

# Healthy Californians

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



Farm and Home Advisors

Practical - Trusted - Connected

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 projects of our highly dedicated and talented advisors and staff and their impact on individuals and communities.



This is 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 Classes and Tours

Topics discussed include:

- Soil properties and their modification
- Plant selection and placement
- Pruning practices
- Fruit, citrus, and vegetable production
- Irrigation and water conservation
- Non-chemical pest management

## Ninth Horticulture Study Tour — Iceland

Topics there included plant survival in cold and arid conditions in soils derived from volcanic activity, use of geothermal energy, and plant agriculture as affected by climate change.

18 Participants



## Rose Research



Roses in landscapes and gardens are used throughout California to add color, fragrance and as a source of cut flowers. Despite their popularity, there is almost no research-based information on fertilization for roses grown outdoors in California.

This study will evaluate the effects of nitrogen and magnesium on rose growth and flowering.

# Vegetable Crops

The 38th International Carrot Conference was held in Bakersfield on March 19<sup>th</sup>-22<sup>nd</sup> and was hosted by the University of California Cooperative Extension and the California carrot industry. The International Carrot Conference is a biennial meeting that attracts people from private industry, government, and universities.

131 attendees; 29 out of state, 58 out of the country.

The conference was an excellent way for people to exchange ideas and concerns about all aspects of carrot production.

- Topics: breeding new varieties
- new products
- crop production management
- pest management
- field tour of research plots



Kern County is a leading carrot production area.

# Pistachio

## Pistachio and Climate

California is among the world's top producers of pistachio and Kern County has more pistachio acreage than any other county in the state.

The unexpected crop failure year of 2014-2015 demonstrated that pistachio production in Kern County is dependent on a tree having an adequate 'winter rest' period. However, what constitutes an adequate winter rest period is not well understood. A limiting factor for successful pistachio production in Kern County is air temperature during the fall, winter and spring. Better yield estimates will improve growers' ability to more efficiently budget and allocate resources and prepare for crop failure years.

## Craig Kallsen Presidential Chair for Pistachio Breeding



Two thousand crosses are being evaluated for potential release.

### Variety Evaluation Criteria:

- ◆ Fewer chilling hours in response to climate differences.
- ◆ Earlier maturing to reduce peak harvest equipment requirements.

#1 crop in Kern County      106,900 acres      \$1.66 Billion

**UCCE Advisors conduct research on:**

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



Research to optimize cultural practices for newly released variety Valley Pearl.

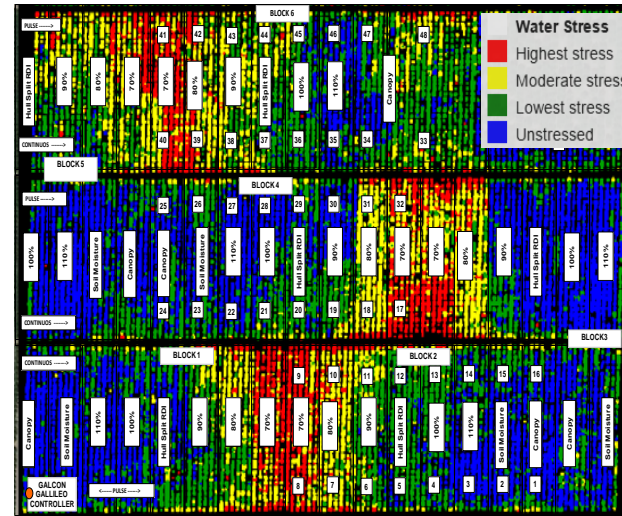
Pruning systems are being evaluated for table grape varieties Autumn King, Scarlet Royal and Valley Pearl.



Planting a two-acre experimental vineyard at the Shafter Research Farm. The vineyard will be used for research and demonstration purposes.

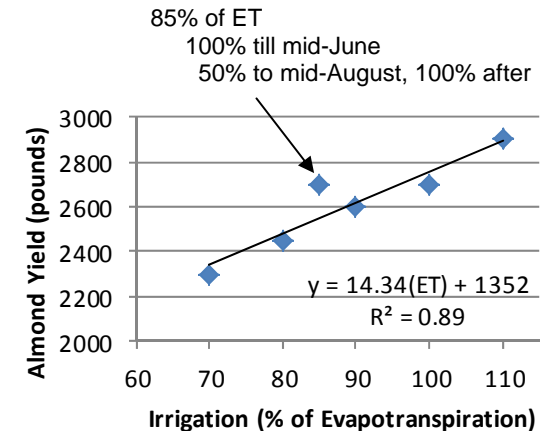
## The Precious Commodity of Water

Extensive research in irrigation and salinity management has identified several management strategies for optimum yield with unlimited water, and irrigation timing options for optimizing yield when water availability is limited.



A large almond water use project that started in 2013 has shown the value of remote aerial sensing for identifying tree water stress.

- ◆ Irrigation timing based on evapotranspiration (ET) is the most efficient.
- ◆ 30% irrigation deficit can reduce yield by 15%.
- ◆ Early season deficit irrigation has a major negative impact on yield.



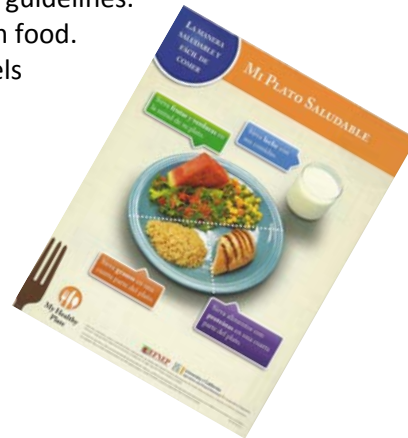


## Improving California's Health Through Nutrition Education

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—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

- ◆ 1700 adults reached through direct education.
- ◆ 1300 adults reached through health and resource fairs.

### Participant comments:

*"We eat a lot more healthier. I shop more wisely."  
 "I have started planning my meals one or two days ahead of time, and I find this so much more economical."  
 "I will cook more, ... walk places instead of driving."*

### 4-H Cooking 101

- ◆ 4-H and Nutrition Program joint venture.
- ◆ 4-H members provide instruction in safe and healthy meal preparation to K-12 youth, while
- ◆ UCCE Nutrition Educators teach "Plan, Shop, Save, Cook" to their parents.



### 4-H Cooking Academy

4-H teens serve as teachers for grades 2 through 6 in safe and healthy food preparation skills.

### Impacting Lives

- ◆ 79% of adult participants reported being more knowledgeable about easy ways to save money on food.
- ◆ 81% of adult participants showed improvement in one or more nutrition practices.

### 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

## Improving Lamb Marketing, Quality, and Profitability

Workshops included information on:

- ◆ Marketing
- ◆ Genetic selection
- ◆ Nutrition
- ◆ Body condition scoring
- ◆ Famacha scoring
- ◆ Ultrasound to diagnose pregnancy
- ◆ Record keeping
- ◆ Animal identification
- ◆ Predator management



**Financial viability of livestock production is critical to the long-term success of the industry.**



Maintaining a natural mulch layer on rangelands is a highly recommend management practice .

Analyzing the costs and returns of this practice is a current research initiative.

# Cotton

*Fusarium oxysporum* f. sp. *vasinfectum* (or “FOV”) is a soil-inhabiting fungus that causes a vascular wilt disease in susceptible cotton varieties. It has been widely recognized in the San Joaquin Valley since the 1950’s. Historically, Fusarium wilt in cotton produced visible symptoms and caused economic damage only in susceptible varieties in combination with significant populations of the root knot nematode. A new race, race 4, has caused moderate to severe plant damage in the absence of nematode populations.



## Management recommendations

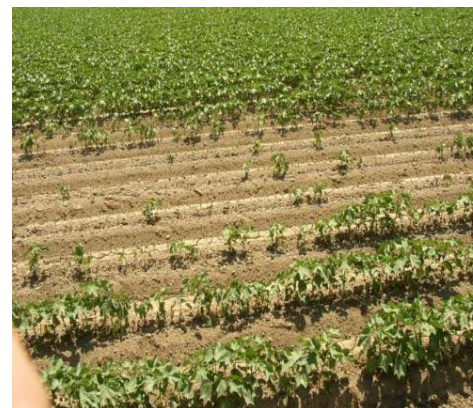
Pima cotton is more susceptible than upland varieties.

Plant resistant varieties.

Use crop rotation and management practices to reduce inoculum build up.

Destroy affected plants and plants in immediate adjacent rows.

Limit plant, soil and water movement from infected areas.



Typical early season seedling loss from FOV

# 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.



Kern County hosts over thirty clubs, both traditional and special interest.

## 4-H/Military Partnership

A collaborative effort with America's communities to support children and youth impacted by deployment. Activities in STEM, healthy living, photography, and plant science were conducted at Edwards and China Lake bases.



## LONGTIME 4-H LEADER RECEIVES AWARD FOR 50 YEARS OF VOLUNTEERISM

Hundreds of volunteers contribute thousands of hours in serving more than one thousand youth.

Jeanne Walford  
Casa Loma 4-H community club leader  
President of the county leader council



## Science, Technology, Engineering and Math (STEM) Impacts

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

- \* Delano Schools After-School Program staff trained in *Aerospace Adventures*
- \* Arvin Schools After-School Program staff trained in *Power of Wind*
- \* Valley Schools After-School Program staff trained in *Aerospace Adventures*
- \* China Lake Naval Station Youth Activities staff trained in *Junk Drawer Robotics*

Participants learn basics through learn-by-doing activities.

## Outreach Programs

- We are dedicated to increasing participation of Latino and other underrepresented populations.
- A delegation of Kern County teens participated in the Cal Focus Conference in Sacramento.

Two new 4-H clubs were chartered to meet the needs of Latino families, focusing on health, art, and civic engagement.



# Entomology

## Exotic & Invasive Pests

People are not unique in their desires to eat Kern County agricultural products. Insects and mites also have a constant craving for local fruits, nuts, berries and vegetables. Farmers are in a constant battle with these insects to maintain the high quality and yields needed to maintain the profitability and quality of local farms.

Sticky trap used to quantify insects for Integrated Pest Management



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 interfere with males ability to find females, such as vine mealybug (grapes) and navel orangeworm (almonds and pistachios). Without mating, these insects cannot produce offspring, resulting in significant pest control without the use of traditional pesticides.



Pheromone puffer

# Orchard Management

## Whole Orchard Recycling & Anaerobic Soil Disinfestation

to control

almond replant disease

*Improving soil and air quality & reducing the carbon foot print.*



Whole orchard recycling involves grinding and incorporating the removed orchards, instead of burning or hauling 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 trees removed from old orchards.

## Almond Hull Rot Disease

- ◆ Severe outbreak in 2017
- ◆ Can cause death of twigs and fruiting spurs
- ◆ Reduction in yield and orchard productivity

## Current Research Objectives

- ◆ Quantifying environmental factors that affect disease development
- ◆ Improved disease management tools







### UCCE Kern County Advisors

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