



# University of California | Agriculture and Natural Resources

## California Institute for Water Resources

Developing solutions to California's water-related challenges

Newsletter | Volume 1, Issue 1 | September 2014

### Welcome

Welcome to the inaugural issue of the newsletter of the California Institute for Water Resources. The mission of the Institute is to integrate California's research, extension, and education programs to develop research-based solutions to water resource challenges. We do this by facilitating collaborative research and outreach across California's academic institutions and with international, federal, state, regional, nonprofit, and campus communities. Our newsletter will highlight innovative water-related work within the UC system and California's academic institutions.

*Doug Parker, Director, California Institute for Water Resources*

### Responding to California Drought

In the midst of historic drought, California's academic institutions serve as a tremendous resource in offering everything from near-term management advice to farmers and ranchers to the innovative work being carried out by researchers on a vast array of issues from drought resistant crops to snow sensors to climate change.

The California academic community has responded quickly with workshops, research, and expertise, and we have developed a new web portal to bring the resources of our universities and colleges to a broad range of communities.

For up-to-the-minute drought resources and expertise, please visit us at [ucanr.edu/drought](http://ucanr.edu/drought) and follow us on Twitter [@ucanrwater](https://twitter.com/ucanrwater).

### Insights: A New Online Water & Drought Seminar Series

Our new online seminar series, supported in part by the California Department of Water Resources, brings timely, relevant expertise on water and drought from around the UC system and beyond directly to interested communities.

At this time, over 30 talks on topics ranging from drought impacts to natural resources to water management in urban areas are available, with new presentations continuing to be added.

Explore the series at: [ucanr.edu/insights](http://ucanr.edu/insights)

*"As California faces its worst drought in decades, water supply and quality for agricultural, urban, and environmental systems has become one of our biggest challenges. UC's California Institute for Water Resources is vital to integrating California's research, extension, and education programs to help mitigate the current problem and develop practical long-term solutions."*

Secretary Karen Ross, California Dept. of Food & Agriculture  
Secretary John Laird, California Natural Resources Agency



2014 nitrogen management training session. Photo by Steve Beckley.

### Project Spotlight: Managing Nitrogen

In 2012, the report "Addressing Nitrate in California's Drinking Water" was released by University of California, Davis researchers after being commissioned by the California State Water Resources Control Board. The researchers reported that one in 10 people living in some of California's most productive agricultural areas is at risk of exposure to harmful levels of nitrate in their drinking water.

One of key findings of the report was that 90 percent of the nitrate leached to groundwater came from agricultural fertilizers and animal manure applied to cropland. The report also noted reducing nitrate in groundwater is possible through improved fertilizer and water management.

As a result of the UC Davis report, in February 2013 the state water board released "Recommendations Addressing Nitrates in Groundwater, Report to the Legislature." One of the key components of those recommendations was the development of a "track and report" system for monitoring nitrogen inputs for agricultural activities.

In response, the California Department of Food and Agriculture's Fertilizer Research and Education Program approached the University of California Agriculture and Natural Resources (UC ANR), which has a long history working on nitrogen issues, to develop a training program helping California's Certified Crop Advisers optimize nitrogen management practices.

The training curriculum has been developed by a core group of UC ANR faculty, specialists, and advisors. The training focuses broadly on nitrogen management, and includes modules on the nitrogen cycle and nitrogen sources in crop production, such as irrigation water. The first set of five trainings were offered in early 2014 in locations around the state, and an additional three are planned for early 2015.

Efficient nitrogen management is a long-term issue for the environment and agriculture in California, and we are working in concert with others to provide solutions.

## New Research Projects

In collaboration with the California Institute for Water Resources, University of California academics provide solutions to address water-related issues in California. The Institute leverages federal investment to focus its attention on the most critical water issues addressing the state and coordinates research and extension efforts to address those issues.

This year, the Institute supported several new projects on a range of timely topics including hydraulic fracturing, alfalfa yields, impacts of drought on salmon, chromium in drinking water, and integrated regional water management.

### Assessing environmental justice impacts and social learning in Integrated Regional Water Management Planning

Throughout California, the lack of safe and affordable water is an every day reality in many disadvantaged communities. This study is assessing how integrated regional water management efforts address the needs of disadvantaged communities. *Co-investigators: Jonathon London, UC Davis & Carolina Balazs, UC Presidential Postdoctoral Research Fellow.* [READ MORE](#)

### Balancing species, ecosystem, and water resource needs during drought

In California, intermittent streams are important breeding habitat for Pacific salmon and trout, but are also vulnerable to reduced flows due to water withdrawals. This study is addressing quantifying flow and habitat needs for these species to improve their management. *Investigator: Stephanie Carlson, UC Berkeley.*

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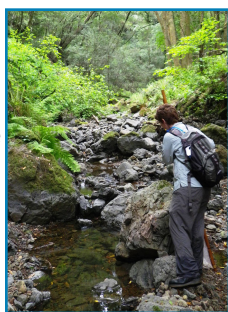


Photo by Mark Bogan

### Improving forage crop water productivity through innovative irrigation management

Improving crop water productivity through irrigation management and drought-resilient tillage and residue management techniques is imperative. This project is comparing irrigation strategies for apportioning limited water to inform and improve future water management strategies. *Investigator: Jeffrey Mitchell, UC Agriculture and Natural Resources.*

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### Minimizing hexavalent chromium in California water systems

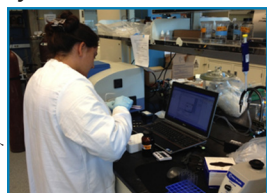


Photo by Haizhou Liu

Chromium(VI), known as hexavalent chromium, is a highly toxic and soluble compound that has been widely observed in groundwater across California. This research will enable the optimal design of treatment strategies and prediction of treatment performance for chromium(VI) removal. *Investigator: Haizhou Liu, UC Riverside.*

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### Regulating the social and environmental costs of hydraulic fracturing in California

Extensive shale resources in California have the potential to provide benefits, but could also cause dramatic changes in water quality and quantity. Through a synthesis review and interviews with key communities, this project will improve understanding of the impacts of shale oil and gas development in California. *Investigator: Brent Haddad, UC Santa Cruz.*

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### Water footprint, productivity, and wine quality of twenty winegrape cultivars under water deficits

Tree and vine crops have high potential for water conservation. This project is exploring drought responses, water footprints, and wine quality under water deficits to increase understanding of water use and fruit quality for specific cultivars, allowing growers to balance irrigation and profitability. *Co-investigators: Larry Williams and Mark Matthews, UC Davis.* [READ MORE](#)

### Water quality and alfalfa yield in the Sacramento-San Joaquin River Delta

Delta farming is challenged by soil salinity, which can stress crops and reduce yields. To prevent harmful accumulation of salts, the soil profile must be leached periodically. This study is aimed at establishing the leaching fraction for alfalfa in the Delta. *Investigator: Michelle Leinfelder-Miles, UC Agriculture and Natural Resources.* [READ MORE](#)



Photo by Terry Prichard

## Honoring Dr. John Letey



We are saddened by the passing of Dr. John Letey, Jr., former director of the UC Water Resources Center and Distinguished Professor of Soil Physics and Soil Physicist Emeritus at UC Riverside, on Sunday, Sept. 14, 2014. He was 81 years old.

In 1959, Dr. Letey joined the UC Los Angeles faculty in the Department of Irrigation and Soil Science. With the phasing out of agriculture at UCLA he joined the Dept. of Soil Science at UC Riverside in 1961 and enjoyed a distinguished career in research, teaching, administration, and service. He served as chair of the Dept. of Soil and Environmental Science from 1975-80, director of the Kearney Foundation of Soil Science from 1980-85, and director of the University of California Water Resources Center from 1999-2003. Dr. Letey was instrumental in establishing the environmental sciences undergraduate major at UC Riverside, which was among the first of its kind.

Dr. Letey received his BS from Colorado State University and his PhD from the University of Illinois. He was a fellow of the Soil Science Society of America, American Society of Agronomy, and the American Association for the Advancement of Science. His research focused on water quantity and quality related to irrigated agriculture, and his work provided both applied and basic information critical to establishing sound water resource management. He authored or co-authored more than 300 technical publications. In 2005, he was awarded the Soil Science Society of America's Distinguished Service Award. In 2007, Dr. Letey published a fictional book titled "The Folly of Fearing Death." In addition, he wrote a biography of his education and career available at: <http://envisci.ucr.edu/downloads/johnleteycareer.pdf>.

Dr. Letey is survived by his wife Sonia; three children: Laura Petersen, Don Letey, and Lisa Smith; 10 grandchildren; and 11 great-grandchildren.

The mission of the California Institute for Water Resources is to integrate California's research, extension, and higher education programs to develop solutions to water resource challenges.

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