Cooperative Extension at 75

People investing in California's future

University Archives, Bancroft Library, UC Berkeley

From Cooperative Extension's beginning in the early 1900s, farm advisors quickly earned the respect of farmers and worked hard to bring them new research-based information (above). Today, although modern communication methods play a greater role, grower visits are still an important part of an advisor's week. Below, El Dorado County advisor Richard Bethell (on the right) helps an apple grower monitor insect pest levels.

Jack Kelly Clark

Disneyland has a next-door neighbor that commercial nursery growers think is just as important to the economic heartbeat of Orange County as the entertainment industry.

In Modoc County, alfalfa, potatoes, cattle, and wildlife reign over a sparse landscape. Ranchers and farmers are becoming more savvy in business management and marketing principles to help them make a living in a harsh environment.

Commercial fishing crews in Sonoma County's port of Bodega Bay grapple with complex new regulations and tax laws.

Inner-city youth in Los Angeles make new friends, learn new skills, and develop the self-confidence to tackle life's challenges.

San Joaquin Valley growers continually upgrade pest management practices to remain world leaders in this highly competitive industry.

Volunteers in many California communities receive in-depth technical training to become Master Gardeners, Master Food Preservers, and Master Shoppers so that they, in turn, can respond to citizen needs for home and gardening information.

Each of these "publics" has something in common: the benefit of three-quarters of a century of research and assistance from the University of California's Cooperative Extension program. Celebrating its 75th national anniversary this spring, Cooperative Extension remains an energetic team of people investing in California's future.

Farmers, ranchers, fishermen, pregnant women, urban and rural youth, low-income families, government planning agencies, homeowners, and a myriad of others receive help each day from this dynamic partnership of national, state, and local resources working for the betterment of California.

Cooperative Extension is the University's service window to every county in California. Out through this window flows research information from the University to help diverse audiences improve their lives. Back through this window from the public to the University pass problems requiring scientific analysis and resolution.

Cooperative Extension is based on a funding partnership of federal, state, and county governments. It supports offices throughout California, where residents can receive advice and help from one or more academic staff members of the University of California. These resident professional researchers/educators—county farm, home, youth, forest, and marine advisors—number more than 300 statewide.

The county-based UC advisors are linked with University research programs through Cooperative Extension specialists, who are members of academic departments on three UC campuses—

Jack Kelly Clark

Seventy-five years of Extension work has helped farming remain a viable, $16-billion-per-year industry in the nation's most populous state.

Berkeley, Davis, and Riverside. The county advisors and campus specialists are part of UC's Division of Agriculture and Natural Resources, which operates Cooperative Extension and Agricultural Experiment Station activities on those three UC campuses and in 63 local offices.

Cooperative Extension has withstood the rigors of time and change.

As the strawberry and vegetable fields of Orange County lost ground to development, programs in the local Cooperative Extension office shifted to reflect the changing times. The remaining growers still have the services of a farm advisor. However, new programs were started to meet changing needs. The Extension office now also serves a booming ornamental horticulture business. The office has special nutrition and education programs for youth and adults from low-income families. 4-H has shifted emphasis from traditional agricultural programs to teaching urban and suburban young people career-related and confidence-building skills.

There have been changes in rural Modoc County, too. These have not been triggered by population pressures, but by changing public attitudes about the wide open spaces, particularly those owned and managed by the government. The federal government owns 70% of Modoc County.

Modoc Extension advisors still work with the livestock, range, forage, and vegetable crops critical to the area's economic well-being. But they also have been drawn into the public policy arena, where they are spending more and more of their time.

"I suspect that close to 50% of our time is devoted to public policy issues," says Robert Savage, director of UC Cooperative Extension in Modoc County. That includes serving on technical review teams and working with planning, environmental, and other special-interest groups.

Conduits for knowledge

Cooperative Extension's celebration of its 75th national anniversary this year is based on the passage in 1914 of the Smith-Lever Act. The federal legislation gave state agricultural universities funds to hire county agricultural agents. The agents were to be the conduits through which knowledge from the universities could flow to rural America and improve the quality of rural life.

Several states, including California, had county agents in the field before passage of the Smith-Lever Act. California's first farm advisor, Andrew Hansen Christiansen, was hired in Humboldt County in 1913 to work with the dairy industry. His appointment was the result of an agreement between the University of California, the Humboldt County Board of Supervisors, the Ferndale Dairymen's Association, and the county Chamber of Commerce.

Agriculture is still a big part of the Cooperative Extension success story.

"More than $300 million is added annually to Fresno County's gross income by University of California Cooperative Extension efforts," reports county director Bob Sheesley.

Accomplishments by the Fresno County advisors, linked with campus researchers and specialists, are representative of Extension work throughout the state. In Fresno, the farm advisors have:

- helped make Fresno one of the most productive cotton-producing counties in the nation through years of variety testing, work to control verticillium wilt, equipment design and improved irrigation, help with fertilization, pest control, and harvesting practices;
- provided newcomers to the county's growing vegetable industry with information about varieties and cultural practices;
- helped grape growers lower production costs and increase yields;
- worked with plant breeders to develop alfalfa varieties resistant to the devastating effects of spotted alfalfa aphid and the blue alfalfa aphid;
- developed strategies for reducing almond nut damage from the navel orangeworm and, at the same time, reducing the number of chemical treatments used on this pest;

Tracy Borland

A volunteer UC Master Gardener explains soil types and the advantages of mulch and compost to home gardeners at an educational session in the Model Urban Water Conservation Garden in downtown Sacramento.

- interrupted the life cycle of the alfalfa seed chalcid, which once destroyed up to 14% of the county's alfalfa seed crop;
- helped reduce post-harvest fruit loss by 90% through improved information on storage temperatures, humidity, cooling, packaging, and handling;
- led in the development of commercial poultry management practices that reduce costs and increase production.

Changing with the times

Cooperative Extension is keeping pace with environmental and social concerns that are dramatically different than they were 75 years ago.

"The creation and application of knowledge and the development of human resources to enhance quality of life is as important today, perhaps more so, than at any time in our history," says Kenneth R. Farrell, Vice President of Agriculture and Natural Resources.

Farrell, who has responsibility for the University's statewide agricultural research and extension programs, has made several changes in the structure of Cooperative Extension during his 2-1/2-year tenure as vice president. Perhaps the most significant change was to strengthen the linkage between research and education. He accomplished this by integrating Cooperative Extension specialists into academic departments on the three UC campuses.

"In the long run, this will help to maintain disciplinary excellence in the Extension faculty, the true determinant of quality Extension programs," says Farrell. He adds that integration will also increase the information and human resources available to county Cooperative Extension programs from UC campus departments.

Another recent change, the decentralization of county farm and home advisor staffs, is designed to increase responsiveness to regional and local needs. Four regional directors have been given more authority for Cooperative Extension programs in their regions.

Decentralization paves the way for planning and conducting programs that cross county boundaries. It also enhances the feasibility of establishing research-extension centers that are closely linked to UC campuses and allow greater specialization and division of labor among county advisors. The Kearney Agricultural Center in Fresno County and the Imperial Valley Agricultural Center in Imperial County are already developing in that direction.

The urbanization of California, land use planning, and urban/rural interface problems are accelerating Extension's assistance in the public policy and social arenas.

"We need to continue investing in productivity, enhancing research and extension programs to maintain competitiveness and conserve economically scarce natural resources," explains Farrell. "But we must also convince our traditional agricultural supporters that such programs alone are not sufficient to advance their own interests."

He adds that it is in the interest of agriculture—in a state where lines are being blurred rapidly between urban, suburban, and rural—to have programs serving all of those communities. According to Farrell, Cooperative Extension should help provide opportunities for effective participation in society, be it agriculture, medicine, law, computer sciences, or other fields likely to offer job opportunities in the future.

One example of the Division's changing programs is the 4-year-old Agricultural Issues Center. The Center is in the midst of a comprehensive study of the Central Valley aimed at helping growers and all Valley residents prepare for the future.

Cooperative Extension is no stranger to change. But today the pace is accelerating.

Reducing pesticide use

The Division's 10-year-old Integrated Pest Management Project is reducing farmer dependence on pesticides. The project cov-

4-H takes on new challenges

The ever-popular livestock projects in 4-H now share the limelight with more than 100 other projects to help both urban and rural youth "learn by doing."

Mention "4-H" and the first image that comes to mind is the familiar green clover, or youth in white and green togs showing livestock at a county fair.

With roots deep in our rich agricultural heritage, this University of California-sponsored program began 75 years ago with a core of traditional agricultural projects to build character in young people.

In recent years, 4-H has evolved well beyond the stereotype of youth raising crops and livestock, canning fruits and vegetables, or designing and sewing their own clothes. Newer activities in the list of more than 100 projects include photography, computer science, backpacking, even rocketry.

One of the more innovative activities is the "Ropes Course," an exhilarating experience that sends participants scrambling through the redwoods of Sonoma County and similar areas in other counties to test their skills balancing on rope bridges, scaling sheer wooden walls, and negotiating suspended uneven bars. This mentally and physically challenging adventure seems far from activities normally associated with 4-H, but it shares the original goal of helping youth build self-confidence and a spirit of teamwork.

Tracy Boriand

An innovative 4-H "Ropes" program challenges the mental and physical skills of participants and rewards them with a sense of self-confidence.

Diverse activities such as the Ropes Course keep 4-H dynamic and relevant to the interests, concerns, and needs of today's youth. Yet the basic mission of 4-H remains the same: to nurture self-esteem through its time-tested "learn-by-doing" approach.

What is different are the societal and personal challenges placed on youth today.

About 76,000 Californians from 9 to 19 years old are in 4-H programs today. More than 40% live in large cities or suburbs. About 55% are girls. They come from a variety of ethnic, cultural, and sociological backgrounds as diverse as the state itself. Minority membership has grown to 26,000 youth, more than one-third the statewide total.

The 4-H program is sponsored by the University of California's Division of Agriculture and Natural Resources. Its specialists and advisors help 20,000-plus volunteer leaders design new programs and tap into the University's vast wealth of research-based knowledge. Examples abound:

- A case in point involves smokeless tobacco. Its use has increased at an alarming rate since the mid-1970s. As a 4-H specialist put it, smokeless is not just "a cowboy habit." Nearly half the adolescent boys polled in a recent statewide survey acknowledged "dippin' into the chaw" at least once. Even one in 10 girls admitted giving smokeless a try.

With a $1.5 million grant from the National Cancer Institute, UC researchers embarked on a five-year project to curtail tobacco use. With the active involvement of 4-H'ers and their volunteer leaders, "Project 4-Health" set out to educate youth about the health hazards of tobacco.

- To meet another need, a 4-H pilot program in several counties gives youthful first-time offenders an alternative to chemical dependence. Youth are taught how to eliminate self-destructive behavior by cultivating latent skills and talents to build self-esteem.
- To help serve the needs of the 800,000 California children left alone each day, UC researchers developed the "4-H After-School Program." It helps provide alternatives for so-called "latchkey kids." Teaching packets help community leaders create safe activities that channel youthful energy more constructively.
- To equip youth with practical knowledge of their increasingly sophisticated world, another team of University researchers developed a program called Science Experiences and Resources for Informal Educational Settings (SERIES). Its purpose is to add a much-needed pragmatic dimension to science education.

The 4-H SERIES project will conduct a 36-month leadership and development project. The goal is to create the sort of "head- and hands-on" experiences in the realm of science and technology that has motivated 4-H for three-quarters of a century.

It is difficult to predict the challenges that will confront young Californians in the years ahead. But innovative programs such as these will help 4-H meet the needs of youth in the state's diverse society.

Few moments in life are as gratifying as watching a young face blossom with the joy of a positive experience, whether it is learning about a new life form, operating a new computer program, or winning first place at the county fair. Whatever the challenge, 4-H's "learn-by-doing" approach continues to help youth be better prepared to get, and give, the most in life.

Jack Kelly Clark

Fresno County home economist Jeanette Sutherlin provides adult EFNEP program participants with basic nutritional information.

EFNEP makes a difference

Celebrating its 20th birthday this spring, Cooperative Extension's Expanded Food and Nutrition Education Program (EFNEP) is making the transition from adolescence to maturity.

Its mission remains the same, to improve the dietary well-being of low-income families. But its methods are changing to reach more low-income families in California.

The basic EFNEP premise of "neighbors helping neighbors" also is unchanged. Nutrition education assistants are recruited from low-income neighborhoods, trained, and assigned to work with other low-income families in their neighborhoods.

Coordinated by Cooperative Extension home economists in each of the state's 17 EFNEP counties, the training covers basic nutrition and health practices; food planning, selection, and buying; economical food preparation; and food storage, safety, and sanitation. Nearly 12,000 families enroll annually.

Under the traditional approach pioneered by the USDA Extension Service, nutrition education assistants returned to their home neighborhoods and provided one-on-one instruction. Follow-up studies leave no doubt about the effectiveness of the one-on-one approach in improving diets, changing food-related behaviors and attitudes, and teaching ways to get more nutritional value for each food dollar spent.

However, a 1985 national study, in which California participated, and two California follow-up studies indicated that group teaching also is an effective, and more efficient, way to teach the EFNEP curriculum to low-income, ethnically diverse families. In 1986, group teaching became the primary method for delivering EFNEP information.

Since 1986, the basic EFNEP program has been supplemented with new methods for reaching even greater numbers of the target population. They include working with local emergency food distribution systems, training staff and volunteers in related agencies that work with low-income groups, and developing creative media approaches such as a food stamp hotline, a Spanish-language radio program, and videotapes to disseminate nutritional information.

Frank Zalom

Brussels sprouts are one of several Central Coast crops that area IPM advisor Carolyn Pickel, above, is helping farmers grow with fewer pesticides. Below, a UC researcher examines an alfalfa plot.

Jack Kelly Clark

Carla Flint, secretary in the Kern County Cooperative Extension office, shows clients one of the several IPM manuals, which are among the most popular publications available through the UC Division of Agriculture and Natural Resources.

ers 24 California commodities and supports eight area IPM farm advisors in El Centro, Ventura, Fresno, Watsonville, Modesto, Bakersfield, Yuba City, and Santa Rosa.

Many IPM techniques are now in widespread use. Pesticide use on almonds to control navel orangeworm damage has been reduced by almost half. Post-harvest cleanup of almonds remaining on the trees, monitoring orangeworm populations to determine spraying need, and earlier harvesting to thwart orangeworm infestations all contributed to the reduction in pesticide use.

IPM practices include careful monitoring of weather and use of natural enemies of plant pests. IPM helps to control worms in tomatoes, lygus bugs and spider mites in cotton, tuber moths in potatoes, thrips and scale in citrus, codling moths in pears, leafminers in apples, and a variety of pests in walnuts, cole crops, and other commodities.

The IPM Project staff publishes a series of manuals, each detailing pest problems, diagnosis and monitoring, and management techniques for a specific crop. Each book contains approximately 180 color photographs of pests and damage symptoms. More than 27,000 copies of these manuals are in use, covering tomatoes, rice, potatoes, grapes, walnuts, citrus, cotton, almonds, alfalfa, pears, cole crops and lettuce.

Sustainable agriculture

Other Cooperative Extension programs have been developed to respond to new problems and social concerns. The Sustainable Agriculture Research and Education Program, established in 1986, is developing alternative production methods for farmers to reduce chemical, energy, and capital uses in agriculture.

The program supports research that evaluates production methods, compares food produced with low chemical inputs and conventional systems, helps farmers convert to sustainable techniques, and evaluates the long-term effects of chemical residues.

"These activities are aimed at addressing the needs of California farmers, ranchers, and processors, irrespective of the size of their operations," says Director William Liebhardt.

Serving 65,000 small farms

Cooperative Extension's Small Farm Program, established in 1977, focuses on the needs of California's 65,000 farms that gross less than $100,000 annually. More than 40 advisors devote some of their time to working with small-scale, limited-resource farmers.

Director Ron Voss says priority programs include direct marketing, specialty crops, organic and sustainable farming, and work with entry-level farmers.

In Fresno County, small-farm advisor Pedro Ilic conducts classes for Southeast Asian immigrants who have little or no familiarity with American farming methods. He also writes a bilingual newsletter, "Noticero Agrícola."

Small-farm advisor Faustino Muñoz hosts a popular class series "Starting a Small Farm in San Diego County." The classes give first-time farmers basic production, marketing, and management information for small-scale crop and livestock enterprises.

Examples of other Small Farm programs include:

- determining the nutritional needs of minor crops such as Chinese cabbage, eggplant, cucumbers, and zucchini;
- development of new cherry tomato varieties having increased disease and pest resistance;
- biological control of tomato fruitworm, beet armyworm, tomato pinworm, and other larval pests;
- farm safety;
- grower surveys;
- field trials and demonstrations;
- organizing farmers' markets, tours, and conferences;
- publishing informational leaflets and newsletters.

Jack Kelly Clark

A Sonoma County farmer rolls back plastic tunnels to let sunlight reach the vegetable crop. Cooperative Extension has worked with local small-scale vegetable and strawberry growers in experiments with the tunnels to extend the growing season.

Saving California's oaks

The venerable oak tree that grows on 8 million acres of privately owned rangeland in California is the focus of the Division's Integrated Hardwood Range Management Program.

"California's oak rangelands have multiple uses—livestock, wildlife, and firewood production, as well as hunting and other recreational uses," explains Pete Passof, Cooperative Extension forest advisor in Mendocino County. "And we're encouraging owners to adopt management systems that preserve options for the future."

The problem is that some species of oaks are having trouble reproducing. At the same time, they are victims of roadways, housing developments, range clearing practices, and firewood harvesting.

Passof is one of several Cooperative Extension advisors linked with a network of natural resource specialists working under the Integrated Hardwood Range Management Program umbrella to ensure a healthy future for oaks.

"We've learned a lot more about artificial regeneration of oaks," says UC Berkeley Extension forester and program coordinator Rick Standiford. The research on artificial regeneration has increased survival rates of planted trees.

The program supports oak research that ranges from genetic variability of oaks to ranch profitability. Demonstration areas showing the consequences of different oak management practices have been established at several locations throughout the state. And more than 11,000 individuals including environmental groups, realtors, land use planners, ranchers, firewood cutters, and others interested in managing oaks have benefited from the program's educational efforts.

Marine advisory program

Another program enhances commercial and sports fishing opportunities under the guidance of marine advisors in coastal counties. Extension marine advisory and aquaculture programs are helping a new farming industry—fish farming—become established in California. From the AbLab in Santa Barbara County, where abalone are being raised for restaurants, to geothermal springs in Modoc and Lassen counties that have been harnessed for production of sturgeon and catfish, aquaculture has developed into a $36 million cash crop for California.

Helping families improve their lives

Cooperative Extension offers a variety of programs to help families improve their lives.

Food and nutrition programs respond to consumer needs for sound, objective information on food safety, food fads, prenatal and infant nutrition, food quality, and childhood obesity. Health professionals in many state and county agencies receive current nutrition information from the University through Cooperative Extension.

Many California consumers are caught between expanding needs and stable or declining resources. Cooperative Extension helps consumers develop financial planning and management skills through "Money Sense" workshops and learning packets.

The Family Community Leadership Project trains volunteer teams working in six counties on a variety of local community issues. Teams train other citizens, especially women, in understanding community decision-making processes and organizations and in effective citizen participation.

New parents and parents of school-age children benefit from age-keyed home learning programs. These provide parent education for normal emotional, intellectual, and social development in their children.

New challenges facing Extension

The Cooperative Extension success story is repeated in county after county throughout California. The key has been its ability

to change as needs change. Adaptability will continue to be important to maintaining Extension's viability in the future.

"Today, agriculture and natural resources are inextricably interwoven with the social and economic development of California," says Farrell.

Farrell is convinced that economic constraints reflecting scarcity of natural resources and the need to maintain environmental quality must be incorporated into research.

A host of natural resource management challenges—drainage, water and air quality, land use planning, production systems, and the relationships between chemicals in the food supply and human health—are fertile fields for new directions in research and extension.

Funding for Cooperative Extension will remain tight. County governments, with limited ability to increase their tax base as a result of voter-passed state initiatives, are finding it increasingly difficult to fund all programs. "We're in the same category as libraries—one of the few nonmandated programs that the county has the flexibility to cut to gain funding for its mandated programs," says Modoc County Extension director Savage.

"We've had to cut travel and close a county-supported research station," he adds. "Capital outlays are a thing of the past,"

"It's not that they don't like us. They just don't have any other options."

Federal and state budgets also are going to continue the recent trend of no-growth funding.

That does not rule out the possibility of a major new initiative that could draw broad support from diverse interest groups, according to Farrell. He cites youth-related needs, biotechnology, water quality, natural resources management, and low-chemical-input agricultural production as possibilities for new support.

Private funding sources also are playing an increasing role in University programs and offer another potential source of support for agricultural research and extension. "The key," says Farrell, "is to develop innovative private-public research mechanisms that provide incentives for private investment."

It is unrealistic, however, to expect to find large new sources of funds for every high-priority need. "To do more of something, we will have to do less of something else. And we must find ways to stretch our resources by being more efficient in how we conduct our programs," explains Farrell.

The authors of the Smith-Lever Act had a dream for more productive agriculture and increased quality of life for rural America. That dream created a 75-year success story. Today, the men and women working in California's Cooperative Extension are investing their knowledge and energy in continuing the success story in the 1990s and on into the 21st century.

Gary A. Beall
Information Representative
Division of Agriculture and Natural Resources

John Stumbos

New era for agricultural research in the San Joaquin Valley

Agricultural research in the San Joaquin Valley begins a new chapter as scientists settle into their new $5-million building at the University of California Kearney Agricultural Center in Parlier. Formal dedication of the research and teaching complex is scheduled for May 26.

Originally a demonstration site for University research, Kearney has grown tremendously in breadth and stature, attracting an international cadre of agricultural researchers. Applied and basic research covers a broad range of commodities, especially the Valley's stone fruit, nut, and vine crops.

Twenty UC Division of Agriculture and Natural Resources scientists are permanently based at Kearney. More than 100 others from the UC Berkeley, Davis, and Riverside campuses, the U.S. Department of Agriculture, and nearby Cooperative Extension offices regularly conduct research at the center. The new facility will help them maintain the San Joaquin Valley's prominence as one of the most fruitful regions on earth.

The 100 or more active research projects at Kearney typically involve a number of scientists analyzing different aspects of crop production and interaction with the environment. For instance, one researcher is examining various plantings of high-density tree fruit, while another is studying their water use. Other studies have included new methods of pest management, improved irrigation strategies, air pollution effects on crops, mosquito control techniques, and use of cover crops.

The new building's four two-story wings surround a central courtyard. Its 30,000 square feet of state-of-the-art research facilities, including 16 fully equipped laboratories, give the Division's faculty, farm advisors, and specialists greater control over their research environment.

An auditorium seating 250 people will provide growers, visiting scientists, and others with an on-site setting for conferences and workshops. The auditorium can be separated with dividers into three soundproof rooms.

The 330-acre Kearney Agricultural Center is one of the most active of the University's nine field stations. It was founded in 1962 as the Kearney Horticultural Field Station with funds raised by area growers and contributions from the University. The center is dedicated to M. Theodore Kearney, a 19th century pioneer who helped develop the Fresno region. Its name change in the early 1980s reflects the University's greater emphasis on research, education, and extension for the site.