



Volume 15
Number 2
2 0 0 1

University of California Agricultural Issues Center

Ray Coppock Retires from AIC

by Nicolai V. Kuminoff

AIC Quarterly

This is the first Quarterly article in a very long time that AIC writer/editor Ray Coppock has not written or edited—so it probably has some errors. Ray is not working on this article because, after 40 years with the University of California, he is retiring. During his years with the University Ray proved himself invaluable and irreplaceable, and AIC has been very fortunate to have had his services since its inception 14 years ago.

Ray received a bachelor's degree in journalism from UC Berkeley in 1948 and worked for a decade as a reporter and editor for various newspapers, including *The Sacramento Bee*. Ray returned to the University of California in 1960 as an extension information specialist. Between 1960 and his "retirement" in 1988, he worked at various positions in Cooperative Extension at both Davis and Berkeley, including information program leader and specialist in agricultural communications.

In addition to lending his talents to press releases and newsletters, Ray provided highly instructive workshops for UC personnel on communication skills and on understanding California's water and resource issues. Ray initiated programs that benefited more than 300 Cooperative Extension staff in at least 30 counties as well as the Davis, Berkeley and Riverside campuses. His sound advice to "eliminate jargon and lard" will continue to improve the prose of generations of extension personnel.

As Ray was retiring from Cooperative Extension in 1987, AIC's first director, Harold

O. Carter, recruited him as a part-time writer and editor for the newly formed Center. Since then Ray has worked on countless AIC publications in addition to authoring the Quarterly newsletter. Virtually every report and video on AIC's publication list has benefited from Ray's editing. One of his specialties is smoothing the rough transcript of a panelist's off-the-cuff speech in a way that pleases even the speaker. In doing so, he has left his stamp on many a conference proceedings. At AIC Ray is particularly known for his ability to summarize technical research results and to explain implications of complex findings to non-technical audiences in a way that is easily understood.

Although we are very sorry to see Ray leave AIC, we wish him luck in his second attempt at retirement and hope he has more time for some of his hobbies, which include tennis, bicycle touring, and volunteer work.

AIC Also Loses Nicolai Kuminoff

by Daniel A. Sumner

This summer AIC also says farewell to Nick Kuminoff, staff research associate, who is leaving to pursue a doctorate in economics at North Carolina State University. Nick has been with the Center for three years, first as an undergraduate assistant, then as a graduate assistant and research associate. During this time he has worked on a variety of topics with other AIC researchers and co-authored many publications, including the Center's flagship publication, *The Measure of California Agriculture, 2000*. In particular, Nick has

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contributed to the Center's work on farmland conversion and improved export data, and was also responsible for redesigning the AIC web page. He will be sorely missed.

AIC Project Examines Energy Crisis Effects

A new AIC project is analyzing potential effects of the energy crisis on farm production and food processing industries in California. Those economic impacts are expected to be significant. They will be both acute and prolonged in time, and will have both direct and indirect consequences as the energy crisis affects the total economy.

The Center's research goal is to identify and examine critical energy-dependent points and potential areas of change in major crops and food processing—for example, irrigation, nitrogen fertilizer, gas-powered dryers, and electricity for milking, cooling, processing and cold storage. Reports on the research are expected in print form by late August, and will be posted on the AIC website as documents and as presentation materials.

In the short run, the most important farm costs affected are expected to be harvesting, transportation and drying/cooling. Farmers would harvest crops as long as they could reduce losses, but if they decide not to harvest (due, say, to excessive costs or lack of a market caused by high costs of processing) there would be upward pressure on food prices. Prices of prepared foods would tend to increase more or faster than fresh produce. Health risks associated with problems of cold storage management and a shortage of heating and cooling power could become a central issue for the food industry and food retailers.

In the medium term, high energy costs could reduce farm production. In that case, prices would increase and California would be less competitive in certain crops with other states or other countries. In the long run, farmers would attempt to reduce electricity or natural gas usage and shift to alternative irrigation systems such as less use of groundwater. In that case, prices of food would balance out somewhat higher although the effect would differ among products, depending on

whether there are close substitutes or competitive suppliers.

Jose E. Bervejillo, an AIC research associate, and Center Director Daniel Sumner are conducting the study. The project, funded by the UC Division of Agricultural and Natural Resources, will be in cooperation with James F. Thompson, UC Davis Biological and Agricultural Engineering Department, and with collaboration of the California Energy Commission and local industries.

GIS Adds New Light on Farmland Conversion

Using California as an example, a new Center research project indicates that farmland conversion is not primarily driven by low farm returns, but rather by urban agricultural edge effects.

AIC Research Associate Nicolai V. Kuminoff and AIC Director Daniel A. Sumner are using statistical models to address the contribution to farmland conversion of farm returns, population growth, real estate markets, development restrictions, and length of the agricultural-urban edge. With other factors held constant, regression analysis uncovered the fact that California counties with more agricultural-urban edge clearly tend to convert more farmland. That factor, along with population growth, apparently dominates the conversion process.

To test the significance of the agricultural-urban edge, Kuminoff and Sumner incorporated newly-available geographic information system (GIS) land-use data into their conversion model. GIS data on land use in California counties, recently released by the California Farmland Mapping and Monitoring Program, allows analysis of spatial relationships between different land uses—an important new dimension to farmland conversion research. In addition to acreage of agricultural and urban land in a county, the GIS data can also show the length of the perimeter around urban areas, length of the agricultural-urban edge, and distance from agricultural to urban areas.

The AIC research shows the additional insight to be gained from using GIS spatial data. For example, compare Solano and Tulare counties. Each has

roughly 50,000 acres of urban land, but the total perimeter of urban land is 519,000 meters in Solano and 867,000 meters in Tulare. The length of actual agricultural-urban edge is 352,000 meters in Solano (mostly grazing land) and 697,000 meters in Tulare (mostly cropland). Significantly, between 1988 and 1998 Tulare County had by far the most agricultural-to-urban conversion—9,600 acres—while Solano County converted about 6,700 acres.

These wide differences are due to variations in the geometric shape and compactness of urban development in the two counties. Urban development that is stretched out or broken into many pieces will have more total perimeter than a compact city of the same size. As the amount of urban perimeter increases, so does the chance that urban land will border agricultural areas and the probability that there will be more urban conversion.

This example is characteristic of the results for California found by Kuminoff and Sumner. These findings reinforce what many people have already been saying about farmland conversion and urbanization in California—in the longer run, building new development away from farmland can be expected to decrease conversion out of farmland. An important implication is that if city planners in agricultural counties want to minimize agricultural-urban edge, they need to consider the geometric shape and pattern of urban development.

Increasing availability of GIS data has created new possibilities for research on farmland conversion and countless other issues in California agriculture. GIS, a format for recording layers of information in a spatial landscape, was first developed in the 1960s and has become increasingly accessible and affordable as computing power has increased. GIS can be used to map any type of information that can fit in a spatial format. In addition to land use, GIS data is available on pesticide and fertilizer use, animal habitat, hydrology and demographics. In all likelihood, the research by Kuminoff and Sumner is the first of many AIC projects that will utilize this data source.

“Edge” Document Reprinted

An AIC publication on farm-city issues, *California's Future: Maintaining Viable Agriculture at the Urban Edge*, has been reprinted and is again available from the Center. A summary report of a conference held in Sacramento in 1996, the 81-page volume provides viewpoints and insights on important issues of land use and technology that are still current in the many locations in California where farmers and city people are neighbors.

State's Ag Trade with China is Examined

State agricultural leaders highlighted California's stake in agricultural trade with China during a recent meeting with academic and government agricultural economists in Sonoma. Participants in a panel organized by the AIC described their industry's experiences with China both as a competitor in world trade and as a potential customer.

Cornelius Gallagher, Bank of America, provided an overall view of California agriculture and the important role of international markets.

Rodger Wasson of the Almond Board reported that China neither produces nor consumes significant amounts of almonds, but that the Board is promoting China as a market. Mike Kay of Morningstar Corporation referred to detailed information documenting China's expanding production capacity in processing tomatoes. There is also potential for expanding Asian demand for processing tomatoes. For the wine industry, Ann Pemberton of the Wine Institute reported that consumption in China is limited, but that there are current efforts to build future markets by educating consumers. For rice, Kirk Messick, head of marketing for Farmers Rice Cooperative, said China will be both a competitor and a potential customer for at least small amounts of the high-quality, Japonica type rice produced in California. Taiwan also may become a significant importer of California rice when it joins the WTO, he said.

The two-day event, April 9 and 10, was the annual meeting of a group of economists specializing in

Chinese trade and agricultural issues—largely scholars and researchers from universities and the U.S. Department of Agriculture, including representatives from Japan, Canada and China.

Other reports during the session dealt with China's impact on world trade in crops such as cotton and wheat, aspects of the Chinese economy, and the significance of China's potential membership in the World Trade Organization.

AIC Co-sponsors Look at Africa's Future

The prospects for rural development and economic performance in AIDS-threatened sub-Saharan Africa was the focus of a workshop sponsored by Tuskegee University, the World Bank and the Center. The event was held April 19-21 in Atlanta. Funding was provided by the Rockefeller and Farm Foundations.

Forty-seven policy-makers and academics from universities and international and governmental agencies reviewed the status of agricultural and rural development in sub-Saharan Africa, identified priority interventions and made recommendations for upcoming policy discussions, including The Partnership to Reduce Hunger in Africa meeting in Washington DC June 26-27 and The African/African-American Summit scheduled for December in Nigeria.

UC Davis participants were agricultural economists Alex McCalla and Daniel Sumner, and agronomist Montague Demment. McCalla and Sumner were on the steering committee that organized the event, with McCalla serving as chair.

Conclusions of the workshop, in general, were that (1) African economies can succeed where national policies and outside partners work together for development; (2) rural development is the key to reducing poverty; (3) public investment (including much higher levels of public research and development) and policy incentives (including favorable macroeconomic policies and market institutions) matter; (4) political empowerment and economic growth are linked; and (5) countries outside Africa play a critical role.

A central idea raised in the Tuskegee Workshop is the interplay between structural transformation from farm to non-farm work and demographic transformation from high to low birth rates. On average, over 70% of the labor force still depends mainly on agriculture. Structural transformation depends on increased agricultural productivity, rural industrialization, expanded agricultural markets and completing the demographic transition to low birth rates. Total fertility—the average number of children per woman—in sub-Saharan Africa is still close to 5.3. (In Asia, it has been reduced to 2.7.) Where AIDS has been exceptionally severe, population growth is expected to slow—but increased mortality in the most productive age groups implies severe effects on structural transformation.

The group concluded that the challenge ahead is very large but that progress can be made when all of the right pieces are in place. They recommended (1) investing in rural development, including science-based agriculture, appropriate technologies and rural infrastructure, and fostering of a rural non-farm economy; (2) investing in people, including education and health programs; (3) building capacity by reinforcing project implementation and policy analysis capacity, and statistical databases for poverty monitoring; (4) promoting institutions by empowering the poor, farmers and women, decentralizing decision making, and reducing transaction costs; (5) encouraging international trade; (6) aligning macroeconomic and agricultural policies; and (7) building partnerships by supporting internal-external coalitions and promoting public-private partnerships.

New Publication Looks at Benefits of Private Exotic Pest Control

AIC has focused on exotic pests for several years. The entry and establishment of economically significant exotic pests and diseases is increasing as the movement of people and goods increases. Depending upon the pest and agricultural industry affected, substantial benefits may flow from the development and introduction of new technologies to manage these pests. Where the impact of the

new pest is large, the benefits of an effective and rapid industry response can be substantial.

A new report, entitled *Private Investment in Exotic Pest Control Technology: The Case of the Silverleaf Whitefly in California*, estimates the benefits to agricultural industries in Southern California from the control of the silverleaf whitefly using a newly developed pesticide. This exotic pest entered and spread rapidly throughout Southern California in the early 1990s. The 67-page study describes the entry and establishment of the pest, the vegetable industries most susceptible to silverleaf whitefly infestations, and the development and adoption of a private pest control technology. The benefits of exotic pest control are estimated through cost savings, increased yields, and shifts in the timing of crop planting.

This study augments the AIC publication, *Exotic Pests and Diseases: Biology, Economics and Public Policy*, by examining the effects of private controls as opposed to public response, which were detailed in the 1999 publication.

AIC Study on the Agricultural Benefits of Improved Nutrition

The Agricultural Issues Center, in collaboration with the Center for Advanced Studies on Nutrition and Social Marketing, UC Davis, will be examining the benefits to California producers and consumers of fruits and vegetables should California consumers meet the California Department of Health Services recommendations for a cancer prevention diet. The cancer prevention diet contains recommendation for specific sub-groups of fruits and vegetables as well as total daily recommended intakes. These sub-groups include fruits high in vitamin C, dark green and yellow vegetables, cruciferous vegetables, salads, and tomatoes.

An initial study of current consumption of fruits and vegetables has been completed. This study shows that, in general, average consumption of fruits and vegetables is below recommended levels. Fruit consumption would need to increase by 62% and vegetable consumption by 113% in order to meet the minimum recommended levels. When specific sub-groups are examined, greater variation

exists. Consumers would need to increase consumption of dark vegetables by 223%, citrus by 31% and tomatoes by 15% in order to achieve the recommended levels.

This study will be presented at the annual meetings of the Society for Nutrition Education in Oakland, July 22, 2001. A working paper is now available on the AIC web site at: <http://aic.ucdavis.edu/>

Nutrition Project in Low-income Los Angeles Neighborhoods

The AIC, in collaboration with the School of Medicine, has begun a multi-year project to analyze the constraints faced by consumers in low-income Los Angeles neighborhoods to eat a healthier diet. Studies have shown that on average, low-income households eat higher fat, lower fiber foods and serve fewer fruits and vegetables than higher income households.

Public health specialists, with local community leaders, will design in-store interventions to increase both awareness and availability of better quality fruits and vegetables. The project will examine the role that price, availability, and quality play on household purchasing decisions.

AIC Participation in Public Forums

- On May 30 AIC director Dan Sumner addressed the California Department of Food and Agriculture's board of directors. Debra Henke, Anne Chadwick and Bob Schramm, agricultural consultants, also spoke.
- The annual conference of the American Society of Farm Managers and Rural Appraisers held on April 27 attracted about 275 members to discuss major commodity issues and deregulation. AIC director Sumner was a keynote speaker to address the problems and challenges to California agriculture in 2001.



Recent publications

SIL	Private Investment in Exotic Pest Control Technology: The Case of the Silverleaf Whitefly in California (2001)	10.00
CF-1	California's Future: Maintaining Viable Agriculture at the Urban Edge (1997, reprinted 2001)	15.00
MOCA	Measure of California Agriculture, 2000	15.00
SUM	Measure of California Agriculture, 2000 Summary Card Set	1.00
CFCE	California Farmers and Conservation Easements (2000)	10.00
SR	Agriculture in the Sacramento Region: Trends and Prospects (2000)	12.00

To Order AIC Publications and Videos

- 1 The complete list of AIC books and videos is on the Internet: <http://aic.ucdavis.edu>
- 2 Mail check (payable to UC Regents) to: UC Agricultural Issues Center, One Shields Avenue, Davis, CA 95616-8514
- 3 Fax, mail or call with Visa/Mastercard order.
- 4 Book/video price includes postage and sales tax; orders are shipped immediately.

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Melissa Rose
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Laurie Treacher
Administrative Assistant

The **AIC Quarterly** is published by the University of California Agricultural Issues Center, One Shields Avenue, Davis, CA 95616-8514. For additions or changes to our mailing list, e-mail: agissues@ucdavis.edu; fax: 530 752 5451; telephone: 530 752 2320.

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University of California
One Shields Avenue
Davis CA 95616-8514

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