UNIVERSITY OF CALIFORNIA

Agriculture and Natural Resources

Cultivating California

UC Agriculture and Natural Resources delivers healthier food systems, healthier environments and healthier Californians.

From more bountiful berries to safer food to cleaner water, ANR turns science into solutions.

An Engine for Problem Solving

The University of California's Division of Agriculture and Natural Resources is the bridge between local issues and the power of UC research. ANR's advisors, specialists and faculty bring practical, science-based answers to Californians.

ANR works hand in hand with industry to enhance agricultural markets, help the balance of trade, address environmental concerns, protect plant health, and provide farmers with scientifically tested production techniques and Californians with increased food safety.

AT A GLANCE

- 200 locally based Cooperative Extension advisors and specialists
- 57 local offices throughout California
- 130 campus-based Cooperative Extension specialists
- Nine Research and Extension Centers
- Six statewide programs
- 700 academic researchers in 40 departments at three colleges and one professional school:

UC BERKELEY COLLEGE OF NATURAL RESOURCES
UC DAVIS COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES
UC DAVIS SCHOOL OF VETERINARY MEDICINE
UC RIVERSIDE COLLEGE OF NATURAL AND AGRICULTURAL SCIENCES

Against All Odds

Only in California could arid land be converted into the nation's salad bowl. In the late 1800s, UC researchers discovered how to remove salts from the soils of the Central Valley, turning it into one of the world's most productive agricultural regions.

UC researchers continue to play a key role in agriculture today, keeping California the nation's leading agricultural state, from dairies in Tulare to nut farms in Newberry Springs.

Farmers have adopted UC advances in irrigation, planting and pruning to raise almond yields. They have followed UC guidelines to boost broccoli production. They have grown citrus varieties developed at UC Riverside, such as the tangy-sweet Tango mandarin, to meet consumer demands.

AT A GLANCE

- Every $1 invested in agricultural R&D has provided a benefit of $21 to the state, with another $11 in spillover benefits to other states
- California produces nearly half of the nation's fruits, nuts and vegetables
- UC researchers have bred more than 40 citrus varieties

Growing Exports

California agriculture helps feed the world. It's the nation's top exporting state, sending a third of its $37.5 billion in agricultural products abroad.

California's agricultural exports, which support more than 150,000 jobs, are rooted in UC research and extension.

It's shipping almonds and fine wines to Europe. UC Davis trains the state's vintners and certifies more than 95 percent of wine grapevines grown in the state, providing a reliable supply of high-quality vines for California's multibillion-dollar wine industry.

It's putting the strawberries in Canadian smoothies. About 65 percent of the strawberries produced in California (and about 40 percent of the world's strawberries) are from UC Davis-developed varieties.

It's delivering reliable rice to Japan. UC has developed best management practices that help keep California's rice industry competitive. UC Cooperative Extension's award-winning "Rice Quality Handbook" is a standard reference for growers and dryer operators.

Milking a Movement

California leads the nation in milk production and produces 2.2 billion pounds of cheese each year. Artisan and specialty cheeses make up about 11 percent of that market, creating a growing niche reminiscent of premium wines from small family wineries.

Cooperative Extension advisors and specialists nurtured the nascent cheesemaking culture from the start. Working with local producers, they developed a cheesemaking certificate program and published what is now the leading book on building an artisan and farmstead cheese business. Their industry surveys lent credibility to the emerging market and enabled new cheesemakers to secure startup funds.

Today, artisan cheesemaking is a $119 million dollar industry in Marin and Sonoma, and the two counties are home to the second-largest concentration of artisan and farmstead cheesemakers in the country.

“I was in 4-H and fell in love with goats,” says Jennifer Bice, president of Redwood Hill Farm and Creamery, which sells cheese and yogurt. “That love led to the question of what to do with all that milk.”

Advice to Grow By

Almost 6,000 strong and in 45 counties, ANR's UC Master Gardeners are a force of nature.

These trained volunteer-experts use UC research-based information to staff information booths at farmers markets and fairs, support school and community gardens, and present public workshops on topics from pruning to sustainable landscaping. Master Gardeners also work with UC academics to educate Californians on how to use water wisely and identify invasive pests that threaten California agriculture.

In Fresno, the local flood control district turned to the Master Gardeners to develop a community outreach program to reduce urban pesticide runoff into the San Joaquin River. In Oxnard, conservation and community groups asked the Master Gardeners and the 4-H club to create a beachside walking trail and restore native plant habitat at what was once an industrial dumping ground.

From demonstration gardens at corporate sites such as Google to victory gardens in low-income neighborhoods such as Los Angeles' Skid Row, UC's Master Gardeners strengthen communities one garden at a time.

Focus on the Future

UC Davis School of Veterinary Medicine students not only train for their own careers; they also nurture the next generation of veterinarians.

Members of the Veterinary Student Outreach Club design presentations for schools and community-based programs. Each spring the student club sponsors Future Day on the UC Davis campus, using hands-on labs and engaging talks to stimulate youth interest in veterinary medicine.

For the past several years, 4-H members from the greater Sacramento area have attended this event. Future Day is free to participants and provides opportunities for 4-H members to further their knowledge about veterinary and animal science.

It's also another example of the array of activities provided by UC's 4-H youth development program. Along with raising animals, 4-H efforts extend to everything from citizenship to engineering. The California 4-H Science, Engineering and Technology Initiative seeks to improve science literacy and help address the need for more scientists and engineers.

AT A GLANCE

- 4-H serves more than 130,000 California youth
- UC certifies 14,000 adults to work in 4-H programs

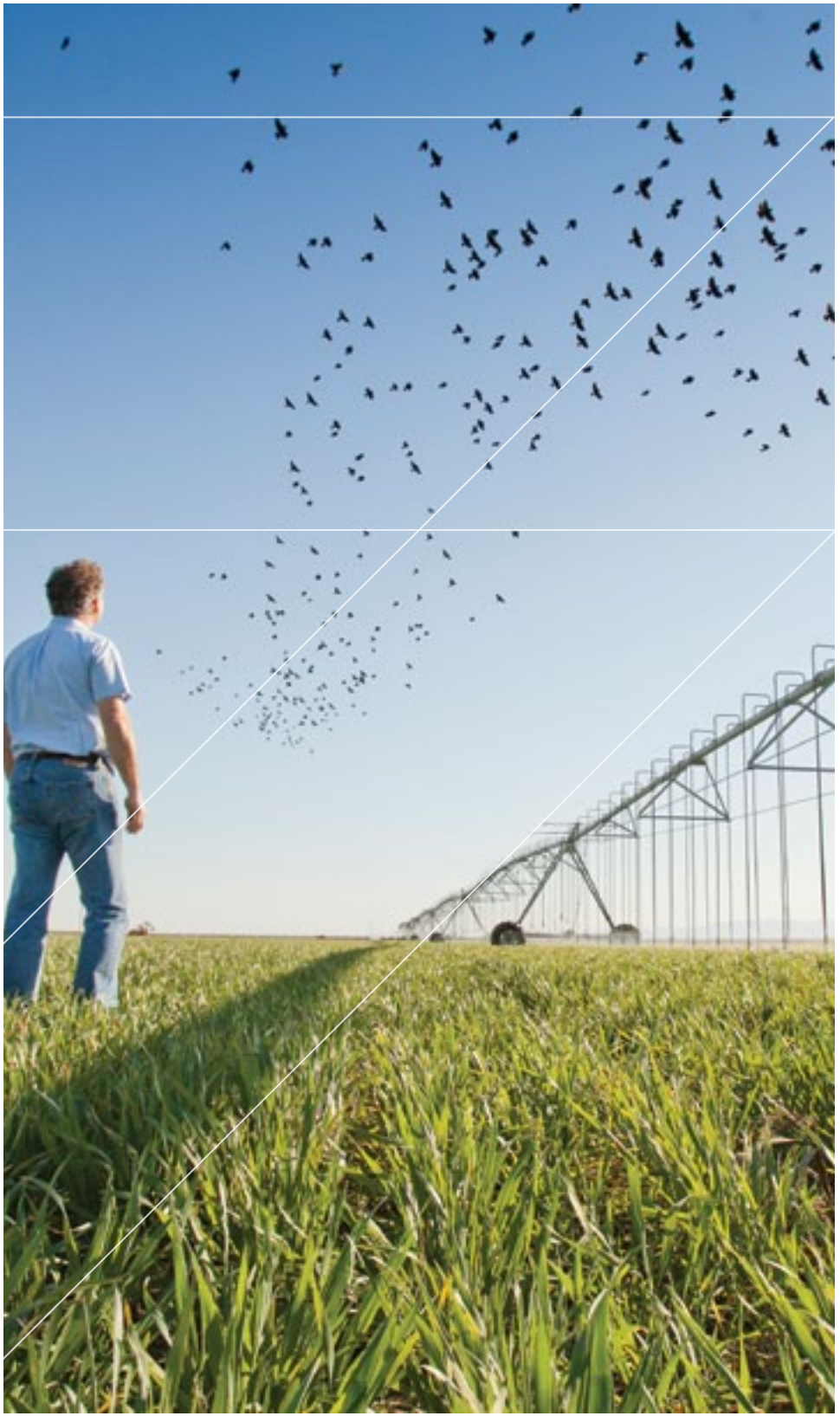
California's Liquid Gold

Water is precious in California. UC ANR helps make every drop count. Researchers work with farmers to irrigate crops more efficiently, collaborate with cities to reduce landscape runoff and ensure that individuals have access to safe drinking water.

On the farm, UC research has helped spread the use of drip and pivot irrigation, and promoted monitoring and management techniques that minimize water use. California growers annually save an estimated $65 million and cut water use by about 100,000 acre-feet thanks to CIMIS, a network of computerized weather stations developed by the state Department of Water Resources and UC Davis.

In cities, UC found that low-cost modifications can reduce urban landscape runoff by nearly two-thirds. UC Master Gardeners are now educating homeowners on these smart methods of using water.

Meanwhile, UC's Integrated Pest Management program offers information to help growers and homeowners reduce their pesticide use, keeping California's waterways cleaner.



First Line of Defense

In the early 1990s, an invasive insect pest carrying Pierce's disease, a deadly disease of grapevines, raised panic and drained $30 million out of California's multibillion-dollar winegrape industry. ANR's research and local education—aided by state and federal funding—helped stop the insect in its tracks. The fight goes on with scientists from Cooperative Extension and the UC Berkeley, UC Davis and UC Riverside campuses making strides in innovative and cost-effective ways to tackle the insect and the disease.

UC research has helped control other aggressive pests such as avocado lace bug, pink bollworm and vine mealybug.

Now ANR scientists have the Asian citrus psyllid—an invasive pest threatening California's $1.1 billion citrus industry—in their sights. UC Riverside scientists are releasing a natural enemy of the pest in trial areas, bringing the promise of less-toxic methods of control.

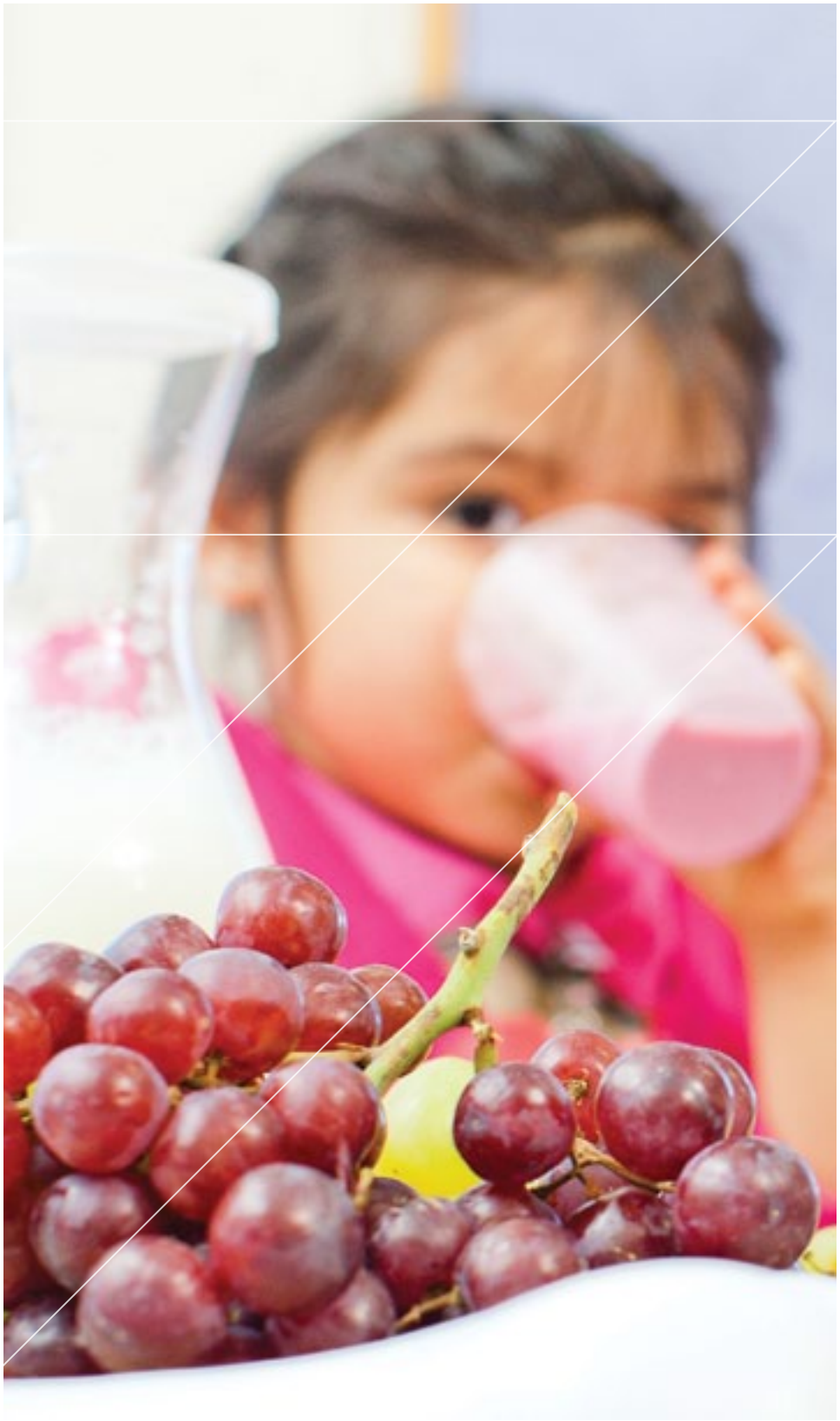
ANR's pioneering Integrated Pest Management program has brought research, education and training to growers and pest management professionals since 1979. Through UC's leadership in the IPM approach, California growers can keep their eyes on the long-term benefits of a healthy environment without sacrificing production.

Nutritional Know-How

UC's nutrition education efforts help families make healthy food choices, stretch food dollars and increase consumption of California's agricultural products. UC's CalFresh program provides nutrition education to 140,000 Californians a year, using a family-centered strategy to promote long-term changes in behavior.

Meanwhile, UC Berkeley's Atkins Center for Weight and Health is a visionary force in exploring solutions to the childhood obesity epidemic. UC Berkeley and Cooperative Extension researchers are working collaboratively on the health crisis that affects 1 in 3 California children.

"We need to bring together people in all areas of society," said center Director Patricia Crawford. "People working in parks and recreation departments, city planning, our transportation system, heath care, the food and beverage industries, law enforcement, the public health arena and education must realize they can all have a role in reducing obesity."



Sustaining Small Farmers

Across the state, UC Cooperative Extension advisors work with small farmers to increase productivity, practice sustainability and enhance economic viability through direct marketing and agritourism ventures.

Fresno County has the second largest concentration of Hmong in the United States. Many are small farmers who find their traditional practices are not applicable in California, and their limited English language skills a challenge at grower meetings.

To answer that need, Cooperative Extension advisor Richard Molinar and Hmong-speaking field assistant Michael Yang launched a 30-minute biweekly broadcast on a local Hmong radio station. The program presents farming topics including UC-developed pesticide safety and crop production practices. Listeners from Bakersfield to Modesto can call in to pose questions to the UC experts.

"This radio show proved to be by far the best method of communicating with Hmong farmers," says Molinar. "The program has been a phenomenal success." Now in its 14th year, the program continues to bring UC research and advice to the community.

Boots on the Ground

Since the first UC Cooperative Extension office opened in Humboldt County in 1913, UC scientists have been fanning out to communities across California, serving as problem-solvers, catalysts, collaborators, stewards and educators.

These advisors live and work in the communities they serve. To many Californians they are the face of UC—providing expertise, visibility and a keen understanding of local issues. Together with their campus partners, they build the bridge between the people of California and their great university.

"For more than 140 years, UC has provided California farmers the research and new technology they need to compete in global markets," said UC President Mark Yudof. "No matter how daunting the challenges might seem, UC is on the ground in every county—advising, educating and searching for solutions."

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