial for optimum productivity and in controlling nitrate-nitrogen movement in the soil to limit potential nitrate pollution of groundwater.



The line-source sprinkler method creates multiple irrigation rates to small plots. Various nitrogen fertilizer rates are applied on top of the irrigation treatments.

- ◆ Deficit irrigation
 - ◇ Lower yield
 - ◇ Lower nitrogen uptake
- ◆ Target irrigation
 - ◇ Optimum Yield
 - ◇ No nitrate movement to lower soil profile
- ◆ Excessive irrigation
 - ◇ No increase in yield
 - ◇ More nitrate movement into lower soil profile



HEALTHY CALIFORNIANS 4-H Youth Development



My Head My Heart My Hands My Health

To clearer thinking To greater loyalty To larger service To better living

4-H is a nationwide youth development organization administered through land-grant universities that promotes:

- Leadership
- Citizenship
- Life skills.



4-H empowers young people to reach their full potential.

4-H enables youth to emerge as leaders by learning through hands-on, research-based projects with adult mentors, in order to give back to their local communities.



Wreath laying at the National Cemetery in Arvin by Premier 4-H Club

Kern County hosts over thirty clubs, both traditional and special interest, with hundreds of volunteers serving more than one thousand youth.

4-H is open to youth ages five through nineteen.



Premier 4-H Club

4-H programs are available to both urban and rural youth.

Additional services and older age limits are available for special needs youth.

Science, Technology, Engineering and Math (STEM)

4-H STEM is a national movement to expand the involvement of youth in science, engineering, and technology projects. SET activities combine non-formal education with hands-on, inquiry-based learning in a positive youth development setting.



Impacts

Hundreds of youth and adults participated in *Junk Drawer Robotics* :

- * at Boys & Girls Club of America in Lamont and Stockdale
- * at Rembrandt Village Life STEPS USA and Kristine Apartments
- * at Rosamond and Fairfax schools

Participants learn basics of robotics through learn-by-doing activities.

Outreach Programs

We are dedicated to increasing participation of Latino and other underrepresented populations in 4-H through strengthening current programming as well as developing new innovative programming that reflects the needs, interests and resources of California's diverse youth, families and communities. UCCE - Kern County 4-H hired a Community Educations Specialist to work with underrepresented populations.





UCCE Kern County Advisors

John Borba, M.S.; 4-H Youth Development

Ashraf El-Kereamy, Ph.D.; Viticulture

Julie Finzel, M.S.; Livestock & Natural Resources

David Haviland, M.S.; Entomology

Craig Kallsen, M.S.; Citrus & Pistachio

John Karlik, Ph.D.; Environmental Horticulture & Science

Brian Marsh, Ph.D.; County Director & Agronomy

Joe Nunez, M.S.; Vegetable Crops & Plant Pathology

Blake Sanden, M.S.; Irrigation & Soils

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Emeritus Advisors

Don Luvisi, M.S.; Viticulture

Ralph Phillips, Ph.D.; Livestock & Natural Resources

Mario Viveros, M.S.; Nut Crops

Margaret Johns, M.S., R.D.; Family, Home & Consumer Science



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