

CA&ES OUTLOOK

A publication for alumni and friends of the College of Agricultural and Environmental Sciences • UC Davis • Fall 2002



**SHARING KNOWLEDGE
EXPLORING THE AGRICULTURAL EXPERIMENT STATION**

CA&ES OUTLOOK

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CA&ES Outlook
is a publication of the
**College of Agricultural and
Environmental Sciences**

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This publication is funded
partially through gifts from the
J.G. Boswell Foundation.

Printed on recycled paper

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Message from the Dean

By Neal Van Alfen

UC Davis is a land grant university. While most think of the uniqueness of land grant universities as being based primarily in history, there is real meaning to the term even today when many describe such universities as belonging to "Division I," "Carnegie Research Category I" or the American Association of Universities.

Land grant universities were based on the populist concept of the mid-1800s of serving the needs of the average citizen in our country. The classics and a few of the sciences formed the basis of most university curricula of the time. Medicine, law, engineering, human sciences, environmental sciences and agriculture were not part of the course work at major universities.

Congress made its first venture into education with the Morrill Acts of 1862 and 1872. This legislation created land grant universities, first with grants of land, and, in the latter act, with direct annual payments. The purpose of these universities was to provide a useful and practical education for citizens in the areas of agriculture and mechanics.

Clearly, the University of California has grown to be much more than this, but it remains our heritage, and we retain the responsibility to make our education, research and outreach programs relevant to the needs of California's citizens.

To reinforce the concept of meeting local needs through research, Congress in 1887 adopted the Hatch Act to create Agricultural Experiment Stations in each state. Most of these experiment stations were incorporated into land grant universities, as was done through the establishment of the California Agricultural Experiment Station (AES) under the administration of the University of California.

The AES remains one of the most important research activities of

the UC system, with AES faculty on three of the UC campuses and research facilities throughout the state. As you will learn in this issue of *CA&ES Outlook*, the AES serves much more than just California's agricultural community today.

The scope of the AES can be understood best by considering California's natural resources as an entity, rather than broken into the categories of urban lands, agricultural lands, forests, rangelands, fisheries and wild lands (if such a category exists). To address the future challenges of California, we must think of our natural resources as a unified system from which we must extract our food and beverages, our employment, our recreation, our sense of contentment and our living space -- while reserving the same for other living organisms.

It is a daunting task and quite different from the challenge of taming the wilderness that was our ethos just a generation ago. We no longer live in isolation in a largely wild land, as was the case when the AES was established in 1887. The issues we address are different today, but the dedication to California's citizens remains the same.

AES scientists are UC Davis faculty who teach in the College of Agricultural and Environmental Sciences, the School of Veterinary Medicine and the Division of Biological Sciences. Most faculty members of these academic units hold joint appointments between the AES and the instructional and research (I&R) component of the University of California. Within the CA&ES, the typical faculty member has about 60 percent of his/her appointment with the AES and 40 percent from I&R. Thus, our faculty face the challenge of keeping at least two different groups satisfied -- one interested in mission-oriented research, and the other interested in instruction and research that does not need to be mission-oriented.

It is a challenge for our faculty, yet it is clear that they have learned how to excel in this environment. Our departments are continually ranked among the best worldwide in their fields.

Since 1887, California benefited greatly from the investment made in the California Agricultural Experiment Station. As we embark on a new era of science and technology shaping the world, the station will play a vital role in exploring our knowledge frontiers and serving the people of the Golden State.



Neal K. Van Alfen
(Ph.D., '72, Plant Pathology)
Dean, College of
Agricultural and
Environmental
Sciences



Sharing Knowledge: Exploring the Agricultural Experiment Station

By Clifton B. Parker

It's hard to put a dollar sign on millions of people eating safer and more nutritious foods, breathing cleaner air and drinking healthier water.

That's impact -- and the kind of research emanating from California's Agricultural Experiment Station (AES) at UC Davis. Thanks to these scientific discoveries, UC Davis ranks among the world's most productive research universities in the agricultural and environmental sciences.

For the past century, the station -- along with the UC system -- has been the driving force behind California's large agricultural economy and environmental leadership.

In the age of microchips and genetic coding, experiment station research is more than just about farming. It also focuses on the environment as well as human and community development. From 4-H youth groups to protecting Lake Tahoe and feeding infants nutritious breast milk, experiment station-funded research has improved the quality of life on many different fronts.

Despite its performance, the Agricultural Experiment Station is at a crossroads. Recent state budget cut-backs threaten its significant research role at UC Davis' College of Agricultural and Environmental Sciences. In difficult budget times, university research is sometimes among the first items cut -- mostly because the value of such research is not fully understood.

Maybe it's time to learn more about the Agricultural Experiment Station.

Caring for California

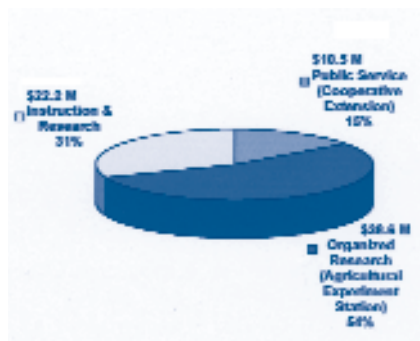
Creative inquiry and scholarly achievement define the Agricultural Experiment Station as it adapts to a new century of understanding and challenges.

The experiment station is part of a multi-campus state-funded UC research program consisting of more than 750 scientists and 1,300 research

projects at UC Davis, UC Riverside and UC Berkeley.

In the College of Agricultural and Environmental Sciences, 316 of 400 faculty receive research support through the experiment station -- almost double the number at Riverside and Berkeley combined -- with much smaller numbers in UC Davis' School of Veterinary Medicine and the Division of Biological Sciences.

The Agricultural Experiment Station represents 55 percent of the college's state-funded budget. That's why the state budget reductions to the station are cause for concern in the College of Agricultural and Environmental Sciences.



Who benefits from the Agricultural Experiment Station? The short answer is that all Californians benefit.

"Science-based knowledge is vital to making intelligent decisions about the state's agricultural, natural and human resources," said Neal Van Alfen, CA&ES dean.

It's not just farm operators who benefit, but farm workers, mill workers, food processors, produce brokers, truck drivers, marketing companies, farm equipment suppliers and every butcher, baker and grocery store clerk whose livelihood depends on agriculture.

California's \$27 billion agricultural industry is the largest in the nation and supports more than 1 million jobs in the state (more than 7 percent of all jobs in California), according to the UC Agricultural Issues Center. Studies

conclude that more than half of the state's agricultural growth during the last 30 to 40 years is directly attributable to UC's agricultural research and outreach.

Then there's the environment. As California's population continues to grow, pressure on the state's natural resources -- including its coastal areas, wildlife habitats and watersheds -- is increasing. Understanding how to protect these areas for future generations is one of the goals of environmental research conducted through the AES.

Covering research at the experiment station is like fishing in the Mediterranean: Drop a net anywhere and you're bound to come up with something interesting.

Our scientists in the Agricultural Experiment Station conduct research on how to:

- Control animal diseases
- Develop new varieties of fruit and vegetable crops
- Conserve soil, water and other natural resources
- Develop environmentally sound policies
- Reduce the use of pesticides and herbicides when alternatives work better
- Protect the productivity of California farmers and growers
- Eliminate damaging pests such as the glassy-winged sharpshooter
- Assure the safety and health of our food supply
- Provide human and community development opportunities, and more



The outcomes of this research include an abundance of high-quality

food at a relatively low cost, more efficient and reliable production of agricultural commodities, reductions in the use of chemical pesticides, greater protection of California's wild areas, and the generation of sound objective information for use by policy makers who must deal with complex issues relating to agriculture and natural resources.

Station-funded researchers are studying how to keep California business competitive in the face of China's admission to the World Trade Organization; safely manage dairy waste; enhance farm-worker housing; improve Bay-Delta water quality; save the state's salmon and trout; and understand how the state's groundwater is being contaminated. And that's just the tip of the iceberg.

Funded by the experiment station, UC Davis researchers have revolution-

ized the sugar beet, tomato and strawberry industries by developing mechanical harvesters and improved varieties.

AES-supported scientists at UC Davis have long recognized the negative impact that pesticides and other toxic chemicals might have on our health and environment.

Today, the Integrated Pest Management (IPM) center serves as a source of needed research funds for scientists interested in studying pest control without pesticides, understanding the ecology of pests in their environment, and developing practical solutions to pest problems. IPM offers bilingual pesticide safety education workshops and training materials for pesticide applicators and handlers, farm workers and health care professionals.

With the help of experiment station funding, UC Davis scientists have

worked to reduce air pollution through the phasing out of rice straw burning and decrease the use of methyl bromide because studies have shown that the pesticide contributes to the destruction of the Earth's ozone layer. UC Davis researchers are developing alternatives to methyl bromide that are both scientifically and economically viable.

And now, with the USDA cutting back on its honeybee research programs, UC Davis entomology faculty are positioning the university as a leader in the management of honey bees and wild bees, honeybee biology, and the evolutionary and behavioral genetics of honeybees.

UC Davis' Tahoe Research Group has played a major role in the banning of dumped sewage into the lake, stricter building controls, installation of major erosion-control projects,



establishment of water-quality thresholds and better pollution control.

Researchers have examined plant-growth nutrients for their role in eroding the lake's clarity, begun developing a water-quality model for Lake Tahoe and documented a serious decline in dissolved oxygen in the lake, another indicator that restoration must begin in earnest.

Several years ago, UC Davis research supported the elimination of highly polluting two-stroke boat engines in Lake Tahoe. Summertime recreational boating was found to be the primary source of MTBE in the lake's water. The banning of such engines -- the Tahoe Regional Planning Agency imposed the ban in 1999 -- has reduced both MTBE and toluene concentrations in the Sierra Nevada lake by 90 percent or more.

From farm fields to alpine lakes, the Agricultural Experiment Station harnesses the intellectual resources of UC scientists and staff to solve problems of importance to the state and its citizens. Research subject matter and the scope of AES projects are as diverse as California landscape itself.

But without funding -- and collaboration and commitment -- problems do not get solved.

The Agricultural Experiment Station was created with a research mission aimed at making agriculture more productive.

"Science requires many resources," Van Alfen said, "such as laboratories, equipment, land, plants and animals. But all those things are unnecessary unless they are backed by dedicated people willing to apply creative, intelligent minds to the myriad problems and questions faced by society. These people are key to the many successes

of the Agricultural Experiment Station today and to the continued success of agriculture and society into the future."

The AES maintains research facilities and field areas throughout the state and sponsors a number of systemwide programs, including the Giannini Foundation of Agricultural Economics, the Wildland Resources Center, the Mosquito Control Research Program, the Kearney Foundation of Soil Science, the Integrated Pest Management Project, and the Slosson Endowment Fund for the advancement of horticulture.

Now for the history lesson.

The Mission

In 1862, President Abraham Lincoln and Congress established the land grant college system to fill a need for education in agriculture and mechanics. Twenty-five years later, the Agricultural Experiment Station was created with a research mission aimed at making agriculture more productive. Each state received an Agricultural Experiment Station as part of a national strategy to expand America's agricultural productivity and make this country a breadbasket unto itself and others around the world.

UC Davis' roots extend almost as far back as the Agricultural Experiment Station's.

In 1908, the Ford Motor Company produced the Model T, movie makers set up shop in California at a place called Hollywood, "Sunkist" was adopted as a trademark for a brand of oranges, and with far less fanfare and a greater life expectancy than the Model T, the University Farm in Davis opened its doors to students from the first UC campus in Berkeley who learned the latest in agricultural methods.

At the time, the 800-acre Davis campus was flat and dry, surrounded by orchards, oak-bordered farms and about 25 country homes. As writer Ann F. Scheuring recounts, "During seasons of damp tule fog or blazing heat, the entire site could seem fairly bleak, devoid of attractive scenery or convenient access to social and cultural opportunities."

AES RESEARCH CENTERS

A number of UC Davis research centers are supported by AES funding. Six receiving most of their funds from AES include:

The Agricultural Issues Center

Analyzes issues important to California and Western agriculture and conducts applied research.

aic.ucdavis.edu

Center for Cooperatives

Dedicated to education, research and development assistance to meet the needs of cooperatives, their members and the public.

cooperatives.ucdavis.edu

The Genetic Resources Conservation Program

Researches California's biological diversity and the conservation of the native flora and fauna, collections of germplasm amassed for agricultural, medicinal and industrial uses, and collections of genetic stocks, tissues, cells and DNA developed for teaching and research purposes.

grcp.ucdavis.edu

Integrated Pest Management

Reduces pesticide usage through more effective and environmentally friendly pest control techniques.

ipm.ucdavis.edu

Mosquito Research Program

Conducts research to provide improved methods of managing pest and disease-transmitting mosquitoes.

Salinity and Drainage Program

Organizes with state agencies on research to lessen the harmful impacts of salinity, drainage, selenium and other toxic elements in the San Joaquin Valley.

Sustainable Agriculture Research and Education Program

Researches methods of sustainable agriculture, which are ecologically sound, economically viable, socially just and humane.

sarep.ucdavis.edu

What a difference a few decades make. By mid-20th century, UC Davis had distinguished itself as a top agricultural school, and California was well on the way to leading the nation in agricultural production, which it has done since 1948.

Along the way, the College of Agricultural and Environmental Sciences put UC Davis on the higher education map, even as the university broadened its course offerings to that of a comprehensive research institution.

Now, more than ever, scientists in the experiment station reach across disciplines to solve research problems -- a top priority in the College of Agricultural and Environmental Sciences.

Ours is truly an interdisciplinary age in higher education.

Cultivating Collaboration

Agriculture changes as the world changes. The entire earth -- land, ocean, atmosphere and biosphere -- is a dynamic and interactive system. The parts of the system have been studied; but, when we are dealing with acid rain, the red tide, forest growth, groundwater contamination, the depletion of stratospheric ozone or the greenhouse effect, the interconnected nature of earth, water and air demands a more comprehensive approach than has yet been attempted.

**Don't let all the dirt
 make you think
 that agriculture isn't
 a science.**

“Our faculty members are contributing new ideas and new technologies across a very wide spectrum of disciplines,” notes Van Alfen. “This is the power of a major research university working in conjunction with the Agricultural Experiment Station -- creating an environment where people from many disciplines can work together to solve major problems.”

Still, myths remain to be debunked about agricultural research. For example, what picture comes to your mind when you think of agriculture? Do you see someone in overalls plowing the dirt with an old tractor. Or someone else picking corn in a field?

Instead, try picturing a scientist using a satellite-linked computer program to examine global climate changes. Or a researcher developing a new product that can absorb 1,600 times its own weight in water.

Agriculture is high-tech and intertwined with the environment. Keeping California agriculture productive requires research that is every bit as complex as the space program. Agricultural Experiment Station scientists use satellites to examine fields for

crop damage, map soil conditions, and look for changes in the environment that could affect farming -- or be caused by farming.

And, as the health-care industry moves from an emphasis on treating disease to the broader role of maintaining wellness, agriculture's role in providing safe food and enhanced nutrition grows in significance.

Agricultural Experiment Station scientists may be microbiologists, chemists, veterinarians, engineers, plant pathologists, nutritionists or many other specialties. What they all have in common is that they are working out how to grow crops, raise livestock, produce renewable raw materials for industry and help preserve our environment.

Don't let all the dirt make you think that agriculture isn't a science.

Shaping the Future

The structure of the Agricultural Experiment Station is one of the reasons for its productive track record. It is centralized enough to derive the benefits of UC system leadership and yet decentralized enough to promote flexibility and innovation at the campus level.

The Division of Agriculture and Natural Resources administers the experiment station through the UC Office of the President in Oakland and at the campus level by the deans of the colleges. Within these colleges, most faculty hold joint appointments, part in the experiment station and part in campus teaching positions.

Typically, about two-thirds of a faculty member's appointment is devoted to research in the experiment station. Each faculty appointment in the College of Agricultural and Environmental Sciences includes a 25 percent teaching and instruction component in addition to the AES component. The idea is that the best researchers make the best teachers, and UC Davis prides itself on this intrinsic connection between research and teaching. Faculty also have an “outreach” component in their AES appointments that requires them to distribute research findings to appropriate audiences. This





combination of duties has made AES-funded scientists extremely successful in transferring both basic and applied knowledge to the public.

Faculty members are expected to seek ways to transfer the knowledge they gain to the general public.

“Although Cooperative Extension is our most broadly organized outreach effort,” said Van Alfen, “every faculty member holding an appointment with the Agricultural Experiment Station also is charged with outreach responsibilities.

Those faculty members who do not have Cooperative Extension appointments do have Agricultural Experiment Station appointments. Thus, every faculty member in the college has formal outreach responsibility. Service is an overall philosophy in the university’s mission.”

That’s the mission aspect of AES. In fact, its research mission mirrors the educational programs of the college in the agricultural, environmental and human sciences. Or, as Van Alfen says, it’s a holistic process.

“The process of research educates the researcher who then educates students, the public and other researchers. In turn, feedback from the public, students and other researchers educates the researcher about their needs and priorities, which may result in programmatic improvements,” Van Alfen said.

Supporting this practical-minded research is an annual proposition, especially when government agencies are involved.

Research projects at the Agricultural Experiment Station are funded through a mixture of state, federal and private funds.

“When state-funded research is reduced,” Van Alfen noted, “our college feels the pain more than anywhere else on the UC Davis campus. Yet we will position ourselves to grow once this challenge passes.”

In the wake of Agricultural Experiment Station budget decreases, the college strives to continue to make a difference in the quality of life in California and elsewhere.

A Global Perspective

Scientific research plays a critical role in maintaining global stability. With almost half of the world’s population suffering from some form of malnutrition, agricultural research can alleviate food shortages and related political instability.

“By not spending money on agricultural research related to developing countries, we are costing ourselves a great deal more in resources in the long run,” Van Alfen said.

On environmental and human issues, science is bringing about a profound change in how long human beings live and how well human beings live. Our researchers are leading the way in developing new approaches to foods for health, water, plant and animal growth and the environment.

The Agricultural Experiment Station -- it’s the big picture.

AES RESEARCH HIGHLIGHTS

Air Quality

A particle accelerator developed by Thomas Cahill, professor of atmospheric science, tracks air quality at more than 50 national parks, monuments and wilderness areas. The technology already has helped reduce smog in the Grand Canyon and has been applied in California to measure air quality problems and find solutions to smog in the Lake Tahoe Basin and the Central Valley.

Mechanical Harvester

Researchers have revolutionized the sugar beet, processed tomato and strawberry industries by developing mechanical harvesters and improved crop varieties.

Tomatoes

In 1959, the mechanical tomato harvester was developed at UC Davis. In 1998, researchers developed a commercial tomato yield monitor to make precision agriculture feasible for processing tomatoes. The technology uses satellite technology to identify factors that cause variability in crop yields.

Eliminating Toxins

Scientists contributed research to the state on the health and environmental risks of the gasoline oxygenate known as MTBE. This led to California banning MTBE as a gasoline additive.

Strawberries

Nearly 90 percent of California's strawberries are now planted from UC-developed varieties. Today, research continues with groundbreaking work on soil solarization, a technique that promises to continue the valley's top quality, high yielding strawberry production when a worldwide ban on the fumigant methyl bromide takes effect.

Water Policy

Researchers have worked on state water supply models that meet the needs of agriculture, urban centers and environmental interests. They have introduced policy makers to concepts of market pricing and pollution rights.

Wine and Grapes

More than 95 percent of the grapes grown in the U.S. and many of those grown around the world come from plants originated at UC Davis. Researchers have cultivated phylloxera-resistant plants by using new rootstocks, benefiting growers who decide to replant.

Eliminating Toxic Substances

UC Davis' Superfund Basic Research Program is helping determine the extent of hazardous materials in groundwater, surface water and air. Researchers are exploring new technologies to eliminate these substances and their potential health risks.

Restoring Native Grasslands

The last decade has seen an enormous increase in using native plant species for restoration projects. UC Davis provides critically needed information on whether genetic pollution is a real risk when relocating genetic stocks from their source of origin to different locales within California for use in restoration and re-vegetation.

Plant Disease

UC Davis is developing dozens of ways to combat plant diseases, saving farmers nationwide billions of dollars in crop losses each year, through a biotechnology research center established in 1991. One major discovery spawned a whole new field of molecular biology technology that allows viral diseases to be controlled in plants.

Rice Genomics

Researcher Pamela Ronald discovered a way to genetically alter rice crops -- the food staple for much of the world -- to resist bacterial disease. Her 1995 discovery boosted global rice productivity and decreased chemical use, particularly in Third World nations.

Global Warming

Researchers are examining global warming's anticipated impacts on agriculture, biodiversity, and air and water quality in California in the century ahead. Reviewing the work of the United Nations Intergovernmental Panel on Climate Change, scientists agree the atmospheric concentrations of greenhouse gases and particles are increasing, and that this, in turn, is

leading to global climate change.

World Hunger

Scientists are developing methods of predicting famine and drought at the Global Livestock Collaborative Research Support program. This research aims to boost livestock production in politically and ecologically fragile Third World nations, providing the nutrition crucial to children's survival.

Pest Control

Pioneering work in the fields of entomology and toxicology has led to new methods of pest control in U.S. agriculture. Environmental toxicologist Bruce Hammock is working to discover natural viruses that act as pesticides, find less expensive methods to detect pesticide exposure in human blood and urine, and learn the potential risk to human life from pesticides.

Breast Milk

Professor Kay Dewey is reviewing growth standards for breast-fed babies born in the U.S. Earlier infant growth charts have not reflected the true growth rate for breast-fed babies, leading many doctors to interpret the infants' progress as slow. Dewey's findings will be critical to early medical treatment and diagnosis of infants.

Safer Meat

More than 90 percent of California cattle are raised on a quality assurance program developed at UC Davis, an important fact in the wake of recent outbreaks in Europe of Mad Cow Disease and Foot and Mouth Disease. The quality assurance program for dairies is the first of its kind in the nation and is being used as a model.

Rice Straw Burning

Scientists have found that foraging waterfowl in winter-flooded rice fields helped control weeds and increase the decomposition of rice straw from the previous season's crop. Thus, wildlife and agriculture can co-exist and be mutually beneficial. This makes highly polluting rice straw burning -- soon to be banned -- less necessary.

IN THEIR OWN WORDS



Diane Ullman
Professor
Department of
Entomology

“AES researchers put food on California tables,

keep the food supply abundant and of stellar quality, keep the food safe by finding less toxic methods for killing pests and do all this while working to reduce impacts on the air and water.

Many examples exist of insect and pathogen pests that present a serious threat to the people of California. These pests strike at the heart of the state's economy and can impact jobs, human safety and health as well as people's homes.

AES researchers are at the forefront in developing strategies to deal with these problems and are taking a proactive stance in preparing for future problems.”



Jorge Dubcovsky
Associate
Professor
Department of
Agronomy and
Range Science

“UC's wheat breeding program depends on the existence of the Agricultural Experiment Station. Yield trials for the different environments present in California are conducted there every year and facilitate the selection of germplasm adapted to the specific conditions of those environments.

The Desert Research and Extension Center (DREC) is essential for the Pasta Wheat Breeding Program. The Imperial Valley is the main region for pasta wheat in California. These varieties have extraordinary quality and are requested from buyers from different countries. Without DREC, the Pasta Wheat Breeding Program would not exist.”



Thomas Cahill
Professor
Emeritus
Department of
Land, Air and
Water Resources

“Air quality in California's Central Valley has become a key issue in terms of agriculture's future in the valley. We have only to recall that Los Angeles County was once an agricultural powerhouse in California, and declining air quality was an important factor in its demise. This must not happen here. In my 30 years of studies in valley air quality, my students and I have benefited from the support and resources of the experiment station on numerous occasions and in diverse ways.”



Joseph Cech
Professor
Department of
Wildlife, Fish and
Conservation
Biology

“The Agricultural Experiment Station is important to the people of California because it focuses the efforts of many researchers, their graduate students, technical staff and postdoctoral researchers at the three campuses on a plethora of quality of life problems in our state.

In today's world, where invading organisms threaten ecosystem integrity, dangerous chemicals threaten our water and air, and pests threaten our landscapes and food supply, AES researchers search for new and efficient means for solving problems.”



Richard Bostock
Professor and
Chair
Department of
Plant Pathology

“The Agricultural Experiment

Station has provided a context and resources to guide and carry out my mission-oriented programs, particularly those projects addressing important diseases of orchard crops in California. I believe the same can be said about the contribution provided by the AES to the research programs of all the faculty in my department.”



Charles Goldman
Professor
Department of
Environmental
Science and
Policy;
Director
Lake Tahoe
Research Group

“Over the years, the UC Agricultural Experiment Station has moved from an almost pure crop production orientation to a sustainable view of food, fiber and the environmental consequences of dealing with the conflicts that have resulted. This goes well beyond the normal activities of an agriculturally focused college.

Our own ongoing work on global climatic change and water quality at both Castle Lake and Lake Tahoe is evidence of the broadening view which places the Agricultural Experiment Station on the cutting edge of environmental research in the best interest of all aspects of our nation's economy.”

Andrea Romero (right), management services officer for the Department of Environmental Design, was presented the Deanna Falge Award recognizing ongoing and long-standing promotion of UC Davis' equal opportunity and diversity objectives. She was among nine staff members honored at the 2002 Soaring to New Heights celebration held in Freeborn Hall.

Romero serves as the Diversity and Affirmative Action Committee co-chair and is a founder of the annual multicultural and diversity celebration event. She is the former campus affirmative action compliance officer and has promoted a bias-free workplace for many years.



Patti Bond Wins Walker Award



Patti Bond, Exploratory Program coordinator in the Dean's Office, was named the college's 2002 Outstanding Academic Staff Adviser. She was honored at a reception held in Mrak Hall.

The award, presented annually in recognition of a college staff member who provides outstanding service to students, is named for lecturer emeritus Harry Walker, Department of Land, Air and Water Resources.

The Walker Award recipient is selected based on student nominations. "I always try to treat each student as an individual with unique attributes and to establish a confidential and comfortable relationship," Bond said. "I feel very honored to receive this recognition from the students."

Bond, who has worked in academic advising for 16 years, has been a member of the Undergraduate Academic Program unit of the college since 1995.

Bond coordinates the college's Exploratory Program, which is designed to assist students in exploring areas of study at UC Davis. She also coordinates participation in Summer Advising, serves on the campus-wide First-Year Advising Project committee for students in residence halls, and disseminates advising information to CA&ES master advisers and staff advisers.

"A large majority of students come to UC Davis with no defined goals," Bond explained. "We assist students with decisions regarding their major, career options and academic direction."

UC Davis graduate **Carol Cooper** received the 2002 Elizabeth Fleming Stier Award from the Institute of Food Technologists. She is an advising associate and librarian in the Department of Food Science and Technology. The award recognizes the pursuit of humanitarian ideals and unselfish dedication resulting in significant contributions to the well being of the food industry, academia, students or the general public.

Cooper, who has worked at UC Davis for over 25 years, has served as an adviser since the early 1990s. She received the college's Walker Award for Outstanding Staff Adviser in 1997.



CA&ES Dean's Advisory Council

Members of the CA&ES Dean's Advisory Council met on campus in the spring to learn more about the college's successes and challenges and to provide advice and counsel regarding CA&ES programs.

The council provides input and advice regarding teaching, research and extension responsibilities, as well as suggestions and counsel regarding programs and plans. While subsets of the council meet as needed, the full council meets twice each year on the UC Davis campus.

Donna Seaver Wins ACE Award



Donna Seaver, administrative specialist in the Department of Pomology, received a bronze award from Agricultural Communicators in Education (ACE) for her entry, "California Backyard Orchard Web Site." Her entry was one of 459.

Seaver accepted the award at ACE's International Meeting Awards Banquet in Savannah, Ga. in August.

Seaver began working with the department's Fruit and Nut Research and Information Center (FNRIC) in 1998. She inherited a collection of miscellaneous flyers and publications developed by farm advisors and master gardeners from throughout California. With a grant written by Mario Moratorio, small farm and urban horticultural advisor in Yolo and Solano Counties, and encouragement from FNRIC director Louise Ferguson and former department chair Ted DeJong, Seaver began developing the structure and design for the Web site.

According to Seaver, the primary purpose of the site is to provide the California backyard gardener with easy access to UC fruit and nut crop information on the Internet, 24 hours a day, seven days a week. She also wanted to provide UC Cooperative Extension personnel with an efficient system for answering questions and providing practical information to clients who do not have Internet access.

The site was launched September 2001. Check it out at <http://homeorchard.ucdavis.edu>.

College Celebration 2002 "Tradition Meets Innovation"



Friday, October 18, 2002
5:30 p.m.
Freeborn Hall
UC Davis

Award of Distinction Ceremony
Taste of California Reception
Farmer's Market

\$12.50 per person
Reservations required
Complimentary parking

On October 18, 2002, the UC Davis College of Agricultural and Environmental Sciences will bestow the Award of Distinction at its 14th annual College Celebration. The event, held the Friday night of homecoming weekend, celebrates the college's accomplishments and its impact on agriculture and the environment.

Treat yourself to a delightful outing with delicious hors d'oeuvres and excellent wines and brews. The evening culminates with a Farmer's Market where attendees dismantle the "welcome display" and take home a bag of fresh California produce and grains.

For information about this year's College Celebration or the Award of Distinction, contact Sharon Lynch, selynch@ucdavis.edu or (530) 752-1602.

Congratulations to our 2002 Award of Distinction recipients:

Patricia J. Bailey

Davis
Science/agriculture writer
UC Davis News Service

Willard G. Clark

Hanford
B.S., '53, Animal Science

Ann Marie Kennedy

Sacramento
M.S., '99, International Agricultural Development;
'00, Vocational Education Credential in Agriculture

Robert C. Laben

Davis
Professor Emeritus
Department of Animal Science,
UC Davis

Paul E. Martin

Petaluma
B.S., '65, Agricultural Economics

Timothy H. Metcalf

Woodland
M.S., '80, Horticulture

Warren G. Roberts

Davis
B.S., '64, Individual Major;
M.S., '69, Horticulture

Joseph E. Sabol

San Luis Obispo
M.Ed., '65, Agricultural Education

Charles J. Soderquist

Sacramento
M.S., '73; Ph.D., '75, Agricultural Chemistry

2002 Commencement

Winemaker Robert Mondavi and his wife Margrit spoke at two commencement ceremonies honoring 1,622 graduates of the College of Agricultural and Environmental Sciences on Sunday, June 16, 2002. Mondavi, founder and chair emeritus of the Robert Mondavi Winery, and Margrit, vice president of cultural affairs for the winery, addressed ceremonies at 9 a.m. and 2 p.m.

In September 2001, Mondavi announced a gift of \$25 million to the college to establish the Robert Mondavi Institute for Wine and Food Science. Groundbreaking ceremonies are planned for 2004.

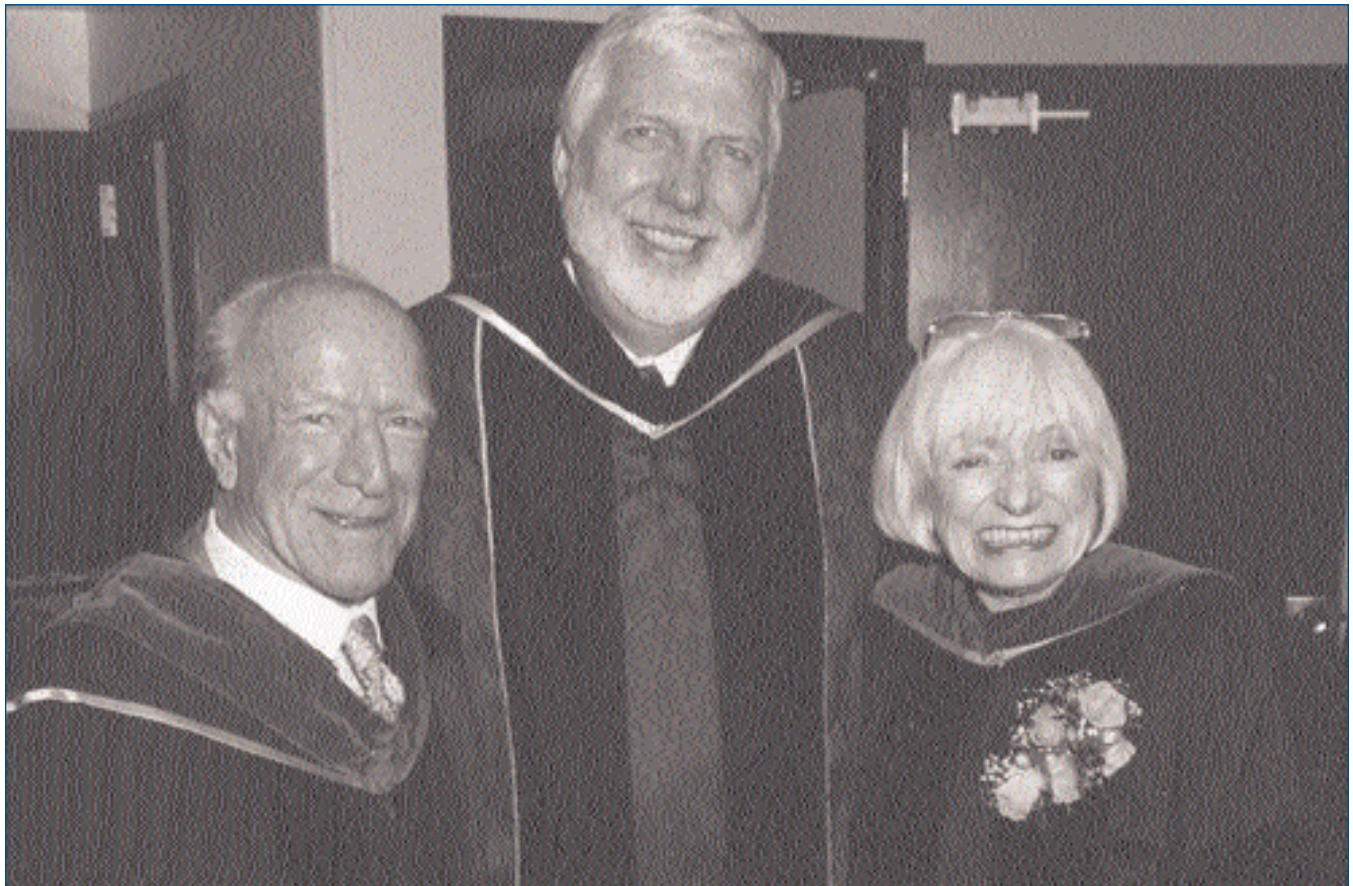
Sol Hart, candidate for a degree in environmental policy analysis and planning, spoke at the morning ceremony. Emily Prieto Holzem, candidate for a degree in the individual major of community rhetoric, spoke at the afternoon ceremony.



Charles Hess (left), special assistant to the provost, and student speaker Sol Hart



Emily Prieto Holzem, student speaker



(Left to right) Robert Mondavi, Neal Van Alfen and Margrit Mondavi

Commencement 2002:

Address by Robert Mondavi

It is an honor for me to address the 2002 graduating class here at Davis. I graduated from a place where the color is cardinal, Stanford, so I'm not accustomed to the blue and gold gown; but I am very much at home with the great contributions UC Davis has made to the grape and wine industry.

They taught me the wine business, which gave me the opportunity to succeed. Because of this, I wanted to give something back to UC Davis by making a commitment to the viticulture and food science facility and to the performing arts center here at Davis.

Now one is rather encouraged to use this opportunity to make suggestions to the graduates, and I would like to talk a bit about my philosophy, which has motivated my entire life. This is the philosophy I used in my business and in raising my family. The same philosophy applied for both:

First and foremost you must have faith in yourself.

Second, whatever you choose to do, make a commitment to excel, and then pour yourself into it with your heart and soul and complete dedication.

Third, interest is not enough -- you must be passionate about what you do if you want to succeed and have a happy life. Find a job you love and you'll never have to work a day in your life.

Fourth, establish a goal just beyond what you think you can do. When you achieve that, establish another and another. This will teach you to embrace risk.

Fifth, be completely honest and open. I never had secrets. I would share my knowledge with others if they would share with me. I always had confidence that there was enough room for all of us.

Sixth, generosity pays. So learn to initiate giving. What you give will enrich your life and come back to you many times over.

Seventh, only make promises and commitments you know you can keep.

A broken promise can damage your credibility and reputation beyond repair.

Eighth, you must understand that you cannot change people. You might be able to influence them a little, but you can't change anyone but yourself. So accept people the way they are. Accept their differences and try to work with them as they are. I learned this late in life and it is amazing what peace of mind I found when I finally understood it.

Ninth, to live and work in harmony with others, don't be judgmental. Instead, cultivate tolerance, empathy and compassion. And never berate people, especially your children, in front of their cohorts. This can be dispiriting and damaging to them, and it's counter-productive for you. As I've learned, if you want to teach someone to fly, you don't start by clipping their wings.

Tenth, human beings experience the same things in very different ways. Two people can live through the exact same experience and come away with totally different understandings of what happened. So between people there is always a large space for misunderstanding. Always be alert for misunderstandings and tread lightly, especially when it comes to politics, religion or moral standards.

Eleventh, it is very important that we understand each other. We need to learn how to bridge those spaces of misunderstanding. To do this, listen carefully, and when you talk, be sure people understand you. On important issues, have people repeat back to you what you've said to make sure there are no areas of confusion or conflict.

Twelfth, rarely will you find complete harmony between two human beings. But, if you find it, maintaining this harmony requires individuals or soulmates to have complete confidence in each other. Make time to be alone, to share experiences and appreciate together precious moments and the beauty of life. Open all of

yourself to that person -- emotionally, physically, spiritually and intellectually. And always, always leave time for playfulness and laughter. There is no better tonic for keeping love alive and vibrant than laughter and good cheer.

Thirteenth, in both life and work, stay flexible. Whether in a country, a company or a family, the same holds true: dictatorship and rigidity rarely work. Freedom and elasticity do.

Fourteenth, always stay positive. And remember this: America was built on the can-do spirit and will continue to thrive on the can-do spirit.

Fifteenth, out of all the rigidities and mistakes of my past, I've learned one final lesson, and I'd like to see it engraved on the desk of every business leader, teacher and parent in America: The greatest leaders don't rule. They inspire.

So, that is my philosophy, and I recommend it to you as you advance in your careers. In fact, I read them from time to time to remind myself of our goals and objectives.

And now I'd like to introduce someone who actually has given me much pleasure and who has contributed immensely to my success, my wife Margrit.

Comments by Margrit Biever Mondavi

Thank you, Bob.

I, too, listened to your advice to the graduating class on commitment. Although I have heard it a few times before, it always strikes a chord. I appreciate being here to participate in your celebration, "Graduation 2002."

I would like to say as a woman, we have a duty to commit to raise the quality of life through nurturing and compassion, bringing culture to family and friends with good wine, good food, good art, thus enriching our every day.

I wish you, in whatever you chose, a fulfilled and beautiful life.

The icing on the cake . . .

...is how charitable gifts to support research once were described. There was a time when federal and state funds, competitive grants and contracts, and locally generated funds from sale of product were solid and consistent sources of research funding. They made up the layers of the cake. Gifts from our donors were the frosting.

Nowadays, gifts are one of the cake's main ingredients. Gifts are having a dramatic impact on the research that impacts California and the world. Across campus, fundraisers are building their business plans around college research priorities. New facilities to house researchers have private gifts as critical components of overall construction funding plans from the beginning of the planning process.

Thanks to our donors, the college has an outstanding scholarship endowment. This impacts our ability to attract and retain the very best students. As they progress in their studies, they may be involved in organized research. When they graduate, they move on and improve our workforce.

Thanks to our donors, the college has endowed graduate fellowships that enable us to attract the very best graduate students to our programs in agricultural and environmental sciences. These students work directly with our scientists on research that benefits California and the world. These graduate students are the next generation of scientists and scholars, and they appreciate that our donors enabled them to pursue their graduate careers.

Thanks to our donors, the college has 15 endowed chairs that attract and retain the very best scientists. These scientists provide the science-based, objective research necessary for our state's decision makers to use in policy development. These scientists have the greatest impact regionally, nationally and internationally.

Thanks to our donors, the college has an active Facility Construction and Replacement Program.

Charitable gifts constructed the Harry E. Jacob Research Facility in Oakville, the Joe A. Heidrick, Sr. Western Center for Agricultural Equipment, and the Bowley Center for Plant Sciences Teaching.

The Donis and Ike Eichhorn Family House soon will be under construction, and planning is underway for the academic building, brewing and food science laboratory and the research and teaching winery associated with the Robert Mondavi Institute for Wine and Food Science. Naming opportunities for these facilities are now available.

Donors are making a most dramatic impact on the research that makes UC Davis the world leader in agricultural and environmental research. They do that by providing the icing on the charitable gift cake and by contributing to the primary ingredients as well.

It's quite a cake we're baking here in the College of Agricultural and Environmental Sciences. Come join us.



The Eichhorn Family House will offer parents and their children a secure base toward creating healthy and secure rela-

tionships with each other. It also will be the setting for interdisciplinary graduate teaching and research about development,

relationships and family wellness that is the focus of the Center for Child and Family Studies.

Anheuser-Busch Gift Supports New Food Science Laboratory



(Left to right) Michael Lewis, professor emeritus, Department of Food Science and Technology; John Serbia, vice president of brewing, Anheuser-Busch; Neal Van Alfen, dean, College of Agricultural and Environmental Sciences; Charles Shoemaker, professor and chair, Department of Food Science and Technology; and Charles Bamforth, professor and Anheuser-Busch endowed professor in brewing sciences, Department of Food Science and Technology.

The Anheuser-Busch Foundation pledged \$5 million in matching funds to support construction of a new 16,000-square-foot food science laboratory building in the developing Robert Mondavi Institute for Wine and Food Science. The foundation is the philanthropic arm of the world's largest brewing company. The gift challenges UC Davis to raise the additional funds needed to complete the Anheuser-Busch Brewing and Food Science Laboratory.

"This generous pledge from the Anheuser-Busch Foundation is a cornerstone in the development of the Robert Mondavi Institute," said Neal Van Alfen, dean of the College of Agricultural and Environmental Sciences. "It will allow our campus to take its teaching and research programs in the food sciences to the next

level of excellence and is especially meaningful because so many UC Davis alumni have gone on to join Anheuser-Busch."

When completed in 2006, the food science facility will be one of three buildings constructed as part of the Robert Mondavi Institute. Located on Old Davis Road near the Interstate 80 entrance to UC Davis, the Anheuser-Busch Brewing and Food Science Laboratory will include a 1.5-barrel brewery, a food processing facility, and teaching and research laboratories. Equipment will be state-of-the-art.

"We are grateful to the Anheuser Busch Foundation for its support and excited about conducting future teaching and research activities in the new laboratory," said Charles Shoemaker, chair of the food science and technology department.

The laboratory building will replace the department's pilot complex in 50-year-old Cruess Hall. The existing complex includes a food-processing facility, brewery and teaching laboratories -- facilities built for the research needs and technologies of another era.

"Anheuser-Busch has been wonderful to this university and our efforts," said Charles Bamforth, who holds the Anheuser-Busch Endowed Professorship in Brewing Sciences. "We've been working in antiquated facilities for a long time. Anheuser-Busch always has been associated with quality, and this gift allows us to enhance the quality of our facilities."

The department's brewing science program is the only such accredited four-year program offered by a major U.S. university. It attained international prominence under the leadership of professor emeritus Michael Lewis and is now thriving under Bamforth's leadership. More than 150 students have graduated from the program; most are working in the brewing industry -- including at Anheuser-Busch.

"Brewing is not just about beer," Lewis said. "It's about biochemistry, molecular chemistry and sensory science, to name just a few."

John Serbia, vice president of brewing at Anheuser-Busch and a UC Davis alumnus in food science and technology, attended the July 31 press conference to announce the gift. "We're pleased to participate in this exciting venture," he said.

The Robert Mondavi Institute also will include an academic building with 75,000 square feet of teaching and research laboratories, offices and meeting rooms. The third building in the institute complex will be a 46,000-square-foot teaching and research winery.



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Web Services Expanded and Rewarded

In a continuing effort to expand communications efforts for the college, a Webmaster and Web student assistant have been added to the Communications Unit. Julia Munsch joined the college as Webmaster in October 2001 and started on a long "wish list" in the area of electronic communications. She previously worked in the UC Life Sciences Informatics Program.

Design major Millie Tadewaldt started working with Munsch in February 2002. Her experience in the Dean's Office will be a valuable addition to her resume when she graduates in 2004.

Munsch and Tadewaldt spent their first couple months handling a backlog of requests for corrections, additions and deletions. They upgraded the site by developing additional content, inte-

grating more interactivity and bringing the site further into compliance with campus Web guidelines. New features that make the college's Web site more dynamic include:

- Drop-down menus on the home page that allow visitors to preview content;
- Online event registrations, creating a simpler process for event attendees and college staff;
- Availability of forms and documents online, reducing print and e-mail circulation, and saving time, paper and money;
- Addition of a "News" section to the Publications section of the site, enabling the college to immediately highlight late-breaking news such as the \$5 million Anheuser-Busch Foundation gift to support building a new food science laboratory;
- More links promoting the college and campus -- such as the new e-recruitment Web site "Why UC Davis."

The Web team now has the time to provide support to departments, centers and programs associated with the college. Munsch and Tadewaldt have collaborated with external programs

such as the UC Davis Arboretum, the Children's Garden and the Student Farm. They have worked with Dean's Office units including Undergraduate Academic Programs, International Programs, Science and Society and the College Advancement Team.

The impact of the college's Web site is far-reaching. The college received two APEX 2002 Awards for excellence in graphic design, editorial content and overall communications in the 14th annual Awards for Publication Excellence: A Competition for Communications Professionals. Awards were presented in two categories: "Newsletters, Online and Electronic," and "One-to-two-person-produced Web and Intranet Sites."

The Robert Mondavi Institute for Wine and Food Science site -- designed by Munsch -- won first place in the NAADA 2002 Publications and Projects Competition of the National Agricultural Alumni and Development Association. The college's student recruitment site won a second-place award.

There's a lot going on in the college, and very little of it escapes visibility on the Web. Come visit.

CA&ES Home Page

caes.ucdavis.edu

Robert Mondavi Institute

robertmondaviinstitute.ucdavis.edu

Student Recruitment Site

caes.ucdavis.edu/student

International Programs

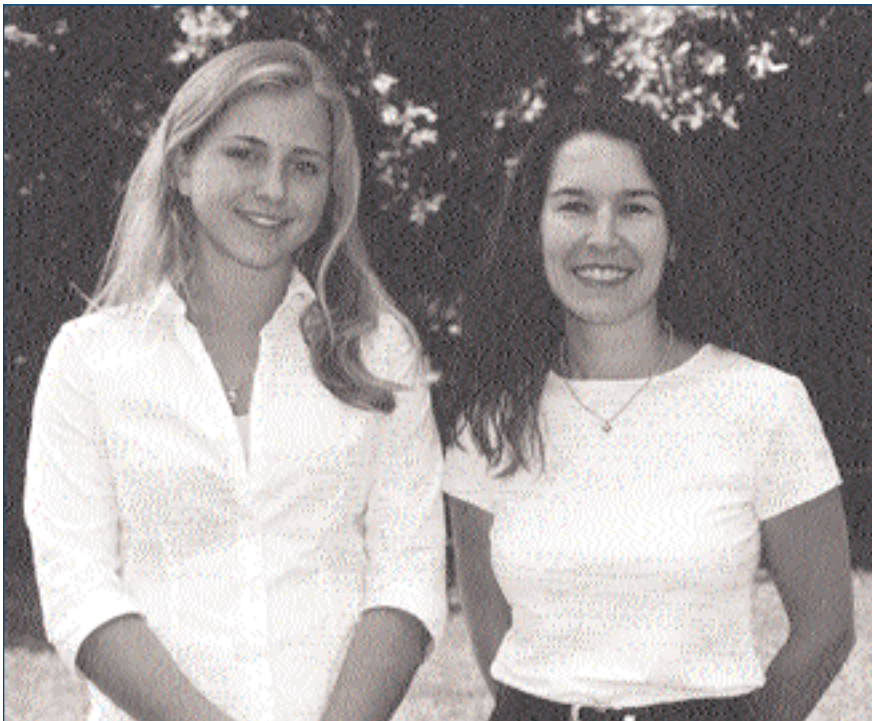
caes.ucdavis.edu/intlprgms

Anheuser-Busch Foundation Gift

caes.ucdavis.edu/publications

Why UC Davis

why.ucdavis.edu



Web student assistant **Millie Tadewaldt** (left) and Webmaster **Julia Munsch** work on projects in the Dean's Office and with college departments and programs.



Rhoda McKnight

Director of

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Impacting Student Perceptions of Higher Education

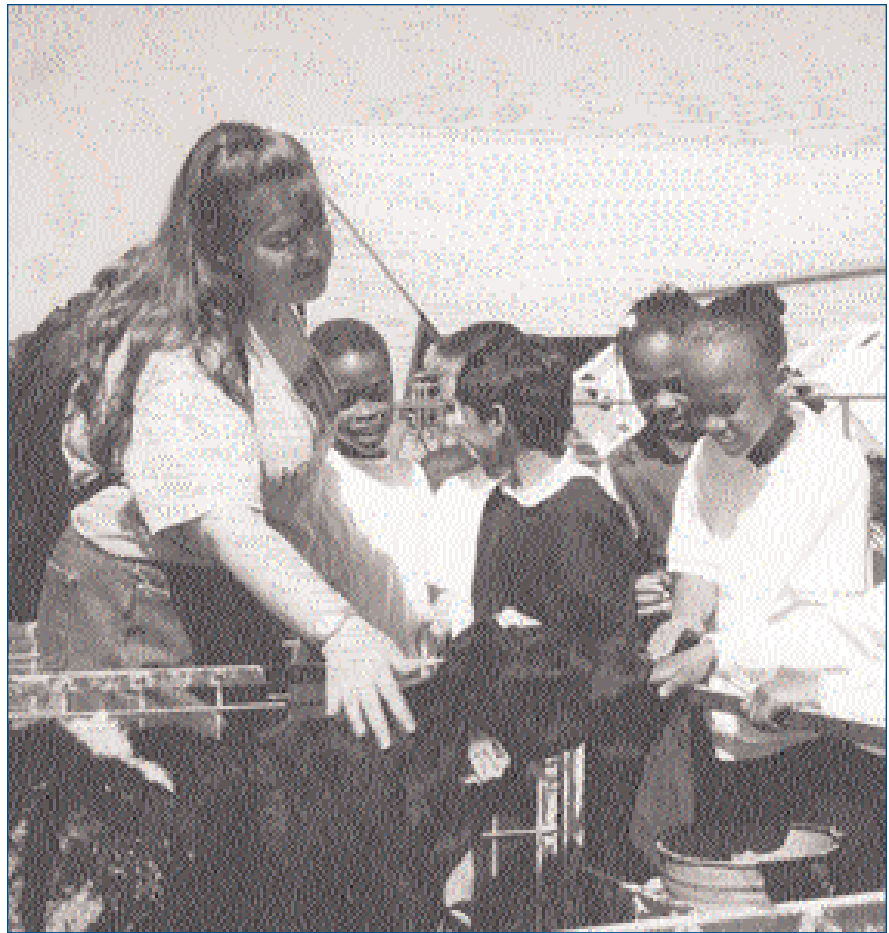
What is the driving influence for a student's choice in an institution of higher learning?

Certainly the academic and student life reputations of universities play a role. Informational videos, Web sites, brochures and catalogs may reinforce perceptions and provide greater detail during the grueling search for a college or university. Parents, relatives and employers also may impact a high school or community college student's choice.

One of the most powerful influences on the selection of a post-secondary institution, though, comes from a student's peers. The risks of leaving home, meeting new people, tackling new academic challenges and making choices for yourself often are softened when a student knows that current friends will be at that school as well.

Colleges of agricultural and environmental sciences throughout the United States learned years ago that the best outreach tools a college could have exist within the student body. Student organizations such as MANRRS (Multiculturalism in Agriculture, Natural Resources and Related Sciences) and Aggie Ambassadors provide undergraduate and graduate students in the College of Agricultural and Environmental Sciences with leadership skills while enhancing the college's outreach efforts.

Students participating in MANRRS and Aggie Ambassadors interact with faculty and staff in leadership development activities that reinforce communication, team building and cultural awareness skills. In return, UC Davis students host prospective students on campus visits, travel to high schools and community colleges and represent the college at numerous events



*UC Davis MANRRS member **Kelly Hamilton** introduces urban elementary school students to careers and educational opportunities in the agricultural and environmental sciences.*

throughout California and the United States.

This past year, MANRRS students and Aggie Ambassadors attended 11 conferences, conducted over 80 leadership workshops for prospective students, traveled over 25,000 miles and hosted over 2,000 people on campus tours -- carrying the UC Davis message.

Students visited 74 high schools and 20 community colleges and spoke to thousands of parents and high school and community college students throughout the state.

Meanwhile, members of both organizations are learning more about the 40 majors and 20 departments within the college. They also are utilizing campus-wide resources they only may have heard mentioned during orientation week as incoming freshman.

Organizations such as MANRRS and Aggie Ambassadors have been

precursors to campus-wide efforts to implement a minor in Leadership Development. This fall, students will have the opportunity to complement the outstanding academic foundation they are developing in their majors with skills that enhance their abilities in all areas of life.

For information on MANRRS, contact Erlinda Gonzales, etgonzales@ucdavis.edu.

For information on the Aggie Ambassador program, contact me at rrengel@ucdavis.edu.



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Student Advising: An Environment of Support



20 Professor **Edward De Peters**, Department of Animal Science, advises animal science and management student **Brittany Thompson** on class scheduling.

Outlook Fall 2002

Our students are academically gifted, highly motivated and extremely talented. They come to the College of Agricultural and Environmental Sciences from urban centers, small towns and rural areas of California. A limited number are from other states or abroad. Many advisers interact daily with some of the approximately 5,000 CA&ES students.

Peer, staff and faculty advisers are associated with each of the majors in the college. Peer advisers are successful juniors or seniors who have exhibited leadership skills and received training to help them provide other students with information about majors. As student peers, they give their perspective on course sequences, instructor effectiveness and cultural aspects of the department in which the major resides.

Staff advisers, referred to in the college as professional advising associates, disseminate information about requirements, campus programs, opportunities and various career choices related to specific majors. Often, they are the first to discern academic or personal challenges for students and can assist with referral to one of many campus

services. They see students through scheduled and drop-in appointments.

Faculty advisers help students understand and fulfill requirements of the major. Students seek advice about internships, research opportunities and career choices from faculty members.

In addition to obtaining information from peers, advising associates and faculty associated with a particular field of study, students often come to the Dean's Office for front-line, drop-in advising from counseling assistants and peer advisers who know college and university requirements.

Students in the Exploratory Programs can schedule appointments with two counselors in the Dean's Office who focus on helping students narrow their interests. They use different forms of media to dispense material to students "exploring the possibilities" before deciding on a major. Other Dean's Office counselors work closely with transfer and re-entry students, those who are the first in their families to attend college and under-represented or under-privileged students. When students have academic challenges, counselors work with them to offer options and develop

strategies for academic success.

Advising is highly valued in the College of Agricultural and Environmental Sciences. In the spring each year, administrators, faculty, staff and students gather to honor one adviser nominated by the students.

A committee of Dean's Office peer advisers interviews finalists, selects the recipient, and plans a ceremony at which the Harry Walker Award is presented by the past recipient. The 2002 recipient of the Walker Award is Patti Bond, an Exploratory Program counselor (See page 12).

Of the approximately 1,290 new enrollees (freshmen and transfer students) for Fall 2002, 1,062 attended the College's Summer Advising event, "CA&ES Summer Advising -- An Environment of Support."



Annie King
Associate Dean for
Undergraduate
Academic Programs

Plant pathology students **Suanne Rooney** and **Chris Friel** won first and third place in a student paper competition at the Pacific Division annual meeting of the American Phytopathological Society in San Jose.

Rooney, who works in Cooperative Extension specialist Doug Gubler's lab, won first place for best paper by a graduate student -- research and presentation.

Friel, from Professor Thomas Gordon's lab, won third place in the student paper competition.

Melody Meyer, graduate student in the Department of Environmental Horticulture, received a Monrovia Nursery/R. Fred Damm Scholarship from the California Association of Nurserymen.

Six graduate students were awarded Kubota Scholarships: **Fabrice DeClerk**, **Kimberley Hunter**, **Mikaela Huntzinger**, **Erin McDermott**, **Kathren Murrell** and **Tom Rambo**. The scholarships, funded primarily through gifts from Yoneo John Kubota who worked in the department from 1968 to 1984, are dedicated to the memory of his late wife.



Scott Rominger (left), who is pursuing a degree in agricultural and managerial economics, is among five UC Davis students who won

scholarships from the 2002 California State Fair. Twenty-one college students received scholarships totaling \$16,625 for the 2002-03 academic year.

Students were selected for their demonstrated commitment to academics and co-curricular activities, including community service. Rominger was awarded \$6,000.



Keandra Doss (left), who served as a peer adviser in the Undergraduate Academic Program unit of the Dean's Office for two years, was accepted as an intern at

the University of California Washington Center. She has been

Caroline Bledsoe, professor of soil ecology in the Department of Land, Air and Water Resources, learned about herbs as a child from a grandmother full of plant wisdom and with a penchant for wildflowers. Together they used to hike Tennessee's Smoky Mountains in search of unusual plants -- sometimes bumping into moonshiners.

Bledsoe has made a career of understanding herbs, fungi and the multitude of small plants that cover the forest floor. With her help, UC Davis students are studying the science of herbs. Her most recent Culinary and Medicinal Herbs class filled up with 53 students eager to discover the truth behind the funky flora.

"Herbs are easy to grow -- it's knowing how to use them that is the

assigned to a department in Washington, D.C. for the fall quarter.

Keandra is majoring in human and community development with a minor in African American studies. She plans to graduate in 2003.

Undergraduates in all majors can apply to work, study and intern in the nation's capitol, an opportunity to apply their education outside the classroom prior to graduation.

biggest challenge. We're not advocating their use to cure life-threatening diseases. We just want to inform students on how to make choices regarding their healing and culinary benefits," Bledsoe said.

Bledsoe's class kicks off with lectures. The basics of herbs are covered, and, by the end of the class, students are expected to identify 40 different herbs and will have designed their own herb garden. While classroom notes are important, hands-on learning counts, too. Bledsoe's students gather at the campus' Student Farm to plant 29 varieties of exotic-sounding herbs. Teaching assistant **Melissa Morris** demonstrates planting techniques for the students.

One advantage to herbs, Bledsoe notes, is that they can be grown outside someone's door. There is no need for large-scale commercial farming.

Until the 15th century, most herb gardens in Europe existed only in monasteries. A herbarium -- a collection of dried plants mounted and labeled -- provided the monks with valuable potions to treat themselves, as well as those who sought their help.





Two students of the Hydrologic Sciences Graduate Group, Department of Land, Air and Water Resources, recently received international awards.

Brett L. Valle (above, left) received the 2002 American Geophysical Union (AGU) Horton Award for his proposal on "Fluid Mechanics of Hydraulic Jumps and Their Role in Mountain Rivers." His work focuses on instrument development for measurement of three-dimensional fluid flow in hydraulic jumps.

Valle works with Greg Pasternack, assistant professor in the land, air and water department. The proposed research serves to better understand the ecological and water quality functioning of hydraulic jumps in natural rivers and their role in providing a suitable physical habitat for fish and invertebrates.

The project examines several geomorphological and ecological variables that are integral to the restoration of many California streams in the Sierra Nevada and Coastal Range. The \$10,000 award will be used to partially fund this project.

Kevin Ellett (above, right) received the J. William Fulbright Foreign Scholarship Award and will spend one year with Dr. Roger Grayson at the University of Melbourne in Australia.

Grayson is internationally known for his research contributions on the role of surficial soil moisture and its spatial distribution to watershed hydrology. Ellett currently is writing his M.S. thesis on "Deep Vadose Zone Artificial Recharge" with Jan Hopmans as his major professor.

The Fulbright Award pays for Ellett's roundtrip to Australia and a monthly stipend to cover living expenses and tuition. He will study similarities and differences in salinity issues between the Western U.S. and Southern Australia.

The awards will be presented in December at a formal ceremony in San Francisco.

Four students were recognized at the college's commencement ceremony in June. Awards were presented by Dean Neal Van Alfen.

Samir Pandurangi of Fairfield received the College Medal for scholarship and extracurricular activities. He

graduated with a B.S. in biotechnology.

Sarah Brickey of San Jose was the female recipient of the Charles Hess Community Service Award, recognizing outstanding community and campus service. She graduated with a B.S. in nutrition science.

Sol Hart of Eugene, Oregon, was the male recipient of the Charles Hess Community Service Award. He graduated with a B.S. in environmental policy analysis and planning.

Sarah Stutzman was presented the 2002 Mary Regan Meyer Prize, given to a student who demonstrates commitment to serving others. She graduated with a B.S. in managerial economics.



*Six undergraduate students were honored as LAWR Opportunity Fund recipients at a reception held in the new Plant and Environmental Sciences building. Each was presented a certificate and check. Recipients (left to right) **Joseph Wheaton, Ariel Rivers, Matthew Curtis, Amy Ellis, Natalie Kan and Jamie Smith.***



Adviser Laurie Stillman, Department of Environmental Design, discusses educational plans with a new transfer student during Summer Advising.

Students Explore Choices Through Individual Major

Some students want to pursue self-tailored degrees. According to Joel Shriver, academic counselor in the CA&ES Dean's Office, some students have very clear ideas about what they want to do following graduation and UC Davis may not offer a particular major that they want or need.

"That's when students come into my office and talk about designing their own majors," Shriver said. "That's when we begin the process to see whether the student's idea is worth pursuing." Shriver works with between 15 and 20 students each year.



One such student this past year was **Emily Prieto Holzem** (left), 2002 student commencement speaker and a member of the

Dean's Student Advisory Council.

Holzem created a major called community rhetoric, which consists of approximately 140 units of coursework -- classes ranging from community and regional development to English and psychology. After developing her initial idea, she wrote a three-page statement of purpose that described how the individual major would best meet her needs, as opposed to any other major or major/minor or major/major combination offered. Then Holzem presented her proposal to Shriver and a committee comprised of seven faculty representing a range of expertise in the college. Shriver is a non-voting member.

Shriver explained that it is best for students to consider an individual major after completing between 100 and 120 units. "It's a lot of hard work," he said. "It takes a lot of time and dedication for the student and for the college, but the benefits are well worth the effort."

Shriver can be reached at (530) 752-0610, jbshriver@ucdavis.edu.

Picnic Day 2002



*Picnic Day provided an ideal opportunity for public education on food production, including the fact that milk originates from a cow, not a milk carton. Members of the public -- young and old -- had a hand at milking. Undergraduate student **Natalie Krout** (right), an animal science major, provided tips at the Cow Milking Display. She plans to graduate in 2004.*

Eight scientists in the College of Agricultural and Environmental Sciences are among the world's most influential authors within their respective fields, according to an analysis by the Institute for Scientific Information (ISI). The institute lists approximately 100 "highly cited researchers" in each of 11 categories in life sciences, medicine, physical sciences, engineering and social sciences. CA&ES authors named are:

Alan Bennett, professor, vegetable crops

Edwin Frankel, adjunct professor, food science and technology

Bruce German, professor, food science and technology

Carl Keen, professor and chair, nutrition

Bo Lonnerdal, professor, nutrition

William Lucas, professor, plant biology

Takayuki Shibamoto, professor, environmental toxicology

Shang Fa Yang, professor emeritus, vegetable crops

The lists were compiled from the evaluation of 19 million source articles in scholarly journals. According to ISI, these individuals are the most highly cited within their categories for the period 1981-1999, and they comprise less than one-half of 1 percent of all publishing researchers.



Assistant professor **David Block**, Department of Viticulture and Enology, was given the Chemical Engineering

Professor-of-the-Year Award for 2001-02 by the Davis student chapter of the American Institute of Chemical Engineers.

Block was recognized for outstanding dedication and service to his students. He teaches biotech manufacturing facility design and

regulatory compliance to senior-level biochemical engineering students. He established the course when he came to UC Davis six years ago.

Greg Pasternack, professor of watershed hydrology, Department of Land, Air and Water Resources, was awarded a three-year, \$255,000 grant from the National Science Foundation to study natural hydraulic jumps and their role in mountain river channels. Pasternack developed the first-generation technology, and the success of that effort convinced NSF to fund second-generation technology.

"This grant and the three-year, \$254,000 CALFED grant I recently received allows me to expand my river rehabilitation design approach," Pasternack said. "This is a tremendous opportunity to do cutting-edge basic and applied research."

Professor **Theodore DeJong**,

Department of Pomology, was awarded the American Society for Horticultural Science Fellow at the group's annual conference in Toronto in August. This is the highest honor bestowed on its members.

DeJong is recognized internationally as an authority on tree crop responses to environmental stresses and for his research on developing a model for dynamic simulation of tree and fruit growth. He has guided the research and training of more than 20 graduate students and post-doctoral researchers and worked with other pomologists on integrated orchard management systems for several fruit and nut species in California and other areas of similar climatic conditions.

Professor **Charles Goldman**,

Department of Environmental Science and Policy, and Professor **Janet**

Momsen, Department of Human and Community Development, are recipients of a new Academic Senate award honoring commitment to mentoring graduate students. Three winners were honored at an Academic Senate Representative Assembly meeting on campus. Jerry Hedrick of the Division of Biological Sciences also was honored.

Goldman, a professor of limnology, is recognized worldwide for his research programs at Lake Tahoe and Castle Lake and Russia's Lake Baikal. He has mentored 90 graduate students and 30 post-doctoral researchers. Many of them have gone on to become influential figures in the science of lakes and freshwater bodies.

Momsen, a professor of geography, is internationally recognized for her scholarship in human geography in the Caribbean region, gender and development, and tourism. She advises Geography Graduate Group students and others in international agricultural development, community development, ecology and sociology.

Professors emeriti **Emanuel Epstein**

and **Kenneth Tanji**, Department of Land, Air and Water Resources, were recognized for outstanding contributions to agriculture by the California Chapter of the American Society of Agronomy.

Epstein, a professor of plant nutrition and botany and a plant physiologist, focuses his research on plant nutrition and salt tolerance in California. Tanji, an internationally recognized soil and water chemist, focuses his research on irrigation and drainage.

Professor **Anita Oberbauer**,

Department of Animal Science, received the 2002 University of California, Davis, Academic Senate Distinguished Teaching Award for achievements in undergraduate instruction. Four faculty members were honored. All teach lower-division courses with high enrollments and a variable mix of student ability. All were noted for the ability to motivate and engage students in their subjects.

Oberbauer teaches courses on the biology of companion animals, animal-genetics and animal-management. With a colleague, she teaches a graduate course on cancer genes and cellular proliferation.

In addition to maintaining an active research program focused on growth and development of animals and genetic disorders of dogs, Oberbauer supervises graduate

students and is an adviser to more than 30 undergraduate students.

Professor **John Carroll**, Department of Land, Air and Water Resources, was elected president of the Pacific Division of the American Association for the Advancement of Science. An atmospheric scientist, Carroll assumed office in June.

The Pacific Division represents scientists of the Pacific Rim who are among the 138,000 members of the national association, the world's largest general science organization and publisher of the journal *Science*.



James MacDonald (B.S., '73; Ph.D., '78, Plant Pathology), CA&ES executive associate dean and professor in the Department of

Plant Pathology, was elected vice president of the American Phytopathological Society. He becomes president-elect in 2003 and president in 2004.

MacDonald's research emphasizes root diseases, soil microbiology, diseases of ornamentals and the role of environmental stress in plant disease. He served as associate editor of APS' journal *Plant Disease* and is involved in worldwide development of the society's electronic communications and journal delivery. In 1998, he received the APS Teaching Excellence Award.

MacDonald also received the Media Award of Excellence from the National Association of Colleges and Teachers of Agriculture for an instructional CD-ROM on turfgrass disease.

Lucille Hurley, a founding member of the Department of Nutrition in the 1950s, was among six faculty and staff members honored during a building naming ceremony at The Colleges at LaRue student residential complex on campus.

Hurley, who died in 1988, was a professor of nutrition and internal medicine. A world authority on linkages between dietary deficiencies in expectant mothers and birth defects,

she received the Academic Senate's Faculty Research Lecturer Award. Many students who studied with Hurley are now in the field of nutrition, including **Carl Keen**, current department chair.

Others honored were: **Isao Fujimoto**, former senior lecturer in Asian American studies, who received the CA&ES Outstanding Faculty Adviser Award and retired in 1994; **Sumner Morris**, former lecturer in applied behavior sciences, who died in 1994; the late **Frank Ogasawara**, an avian sciences professor and founder of the campus' raptor center for the treatment and study of injured birds of prey, who retired in 1983; **David Risling**, senior lecturer and founder of Native American studies at UC Davis, who retired in 1991; and **Merna Villarejo**, associate dean for undergraduate studies in the Division of Biological Sciences and emeritus professor in microbiology, who retired in 1999.



"D.R. Wagner Retrospectives," showcasing the work of lecturer **D.R. Wagner**, Department of Environmental Design, is sched-

uled in several galleries through mid-December. His "Niagara Falls" needlepoint series and works from area galleries are featured at the Pence Gallery in Davis through Sept. 28.

An exhibition from Sept. 23 to Nov. 1 at the Memorial Union gallery features an overview of his major needle-made tapestries owned by museums and private collections.

Wagner shows his light-reactive needlepoint work and rugs, as well as a video of his electronic installation created at Caesar's Palace in Las Vegas, at the UC Davis Design Museum in Walker Hall from Oct. 13 to Nov. 15.

Between Sept. 26 and Dec. 14, Shields Library Special Collections will exhibit poetry chapbooks published by Wagner in the 1960s and 1970s, as well as manuscripts and a selection of books he authored. Featured in the

first-floor lobby exhibit cases will be needlework and art books that feature Wagner's needlework, posters and other paper ephemera.

Miguel Marino, Department of Land, Air and Water Resources, received the 2002 Warren A. Hall Medal from the Universities Council on Water Resources. Marino is a professor of hydrologic sciences and civil and environmental engineering.

The medal, recognizing Marino's innovative contributions in the field of water resources, was awarded at the council's annual meeting in Traverse City, Mich.

Professor **Judith Stern**, Departments of Nutrition and Internal Medicine, organized a study of asthma sufferers to determine whether magnesium can alleviate attacks. Researchers believe magnesium may hold the key to controlling symptoms and attacks.

In a Sacramento television interview, Stern said that we can learn from history. "People have been going to the Dead Sea in the Holy Land for years," she said. "They inhale the salt air and their asthma gets better." The reason may be that the salty air contains magnesium, she said.



Randall Fleming, managing director of Community Planning and Design Services in the Department of Environmental Design, developed

a new computer program for neighborhood planning. The PC tool combines an Excel 2000 spreadsheet with a custom-designed and interactive graphic interface.

With information and images provided, users are asked 18 questions to generate a neighborhood 'design.' Once the selections are made, the tool instantly assesses the possible outcomes of the user's design in issues of density, land use, public service costs and pedestrian accessibility.

Fleming demonstrated the tool to the Public Policy Institute of California

and the Smart Growth Funders Network.

Associate professor **Emilio Laca** in the Department of Agronomy and Range Science is collaborating with the USDA and Kazakhstan researchers on investigating the role of North Kazakhstan's agricultural lands in global climate change. The project uses meteorological equipment to measure carbon dioxide exchange between the atmosphere and the biosphere.

Under the 1996 Kyoto Treaty, regions like Kazakhstan that produce little CO₂ and have vast rangelands could benefit by trading CO₂ 'credits' to more industrialized countries. The scientific team led by Laca is studying how much CO₂ can be 'stored' in Kazakhstan's agricultural lands.

Christine Bruhn, director of the Center for Consumer Research, was selected a fellow of the Institute of Food Technologists. This recognition acknowledges her leadership in helping scientists, processors and consumers better understand food-processing issues.

Bruhn's research is focused on consumer attitudes toward food safety, quality, wholesomeness and pricing, assisting the food industry in better meeting consumer expectations.

The work of professor **Gyongy Laky**, Department of Environmental Design, is part of a three-year exhibition in the embassy residence in Bangkok, Thailand. Created in 1999 and titled "Apricot Vessel," it was first exhibited in Denmark and has appeared in several publications, including "The World of Interiors." The exhibition is part of the U.S. Department of State's Art in Embassies Program.

Laky's work is composed of bent wood apricot prunings and is constructed with a doweling technique using small, hand-painted wooden pegs that pin the branch structure into a 2-foot-high vessel shape.

Laky's sculptural forms of recycled agricultural and park prunings have been exhibited in museums and galleries throughout the United States

and in Spain, France, Sweden, Italy, England and Canada.

Laky also was chosen to help develop a comprehensive art master plan for the new U.S. Food and Drug Administration campus, a 130-acre office and lab facility in Silver Spring, Md. An important emphasis for the facility planning will be sustainable design principles.

Calvin Qualset, director of the Genetics Resource Conservation Program, is the 2002 recipient of the Council for Agricultural Science and Technology (CAST) Charles A. Black Award in recognition of his scientific contributions.

Qualset's career has focused on how to conserve plants, animals and microbes and efforts to ensure they are publicly available to meet future food and industrial needs. He works on methods to assist farmers of all income levels in genetic resource conservation. Important contributions include the study of California barley varieties that helped identify a plant gene located only in Ethiopia.

In Mexico, Qualset helped develop a program to give poor farmers financial incentives to protect their historic crop varieties. In California, he guided evaluations of tomato, lettuce, citrus, avocado, Monterey pine and poultry that helped establish state, federal and university agreements to conserve their genetic lines.

CAST is an international consortium of 37 scientific and professional societies.

Lecturer **Michael Fotheringham** in the landscape architecture program, Department of Environmental Design, led redesign efforts of Union Square in San Francisco's shopping district. In 1997, 300 designers from around the world submitted proposals; the team of April Philips Design Works and Fotheringham won with its concept titled "All The Square is a Stage."

In the plan, the 2.6 acre roof garden was redesigned as terraced gardens and lawn surrounding a central granite-paved plaza and stage. The Dewey Memorial was left in place as

the centerpiece of the design.

The existing four-story parking structure has been upgraded with new lighting, restrooms and colorful graphics. The new Union Square offers a cafe pavilion, ticket sales pavilion, extensive outdoor seating and public art.

Associate professor **David Rizzo**, Department of Plant Pathology, received the Early Career Award from the American Phytopathological Society, Pacific Division. APS is an international organization devoted to the study of plant diseases and their control.

Rizzo's research focuses on ecological studies of fungal pathogens in native forests, offering insight into the role of fungi and fungal diseases in ecosystem function. He also is examining the spatial distribution of pathogens and insects and their impact on plant community development in mixed-conifer forests in the Lake Tahoe Basin, Yosemite Valley, Sierra National Forest and Baja California.

Professor emeritus **Harold Olmo**, Department of Viticulture and Enology, was presented the 2002 Grape and Gourmet Lifetime Achievement Award by the California State Fair. Olmo is the first academician to receive this award, presented annually to an individual who has contributed extensively over a number of years to the promotion, advancement and growth of the wine industry.

Olmo joined the UC Davis faculty in 1934. He initiated some of the earliest clonal selection work using cuttings of Cabernet Sauvignon. He was a world-renowned breeder of table and wine grapes and introduced many new varieties in use today. Olmo's research created the world's largest collection of wild Eurasian grapevines in existence.

Olmo retired in 1977. He received the college's prestigious Award of Distinction in 1996.

Professors **William Casey** and **Alexandra Navrotsky**, Department of Land, Air and Water Resources, co-authored a study published in the

journal *Science* that shows how easily metals such as cobalt, copper and lead travel through the environment depend on the compounds they form in the soil and how these compounds dissolve in water.

The study illustrates a simple way to work out the stability and solubility of a whole class of clay-like compounds called hydrotalcites -- 'garbage bags' with a layered structure that can take up many metals, nitrates and other chemicals.

The finding helps geochemists make much better estimates of soil contamination. By understanding how easily hydrotalcites form from various metals, scientists can predict how much of the metal stays dissolved in groundwater and how fast it spreads.

Discovering Zinfandel's Hidden Roots

Answering a question that has fascinated wine lovers and scientists for more than 100 years, grapevine geneticist **Carole Meredith**, Department of Viticulture and Enology, confirmed through DNA tests the Old World origin of Zinfandel -- and it's not Italy.

"Zinfandel comes from Croatia," said Meredith. "The grape we call Zinfandel, and the grape the Italians call Primitivo, is Crljenak Kastelanski."

Meredith's research proves conclusively that Zinfandel is genetically identical to Crljenak Kasteljanski, a grape variety from the Dalmatian Coast of Croatia. Zinfandel is acclaimed as California's signature grape in the state's \$17 billion wine industry.

Using DNA profiling techniques, Meredith and two Croatian scientists, Ivan Pejic and Edi Maletic, discovered that Zinfandel and an indigenous Croatian grape called Crljenak are one and the same.

In June, Meredith delivered a presentation on their work at the Conference on American Zinfandel in Rohnert Park, Calif. In August, she presented her findings at the Inter-

Sharon Shoemaker, founder and director of the California Institute of Food and Agricultural Research, received the Charles D. Scott Award at the 24th Symposium on Biotechnology for Fuels and Chemicals. The award recognizes individuals who distinguished themselves in using biotechnology to produce fuels and chemicals.

Shoemaker joined UC Davis' Department of Food Science and Technology in 1991. She is involved in numerous biomass projects at state, national and international levels.

Stephen Russell, 4-H youth development specialist in the Department of Human and Community Development, participated on the California Department of Education task force

that developed recommendations for California's new School Safety and Violence Prevention Act, AB537.

Russell was named to the group based on his published research on adolescent sexual orientation and its relationship to victimization, compromised mental health and school environment. He authored Appendix A, the section providing research history on the issue.

CORRECTION

Spring 2002 *CA&ES Outlook*:

Bruce Hartsough, chair of the Department of Biological and Agricultural Engineering, joined the UC Davis faculty in 1985 and was promoted to full professor in 1995.

national Grape Genetics and Breeding Symposium in Keskemet, Hungary.

In 1998, Meredith, Pejic and Maletic searched many different vineyards and some of the islands offshore Croatia's Dalmatian coast. Meredith brought 150 samples back to UC Davis for comparison with Zinfandel and Primitivo samples. Her tests confirmed that Crljenak and Zinfandel were the same variety.

Meredith said the mystery is not quite over. She speculated that Crljenak could have been brought to Croatia from Greece or Albania. However, the presence of one confirmed offspring and many other similar vines in the region indicate that the variety has been in Croatia for a long time.

Meredith also discovered the parents of Cabernet Sauvignon, Chardonnay and Syrah.



Edi Maletic (left) and Ivan Pejic (right), University of Zagreb, Croatia, collaborate with Carole Meredith, professor in the Department of Viticulture and Enology, UC Davis. They are pictured at the Oakville Experimental Vineyard in Napa Valley.

Eliminating Mosquito-Borne Diseases

Professor **Thomas Scott**, Department of Entomology, director of the Mosquito Research Laboratory, is researching how to terminate some of humanity's deadliest foes -- disease-carrying mosquitoes. In particular, the dengue virus, spread by mosquitoes, wreaks havoc on the public health in tropical regions of the world. Epidemics are now common in Southeast Asia. Dengue fever also is prevalent in many South and Central American countries.

Scott is developing DNA techniques to evaluate the risk of dengue outbreaks in certain communities. In Thailand, he found that a female mosquito may need many blood meals to reproduce successfully, compared with the single blood meal required by most other mosquito vectors.



This finding, confirmed by individually marking female mosquitoes and recapturing them around people's homes, sheds light on why dengue can persist, even when very few mosquitoes are present. It also reveals that just a few infected mosquitoes or people are needed to jumpstart an outbreak.

"Predicting an epidemic might not stop it," Scott said, "but it could help health departments prepare to treat the youngest and most susceptible victims, and so prevent unnecessary deaths."



Salmon Stream Restoration

Salmon are on the federal government's endangered species list, and scientists are using sophisticated computer modeling to help restore California's salmon habitats in rivers and streams, hoping to bring back some of its once healthy salmon runs.

"In this study, we used computer models to determine where to place gravel beds to promote the movement of clean, well-oxygenated water, which is critical for salmon egg-laying," said **Greg Pasternack**, assistant professor of watershed hydrology in the Department of Land, Air and Water Resources. "This may yield an integrated design approach suitable for all salmon stream rehabilitation in California's Central Valley."

Researchers simulated water hydraulics, sediment erosion potential, and salmon spawning habitat. They found that gravel replenishment could

decrease water depth, increase flow speed and expand spawning areas without negatively affecting the environment. Computer simulations also offer the ability to predict changes over long periods of time when it would take years of field observations to gather such data.

"Previous efforts to encourage salmon spawning through gravel beds have ignored the real-world conditions of streams," Pasternack said. "This computer model predicts water flow, including effects of woody debris, boulders and gravel bars so ubiquitous in rivers and streams."

In the past, engineers laid gravel beds straight across streams -- an artificial shape not likely replicated in nature. This latest research, however, shows how simulations can create the "rapids" and "riffles" upon which salmon spawning so depends.

Spotlight on Animal Welfare

You don't have to be an animal activist, vegetarian or pet lover to think that animals raised for human consumption deserve better treatment.

Joy Mench, professor in the Department of Animal Science and director of the Center for Animal Welfare, has worked for more than 20 years to turn the spotlight on "animal welfare" -- or standards for the treatment of animals headed for restaurant

tables, supermarket shelves, labs and zoos. Now, the concept is emerging into the mainstream.

This summer, the Food Marketing Institute and the National Council of Chain Restaurants released animal welfare guidelines, the first such industry-wide initiative. Mench serves on the nine-person committee that has been working since June 2001 to develop the recommendations.

While not mandatory, these

guidelines are a carrot-and-stick approach in economics. For example, a major supermarket may decide to accept only meat and poultry from livestock producers following animal welfare guidelines. History has shown that once McDonald's and Burger King adopt a certain practice, many smaller fast food companies jump the industry bandwagon.

"Corporations increasingly are being held responsible for the practices of their suppliers," Mench noted. "This is about getting out ahead of a potential problem and turning a negative into a positive through science-based, effective policies."

Mench consulted with McDonald's for about a year on how to improve the way egg farmers care for their

hens. In August 2000, McDonald's announced new standards that require 50 percent more space for each caged hen, a ban on the common practice of denying the hens food and water as a way to increase egg production and a phasing out of "beaktrimming," a painful practice.

The McDonald's action is the most far-reaching step in a trend that began in Europe and has broadened to the U.S. on the issue of improving living conditions for all farm animals, for both ethical and public health reasons.

"The European spillover effect has reached America, and industry here is responding," said Mench. "The catalyst is rising scientific and public unease about the crowding of animals and their inability to perform typical

behaviors in their housing. When we notice that an animal's behavior is abnormal, it's a question of examining what variable is influencing the change."

Mench noted that guidelines concerning produce animals lag behind those of other animals that serve humans. For instance, the use of animals in laboratories is the most highly regulated use of animals in the United States.

"Every research and teaching project using animals has to be reviewed first and then approved by an Institutional Animal Care and Use Committee. USDA also inspects certain animals," Mench said. "Animal welfare is not just good for animals. It's good for business and people, too."

Genome Sequence Benefits Wine Industry

Historic inroads are being made in genomic studies of the bacteria that populate wine fermentations. The Joint Genome Institute (JGI) in Walnut Creek, Calif., the sequencing arm of the Department of Energy, just completed sequencing 11 important food fermentation-related bacteria, including *Oenococcus oeni*, the lactic acid bacterium involved in secondary fermentation of wines.

A nationwide consortium, Lactic Acid Bacteria Genome Consortium, was organized by Department of Viticulture and Enology assistant professor **David Mills** and Bart Weimer, professor, Utah State University.

"Our goal was to use this aggregate sequence to advance genomic study on the lactic acid bacteria (LAB) and other food fermentation microbes," says Mills. "Inherent in this new direction are several aims. The first is to gain a more comprehensive

understanding of LAB genetics and physiology, particularly in relation to its role in generation of fermented foods and beverages. Another aim is to identify and/or enhance the beneficial roles of LAB in food preservation, food safety and human/animal health.

The availability of the genomic sequences of the primary lactics found in wine will greatly accelerate understanding of this important class of

organisms and their interactions with *Saccharomyces*.

"In my opinion, the genome sequence generated by JGI will impact the wine industry for many years to come," said Mills. "Access to the aggregate sequence in the LABGC package will completely alter the scientific perspective on LAB. With these genetic 'roadmaps' in hand, scientists' ability to study the genetics,

ecology and physiology of the LAB in wine and other fermented products will be amplified tremendously."

A host of new approaches will ensue, including a better understanding of taint and spoilage physiology (and prevention), a more detailed comprehension of the malolactic conversion, a better understanding of regional differences in ML strains, and much more.

The sequence will be available to the public with no restriction; thus, the whole world can benefit immediately from this work. (See www.jgi.doe.gov/)



(Left to right, back row) Milton Saier, UC San Diego; Todd Klaenhammer, North Carolina State University; Larry McKay, University of Montana; Jeff Broadbent, Utah State University; Fred Briedt, North Carolina State University/USDA; Jim Steele, University of Wisconsin; and Dan O'Sullivan, University of Minnesota. (Front row) **David Mills**, UC Davis; Bart Weimer, Utah State University. Photo courtesy David Mills

Crop Fertilizers Studied



As global warming results in a greater amount of carbon dioxide in the atmosphere, plants are experiencing difficulty processing certain forms of nitrogen. This could dramatically shift the way fertilizers are used and transform flora worldwide as well, said plant physiologist **Arnold Bloom** in the Department of Vegetable Crops.

Over the past two centuries, CO₂ concentrations in the atmosphere have surged by nearly 30 percent. Beyond global warming unease, scientists for a long time thought this trend would benefit plants. Plants convert CO₂ into carbohydrates to store the chemical energy they need for survival. But in recent years, research has

shown that this process is far more complex than originally believed.

For example, although plants seem to initially process the extra CO₂ created by the burning of fossil fuels, the increased assimilation diminishes after days or weeks.

In lab experiments involving wheat seedlings, Bloom and fellow researchers examined how crop plants respond to being fertilized with nitrate and ammonium -- the two different forms of nitrogen available to plants. Farmers and gardeners typically apply nitrogen-rich fertilizers to their crops to help them grow better.

Researchers discovered that elevated levels of CO₂ inhibited the processing of nitrate fertilizer. As it turns out, the plant uses the same resources to process CO₂ and nitrogen, and it gives priority to CO₂. Furthermore, elevated levels of CO₂ can block the transfer of nitrite -- the compound the plants produce from nitrate -- into their photosynthesizing structures. The decreased processing of nitrate thus offsets the benefits of increased CO₂. Under the same high CO₂ conditions, however, the plants made ample use of ammonium-based fertilizer.

When atmospheric carbon dioxide rose to nearly twice the normal level -- a level that is likely to be reached within the next century -- the leaf area of plants receiving ammonium increased in size by nearly 49 percent, while plants receiving nitrate increased by only 24 percent.

In addition, the protein content of the plants that received ammonium rose by 73 percent, as compared with only 32 percent for the nitrate-nourished plants. Unpublished work on tomatoes has yielded similar results.

These data suggest that increasing carbon dioxide levels might diminish the nutritional quality of grain receiving nitrogen in the form of nitrate. Also, because plant species differ in their abilities to incorporate ammonium vs. nitrate, rising atmospheric carbon dioxide levels might cause significant changes in the distribution of plants in the wild.

"We expect the data from this study will have real-world implications for crop production," Bloom said. "In well-drained soils generally devoted to wheat production, nitrate is the common form of nitrogen available in the soil. This study suggests that a shift to increase ammonium

"Masculinized" Songbirds?

New laboratory research indicates that environmental exposure to the female hormone estrogen may "masculinize" female zebra finches and cause infertility in males, hindering the ability of the songbirds to reproduce.

In nature, wildlife may consume estrogens that have found their way into the environment. With synthetic hormones leaking into the environment, researchers wonder how these powerful chemicals that regulate sexual development and reproductive ability might affect wildlife.

This latest research reveals that orally ingested estrogens can alter the brain circuitry of female zebra finches enough to make them sing. By nature, only male finches can sing.

"Results indicate that songbird populations may be at risk if they



are exposed to estrogenic chemicals as chicks," said Professor **James Millam**, Department of Animal Science, lead author of studies published in the journal *Hormones and Behavior*.

The work was done with SRA **Christina Craig-Veit**, graduate students **Allison Quaglino**, **Andrea Erichsen** and **Mark Viant**, and

research physiologist **Michael Fry**.

The U.S. Geological Survey reported in April that industrial contaminants in many American rivers and lakes seem to be affecting the levels of sex hormones in fish throughout the U.S. Estrogen-like compounds also are formed by the breakdown of pesticides such as DDT.

In the case of pharmaceutical estrogens, women excrete potent estrogens, which remain in treated sewage wastewater. Millions of women take estrogens in birth control pills and in estrogen supplements to relieve hot flashes and other symptoms of menopause. Millam noted that his lab study does not answer the question of whether estrogens exert comparable effects in wild songbird populations. That's to be determined.

Textiles on the Front Line

The Division of Textiles and Clothing recently became a member of the National Textile Center (NTC), a consortium of eight universities that participate in innovative research and education with the fiber, textile and apparel industries to foster economic development and national security. In this first year of membership and funding, the division is initiating several research projects, some of which involve collaboration among physical and social scientists and industry.

Novel strategies for economic development in California are aimed at understanding the connections and negotiations along the textiles complex value chain (e.g., from cotton fiber produced in the Central Valley to apparel produced in Los Angeles or San Francisco). Fostering partnerships along the various stages of the textiles complex value chain can enhance profitability and satisfaction for buyers and sellers alike.

Professors **Margaret Rucker** and **Susan Kaiser** are pursuing partnerships with California State University colleagues and industry representatives in a study that measures buyer and seller perceptions of value. They are exploring how much participants at various stages along the chain are willing to pay for specific value-added features, such as materials; dyes and finishes; garment details; and advertising images. A philosophy of collaboration and a better, shared understanding of perceived added value of textile products is key to fostering such partnerships.

Several NTC projects provide better understandings of how textiles can afford both personal comfort and protection from fire and biological and chemical agents. Professor **Gang Sun** is continuing his broader line of research on self-decontaminating properties of textile finishes, and professors **Ning Pan** and **You-Lo Hsieh** are collaborating with Professor Kay Obendorf of Cornell University to understand fundamental transport phenomena (i.e., liquid and solid interactions) in fibrous materials.

Hsieh also is collaborating with

colleagues from Clemson University and the U.S. Army in a basic study of functional fibers that can immobilize biomolecules. Kaiser and Pan are studying the sensory science of textiles to examine the social and physical interactions involved in human perceptions of textiles.

The entire textiles faculty is collaborating on a project to develop a strategic model for functional protective clothing -- a concept that entails aesthetic, cultural, physical, physiological and social dimensions.

Environmental health and safety are important issues in almost every industry, and functional protective clothing is required for many professionals, such as firefighters, police officers, medical workers, chemical and biological researchers, environmental health workers, pesticide

handlers and soldiers.

Protective garments can serve as barriers to environmental hazards, but they should not have a negative effect on personal performance or appearance. Nor should they add to discomfort or heat stress.

This interdisciplinary project will develop a model that explores the multifaceted ways in which functional clothing can be protective, comfortable and attractive for workers on various front lines.

The Division of Textiles and Clothing at UC Davis is particularly suited to the NTC mission of collaborative partnerships, given its history of interactions between physical and social scientists, especially in the realm of personal comfort and protection.

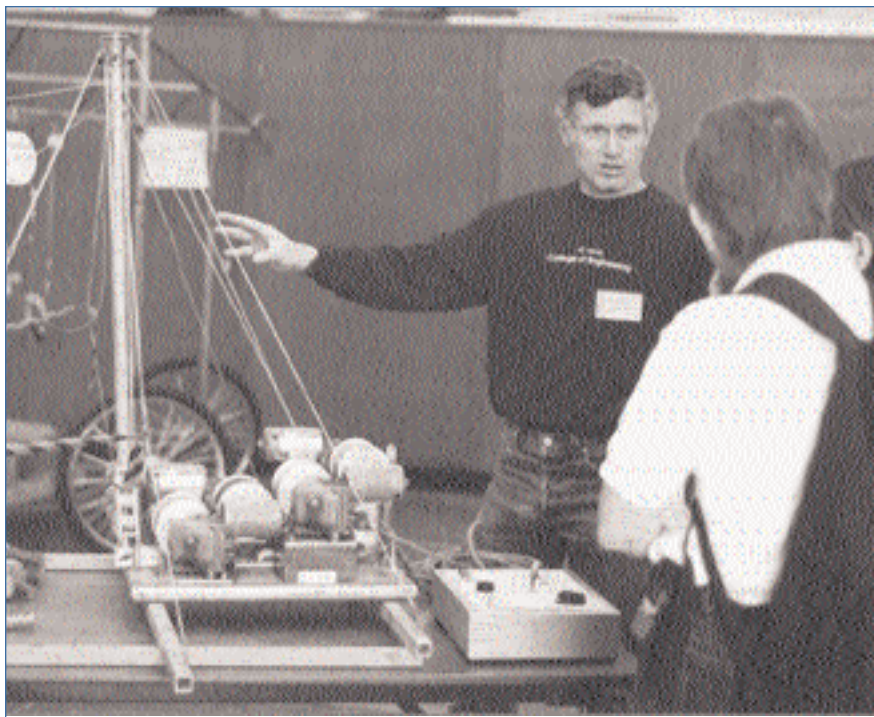


Biotechnology Teacher Institute

Teachers from high schools with large numbers of underrepresented students in Oklahoma, Texas, Alabama, Tennessee, Florida, Louisiana, North Carolina and Georgia attended the week-long Biotechnology Teacher Institute last summer at UC Davis. The workshop, presented by the Center for Engineering Plants for Resistance Against Pathogens (CEPRAP), arose from a partnership with the Southern Agricultural Biotechnology Consortium for Underserved Communities.

The workshop provides comprehensive, well-tested laboratory activities that easily can be implemented with students via lectures or in teacher training and professional development sessions and tours led by UC Davis faculty and researchers. The workshop promotes peer networking and assistance in developing future training sessions.

According to CEPRAP education coordinator **Barbara Soots**, teachers explore current topics in biotechnology with researchers and industry professionals, engage in hands-on experiments, discuss bioethics and tour university lab facilities. Once trained, they act as facilitators at local workshops and mentor teachers in their respective areas.



Professor **Bruce Hartsough**, chair of the Department of Biological and Agricultural Engineering, demonstrated a Cable Logging Simulator to visitors during Picnic Day.

The simulator is a scale model of equipment used to transport logs or trees on steep terrain. Cable logging minimizes disturbance to the soil because it works like a ski lift rather than like a tractor that moves within the stand of trees.

"We use the simulator to train

students how to properly plan cable logging," Hartsough explained. "We also are researching how cable and other harvesting methods might be used to thin out small trees and reduce fire danger in California's forests. This will help prevent the catastrophic wildfires that pose significant risks to our watersheds, air and homes."

Wildfires burned 240,000 acres within California in 2000 and 290,000 acres in 2001.

What Goes Up Must Come Down


Inputs of nitrogen (N) and phosphorus (P) to Lake Tahoe are a major cause of the declining clarity of this once pristine lake. Past work has shown that much of the N and P put into Lake Tahoe comes from the atmosphere, deposited as gases, particles, or in rain and snow. Yet it's unclear whether these pollutants are from sources within the Tahoe Basin or if they are from sources -- such as the Central Valley -- outside the Basin.

To explore this issue, a team from the Department of Land, Air and Water Resources characterized atmospheric nitrogen and phosphorus levels last summer during aircraft flights from the Central Valley to Lake Tahoe.

The team consisted of graduate students **Qi Zhang**, **Eddie Galbavy** and **Steve Zelinka**, research associate **Alan Dixon**, and professors **John Carroll** and **Cort Anastasio**.

Flights revealed that nitrogen concentrations typically were greatest over the lower and middle elevations of the Sierra Nevada, closest to the Central Valley, and were lowest in the Tahoe Basin. In addition, nitrogen "fingerprints," namely the distribution of different nitrogen compounds, were very similar at all three sites.

These results suggest that regional, out-of-basin areas such as the Central Valley can be significant sources of nitrogen pollution to Lake Tahoe during the summer when the wind pre-



IN MEMORIAM

William C. Weir
 Professor Emeritus
 Department of Animal Science
 Dean of Students
 Assistant Director
 International Small
 Ruminant Collaborative Program
 April 7, 2002

James Harrington
 Professor
 Department of Vegetable Crops
 April 12, 2002

Charles Rick
 Professor Emeritus
 Department of Vegetable Crops
 May 5, 2002

Paul Ecke, Jr.
 Dean's Advisory Council
 Paul Ecke Poinsettia Ranch
 May 13, 2002

Frank X. Ogasawara
 Professor Emeritus
 Department of Animal Science
 June 8, 2002

Robert M. Hagan
 Professor Emeritus
 Department of Land, Air and
 Water Resources
 July 7, 2002

Justin Meyer
 B.S., '67, Fermentation Science
 M.S., '68, Horticulture
 1995 Award of Distinction Recipient
 August 6, 2002

dominantly blows from the Central Valley to the Sierra Nevada.

In contrast, phosphorus results indicate that air from the Central Valley is unlikely to be a significant source of P to Lake Tahoe. Atmospheric phosphorus rarely was found over the lower and middle elevations of the Sierra, but was commonly present in the Tahoe Basin.

Richard E. Rominger ('49, Plant Science) of Winters is spearheading a four-campus partnership to serve the needs of California's agriculture industry. Rominger is working with UC Davis, UC Riverside, California Polytechnic State University, San Luis Obispo, and California State University, Fresno, to address agricultural production issues.

Rominger served as California's secretary of agriculture during Gov. Edmund G. Brown, Jr.'s administration. From 1993 to 2001, he served as the deputy secretary for the U.S. Department of Agriculture.



D. Dwight Wait (M.S., '57, Agricultural Education) of Ceres, Calif., retired as head of the Environmental Horticultural

Program at Modesto Junior College after 22 years of service. In retirement he has formed an environmental horticultural consulting firm and authored a book titled "Ornamental Plants: Their Care, Use, Propagation and Identification."

Wait currently serves as a consultant on tree selection and care to the Hughson Arboretum Society. He hosts local horticulture classes in his home garden each fall, showing over 250 plant species. He has two children and three grandchildren.



Richard L. Westcott ('64, Entomology) of Salem, Ore., retired as a taxonomic and survey entomologist after 32 years of service

with the Oregon Department of Agriculture. He now focuses on insect identification and taxonomic research as a volunteer and serves as acting

curator of Salem's Entomology Museum.

Curtis Miller ('71, Agricultural Business Management) of Davis was appointed legislative director of the CALFED Bay-Delta Program, a collaborative effort among 23 state and federal agencies to improve California water supplies and the health of the San Francisco Bay-Sacramento River Delta systems.

Miller previously served 24 years with the California State Senate in various staff positions, including 10 years as a budget analyst and staff director for Sen. Kenneth Maddy. He served 20 years on the board of directors of the Yolo County Flood Control and Water Conservation District and on various other local community boards.

Nancy Ree Whiteside Joye (M.A., '72, Zoology) of Sacramento is a pediatrician at UC Davis School of Medicine and director of the Foster Care Health Program at UC Davis Medical Center. She and husband James, chief of cardiology at Kaiser Sacramento, have two children, Matthew, 21, and Sarah, 18.



David Carle ('72, Wildlife and Fisheries Biology) of Lee Vining, Calif., earned his master's degree at California State University,

Sacramento. He retired in 2000 after a 27-year career as a California state park ranger and is author of "Burning Questions, America's Fight With Nature's Fire," which was published in March. The book is a history of debates over wildland fire policy in the United States during the last century.

Carle also authored "Drowning the Dream, California's Water Choices at the Millennium" (2000) and "Mono Lake Viewpoint" (1992). He currently is working on "California Water" for the UC Press series "California Natural History Guide."

Maureen O'Leary Burness ('72, Applied Behavioral Sciences) of

Sacramento is assistant superintendent of the Placer Nevada Special Education Local Plan Area, one of 118 SELPA regions in the state. Her husband, Rob Burness, a UC Davis graduate, is a planner for Sacramento County. Daughter Jessica is a family practice intern in Portland, and son Todd is studying architecture in San Luis Obispo.

Maureen wrote that the most exciting "extra" in their lives right now is running the new Maureen O'Leary Burness Foundation for Special Needs Children, which Rob founded as a 50th birthday present for her.



Laurence Bell (M.S., '75, Food Science) of Pacific Grove, a consultant in the fresh food industry, received the 2002 Industrial Scientist Award from the Institute of Food Technologists (IFT) for major technical contributions to the food industry.

Bell is recognized for the development and emergence of the fresh-cut produce industry. He was chief technical officer for TransFRESH Corp. in the 1980s and 1990s. He developed several new patents for processing and packaging fresh-cut vegetables and pioneered development of modified-atmosphere packaging for respiring plant perishables, which allowed retail packaged salads to become a safe and viable reality.

Bell's concepts for total controlled environment led to the commercialization of shipboard containers for the export and import of fresh produce.

In 1998, Bell received the IFT Food Packaging Division's Riester-Davis Award for exceptional contributions to

the field. He and wife **Linda Walker Bell** ('72, Consumer Food Science) live in Pacific Grove with their daughter Alissa, two cats and a bunny.

William "Bill" Hutmacher ('74, Range Science) of Anchorage is the statewide program manager for the Alaska Department of Environmental Conservation. He retired in 2002 from the U.S. Coast Guard as a captain with 28 years service. His last assignment was commanding officer of Marine Safety Office Anchorage, which oversees all marine safety activities in Western Alaska. He received the Coast Guard Meritorious Service Medal.

Hutmacher started a second career in July as the industry preparedness/pipeline program manager for the Alaska Department of Environmental Conservation. The program provides oversight of oil tankers, oil terminals and the Trans-Alaska Pipeline System.

Ruth Putz Hutmacher ('75, Design) and Bill have two daughters, Kristen and Amy. Ruth is a special education teaching assistant in the Anchorage School District, working with learning disabled children, primarily in grades 3 and 4. She has worked in elementary schools in Valdez, Juneau and Anchorage during the last nine years.



Susan Scott Gleason ('75, Textile Science) of Santa Rosa, is manager of administrative and financial services for Coastland Civil

Engineering in Santa Rosa. She is responsible for financial, administrative and human resources for 40+ employees. The company provides municipal engineering, construction management and building department services in jurisdictions throughout Northern California.

"We actively recruit UC Davis grads and encourage future civil engineers to visit our Web site," Gleason said.

Gleason and her husband own and operate Mobile Truck Testing Services, a smoke-check business that tests

diesel trucks and farm equipment for compliance with opacity standards established by the state of California.

Gleason describes herself as an avid gardener and dog lover. "My plants, vegetables and boxers keep me busy when home," she said. Their children are Amy, 23, Kelleigh, 15, and Erica, 14.



Mary Crowe (Scott) Paustian ('76, Child Development) of Big Lake, Minn., is a second-grade teacher at Pine-wood Elementary

School in the Monticello School District. She moved to Minnesota 10 years ago after teaching kindergarten-2nd grade for eight years in Morgan Hill, Calif. Paustian and husband Harold recently toured colleges with Sally, 17, and Joel, 16.

Barbara Urban-Gurry ('77, Individual) of Rohnert Park, Calif., is a pharmaceutical sales representative with Glaxo in the Santa Rosa area. She has three children, a golden retriever and two cats.

Dana Van Liew (B.S., '78; M.Ed., '83, Agricultural Education) of Woodland, animal research manager and lecturer in UC Davis' Department of Animal Science, received the Academic Federation's 2002 Award for Excellence in Teaching.

Van Liew coached the intercollegiate livestock judging team for 22 years, managed the sheep teaching and research program for 20 years and currently teaches livestock management and evaluation courses. He is involved in student recruitment for the department and the college.

Sean McCormack ('79, Biochemistry) of Simi Valley, Calif., owns Conejo Valley Veterinary Hospital in Thousand Oaks. The hospital has 48 staff members, including 12 veterinarians. Services include endoscopy, ultrasonography and full lab, including hematology, chemistries, blood gasses,

serology and microbiology. He and his wife, who are celebrating 20 years of marriage, have four children and "still miss UC Davis!"

Emily J. Bruce ('81, Applied Behavioral Science) of Stockton, is a lecturer at San Jose State University. She just completed her Ph.D. in social welfare from UC Berkeley. She began a full-time position as an assistant professor at San Jose State University College of Social Work this fall.

Thomas Ikeda ('82, Agricultural Science and Management) of Arroyo Grande, Calif., was selected as one of six farmers from around the country to participate in The Executive Program for Agricultural Producers. The week-long program is conducted at Texas A&M University. More than 22 topics are covered, including developing and implementing marketing strategies, evaluating investment alternatives and special topics on human resources.

Participants were selected based on an application and essay answering the questions: What is the greatest challenge that your generation of farmers has faced and what ideas do you have to deal with that issue?

David Masumoto (M.S., '82, Community Development) of Fresno is a peach grower with 300 trees producing a variety called Sun Crest. He and his father planted the trees in 1968. He has held on to the trees for many more years than growers usually do, mostly for sentimental reasons and because he believes they are much tastier and juicier than more modern varieties.

When sales of the 'old fashioned' variety -- the one he characterizes as "smelling and tasting like peaches" -- fell, Masumoto decided to plow under the trees. But first, he wrote an article about how the Sun Crest peach reminded him of childhood -- about his memories of standing over the sink with peach juice running through his fingers, something that no longer occurs with newer varieties. The article was published in the *Los Angeles Times*, and Masumoto received calls

from around the country. "So many people begged me to keep the trees that I sent the bulldozers away."

Masumoto published a book, "Epitaph for a Peach," about his quest to save the Sun Crest peach from extinction; it won the 1995 Julia Child Cookbook Award.

Gregory D. Foster (Ph.D., '85, Agricultural and Environmental Chemistry) of Fairfax, Va., is a professor at George Mason University. In 2001, he was promoted to full professor and appointed chair of the chemistry department. A faculty member at GMU since 1989, Foster teaches courses in general chemistry and environmental chemistry. He is a member of the editorial board of the journal *Environmental Science and Health, Part A*.

Foster's research focuses on the sources and transport of organic substances, primarily contaminants, in watersheds surrounding Chesapeake Bay. He is quantifying the transport of organic chemicals in the bay watershed through atmospheric deposition and river runoff.

Cindy Batchelder (M.S., '88, Animal Science) of Orland Park, Calif., received the 2002 Hertzendorf Award recognizing scholarship and good citizenship. She is working toward her Ph.D. in physiology at UC Davis on the cloning of dairy cattle to change milk for manufacturing and nutritional purposes. The objective of the project is to improve cloning efficiency in dairy cattle for easier modification of milk composition for manufacturing, health and nutritional purposes.

Rebecca Marchant Elkins ('91, Design) of Folsom, Calif., is a graphic designer with Oberthur Gaming Technologies (OGT), the world's largest producer of instant lottery tickets. She manages an office in Sacramento for the plant located in San Antonio, Texas, and designs all instant lottery tickets for the California Lottery, Oregon Lottery and special niche games for the Colorado Lottery.

Prior to working with OGT,

Elkins was senior designer for Raley's in West Sacramento. While there, she won design awards from the Sacramento Advertising Club and the International Association of Business Communicators.

Matthew T. Portillo ('93, International Agricultural Development) of Murray, Ky., received his Ph.D. in agricultural education in 2002 from Oklahoma State University. He currently is assistant professor of agricultural education at Murray State University.

Portillo's wife, **Erin MacKinnon** (B.S., '97, Animal Science) of Starkville, Miss., received her D.V.M. from Oklahoma State University and is an intern at Mississippi State University's College of Veterinary Medicine.

Kathryn Boor (Ph.D., '94, Microbiology) of Trumansburg, N.Y., associate professor in the food science and technology department at Cornell University, received the 2002 Samuel Cate Prescott Award for research on microbiological food safety and quality. The Institute of Food Technologists presents the award to a member less than 36 years of age or who received his/her highest degree within the previous 10 years and who demonstrated outstanding ability in food science.

Boor is director of Cornell's Food Safety Laboratory and the Milk Quality Improvement Program. Her research focuses on identifying and modifying factors that affect the presence and persistence of spoilage and pathogenic organisms in food products intended for human consumption. The long-term objective of her research and education program is to create an integrated, interactive network of university, regulatory agency and food industry professionals and institutions for improving food safety and quality.

Boor received a B.S. in food science from Cornell University and M.S. in food science from the University of Wisconsin, Madison. She worked as a staff research associate at UC Davis from 1984-89 and was a graduate student in Chet Price's lab, Department of Food Science and Technology.



Joanna D. Opperman ('94, Environmental Policy Analysis and Planning) of Greenbrae, Calif., is associated with Hinshaw &

Culbertson in San Francisco. Her practice focuses on professional liability defense, mainly the defense of lawyers, insurance agents, real estate agents and health care professionals. She defends employers in lawsuits brought by employees for wrongful termination, harassment, discrimination and other employment-related issues.

Opperman received her J.D. from Golden Gate University in 1998.

Rebecca Rachford Leckman ('96, Design) of San Francisco is technical design manager for GAP Inc Direct.

Melissa Borrelli ('01, Environmental Policy Analysis and Planning) of Sacramento is one of 18 individuals selected to complete a Center for California Studies Executive Fellowship sponsored by the Office of Gov. Gray Davis and CSUS Center for California Studies. Fellows are placed in an office of the executive branch and complete an academic seminar in public policy and administration.

Borrelli was placed at the California State Health and Human Services under the direction of the undersecretary. She plans to return to UC Davis to attend law school.

Sandra Oldfield (M.S., '01, Food Science) of Oliver, British Columbia, was presented the Red Wine of the Year Honours at the first annual Canadian Wine Awards in Toronto. She received the award on behalf of Tinhorn Creek Vineyards for its 1998 Merlot. The gala evening was held at the Royal Agricultural Winter Fair.

Alumni Information Sheet

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