



# *Cooperative Extension County of Riverside*



*Serving Riverside County residents in delivering research and educational programs in:  
Agriculture, Nutrition, Youth Development, and Natural Resources Since 1917*

*University of California, County of Riverside and U.S. Department of Agriculture Cooperating*

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## Special points of interest:

- Overview of Cooperative Extension
- Programs in Riverside County
- Highlights of Services

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## Highlights of Cooperative Extension 2005-2006

Cooperative Extension's goal is to solve problems and resolve issues for the citizens of Riverside County. Some of the issues that we directed our efforts to in the past year include:

- 4-H members made duffle bags for the hurricane victims. Clubs donated money to purchase toiletry items to go in the bags.
- UC Cooperative Extension conducted a pilot project teaching students about gardening and nutrition at **Emerson Elementary** in Riverside, CA.
- Progress is being made on controlling glassy-winged sharpshooter in the county's two grape growing regions, Temecula and the Coachella Valley.

- Citrus leafminer, a new pest, was discovered throughout Riverside County. Trials are continuing to determine the best methods to help control it.
- A new bio-security education plan was developed to help reduce the spread of contagious diseases in egg production facilities.
- Turfgrass research provides data on grass species that utilizes 50% less water and fertilizer.
- Risk Management Education program works with small farms to leverage new resources.
- A new lemon trial is being conducted in the Coachella Valley to help find lemon varieties suitable for our desert growers.

## Cooperative Extension: Who are we?

Cooperative Extension is a cooperative educational program between the county government, the federal government and the land grant institution (University of California). The mission of the University of California Cooperative Extension in Riverside County is to serve the citizens of Riverside County by providing science-based research, education and public service to help them solve problems in agriculture, natural resources (including environmental quality), food and nutrition, food safety and human community development.

The areas of staff expertise in agriculture

include: agronomy, vegetable crop production, integrated pest management, entomology, field crop production, viticulture, plant pathology, subtropical crop production, agricultural economics, poultry, animal sciences, water conservation and urban forestry. Recently, we have received approval to hire someone with expertise in Water Resources and another person with expertise in Floriculture.

We also have expertise in human resources including 4-H youth development, nutrition and consumer sciences, family well-being, urban environmental enhancement and community development.

## Cooperative Extension's Role in Riverside County

The delivery of Cooperative Extension programs including 4-H is a partnership between federal, state, and county governments. The Smith-Lever Act of 1914, as amended, provides guidelines and specific functions for extension programs.

The Vice President (Reg Gomes) of the U.C. Division of Agriculture and Natural Resources (ANR) is the Director of Cooperative Extension and is responsible for all programs within Cooperative Extension.

Cooperative Extension exists in almost every county in the United States and always involves a partnership between the USDA, the state's Land Grant University, and the county or local government.

The University provides academic and program support staff. The USDA provides program support dollars for Expanded Food & Nutrition Education Program (EFNEP) and Food Stamp Nutrition Education Program (FSNEP). The County of Riverside provides clerical and other support personnel, office space, program supplies, staff travel, and other administrative support.

The Director of Cooperative Extension for Riverside County, Peggy Mauk, is the liaison between the University of California and the County Board of Supervisors. She is responsible for ensuring that the Cooperative Extension programs conform to: University policy; federal, state, and local laws; safety and health regulations; affirmative action guidelines; and the mission core values and educational objectives of the 4-H Youth Development Program.

## History of Cooperative Extension

*"...to make life better for Californians in all walks of life..."*

In 1891, the University of California Board of Regents instituted short courses and used demonstration trainings to extend the University's teaching over the entire state. In 1897 the Department of Extension in Agriculture was created that later became the Division of Agricultural Extension in 1913.

On May 8, 1914 Congress passed the Smith-Lever Act, providing federal funds to the USDA's Extension Service for cooperative work with Land-Grant universities and colleges.

In 1915, the California state legislature authorized the UC Regents to conduct the Agricultural Extension program. This empowered county boards of supervisors to appropriate and use county funds to support Extension work in agriculture, in cooperation with the USDA.

This three-way cooperative arrangement was created to bring agricultural education and research to the public.

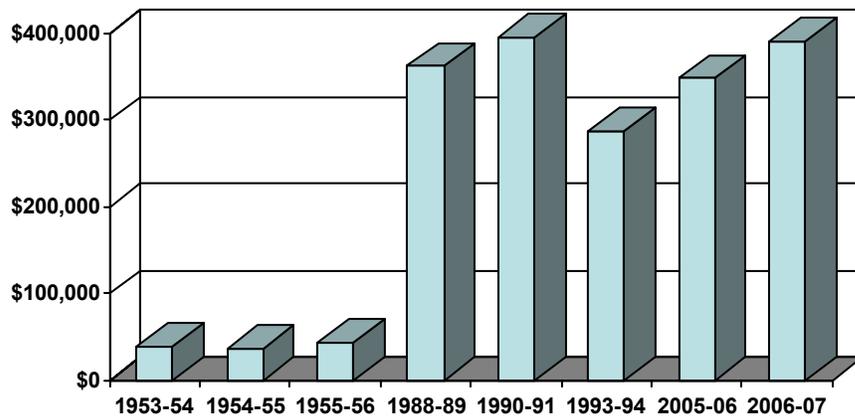
In 1917, a cooperative relationship was formed between the University of California and the Riverside County Board of Supervisors. In 2001, the Memorandum of Understanding was revised further formalizing this relationship.

Cooperative Extension (CE) tailors its programs to meet local needs. CE teaching takes place at meetings, conferences, workshops, demonstrations, field days, and personal consultations using video programs, newsletters, manuals and field guides.

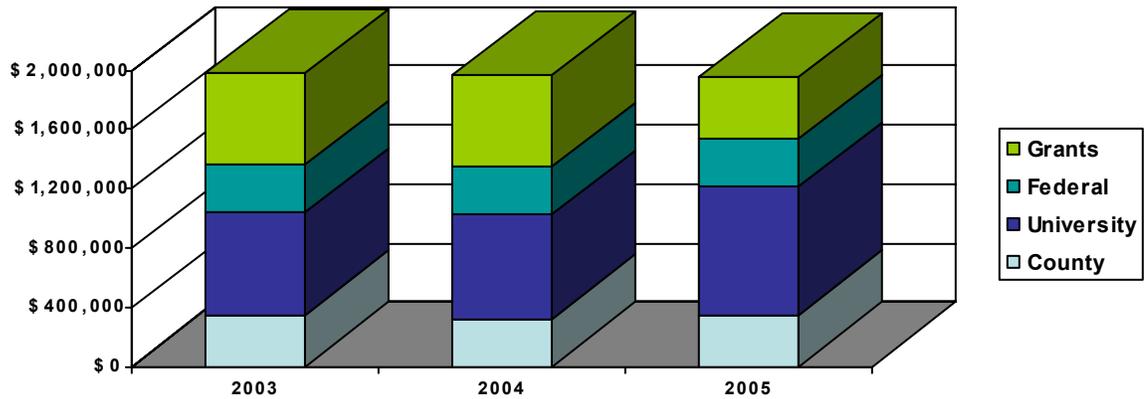
In Riverside County and throughout the state, thousands of volunteers extend CE's outreach, assisting with 4-H youth development programs and Master Gardener education volunteers.

## Funding Breakdown for Fiscal Year

Cooperative Extension is indeed a cooperative organization, relying upon funding by both the County of Riverside and the University of California to function and exist. We were asked recently to depict how our funding level from the county has changed over the past 50 years. The CEO's office was helpful in gathering these data:



□ Fiscal Year



*Financial contribution from County of Riverside and the University of California, by Fiscal Year.*

# Nutrition, Family & Consumer Sciences



Chutima  
Ganthavorn,  
Nutrition, Family  
and Consumer  
Sciences Advisor

## **EFNEP—Expanded Food and Nutrition Education Program**

EFNEP is a nutrition outreach program funded through USDA-CSREES Smith-Lever 3(d) funds. In Riverside County, EFNEP's mission is to deliver nutrition education to low-income parents with young children and disadvantaged youth through a number of local agencies, schools and community groups. During FY 2004-2005 Riverside County EFNEP helped 652 low income families and 2,344 youth improve their nutrition, physical activity and health.



*Teaching EFNEP participants to read food labels.*

## **Program Overview**

Nutrition, Family and Consumer Sciences Program (NFCS) provides research-based education in the areas of nutrition, food safety and consumer economics. This program has one academic advisor, one coordinator and four program assistants.



*NFCS Team: Sharon Southworth, Myriam Acevedo, Fatima Afana (EFNEP/FSNEP Coordinator), Chutima Ganthavorn, Liz Armijo and Gustavo Rimada (not pictured).*

## **FSNEP — Food Stamp Nutrition Education Program**

FSNEP is a program funded by USDA-FNS Food Stamp Program. In Riverside County, FSNEP's mission is to promote self-sufficiency among food stamp recipients and food stamp eligible families. Participating families learn about financial literacy and how to make nutritious meals on a limited budget. During FY 2004-2005 Riverside County FSNEP helped 393 adults and 5,481 youth improve their knowledge in money management and nutrition.



*Teaching FSNEP participants how to make healthy food choices using MyPyramid.*

## Nutrition, Family & Consumer Sciences

### IHS—Intergenerational Health Support Project

The Intergenerational Health Support project was conducted during February-April 2004 as part of the Corona-Norco Children and Weight Coalition's effort to raise awareness about childhood obesity. The project was funded by General Mills Champions Youth Nutrition and Fitness Grant. The project aimed to increase fruit and vegetable consumption, and physical activity among both grandchildren and grandparents in families where grandparents are raising grandchildren.



*Grandchildren from grandparents raising grandchildren families learned about food groups in the Food Guide Pyramid.*

Nine families (11 grandparents and 13 grandchildren) participated in this eight week long project. Six families successfully completed the program. About 40-50% of grandparents ate more vegetables at meal time, and ate more fruit or vegetables as snacks after completing the project. The greatest improvement for grandchildren was increased consumption of green salad. Almost 70% of grandchildren showed improvement in the frequency of green salad consumption. This project demonstrated that a health and nutrition program designed specifically for families of grandparents raising grandchildren can have a positive impact in their lives.



*Grandchildren from grandparents raising grandchildren families during a tour of produce section at a local supermarket.*

### Financial Literacy in Coachella Valley



*Making Every Dollar Count class with Gustavo Rimada.*

This project funded by Altura Credit Union was conducted during April 2004-March 2005. The goal of the project was to improve financial literacy among adult and youth participants in Coachella Valley. A series of 2 classes on **Making Every Dollar Count** from the Gateway Curriculum (Dr. Karen Varcoe, UCR Consumer Economics) was taught at various locations including DACE (Desert Alliance for Community Empowerment), Center for Employment Training (CET), Coachella Valley Adult School, and various migrant education and Head Start centers. Four workshops on **Money Talks Should I Be Listening?** were offered to teens at 4 locations in the Coachella Valley (Esperanza Youth Center, Cal Safe Program, Boys and Girls Club, and Coachella Valley High School). Sixty-five teens and 427 adults participated in this project.

## 4-H Youth Development Program



### Program Overview

The objective of the 4-H Youth Development program is to help youth become responsible, self-directed, and productive members of the global society. The goal is to improve the well being of youth, their families, and their communities.

There are 264 adult volunteers of the University of California 4-H Youth Development Program and 762 youth members in Riverside County.



Jeanne Lothridge,  
4-H Program Representative.

### Emerson Elementary, Riverside, CA: Good Earth 4-H Club School Gardening project



The 4-H Youth Development Program, the Food Stamp Nutritional Educational Program and the Master Gardener Program teamed up together to start a 4-

H Club, The Good Earth and to teach the students at Emerson Elementary about gardening and nutrition using the TWIGS curriculum (specially developed to educate children about food, nutrition and gardening). The personnel from the University of California, Cooperative Extension who worked with the students three days a week from late March to early May were Jeanne Lothridge the 4-H Youth Development Program Rep., Pauline Pedigo, the Master Gardener, and Chutima Ganthavorn, the Nutrition, Family Consumer Science Advisor. Students learned the difference between dirt



and soil, how to identify seeds, and how to test the garden soil to tell what they might need to add

to the soil to improve the growth of their plants. They learned that the soil is composed of sand, silt and clay. They conducted experiments to see what seeds



would germinate and grow in different conditions. They learned about germs and conducted an experiment on how germs grow and how important it is to wash their hands. They learned about the importance of good nutrition and how to grow plants. At the conclusion of the program each student wrote a short page on what they had learned. They even received a surprise visit by Master Gardener, Pauline Pedigo's

"Shelby" the tortoise. The program ended with an awards ceremony where the students received a certificate, a 4-H year pin, a 4-H pencil, nutrition stickers and recognition in front of their classmates.





## Pillow Patrol—Aiding Hurricane Victims

The traditional 4-H club program worked on a project called “Pillow Patrol”. Members made duffle bags (“pillows”) bags for kids affected by the hurricane to keep their belongings. They raised money and purchased necessities such as toothbrushes and toothpaste to put in the duffle bags. Duffle bags had a tag that said, “made especially for you by Riverside County CA 4-H”. Clubs donated money to pur-

chase toiletry items to go in the bags. Members spent one day at Summer Camp and several Saturdays sewing the bags together.



### Mission

*“The University of California 4-H Youth Development Program engages youth in reaching their fullest potential while advancing the field of youth development.”*

## Operation Military Kids

Another project the 4-H clubs participated in was Operation Military Kids. This project was putting items that had been donated to our Regional Office in to back packs. Our members also wrote letters telling them about 4-H and what they did in 4-H. These back packs were delivered to Military Kids who fathers or mothers had been deployed to Iraq.



## Annual Training Institute

We put on our second Annual 4-H Institute. This institute is training for all 4-H leaders, members and parents. Some of the topics that we covered were Club Leadership, Club Officer Training, Primary Member Training, Project Record Book Training and how to do presentations.



## **Vegetable Crops/Small Farms — Coachella Valley**



**Jose Aguiar**  
Vegetable Crops  
and Small Farms in  
the Coachella Valley

### **Program Overview**

The vegetable crops/small farm program addresses those critical needs and issues that affect vegetable crop producers in the Coachella Valley. The program assists large and small-scale growers. Jose Aguiar, UC Farm Advisor, helps growers solve problems, and he also teams with other UC Advisors and Specialists in addressing vegetable problems. Aguiar's educational program consists of a series of seminars titled "Coachella Valley Farmers Educational Meetings". The goal of these seminars is to identify specific problems and present research based information. Speakers include UCCE Farm Advisors and Specialists as well as USDA-NRCS research scientists.

### **Overall Goal**

Jose is responsible for establishing a research and extension program to maintain and promote the viability of the area farms. This includes a sustainable approach and the efficient management of irrigation, soil and crop fertility, and integrated pest management. The Farm Advisor is the link between the University of California and the local grower community. As a result of this connection, local problems can be addressed.



*Studies  
show new  
hope for  
controlling  
purple  
nutsedge*

### **Lettuce Herbicide Trials**

There were over 2000 acres planted to various lettuce types in 2002 in the Coachella Valley. A serious early season weed pest for lettuce is purple nutsedge. In conjunction with Steve Fennimore, UC Weed Specialist, various materials were tested for purple nutsedge and winter weed efficacy. The results were very positive and the trials will be expanded in 2004.



The above photo shows a Bell pepper field infested with *root knot nematodes*, a parasite found in the Coachella Valley. The plants with light colored tops are the affected plants.

### **Coachella Valley Farmers Educational Seminars**

In 2005, seven Coachella Valley Farmers Educational Seminars were held. Our seminars are co-sponsored by the Coachella Valley Resource Conservation District, USDA-NRCS and the Coachella Valley Mosquito and Vector Control District. Five of these meetings qualified for continuing education credit. Our meetings are held at the USDA Service Center in Indio. Our attendance varies but averages about 245 growers per year. One of our meetings is the Annual Soil Health Symposium. For this meeting we draw from some of the top USDA research Scientists as well as UC Specialists.

## **Field and Vegetable Crops — Palo Verde Valley**

### **Program Overview**



Michael Rethwisch,  
Field and Vegetable  
Crops Advisor

The goal of this program is to provide data and information, including that derived from local problem solving research. This data helps producers and Pest Control Advisors make the best possible decisions, and thereby increase agricultural production effectiveness, maximize potential profits, and mitigate long term risks. Agricultural and Natural Resources activities in the Palo Verde Valley during the year have included a number of field research pro-

jects, primarily in the areas of alfalfa insects and mites, and plant growth regulators (chemicals that enhance plant growth or crop size). In addition, we have had several educational meetings and provide information delivery via newsletters and mailings. Large scale research projects have primarily centered on various production aspects of current local crops while small plot research evaluated potential new products and crops.

### **Research Successes and Impacts**

#### ***Spider Mite Management in Alfalfa***

Field research has begun to quantify the economic losses due to spider mites, with losses of up to 0.2 tons/acre in a single cutting documented. As a result of this trial, pest control advisors have implemented alternative strategies to control spider mites with some initial success. Quality loss was not found from spider mite feeding when a 30 day cutting cycle is utilized. Field trials have found only two pesticides or combinations of pesticides that are currently registered and somewhat effective.

#### ***Insecticide Evaluations in Alfalfa***

Insecticide efficacy studies are conducted in alfalfa to generate comparative results for various insecticides. Test results that compared wettable powder and liquid forms of several pyrethroid insecticides were surprising, as liquid forms resulted in a 0.1 ton/acre yield loss when compared with their wettable powder formulations. Testing also determined that higher rates of certain insecticides also lowered yields slightly, which is thought to be due to a greater reduction of beneficial insects.

***“Growth  
Regulator  
for cotton  
provides  
economic  
returns  
greater than  
\$50/acre...”***

#### ***Plant Growth Enhancers for Cotton***

Evaluation of AuxiGro, not yet available for growers, has resulted in consistent increases in fiber strength and sometimes increased boll retention rates. Usage of this product has pro-

vided economic returns greater than \$50/acre (sometimes >120/acre) in both years tested. It is hoped that local research will result in this product being registered for usage on cotton in California.

### **Educational Activities:**

- The **Palo Verde Valley Update** (newsletter containing Cooperative Extension agriculture information) is widely used and requested beyond the Palo Verde Valley, with a mailing list of almost 300. The most recent issue was 34 pages in length and included information about spider mite control, West Nile virus and mosquito control, as well as the status of new pests and information about potential pests to be wary of.
- Progressive Farmers’ educational meetings are organized about six times each year.

## Viticulture and Pest Management



Carmen Gispert, Viticulture and Pest Management Farm Advisor

### Program Overview

The viticulture program addresses critical needs and issues that affect wine grape and table grape production in Riverside, San Bernardino and San Diego counties. The educational pro-

gram consists of a series of seminars and workshops to train vineyard managers and field workers to identify a specific problem. The viticulture program is currently oriented to evaluate table grape selections, and pest and disease management on grapevines, particularly Pierce's disease and vine mealybug.



*Green seedless table grape grown in the Coachella Valley..*

### Evaluating New Table Grape Varieties for the Desert

Coachella Valley table grape growers need additional grape varieties to stay competitive. Gispert is evaluating seven new selections of table grapes for suitability for the Coachella Valley. Of the seven selections, 5 are green seedless and 2 are red seedless. 2006 was the first year of production.

*“A collaborative effort has successfully reduced the population levels of the glassy-winged sharpshooter.”*

### Pierce's Disease

A collaborative effort among the University of California and the California Department of Food and Agriculture has successfully reduced the population levels of the glassy-winged sharpshooter, the vector of Pierce's disease in the Coachella and Temecula Valleys, two important grape growing regions in southern California.



*Symptoms of Pierce's Disease on wine grapes in Temecula.*

### Vine Mealybug

The use of a pheromone and selective insecticides are being tested as part of an integrated pest management program to reduce the damage of the vine mealybug in the Coachella Valley.



*Vine mealy bug infestation on table grape vines (white insects on bark).*

## **Agricultural Economics/Farm Management**



Etaferahu (Eta)  
Takele

Area Advisor, Agricultural Economics/Farm Management

*What is the expected cost of producing crops in Riverside County?*



*Click on our websites and find out.*

### **Program Overview**

The Agricultural Economics Program in Farm Management provides research-based education and analyses in crop production economics including investment estimates, production costs, profitability, risk and financial management. Area advisor, Eta Takele is responsible for the southern California region delivering this program for Riverside County clientele.

### **Enterprise Profitability**

This program reaches 25,000-30,000 clients nationally and internationally with the dissemination of publications. Studies available for Riverside County can be downloaded from the following websites:

- <http://groups.ucanr.org/farmgt/>
- <http://coststudies.ucdavis.edu>
- <http://www.vric.ucdavis.edu>
- <http://anrcatalog.ucdavis.edu>
- <http://www.sfc.ucdavis.edu>

These studies provide the basis for growers and investors to evaluate the challenges affecting agriculture such as urban expansion and the resulting increase of water and land values, so that their ability to choose production sites and systems that are profitable would increase. In addition, having locally developed industry baseline economic and profitability indicators will allow local farmers, bankers, and government agencies to assess and compare the relative efficiency and profitability of agricultural operations in Riverside County.

### **Risk Management Education**

Since 2000, Takele has implemented risk management education programs that have enabled growers to have a comparative advantage through production and marketing of new and specialty crops. With funding from USDA, these programs included education in production of new and specialty crops; development of new direct or non-traditional marketing channels and collaboration with local institutions and agencies for enhancing program delivery and implementation. The following are a list of impacts:

- Delivered seven workshops and seminars on specialty crops production and marketing reaching over 275 people of whom, 31% Hispanic, 7% Asian, 20% Female and 2% Black.
- Established partnerships with other institutions which were the basis of the Inland Empire Small Farm Initiative (IESFI) serving as a center for continued risk management education. IESFI benefited several growers by processing tax credit programs, providing business education and helping complete forms for USDA loans and soil conservation programs.
- Networking and joint effort was formed with the Desert Alliance for Community Empowerment (DACE) to pool resources through collaboration for conducting and implementing programs. One of three proposed marketing niches has been funded by USDA to be soon in place. The formation of a buying co-op to bring locally grown fresh produce to agencies that provide food and nutritional support to low income residents including School Lunch Program is expected to reduce costs of shipping and selling hence increasing growers net returns.
- A Farmers Market for the winter tourist areas of Indio and Palm Desert is also being explored.

## Subtropical Horticulture



Peggy Mauk, Director of Cooperative Extension and Subtropical Horticulture Advisor

Advisor, Peggy Mauk heads the Subtropical Horticulture program addresses research and educational needs for commercial citrus, avocado and date producers and allied agri-businesses. Tom Shea is the Staff Research Associate in

support of this program. He has expertise in production of a wide range of subtropical crops. Together they solve problems for growers and potential growers of subtropical crops.

### **Citrus Leafminer, a New Pest to Southern California**

In the fall of 2002, a new pest of citrus, the Citrus Leafminer, was discovered in Riverside County. The California Citrus Nurseryman's Association solicited Peggy Mauk to initiate trials to determine effective methods for controlling this insect. Since the fall of 2002, the pest has spread through much of the Coachella Valley. It is now found throughout Southern California including San Diego, Riverside, Orange, Los Angeles, Ventura, and San Luis Obispo counties. Recently a few moths were detected in the Central Valley. The pest is a strong flyer and does not require human activities to spread. It is antici-

pated that the pest will be distributed throughout California Citrus fields over the next 2 years. We have found there are a number of native beneficial insects that help to control this pest. We have also found there are a number of insecticides that help to reduce citrus leafminer but not eliminate it. We are evaluating insecticides for use on young citrus and in citrus nurseries. For now, we are recommending that growers not control the pest and instead allow the natural enemies to become established and eventually control the leafminer.



### *Research*

*testing new*

*mandarin*

*varieties may*

*help to*

*recapture the*

*early season*

*market*

### **Mandarin Variety Trial**

Over the past 7 years we conducted a large trial to determine new mandarin (tangerine) varieties suitable for the California desert climate. This trial was successful in identifying new mandarin so that our growers can meet changes in the domestic and global market. We have found that Shasta Gold™ mandarin hybrid, Tahoe Gold™ mandarin hybrid, Yosemite Gold™ mandarin hybrid, Gold Nugget and W. Murcott Afourer showed promise. Recently 'Tango', a seedless W. Murcott Afourer was released by UCR. If this new variety performs like the parent tree, it should be a great option for the desert.



### **Lemon Variety Trial Started**

Lemons are the primary source of income for many Coachella Valley growers. Currently, early season lemons bring the best returns. In 2005-06, we established eleven lemon selections on a 2.9 acre site at the U.C. Coachella Valley Agricultural Research Station (CVARS), near Thermal, CA. Varieties planted include: Limoneira 8A (as a standard), Allen Eureka (also as a standard), seedless ('Lisbon') lemon, Femminello Santa Teresa, Corona Foothills Lisbon, Limonero Fino 49 (Limonero Fino), Walker Lisbon, Messina, Interdonato, Yen Ben, and Variegated Pink Fleshed Eureka. We are looking forward to determining which varieties perform best in the Coachella Valley.

## Poultry Sciences

### Prevention of Exotic Foreign Animal Diseases in Poultry



Douglas R. Kuney,  
Area Poultry Advisor

*Avian Influenza Taskforce is working to “develop plans for rapid and accurate communication, disease detection and containment, worker health and safety protection, dead bird handling and disposal, as well as many other issues.”*

Each year the California poultry industry is threatened by the possible introduction of a highly pathogenic foreign animal disease agent. In 2002 and 2003 the devastating Exotic Newcastle disease virus spread from small backyard flocks to large commercial flocks of egg producing hens in southern California. The result was the loss of 25 percent of the southern California egg producing chickens and thousands of back yard poultry.

#### Avian Influenza

In 1997 we saw the first documented bird to human transmission of a highly pathogenic Avian Influenza type A virus (H5N1 subtype) in Asia. Since then, sporadic outbreaks have occurred on three continents and in over 36 countries throughout the world. At this time this virus is well adapted to poultry and other birds, but it is not easily transmissible to humans although over 200 human cases have been documented with a case fatality rate of nearly 50 percent.

The likelihood that the next human influenza pandemic will emerge from the bird influenza circulating in Asia remains unknown, and because this bird influenza virus remains primarily an animal disease, there is hope that a human pandemic can be prevented. However, every new poultry infection, and subsequent human exposure, gives this virus an additional opportunity to exchange genetic material with other influenza viruses and increases the chance that the bird influenza could become a significant human disease.

#### Avian Influenza Taskforce

Doug Kuney is a member of the Riverside County Avian Influenza Task Force which meets regularly to develop emergency planning measures in Riverside county should this or some other pathogenic virus be introduced into the state. The task force is developing plans for rapid and accurate communication, disease detection and containment, worker health and safety protection, dead bird handling and disposal, as well as many other issues.

#### Other Taskforces

Outside of the task force, Mr. Kuney provides biosecurity training to all state and county agency personnel that have a need to visit a poultry farm or egg processing plant. During this reporting period, Mr. Kuney trained all Agricultural Commissioner staff and all California Department of Food and Agriculture and USDA egg inspectors in the state.



## **Environmental Horticultural Program**



Mike Henry  
Environmental Horticulture Advisor,  
and Coordinator of  
Master Gardener  
Program.

*New  
Zoysiagrass  
uses half the  
water and half  
the fertilizer,  
perfect for  
Riverside  
County*

### **PROGRAM OVERVIEW**

The Environmental Horticulture Advisor conducts applied research and continuing education for the turf, landscape, and nursery industries (landscape maintenance contractors, professional gardeners, park managers, sod growers and nurserymen).

Applied Research focused on water conservation in the landscape by introducing low water-using grasses that also need less nitrogen fertilizer. This conserves water and reduces the chance of contamination of surface and ground water supplies.

### **Low Water-use Lawns**

Local research was conducted on evaluating various species of grasses for their suitability for use in lawns. This research was conducted by Mike Henry and has resulted in new information on low water use lawn grasses; some of which use only half the water and fertilizer that the most commonly used grass (tall fescue) uses, while still performing well as a park play surface; landscape feature and pollutant filter.



*New lawn grasses developed by UC scientists and advisors are providing alternatives to the water demanding grasses now in use. This new Zoysiagrass is a low water and fertilizer using grass that is well adapted to Riverside, CA.*

### **New Pests and Diseases**

New pests and diseases continue to enter Southern California. University of California Cooperative Extension research is providing practical information and new techniques to manage these new problems in our urban landscapes using beneficial insects for example, instead of pesticides as the only means. Educating professionals in the horticulture field here in Riverside County provides them with the latest facts on these new pest and disease problems. Pierce's Disease, Oleander Leaf Scorch, Imported Red Fire Ant, Africanized Bees, Diaprepes Root Weevil, Eucalyptus Tortoise Beetle are all



*Oleanders infected with the bacterium that causes Oleander leaf scorch.*

serious problems that are being dealt with safely and efficiently using University of California research information.

## **Master Gardener Program**



*Tom Shea, Staff Research Associate, teaching a Master Gardener class.*

The Master Gardener volunteer program provides gardening and horticulture information to the residents of Riverside County through trained volunteers who disseminate University research-based information to the public. The volunteers provide over 6,000 hours of educational support per year on topics ranging from planning a school garden to safely controlling insects in vegetable gardens.

Forty-five new Master Gardener volunteers were trained in botany, horticulture, pest management, and efficient irrigation and water conservation this year. They will join 140 experienced volunteers in educating the gardening public in Riverside County. Master Gardeners are the one source of reliable, up-to-date, science-based answers from the University of California.



*Master Gardener volunteers provide reliable information to callers on a variety of topics related to gardening and horticulture. Over 6,000 educational contacts are made each year by our volunteers in Riverside County.*

***Annually, Master Gardeners provide over 6,000 hours of educational outreach to the general public in Riverside County.***

## **Lake Elsinore/Canyon Lake Water Improvement Project**

The Regional Water Quality Control Board's (RWQCB) Strategic Plan established watershed management as a key component for water resources protection. The most effective ways to prevent water quality degradation is through Best Management Practices (BMPs). A newly funded project, *Best Management Practices to Reduce Nutrient Loads from Cropland*, will focus on identifying and implementing BMPs to reduce the nitrogen (N) and phosphorus (P) loads to Canyon Lake and Lake Elsinore.

The Project Outline includes development of a work plan, the design and evaluation of buffering

zones in dryland wheat fields, evaluate of methods of animal manure application to reduce phosphorus and nitrogen runoff, implementation of BMPs for: citrus, turf-grass management for residential landscape and golf courses, and vegetable and dryland crops. The project will also include detailed analysis of the recommendations to ensure the economic feasibility of the BMPs identified from this project, outreach education to growers on implementation of BMPs, annual nutrient reduction analysis, and preparation of draft and final reports of the findings. Total funding for this project is \$468,000.





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\*EFNEP—Expanded Food & Nutrition Education Program

\*\*FSNEP—Food Stamp Nutrition Education Program



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