

Healthy Californians

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



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ANNUAL REPORT



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



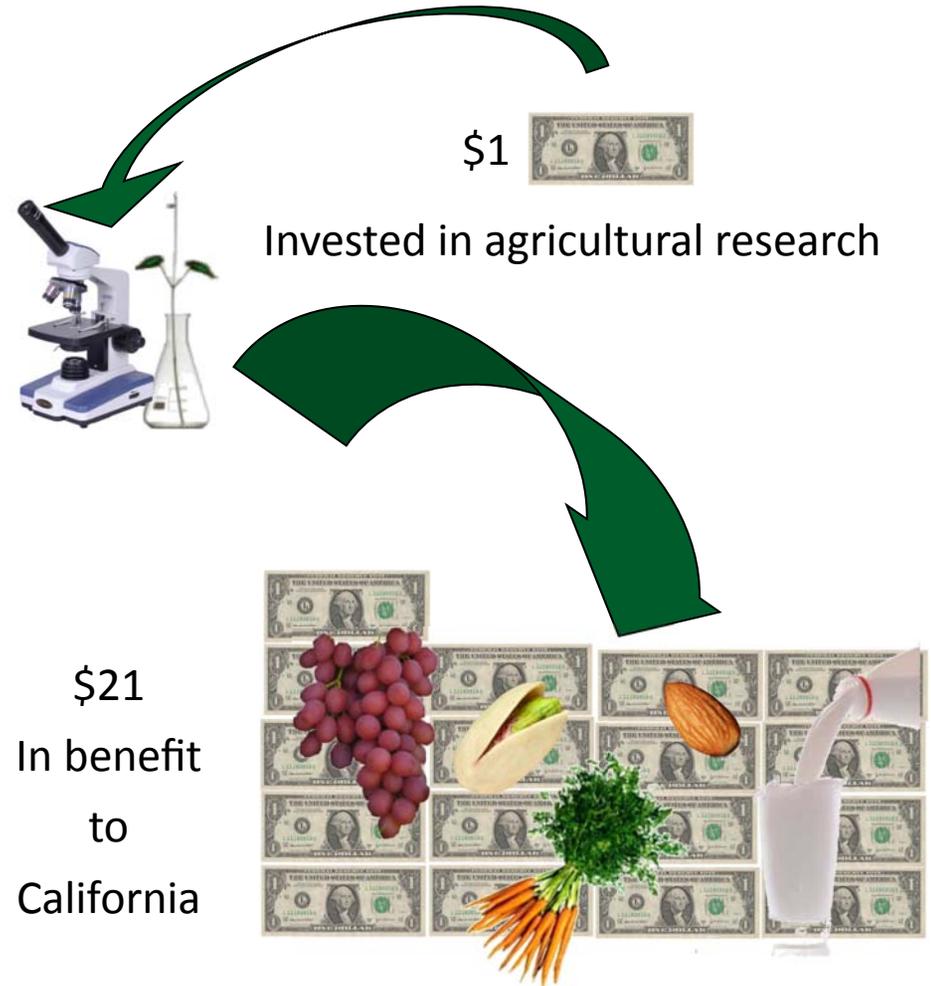
This is a snapshot of the extensive work performed by UC Cooperative Extension — Kern County. Our research and education programs develop and promote

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

Growing the economy



2017 Kern County

Farm Revenue

\$7.25 Billion



Orchard management

Cover Crops in Almond Orchards

Many orchards suffer from soil compaction and water infiltration problems.

This project aims to:

- ◆ Improve soil water penetration
- ◆ Reduce soil compaction
- ◆ Improve soil health
- ◆ Increase soil organic and nitrogen content
- ◆ Help growers adopt growing cover crops



Plant Diseases and Invasive Species



A tree development problem was identified on nematode resistant rootstocks. A new invasive nematode species was detected for the first time in Kern County. The nematode can adversely affect root development, water and nutrient uptake, tree growth and, ultimately, economic profitability. Information is being delivered to growers regarding this pest.

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 Kern County UCCE Office has been a leader in developing new pistachio cultivars for the California pistachio industry, such as the female pistachio variety 'Golden Hills' and its male pollinizer 'Randy'. This cultivar combination comprised most of the new pistachio acreage planted in California in 2018. Yield, nut quality and other plant-based performance characteristics measured in experimental trials in 2018 demonstrates that the California Pistachio Breeding Program has additional novel root stock and scion selections that show promise for the industry.

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.

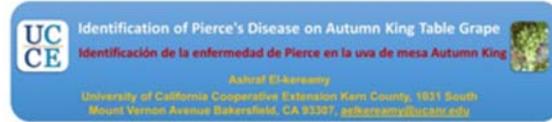


Grapes

KERN COUNTY FOOD BANK

A bilingual identification chart for field diagnosis of Pierce's Disease in table grapes was created. Training field workers to use the chart in identifying Pierce's Disease is ongoing.

Development of a smartphone app to use photographs of infected leaves to confirm the presence of Pierce's Disease is underway.



Leaf scorching and drying
Hoja quemada y seca



Matchsticks (Leaf petiole without the blade) and irregular maturation of the canes
Cerillos (Pecíolo foliar sin la hoja) y maduración irregular de los bastones



Whole canopy damage and raisining of the grapes
Todo el daño del dosel y la pasificación de las uvas

University of California Agriculture and Natural Resources
This study was funded by Consolidated Central Valley Table Grape Pest and Disease Control District.

Grape Production Research

The use of plant growth regulators including gibberellic acid can improve both yield and quality.



Control

GA10ppm

Variety 'Autumn King'

Citrus

Huanglongbing Disease (Citrus greening)

Kern County just wouldn't be Kern County without its citrus industry. San Joaquin Valley citrus is under threat from bacterial Huanglongbing disease spread by an insect called the Asian Citrus Psyllid.

Kern County Farm Advisors are assisting commercial growers to organize area-wide management teams to more efficiently control the psyllid and to educate the urban population on the threat of this pest and the disease.

To date, this effort has been successful in that the Asian Citrus Psyllid is only rarely found and no trees with Huanglongbing disease have been identified north of the mountains that separate the Los Angeles Basin from the Central Valley of California.

The identification and removal of over 1000 trees with this disease in Los Angeles, Riverside and Orange Counties means continued educational, monitoring and psyllid control activities are required.



Adult and nymphs of the Asian Citrus Psyllid on a young shoot terminal of citrus.



Improving California's Health Through Nutrition Education

UC CalFresh helps families and individuals manage their resources more wisely 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.
- ◆ *Organizational and Environmental Changes*
 - ◇ Implementing parent walking clubs at schools
 - ◇ Support for playground stencil projects at early childcare centers



4000+ Kern County residents served

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 Academy

- ◆ 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.
- ◆ 85% of adult participants reported learning to use resources to make money go further.

Building Partnerships

Kern High School District
 Community Action Partnership of Kern Head Start
 Dignity Health Homemaker Care Program
 Bakersfield City School District
 Kern County Department of Human Services

ENTOMOLOGY

Exotic & Invasive Pests

Research is underway to help farmers respond to threats from a newly-introduced aphid species that attacks sorghum. This research has helped farmers to maintain high sorghum yields despite threats from this new exotic pest.



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

HORTICULTURE

Horticulture Classes for Landscapes, Orchards, and Gardens

Classes were taught in Bakersfield, Ridgecrest and Tehachapi

Topics discussed include:

- ◆ Soil properties and their modification
- ◆ Plant selection and placement
- ◆ Pruning practices
- ◆ Enhancing green space
- ◆ Fruit, citrus, and vegetable production
- ◆ Irrigation and water conservation
- ◆ Integrated Pest Management (IPM)
- ◆ Non-chemical pest management
- ◆ Turf management



Rose Rosette Disease



A rose sample brought to the office showed symptoms of rose rosette disease, a very destructive disease of roses that has caused extensive damage in the eastern U.S. The rose from northwest Bakersfield, was confirmed to harbor the virus that causes rose rosette disease. That discovery has led to participation in a national task force that is coordinating research pertaining to the disease and its spread. So far, no additional infected plants have been discovered.

Symptoms

- * Excessive thorniness
- * Multiple terminal shoots (called witch's broom)
- * Bright red of terminal foliage



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.



Science, Technology, Engineering and Math (STEM)

Two Thousand youth and adults participated in :

- * Valley School After-School Program staff trained in *Junk Drawer Robotics*
- * Arvin Schools After-School Program staff trained in *Power of Wind*
- * McFarland Elementary School District staff trained in *4-H Avian Embryology*
- * Lamont Elementary School District staff trained in *4-H Avian Embryology*

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.

Outreach Programs

We are dedicated to increasing participation of Latino and other underrepresented populations.

- A delegation of Kern County teens participated in the Citizenship Washington Focus 4-H leadership program in Washington D.C.
- Afterschool programming was delivered to underrepresented youth at six different community centers, schools, and housing complexes.
- A delegation of Kern County teens participated in the California 4-H Youth Summit at Wonder Valley Ranch in Fresno County.
- Joint activities were implemented in cooperation with UC Cal Fresh staff where the children of adults in nutrition classes participated in youth development programs occurring simultaneously.
- A delegation of Kern County teens participated in the Juntos Summer Academy College Readiness program at UC Merced.
- A delegation of Kern County teens participated in the Cal Focus Conference in Sacramento.



Livestock

Improving Herd Genetics, Management and Profitability

Kern County has the largest number of breeding ewes in California with about 91,000 head valued at almost \$14 million. In response to steadily declining sheep numbers and a clear need within the sheep industry, a new research initiative is being implemented to examine



the economics of genomic testing in sheep and the use of electronic ID tags (EID) to track sheep production traits. A dramatic increase in production efficiency is essential to the future success of the sheep industry. The research is underway to address this need through a tiered, long-term research project that investigates: 1) A cost-benefit analysis of genomic testing, 2) a cost-benefit analysis of the use of EID ear tags to

track specific production traits, and 3) genetic advancements possible through genomic testing, improved tracking of critical production traits, and the potential synergy of the two methods combined. This study has the potential to significantly increase sheep producer profitability in the next 5 years.



New Advisors & Award Winner



Hawau Bojuwon is the Nutrition, Family and Consumer Sciences Advisor. She earned two M.S. degrees, one in Food and Nutrition Services, and the other in Health Promotion from the University of Mississippi. She is a Certified Health Education Specialist. Prior to joining UCCE, Bojuwon was working as a nutrition and health education specialist with University of Missouri Extension. She planned, implemented, and evaluated educational programs in nutrition, health, food safety, food resources management, and physical activity promotion education to low-income audiences.

Jaspreet Sidhu joined UCCE as the Vegetable Crops Advisor. She earned her Ph.D. in Entomology from Louisiana State University. Prior to joining UCCE, Sidhu was a Research Scientist at Virginia Tech. She coordinated and managed different projects funded by USAID in partner countries and provided assistance and expertise for the development of various components of IPM packages for tropical vegetables, fruits, and other crops.



David Haviland, Entomology Advisor, was recently given the Distinguished Service Award for Extension from UCANR and the Excellence in Extension from the Pacific Branch of the Entomological Society of America.



UCCE Kern County Advisors

Hawau Bojuwan, M.S.; Family, Home & Consumer Science

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

Jaspreet Sidhu, Ph.D.; Vegetable Crops

Mohammad Yaghmour, Ph.D.; Orchard Systems

Emeritus Advisors

Don Luvisi, M.S.; Viticulture

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

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

Blake Sanden, M.S.; Irrigation & Soils