

IMPACT

CABES DEAN'S OFFICE • UNIVERSITY OF CALIFORNIA • ONE SHIELDS AVENUE • DAVIS • CA • 95616 • FAX (530) 752-9369

IMPACT is a series of publications highlighting how UC Davis' College of Agricultural and Environmental Sciences makes a difference in the lives of Californians. Through research, teaching, and outreach programs, UC Davis research touches almost all aspects of Californian life. Today, millions of people eat safer foods, breathe cleaner air, and drink healthier water with the help of our researchers. We're making discovery work -- for California and the world.

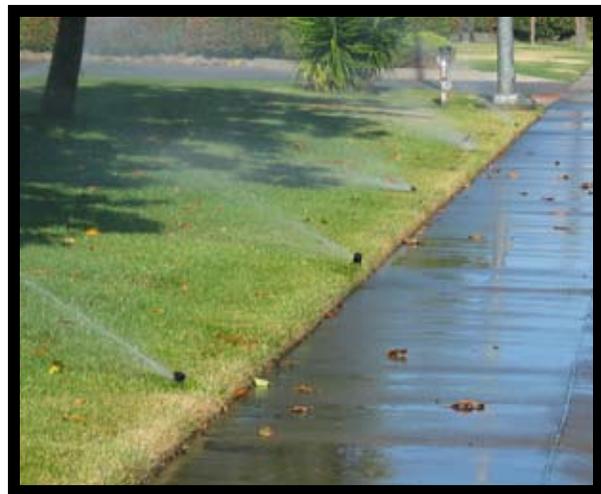
REDUCING LANDSCAPE WATER USE

THE ISSUE

Summer irrigation is essential for most of the urban and suburban landscapes in the warm Mediterranean-climates of California. However, the amount of water used for irrigation often exceeds the amount needed. It is estimated that millions of gallons of excess irrigation water are annually washed down drains that flow directly to levees, rivers, and the ocean. Not only is water being wasted, but the runoff can contain fertilizers, pesticides, and other chemicals that are used in the maintenance of lawns and landscapes.

In order to maximize water use efficiency, it is helpful to select plants that are appropriate for designated areas. Drought-tolerant plants that do not need great amounts of water in the summer should be placed in warm, sunny areas. Similarly, plants should be grouped by their water needs. Plants that need to be irrigated more than once a week should be placed in shady areas, while plants that need less irrigation can be placed in less-sheltered areas.

Through research designed to help with proper selection of landscape plants and the use of proper irrigation practices, homeowners and landscapers should be able to reduce the amount of water applied, while also reducing the amount of potential contaminants in the water runoff.



Loren Oki / UC Davis

WHAT WE'RE DOING

Irrigation management. Researchers in the College of Agricultural and Environmental Sciences at UC Davis are actively developing methods that can significantly reduce the volume of excess irrigation water used. Loren Oki, a landscape specialist in the Department of Plant Sciences, and Darren Haver, a watershed management advisor with Cooperative Extension in Orange County, are working with 14 colleagues, master gardeners, and the State Water Resources Control Board to examine water use and water quality in Sacramento and Orange County neighborhoods.

The goal is to establish home landscape irrigation practices that are practical, reduce water usage, and

reduce contaminant runoff. The researchers are measuring how much water is running off from neighborhoods in test areas. They are then analyzing the water to determine the compounds contained within the samples. The information from these studies will benefit the public, communities, water-management agencies, and conservation groups.

Oki and Haver's study of landscape design and methods to reduce water runoff will be used to establish best management practices for landscape irrigation in California.

Reducing runoff. It is important to prevent runoff by maximizing water use efficiency through proper plant selection and placement, and by maximizing water infiltration through the use of appropriate watering devices and utilization of permeable surfaces throughout lawn and garden areas.

To achieve maximum water infiltration, it is crucial to use proper water control equipment when watering lawns or gardens. Watering plans should be established based on the location of water-demanding and drought-tolerant plants.

Though water may be delivered through various irrigation devices, it is imperative to apply water in adequate but not excessive amounts. Water should not be applied faster than the soil can absorb it. According to Oki, waste water is often runoff that was unable to be absorbed due to oversaturation of the ground.

Another key aspect to maximum infiltration is to use permeable paving materials that promote absorption,

such as permeable concrete, bricks, pavers, stones, cobbles, and turf block rather than watertight concrete and asphalt.

Plant Selection. The use of drought-tolerant plants can reduce the amount of water used. There are several key benefits to using plants that demand less water. The UC Davis Arboretum recently developed an "Arboretum All-Stars" list of 50 drought-tolerant plants that are functional, beautiful, and appropriate for California's Central Valley. Drought-tolerant plants generally require less water and maintenance and are often pest-resistant.

Many of the recommended All-Star plants are on display in the public arboretum on the UC Davis campus. The list of plants, along with photographs and cultural requirements, can be found on the arboretum's Web site: <http://arboretum.ucdavis.edu/AllStar.htm>.

A SHARED VISION

Water is a precious and often costly resource in California. Researchers in the College of Agricultural and Environmental Sciences, in collaboration with statewide Cooperative Extension researchers and state agencies, are working to develop methods to reduce landscape water waste and reduce the potential for chemical contamination of water bodies. All Californians, not just gardeners and landscapers, recognize the need to keep our water plentiful and clean for generations to come.

That's impact – UC Davis researchers working to protect our water resources.

CONTACTS

Lorence Oki, Department of Plant Sciences
(530) 754-4135
Lroki@ucdavis.edu

Daren Haver, UC Cooperative Extension, Orange County
(714) 708-1606
dlhaver@ucdavis.edu

UC Davis Arboretum
(530) 752-4880
arboretum@ucdavis.edu

College of Agricultural and Environmental Sciences

Neal Van Alfen, Dean
(530) 752-1605
nkvanalfen@ucdavis.edu

Kimberly Reynolds, Writer
(530) 752-9328

www.caes.ucdavis.edu

The University of California does not discriminate in any of its policies, procedures, or practices. The university is an affirmative action/equal opportunity employer.