

## South Coast Research and Extension Center



lands for research in California's south coastal plain-temperate climatic zone. Current research and extension projects span topics in tree and row crops, nursery and landscape management, and urban and water resources.

Intensive research efforts are focused on fruits and vegetables including avocados, citrus, stone fruits, strawberries, cherimoyas, persimmons, carrots, celery, sugarbeets and tomatoes.

### Water Conservation and Movement in an Urban Setting

The demonstration landscapes at the UC ANR South Coast Research and Extension Center showcase four landscapes with different water use requirements and varying ability to mitigate irrigation and stormwater runoff. The landscapes located at the Center differ by the types of plants grown, irrigation control and delivery, and hardscape permeability. In addition, rainwater harvesting is demonstrated along with structural elements designed to increase infiltration such as gravel pits, slot drains, and underground stormwater infiltration devices. The sites also serve as a location to conduct research on fertilizer and pesticide movement, overall water use of residential landscapes, low impact plant evaluations, alternative pest control tactics to minimize pesticide use, in addition to extending public outreach.

Demonstration Open House events have proved very popular. The most recent event in 2013 was attended by over 650 residents from 70 cities across the state, 40 being within Orange County. The event also exposed visitors to multiple water quality and stormwater messages delivered through direct and indirect interaction with UCCE staff and UCCE Master Gardener volunteers serving as landscape docents and speakers.

Over 3700 items of outreach literature about water conservation were delivered to attendees.

Research conducted by Darren Haver



## Investigating Pharmaceutical Accumulation in Recycled Water

This project is the first research project to capitalize on the availability of recycled water at South Coast REC. Recycled water and spiked irrigation water was used to determine if a variety of common vegetable crops accumulate pharmaceuticals or personal care products (PPCPs).

- Accumulation of these chemicals was monitored in both the plants and soil where these vegetable crops are being grown. Treatments began in late spring 2012 and continued through until harvest. Both warm and cool season crops were tested.
- Nine of 20 PPCPs were detected in edible plant tissues, including caffeine, meprobamate, primidone, DEET, carbamazepine, dilantin, diuron, naproxen, and triclosan. While further research is needed to fully address human health effects, the target PPCPs were detected at concentrations ~4-6 orders of magnitude below a human dose, indicating that health risks may be low.
- This study is key as recycled water use on agricultural crops will become more important to the increasing scarcity of water due to urbanization and/or climate change.

Research conducted by Jay Gan and Jeremy Conkle



Extension activities at the SCREC are important components of sharing and showing the value of the centers as well as educating and informing the public on important agricultural and natural resource issues.



A variety of fruiting trees, including avocado, persimmon, pome and stone fruits, cherimoyas, citrus, figs, pomegranates, and kiwi were planted in an extension

block near the headquarters in order to demonstrate key varieties for homeowners to plant.

Trees were planted by an environmental science class from Costa Mesa High School in early January 2012. Students were assigned two trees to track growth rate of selected buds, trunk caliper, and pest issues. Students collected data on a monthly basis through May.

UCCE Master Gardeners worked with the students to answer questions and assist them in data collection.

Beginning this winter the Home Orchard Extension Block will be utilized as a hands-on training facility for the general public to learn from Master Gardeners on how to care for fruit trees in their backyard. Classes will be held covering such topics as pruning, fruit thinning, pest control utilizing IPM practices, and grafting.

