

## *The Value of Delivering Education and Research in 2010*



**UC Master Gardeners provide 21,098 volunteer hours assisting Fresno homeowners.**



**Improved pruning methods and plant growth regulator applications reduce mechanical harvest costs.**



**USDA recognizes nutrition staff for the use of innovation and technology to expand the delivery of nutrition education for children.**

### **The Value of UC Cooperative Extension in Fresno County**



Jeanette Sutherlin and Karen Nephew develop advocacy material for UCCE Fresno

Our clientele in Fresno County determine the focus of our research and education opportunities. We are privileged to bring the University of California to the people of this community and offer “best practices” to grow, change and develop healthy families and communities.

Daily, the fruits of our labor become the cornerstone of a dynamic thriving community utilizing new techniques in agriculture production and responding to home gardeners with least invasive methods to solve problems.

Our nutrition program staff recruit teachers in schools throughout the county to supplement their teaching curriculum with nutrition and healthy food focused teaching plans. The 4-H Youth Development program engages youth in a learn-by-doing approach with volunteer leaders serving as teachers.

Engaging individuals, organizations, leaders and institutions as partners in reaching out and developing research and education opportunities demonstrates teamwork and offers efficiency and value as we collectively serve our Fresno County community.

## RESEARCH-BASED TOMATO SPOTTED WILT VIRUS MANAGEMENT STRATEGIES IMPLEMENTED



**Thomas Turini** conducted experiments over three years to help producers control tomato spotted wilt on processing tomatoes. Tomato spotted wilt can cause substantial yield loss. It is transmitted by an insect that is difficult to control and it is likely that one tactic alone will not effectively control this disease. Information regarding relative susceptibility of varieties to this disease and in-field management of the insect that transmits this virus (thrips) has been generated and provided to clientele. The influence of control programs on the incidence of the virus in the field as well as analysis of yield and quality in processing tomatoes over two years of field trials on this subject have also been shared. This information has been used by consultants to develop and evaluate their management programs resulting in fewer applications of insecticides that are ineffective against the thrips target. In addition, they now can consider relative susceptibility of processing tomato varieties when making thrips management program decisions.

## FEED MANAGEMENT PRACTICES IMPACT THE ENVIRONMENT

Dairy farms are under increasing pressure to reduce manure nutrient excretions and nutrient accumulation on agricultural land in order to meet environmental regulations. One strategy for achieving this is to feed dairy animals nutrient requirements which match milk production. **Gerald Higginbotham** is currently assisting dairy producers in the implementation of feeding practices which can enhance the profitability of the dairy and as well as minimize the excretion of excess nutrients such as nitrogen which can pollute the environment. On one 1200 cow dairy, Higginbotham was able to lower the amount of protein being fed to the herd and still maintain a high level of milk production. The change in this feeding practice resulted in a daily savings of \$.30 per cow for a total savings of approximately \$11,000 per month.



## CALIFORNIA SAFE RAISIN PRODUCTION DOCUMENTED



**Stephen Vasquez** has teamed up with USDA-ARS Scientist Jeffery Palumbo to explore if San Joaquin Valley vineyards harbor fungi that produce ochratoxins; a known carcinogen. For the past 5-6 years, Asian and European countries have been testing for the presence of ochratoxins in grape products: fresh grapes, raisins, juice and wine. Commonly found in Mediterranean and South American grape growing regions, *Aspergillus* species, fungi that produce ochratoxin-A have been identified in California's vineyards. Vasquez focused on raisins since the industry is changing from tray-dried to dried-on-the-vine (DOV) production. The difference in the two production systems is a cooler, higher humidity environment found in DOV vineyards, which is conducive to fungal

growth. Raisins were collected from DOV vineyards prior to processing and sent to Palumbo for fungal morphological and DNA analysis. Results showed that in unprocessed raisins, ochratoxin can be isolated at levels well below the threshold set by raisin importing countries. It is expected that raisins processed by California raisin packers would further decrease the amount of detectable ochratoxin. Raisin grape growers are confident that their product is safe and meets the ochratoxin test levels set by Asian and EU countries.

## FAMILIES IMPROVE NUTRITION AND BUDGET PRACTICES



Obesity and chronic diseases have been linked to poverty, lack of physical activity, and poor food habits. Using interactive teaching methods combined with setting individual and family goals, **Sua Vang** joined other Fresno Expanded Food and Nutrition Education Program (EFNEP) staff to teach 402 adults, who were at or below the 50% federal poverty level. Almost half (43%) had less than a 12th grade education and half lived outside Fresno County's central city of Fresno. Eight lessons were taught in community group settings or through home-based classes in English, Spanish, and/or Hmong. Lessons focused on skills to plan tasty, cost effective, and nutritious meals by shopping effectively and utilizing healthier food options. Physical activity and food demonstrations were included in each lesson. Pre-post testing showed positive behavior changes. Of the 402 adult program graduates, 93%

showed improvement in at least one nutrition practice and 87% showed improvement in at least one food budgeting practice. Specific improvements include:

- 54% stopped adding salt to their foods, a step highly encouraged by the American Heart Association as sodium has been linked to health issues including high blood pressure, stroke, heart attacks and kidney disease.
- 38% improved portion control when eating out; 51% reduced fat intake by consuming reduced fat milk and leaner meats; and 52% increased physical activity, all factors linked to obesity, heart disease, type II diabetes, and many cancers.
- 55% increased vegetable variety and 51% increased fruit variety intake, key nutrition impact indicators in disease prevention due to being high in fiber and nutrients while low in calories.
- 70% read food labels to make purchasing decisions, a key skill for selecting healthier food options.
- A \$13 food expenditure improvement (average per person per month), freed up funds for other family necessities and families still made a positive change by consuming healthy options from the basic food groups (81%). Many people thought it was too expensive to eat healthy.

## TASTE TESTING: A FUN WAY FOR STUDENTS TO TRY NEW FOODS



Introducing fruit and home-cooked vegetables at an early age fosters development of food preferences and has been linked to self-efficacy and consumption patterns in school-aged children. Connie Schneider, co-leads a team developing an evaluation tool for taste testing activities in low income youth. **Lynette Brewer**, as part of the Fresno Youth Food Stamp Nutrition Education Program (FSNEP), piloted the tool. UC-FSNEP implemented the tool statewide this year. A variety of produce, fruit, milk products, and whole grain products have been taste-tested. Less than half the students had ever tried the foods before, however over 78 percent were willing to try the foods again at school. Willingness to try the food again at school was higher than willingness to try or ask for the foods at home. Taste

testing materials, a UC curricula lesson activity sheet, and a parent newsletter with recipes are delivered monthly to over 800 Fresno classrooms. Titled, *Time Out for Healthy Families*, students and teachers look forward to tasting foods with fun ways to learn about nutrition. Response rate to the taste testing evaluations was great, 581 teachers representing 11,311 students provided feedback with comments. The strongest trend of teacher comments focused on the tasting process. Nearly half (47%) of teachers emphasized students had a positive experience using key words such as "good," "liked," "enjoyed," and "eager to try more." Teachers also reported that students wanted to teach their parents how to make some of the foods at home.

## PEOPLE EAT FOOD, NOT NUTRITION

**Connie Schneider** has been working with research colleagues and the media to translate the science of nutrition into enticing foods for adults and children. To assist families with portion control, research has focused on the cultural foods families enjoy, developing tasty, but healthier options, and photographing adult and child portions. Feedback has been extremely positive from both educators and low-income families. Involving consumers in developing nutrition tools is critical, especially when promoting foods for low-income, culturally-based audiences. Food combinations appealing to researchers may not be realistic for working families. Simple tools focusing on the food, not the nutrition, helps consumers with achieving the nutritional health benefits, without being bogged down by scientific details. Schneider also integrates the latest research into fun food friendly options for KVPT's popular show, *0 to 5 in 30 Minutes!* This past year marks her third season with Central Valley PBS where she co-produced 11, 2.5 minute nutrition segments. Each show is repeated twice and shown again in off-season reruns, reaching over 308,000 viewers per year.



## SUSTAINABLE GARDENING PRACTICES BECOME PROGRAM FOCUS



Twenty two UC Master Gardeners from Fresno County along with **Janet Cangemi** attended Sustainable Landscape 'Train the Trainer' full-day sessions conducted throughout California. The information and training tools they received prepared them to encourage behavioral change in UC Master Gardeners and Fresno County clientele. Fifty UC Master Gardener peers were then trained on topics including how to effect behavioral change; soils and landfills; water conservation and quality; plants and wildlife; integrated pest management and energy conservation as these topics relate to gardening practices that ensure minimal impact on the environment. A direct benefit of this intense training has been to local clientele through presentations to gardening groups, adult education classes at the Garden of the Sun in English and Spanish, Helpline phone desk contacts, plant clinics staged at local venues including Kaiser Permanente Farmer's

Market, Clovis Botanical Garden and Organic Stone Fruit Jubilee. Learning tools were incorporated into activities, library presentations and school programs which were geared toward youth. In addition, radio and television spots and a weekly newspaper column were perfect venues for sharing sustainable gardening suggestions.

## IRON CHEF ACTIVITY BUILDS IMPORTANT LIFE SKILLS



The Fresno County 4-H Program has been sponsoring a baking and decorating skills event for many years. **Melanie Curtis** wanted to expand the appeal and improve the educational value of Festive Fair and designed a new activity for the 2010 event. Fresno County 4-H members now compete in an "Iron Chef" style competition. Members form teams of two to four members and work with an adult who supervises their efforts. Each team provides their own gas grill, grilling equipment, condiments, sauces, and other items. Prior to the competition, each team must work together to decide who will bring the needed supplies and equipment. They must select a number of recipes they may use and practice working as a team. The morning of the competition they are presented with a secret ingredient and must decide in a matter of minutes which recipe they will use and what each team member will do to assist with preparation. They have two hours to turn raw ingredients into a gourmet meal. The youth who participate in the competition learn to integrate their skills and interest in food preparation with skills such as leadership, teamwork and communication to successfully execute their goals.

## EVALUATING HERBICIDES IN BLACKEYE BEANS MAY SAVE SUBSTANTIAL EXPENSES



**Kurt Hembree** conducted field trials to look at herbicides and application methods for controlling weeds in blackeye beans. Weed control is necessary in blackeyes to preserve yield and bean quality. However, since so few herbicides are registered in this crop in California, growers must have their fields hand-weeded, increasing the cost of production by at least \$200/acre. In 2010 field trials, some herbicides tested provided economical control of weeds, but caused damage to the bean plants. When spray shields were used to help keep the herbicides off the crop foliage, crop injury was minimal and yields were excellent. If some of the herbicides tested become registered in California, it would help eliminate the necessity for hand-weeding in most fields and save growers at least \$150/acre or about \$1.2 million annually.

## SUBSURFACE DRIP IRRIGATION MITIGATES DROUGHT IMPACT

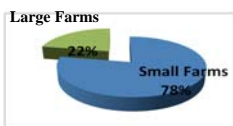
The drought of 2009 was particularly hard felt by growers in western Fresno County who experienced an unprecedented 10% allocation in water allotments in several key water districts. While growers responded by cutting back acreage, there has also been a ground swelling of new growers turning to subsurface drip irrigation (SDI) to mitigate the drought's impacts. Because of the more complex problems that are common to subsurface drip irrigation, additional research and education has been needed directed at new and existing users of this technology. UCCE responded by organizing irrigation industry leaders and growers in a subsurface drip irrigation workshop. Critical issues were addressed at the meeting including:



- Research information related to the chemistry of irrigation waters and methods to improve water chemistry.
- Discussion of drip emitter plugging and detailed approaches to minimize or eliminate one of the most common problems found in SDI systems.
- Key SDI design elements that enhance the system's capacity to deliver water uniformly and efficiently.
- Safe and effective fertilizer and chemical injection.

**Dan Munk** also addressed drip tape emitter plugging issues caused by root intrusion. Growers and irrigation industry participants documented a major improvement in their understanding of SDI management with 90% of growers feeling more confident in understanding the causes of poor SDI performance and 82% indicating they would be making some changes in their system management and maintenance methods.

## WHAT IS A FRESNO COUNTY SMALL FAMILY FARM?



According to USDA, a small family farm is one that grosses less than \$250,000. A family farm can gross more than \$250,000 but it would be considered a large farm, and there are a number of those in Fresno. But over 75% of all the farms in Fresno County fall into the small farm classification. Fresno County has 6,081 farms and 3,730 of them farm fewer than 50 acres. Many farms have a small 10'x 12' wooden structure (shed) with

some equipment and boxes. Most of these are Hmong, Lao, or Mien farmers. Approximately 1,300 of all the growers in Fresno are SE Asian farmers. Almost all of the strawberry stand growers are Hmong or Mien and all but one are from Laos.

These farmers experience problems just like the large farms; the main issue being "marketing". Prices fluctuate throughout the year. If a farmer happens to capitalize on a good price, that might carry them through the year or for a couple of years. **Richard Molinar and Michael Yang** are working with farmers to find possible new markets. They are sometimes able to get farmers into an especially good farmers market in Los Angeles or the Bay Area where they can make \$1,500-3,000 in a single day. They are currently working with a group of Hmong farmers and another aggregator (wholesaler) to open up sales to Whole Foods and some of the school districts in Fresno. And to increase roadside sales at farm stands this UCCE team has been arranging to put 26 strawberry growers in the county on the fruit trails map produced by the County Office of Tourism.



# Fresno County Profile

## University of California Cooperative Extension Fresno County

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### Academic Advisors

Jeanette Sutherlin, MS, County Director	Dan Munk, MS, Farm Advisor – Water, Soils, Cotton
Kurt Hembree, MS, Farm Advisor – Vegetation Management	Connie Schneider, PhD, RD – Nutrition, Family, and Consumer Sciences Advisor
Gerald Higginbotham, PhD, Farm Advisor – Dairy	Thomas Turini, MS, Farm Advisor – Vegetable Crops, Melons
Richard Molinar, MS, Farm Advisor – Family Farms, Specialty Crops	Stephen Vasquez, MS, Farm Advisor – Viticulture
Shannon Mueller, PhD, Farm Advisor – Agronomy	

### Contract, Grant, & Gift Funded Program Staff

Marta Acosta	Jeanette Lopez	Nath Say
Kristi Bernal	Nora Lopez	Stephanie Sharp
Sharon Blakely	Yolanda Lopez	Pauline Smoke
Sara Bosse	Karina Macias	Traci Tucker
Lynette Brewer	Rob Martin	Sua Vang
Alisha Byrd	Shelby MacNab	Elizabeth Villalobos
Janet Cangemi	Sandra Ortega	Jon Wroble
Nellie Carillo-Carlos	Lily Phanthachack	Michael Yang
Melanie Curtis	Devon Rodriguez	Angelita Zaragoza
Carlos Holquin	Anita Ruiz	Nancy Zumkeller

### County Administrative and Support Staff

Terri Gonzalez Yolanda Murillo Karen Nephew

### Volunteers

250 4-H Youth Development Adult Leaders  
240 Master Gardeners

Fresno County is one of the largest, fastest growing, and most diverse counties in California. With a population of 915,267 Fresno County is the state's 10<sup>th</sup> largest county. The largest city, Fresno, with a population of 505,479, remains the state's fifth largest city.

In Fresno County, three in five people are either Hispanic or members of a minority race, such as African American, Asian, American Indian, or Pacific Islander. Fresno County is the state's third most diverse county.



#### Population

2010 - 915,267 (estimate)

#### Diversity

White	35.4%
Hispanic	48.7%
African American	5.8%
Asian/Pacific Islander	8.9%
American Indian	2.0%

#### Facts

Median Household Income	\$43,534
Families in poverty	16.5%
Children in poverty	29.0%
Language other than English	40.8%
Unemployment	11.0%
Youth Unhealthy Weight	33.0%
Adults Overweight/Obese	63.6%

#### 2009 Crop

##### Report

Grapes	667.6
Tomatoes	614.7
Poultry	504.5
Almonds	500.9
Cattle/Calves	301.8
Milk	297.7
Nectarines	187.0
Oranges	173.5
Peaches	171.6
Garlic	150.7

#### Dollar Value

(millions)

#### Land Area

Land Area	5963 sq. miles
Land in Farms/Acres	1.6 million
No. of Farms	6,081
Small Family Farms	3,730