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From the Director

PROBLEMS OF ANIMAL AGRICULTURE

Animal agriculture is an important part of what goes on in California and much of the world, and has been the focus of the media recently:

- *Bovine Spongiform Encephalopathy* (sometimes called Mad Cow Disease): apparently the result of cows being fed rendered sheep carcasses, demonstrated graphically the dangers of what happens when ecological principles are violated.
- Food Safety: Peter Jennings of ABC-Television, in a series of stories on food safety at the end of 1997, reported that the use of antibiotics in animal feed nationally has created resistant bacteria that then become a public health problem, as the antibiotics are no longer effective.
- Organism Contamination: *Escherichia coli*, *Salmonella*, and *Campylobacter* are responsible for sickness and death by those who consumed contaminated meat. In 1997 approximately two-thirds of the turkeys available in public markets were shown to be contaminated with *Campylobacter*; this was reported nationally just days before Thanksgiving.
- Dairy Farm Pollution: In 1997 California dairy farmers were cited in the *San Francisco Chronicle* for mismanaging manure and the resulting runoff and pollution.
- Hog Production: The television news program *60 Minutes* did a story in 1997 on large hog operations and their pollution of air and water, as well as their impact on the quality of life in the communities that house these operations; other news organizations have reported on these facilities.
- *Cryptosporidium* was suspected of making thousands sick in Milwaukee in 1993; the disease-causing organism was thought to have originated in animal manure.

All of these problems associated with animal production suggest that we need to think about the place and practice of animal agriculture in our food supply, now and in the future. These are agricultural system problems that are very complex, so the solution to these problems will not be simple and will take time, thought and dialogue. It will also require us to look at animal agriculture from an ecological perspective, while considering economics, global human community concerns, and moral values.

SAREP has funded a number of projects that deal with animal agriculture. Over the years we have funded separate projects on raising beef and sheep using better pasture management, grazing management in ley farming systems, organic wool production, sheep marketing, environmental monitoring of rangeland, and rotational grazing field days for dairy producers. We have provided funding for researchers looking at the *Cryptosporidium* issue in beef, and at the environmental fate of selenium given to intensively grazed beef cattle. Last year we funded a project to help ranchers and university researchers develop sustainable marketing alternatives for grass-fed natural beef, and supported projects looking at the history of grazing in forests, and problems of sediment buildup in watersheds due to cattle ranching. In the latest round of grants ([SAREP Funds New Projects](#)) we funded two projects that examine dairy manure management. One looks at the use of dairy lagoon water in the production of forage crops, while the other analyzes the impact of dairy waste and crop nutrient management on groundwater quality.

These projects may provide solutions to particular animal agriculture issues, but the larger issues will not be solved by our small grants. What we need is public discussion of the broader issues, and alternative proposals on how we and others can work together to tackle these big problems. The crucial issues with antibiotic resistance and some of the other larger concerns must be addressed by scientists, producers, industry representatives and regulators.

We have experience with biologically integrated plant-related systems--Biologically Integrated Orchard Systems (BIOS) and Biologically Integrated Farming Systems (BIFS)--which bring together a consortium of farmers, researchers, industry representatives, and non-profits for successful collaborative efforts to address common agricultural production practices and problems. This model could be used for animal agricultural systems--perhaps Biologically Integrated Livestock Systems (BILS). It would be modeled after the successful BIOS and BIFS programs.

Partnerships that address the long-term sustainability of these livestock farming systems would go a long way toward identifying and suggesting solutions to some of the crucial issues.--*Bill Liebhardt, director, University of California Sustainable Agriculture Research and Education Program.*

SAREP Participates in Fund For Rural America Grants

The U.S. Department of Agriculture has awarded two Fund for Rural America grants totaling \$725,000 to projects involving a UC SAREP researcher. A grant for \$400,000 will be conducted in California with investigators from SAREP, the UC Davis Department of Agriculture and Resource Economics, and the Community Alliance with Family Farmers, while the second grant, for \$325,000, will be conducted with investigators at Cornell University and Iowa State University.

The Federal Agriculture Improvement and Reform Act of 1996 (the Farm Bill) authorized money for the Fund For Rural America to expand economic opportunities for rural Americans; \$80 million per year is being divided between two areas: rural development and research. Less than 7 percent of the Fund for Rural America applicants were funded during the first year of the granting program. The grants involving SAREP were awarded in the research category.

"We are very excited to be participating in two large-scale projects that link sustainable agriculture with rural community development," says **Bill Liebhardt**, SAREP director.

Gail Feenstra, SAREP food systems coordinator, is leading the California component of the project "Retain Farmers' Markets and Rural Development: Entrepreneurship, Incubation, and Job Creation," conducted with researchers from the Cornell Farming Alternatives Program and Iowa State University Department of Sociology (\$325,000). The project will demonstrate and promote the economic development potential of farmers' markets as rural enterprise incubators.

Feenstra will also be a collaborator on the grant "Increasing Adoption of Sustainable Agriculture and Positive Community Impacts," which received \$400,000. This project brings together the expertise of UC researchers, the Community Alliance with Family Farmers and the Lodi-Woodbridge Winegrape Commission to increase adoption of sustainable agriculture practices and build farmer leadership skills to strengthen connections in local communities. Former SAREP associate director **Jill Shore Auburn** and Feenstra helped write the grant request for the project, which will now be headed by **Karen Klonsky** from the UC Davis Department of Agriculture and Resource Economics.

SAREP Funds New Projects

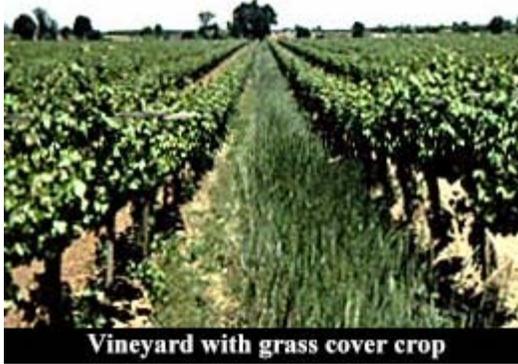
by Lyra Halprin, SAREP

Twenty-nine research and education projects have been granted a total of \$170,866 by UC SAREP in the 1997-98 funding cycle, according to **Bill Liebhardt**, SAREP director. New projects were chosen in four areas: production, community development and public policy, educational events, and graduate student awards. Additionally 13 continuing projects received \$166,847, bringing SAREP's total grant funding for 1997-98 to \$337,713. Brief descriptions of the new projects, principal investigators, contact information and amounts awarded for the first year follow. Continuing projects are listed at the end.

Production Projects (6 projects; \$88,490)

- **William Horwath**, Assistant Professor, Soil Biogeochemistry, UC Davis, "Defining Changes in Soil Organic Matter Quality During the Transition from Conventional to Low Input Organic Systems to Identify Sustainable Farming Practices": Two-year project; first year funding: \$23,337. The importance of soil organic matter (SOM) in cropping system sustainability is in its ability to store nutrients and improve soil structure. It has been difficult to assess soil fertility based on gross measures of soil organic matters, such as total soil carbon (C) and nitrogen (N). For example, N budgets in the Sustainable Agriculture Farming Systems (SAFS) project at UC Davis have shown that the organic treatment (manure and cover crop) has accumulated the most soil N compared to other treatments, yet crops grown in that treatment appear to be nitrogen-deficient. The low input treatment (cover crop and fertilizer) has accumulated less N, but crops grown in that treatment have consistently out-produced both the organic and conventional treatments. The results indicate that it is not the quantity of SOM, but rather the quality that may control soil fertility. This project will examine soils in the Biologically Integrated Farming Systems (BIFS) project near the Kearney Agricultural Center and the Davis SAFS project, and will compare soils that have been managed in fundamentally different ways for more than eight years. SOM quality will be analyzed by examining its structure and chemical makeup. Soil fertility and water availability will also be analyzed and relationships between these two sets of variables will be analyzed. Increased understanding of SOM maintenance will lead to improved soil health, and is critical to long-term food production. The results will be presented to advisors and growers so that they can assess the utility of alternative agronomic treatments on long-term fertility. (530) 754-

- **Michael Costello**, Fresno County Viticulture Farm Advisor, "Native Grass Species for Use as Perennial Cover Crops in Central Valley Vineyards": \$15,000. Results from this study will add information to the cover cropping database for California grape vineyards. Native grasses are being promoted to grape growers, but their



Vineyard with grass cover crop

suitability has not been subjected to scientific scrutiny. This study will help determine which native grasses can be practically established in the Central Valley, and the benefits and drawbacks of maintaining a permanent native grass stand on the vineyard floor. The impacts of the study will provide a basis for further study in the coastal, foothill and desert winegrape growing regions. Native grasses as cover crops can improve soil structure and water infiltration in vineyards, allowing equipment to be used in wet conditions and cutting down on the sunburn effect of reflected light. Dust reduction and improved water infiltration can lead to lowered pressure from pests such as spider mites. Because their growing cycles are opposite grape vines, native grasses provide the advantage of a perennial cover without the disadvantage of excessive competition. This project will conduct a study at a UC experiment station and two commercial vineyards to determine which native grass species are best suited related to establishment, water/nitrogen use, and ability to compete with weeds. Four native grass treatments will be tested under drip and furrow irrigation, and will be compared to clean cultivation and another cover crop at the experiment station. Evaluation of weed control will be made at the Fresno County commercial table grape site, while evaluation of spider mite control will take place at the commercial raisin site. Estimations will be made of percent vegetative cover, biomass, soil moisture and vine leaf water potential, cover crop flowering period, seed formation, and green growing period. Vine canopy temperature during the frost period will be recorded. (209) 456-7567; mjcostello@cdavis.edu

- **Chuck Ingels**, Sacramento County Viticulture/Pomology Farm Advisor, "Effects of Cover Crops on a Vineyard Ecosystem in the Northern San Joaquin Valley": \$6, 212. Cover crops are currently very popular in vineyards. Although used for years, new species and management systems have been developed recently for cover crops. Several growers in the Northern San Joaquin Valley now prefer, for example, to sow California native perennial grasses because they provide excellent wheel traction and go dormant in the summer. These grasses are also used to remove excess water in the spring to provide moderate moisture stress in early spring, thus possibly improving wine quality. These species, however, have not been formally tested in vineyards, nor have the most commonly used mixes been compared in

their effects on vines and production. In this trial, four sown cover crop mixes and resident vegetation will be compared in a young Sacramento County Merlot winegrape vineyard to determine the effects on production and fruit quality, vine moisture stress and nutrient status, weeds, and the economics of cover cropping. The project includes grower meetings, a journal article and the use of the site as a tour stop for the UC Cover Crops Workgroup meeting in 1999. (916) 875-6913; caingels@ucdavis.edu

- **Marsha Campbell Mathews**, Stanislaus County Field Crops Farm Advisor, "Use of Dairy Lagoon Water in Production of Forage Crops": \$15,500. California is the largest dairy production state in the U.S. Environmentally sustainable management of these dairies is critical to the economic health of California's agricultural community. Data recently collected on dairies in the San Joaquin Valley near fields where lagoon water is applied show elevated levels of nitrates even on well-managed operations. Local dairy operators do not have information available about how much nitrogen they are applying in the form of pond water because the design of the dairies and irrigation systems makes measurement of applied nutrients very difficult. Sandy soils and border check irrigation make applied nutrients especially susceptible to leaching. This project will show how the effective use of dairy wastewater and manure for the production of forage crops associated with dairies in Stanislaus and Merced counties can reduce groundwater contamination by nitrates in this area. New production practices to be developed and demonstrated include an in-field quick test for ammonia, practical lagoon water flow estimation, and use of manure nutrients in growing corn and winter forage without loss of yield. A demonstration area large enough to show improvements in groundwater quality as a result of using these sustainable practices will also be managed. Improvements in groundwater quality will be monitored in the joint project "Impact of Dairy Waste and Crop Nutrient Management on Shallow Groundwater Quality" (project summary follows). (209) 525-6654; mcmathews@ucdavis.edu
- **Thomas Harter**, Assistant Cooperative Extension Specialist for Groundwater Hydrology, UC Kearney Agricultural Center, Parlier, "Impact of Dairy Waste and Crop Nutrient Management on Shallow Groundwater Quality": \$14,500. This project is related to the Mathews project above. It will provide an improved understanding of the underground nitrate pathways from various locations in dairy operations (corrals, ponds, spills, manure application to fields) and how these contribute to the degradation of groundwater quality. This will be achieved by using and expanding an existing groundwater monitoring network on five dairies in Stanislaus and Merced counties. The project will also provide baseline data on groundwater quality that can be used to determine future improvements in groundwater quality due to improved nutrient management and dairy operations practices on selected dairies, and will demonstrate and evaluate changes in groundwater quality at shallow depths due to improved nutrient management within the dairy operation. It will also educate dairy personnel and communities in Stanislaus and Merced counties and regulatory and water management agencies about the impact of nutrient management alternatives on groundwater quality, and cooperatively

develop sustainable solutions to protect groundwater under dairies from excessive salt and nutrient load. (209) 646-6569; tharter@ucdkac.edu

- **Sean Swezey**, Extension Specialist, Center for Agroecology and Sustainable Food Systems, "A Grower-Managed Biorational Management Program for Artichokes on the Northern Central California Coast": Three-year project; first year funding: \$13,941. Nearly all commercially produced artichokes in the U.S. are



grown in coastal California, a crop which was valued at \$45 million in 1996. Castroville area artichoke growers harvested more than 70 percent of the statewide production (\$35 million). This same area spent approximately \$3.5 million (\$370/acre) on synthetic insecticide-based pest control of the crop's major pest, artichoke plume moth (APM). A number of owner-operator resident growers in Santa Cruz and San Mateo counties produce 10 to 20 percent of the statewide harvest on family-owned farms. They face increasing pressure to intensify conventional practices in the face of rising land values, increased transportation costs, and marketplace competition. Artichoke production for them will only remain profitable if input costs are kept low relative to the crop sale price (possibly value-added). These growers showed a willingness to form a cost-sharing management team to implement and evaluate biorational (derived from biotic interactions or non-synthetic sources) pest management practices in on-farm demonstrations, in order to evaluate alternatives to the technical and market pressures facing them. The project will support the organization and activities of this new management team. The grower-directed research and demonstration program will monitor weather and arthropods, pheromone application, locally reared natural enemy release, and cultural controls of APM will be implemented and evaluated on grower-managed fields. An unique management team of growers, University of California and artichoke industry researchers, and local agricultural professionals will share in-season results of this program through weekly updates and biennial field meetings. Improvements in key pest damage levels and fresh market crop yields, reduction of pest management costs associated with the applications of synthetic organic insecticides, and overall economic performance (including possible value-added certified organic sales) will be documented in program fields compared with matched conventionally managed fields. (408) 459-4367; sarep@ucdavis.edu

Community Development and Public Policy Projects (5 projects; \$54,552)

- **Lorrie Morrison Bundy**, Project Coordinator, Siskiyou Resource Conservation District, "Scott River Basin Water Balance": \$14,850. Farming and ranching provide the economic base for the Scott Valley.

In April 1997 the coho salmon was listed by the federal government as a threatened species under the Endangered Species Act in a region which includes the Scott River Basin. This listing caused great concern in the local agricultural community. Additionally, the Scott River was identified as an 'impaired' stream by the US Environmental Protection Agency and the North Coast Regional Water Quality Control Board. Most irrigation water is surface diversion. Low stream flow is identified as the main cause of high temperature and sedimentation in the Scott River. The local community recognizes the need to improve stream flow in order to ensure sustainable agriculture and improve conditions for salmon spawning. The Scott River Watershed Coordinated Resource Management Council (CRMP), a local volunteer effort which includes a cross-section of the community, has made a water balance plan a high priority. A 'water balance,' similar to a checking account balance, will identify and quantify the inputs and outputs of water in the Scott River basin. This project will develop a holistic, watershed-wide tool for making management decisions. Cost-effective projects will be identified to improve stream flow, including a series of education forums to share information with the local community. Participants in this study include local agricultural producers, Siskiyou Resource Conservation District, Scott Valley Coordinated Resource Management Planning Council, UC Cooperative Extension, Siskiyou County Farm Bureau, California Department of Fish and Game, and the U.S. Forest Service. (530) 467-5216; imm2@axe.humboldt.edu

- **Yolanda Huang**, Coordinator, Willard Greening Project, "Collaboration Between Willard Greening Project and BOSS": \$19,482. This project builds on the Willard Greening Project in the Berkeley Unified School District, which previously joined forces with the Urban Gardening Institute of the Building Opportunities for Self-Sufficiency (BOSS) program. That collaboration, partially funded by SAREP, expanded inner city agriculture by using vacant and public lands to make fresh, organic food available to low-income urban people. Homeless people with a prior drug abuse problem continue to be trained in intensive food production and cut-flower horticulture and are working at Willard Middle School in all aspects of the garden. The 200 Willard sixth-grade students are working with one of the principal investigators in a weekly environmental education class, in which 90 percent of the work is in the school garden. A goal of this phase of the project is to develop Willard as a model program so that all of Berkeley Unified School District's school lunch programs serve fresh vegetables and fruit purchased from locally grown gardens and farms. One of the goals is to maintain the current level of vegetable production at Willard and expand the fruit production. Another goal of the project is to make the issue of homelessness more public through discussion, workshops and working together in the garden. (510) 549-9121 (Huang); (510) 644-6330 (Willard Middle School).
- **Sibella Kraus**, The Center for Urban Education about Sustainable Agriculture, "Market Cooking for Kids: Facilitating Field Trips to Sustainable Agriculture Farms":

\$5,520. This project builds on a successful hands-on cooking and science program partially funded by SAREP, "Market Cooking for Kids," developed for children in Oakland and San Francisco elementary schools. Presented in schools, farmers' markets and after-school programs, "Market Cooking for Kids" combines hands-on education about the biology and ecology of locally produced, sustainably grown seasonal foods



'Market Cooking for Kids'
farm field trip for San Francisco
school child

with basic instruction about how to prepare these foods. School field trips to local farms have been an integral element for the classes. This project will expand the opportunities for elementary school children to experience educational school field trips to farms practicing sustainable agriculture and encourage farmers to host school farm field trips. The goals are to foster children's emotional, intellectual and spiritual ties to their regional farmers and farmland, and to help farmers understand the importance of educating children both about their own farms and about regional, sustainable agriculture in general. To realize these goals, the project will develop and widely disseminate a Farmers' Guide to Hosting School Farm Field Trips during the course of 20 farm trips, and a complimentary Teachers' Resource Guide to Visiting Farms. (510) 526-2788; sfpmc@igc.apc.org

- **Jeff Kositsky**, Community Services Coordinator, Rural California Housing Corp., Sacramento, "Park Village Community Supported Agriculture Research Project": \$10,000. Park Village is an affordable housing complex in Stockton, Calif. populated by low-income refugees from Cambodia. The Park Village Community Supported Agriculture (CSA) project is designed to provide affordable, organic and culturally appropriate produce to the entire Southeast Asian community of the area. The project will also create economic opportunities for residents of Park Village Apartments. Through the project, apartment residents will organize and operate a farm cooperative on land donated by the Northern California Land Trust. They will grow produce for the Southeast Asian community of the area and develop a CSA, or subscription farming system, that links the producers directly with consumers. The Rural California Housing Corporation, a nonprofit community development organization, co-owns Park Village with the residents. The housing corporation also works with residents to help their families achieve self-sufficiency. This phase of the project will be used to evaluate the feasibility of the Park Village CSA project, educate program participants, develop a project design, and raise needed funds. A written report about the study findings will be published and distributed to organizations interested in similar projects. (916) 442-4731 ext. 3320; HN0415@handsnet.org

- **José Montenegro**, Director, Rural Development Center, Salinas, "Design Plan and Monitoring Program Development for a Straw Bale Produce Cooler Demonstration Unit at the Rural Development Center (RDC) in Salinas Valley, Calif.": \$4,700. In 1995 the California State Legislature identified an urgent need for low-cost, energy-efficient housing in the state due to a shortage of construction-grade lumber. This shortage could open up an economically viable market for the use of straw bales in construction. To facilitate that market, the Legislature approved a statutory design code for the use of straw bale housing, which would significantly benefit low-cost housing, agriculture, and fisheries in California. Minimum standards of safety were established for the construction of structures that use baled straw as a structural or nonstructural material. In early 1997 the Central Coast Resource Conservation and Development Council and the Rural Development Center (RDC) sponsored a straw bale construction workshop at the RDC to teach farm families how to apply this technology in home and agricultural building construction. This project will develop plans and an accompanying monitoring program for a demonstration straw bale produce cooler at the RDC. Farm families enrolled in the RDC program will continue to participate in the planning and construction phases of the project. (408) 758-1469.

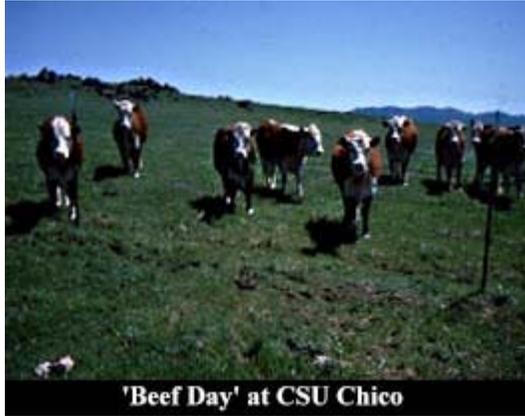
Graduate Student Awards (4 projects; \$8,000)

- **Valerie Eviner**, "Understanding the Influence of Plant Species on Soil Nutrient Dynamics and Soil Properties in California Annual Grasslands," \$2,000. Department of Integrative Biology, UC Berkeley. (510) 642-1054; eviner@socrates.berkeley.edu
- **Cecilia Jones**, "Effect of Decomposition of Organic Amendments on the Rhizosphere Bacterial Communities and Suppression of Root Pathogens on Cotton," \$2,000. Department of Plant Pathology, UC Davis. (530) 752-7795; cejones@ucdavis.edu
- **Andreas Westphal**, "Field Survey for Suppressiveness Against *Heterodera schachtii*," \$2,000. Department of Nematology, UC Riverside. (909) 787-5328; andreasw@ucr.ucr.edu
- **Annette Wszelaki**, "Heat Treatments, Biological Controls and Controlled Atmospheres as Alternatives to Pesticides in Control of *Botrytis cinerea* in Postharvest Handling of Strawberries and Apples," \$2,000. Department of Pomology, UC Davis. (530) 752-0908; alwszelaki@ucdavis.edu

Grants for Educational Events [14 grants (29 events); \$19, 824]

Educational grants are awarded to individuals and organizations to conduct workshops, field days, and other educational events related to sustainable agriculture. Fourteen grants were awarded to support 29 different events or programs around the state. For more information about a particular event, call the telephone number listed. To learn more about SAREP's educational grants program, call **David Chaney** at (530) 754-8551; dechaney@ucdavis.edu

- **Dave Daley, Glenn Nader, Larry Forero.** California State University, Chico and UC Cooperative Extension. \$1,000. "Beef Day." Date: February 21, 1998.
Location: CSU Chico Farm. (530) 898-4539;



'Beef Day' at CSU Chico

- ddaley@facultypo.csuchico.edu;
ganader@ucdavis.edu;
lcforero@ucdavis.edu
- **Patricia Delwiche.** California State University, Chico, with California Department of Pesticide Regulation, UC Cooperative Extension, Lundberg Family Farms, Hedgerow Farms. \$960. "Integrating Agriculture with Wildlife Conservation." Dates: March 9 & 12, 1998. Location: Chico City Council Chambers. (530) 898-5844.
- **Melvin George and Craig Thomsen,** UC Cooperative Extension and UC Davis Department of Agronomy and Range Science. \$1,000. "California Annual Grassland Ecosystem Short Course: Ecology, Management, and Restoration." Date: March 31- April 2, 1998. Location: UC Davis Buehler Alumni and Visitors Center. (530) 752-1720; mrgeorge@ucdavis.edu; cdthomsen@ucdavis.edu
- **Chuck Ingels, Benny Fouche, and Maxwell Norton.** UC Cooperative Extension, Sacramento, San Joaquin and Merced counties. \$2,000 (3 meetings). "Promoting the Adoption of Integrated Pest Management Practices to Southeast Asian Strawberry Growers." Dates: February 1998 TBA. Locations: Sacramento, Stockton, Merced. (916) 875-6913 (Ingels), caingels@ucdavis.edu; (209) 468-2085 (Fouche), bfouche@ucdavis.edu; (209) 385-7403 (Norton), mnorton@ucdavis.edu
- **Chuck Ingels.** UC Cooperative Extension, Sacramento County. \$1,000. "Codling Moth Biology and Ecological Control Methods for Pear, Apple, and Walnut Orchards." Date: Feb. 5, 1998. Location: Sacramento. (916) 875-6913, caingels@ucdavis.edu
- **Roger Ingram and David Pratt.** UC Cooperative Extension. \$1,000. "The California Grazing Academy." Date: TBA late April 1998. Location: UC Sierra Foothill Research and Extension Center. (916) 889-7386 (Ingram), rsingram@ucdavis.edu; (707) 421-6791 (Pratt), dwpratt@ucdavis.edu
- **Desmond Jolly and George Van Den Abbeele.** UC Small Farm Center, Davis. \$1,000. "Agriculture and Ethics Symposium." Date: May 12, 1998. Location: Sierra Health Foundation, 1321 Garden Highway, Sacramento. (530) 752-7774 (Jolly), dajolly@ucdavis.edu;

(530) 752-2295 (Van Den Abbeele), givandenabeele@ucdavis.edu

- **William Oswald and F. Bailey Green.** UC Berkeley Environmental Engineering and Health Sciences Laboratory. \$2,000. "Design and Operation of the Kehoe Dairy AIWPS Facility for Treatment and Reclamation of Dairy Wastes (Kehoe Dairy, Point Reyes National Seashore, Marin County)." Date: TBA April and June 1998. Location: Point Reyes National Seashore headquarters at Bear Valley and Kehoe Dairy, Inverness. (510) 231-9438 (Oswald), (510) 231-5682 (Green), fbgreen@socrates.berkeley.edu
- **Bob Roan.** UC Cooperative Extension, Placer County. \$1,000. "PlacerGROWN Farm Conference." Date: January 31, 1998. Location: Lincoln High School, Lincoln. (916) 823-2431.
- **Jean Saffell.** California Association of Resource Conservation Districts, Sierra Resource Conservation District, Westside Conservation District, UC Cooperative Extension, Natural Resource Conservation Service. "Fresno County Resource Conservation District Day." \$1,000. Date: February 11, 1998. Location: Clovis Memorial Building, Clovis. (209) 855-5312, mtplanr@psnw.com
- **Andrea Sexton, Barbara Reed and Bill Krueger.** Glenn County Resource Conservation District, UC Cooperative Extension. \$4,000 (8 workshops). "Improving Water Quality through Sustainable Agricultural Practices--A Workshop Series for Dairy Producers, Orchardists and Rowcrop Farmers." Dates: February 4; February 24; March 18; April 29; May 13; July 15, 1998; October 14. Locations: TBA. (530) 934-5713 (Sexton), svbserv@aol.com; (530) 865-1107 (Reed), bareed@ucdavis.edu, (Krueger), whkrueger@ucdavis.edu
- **Ernest White and Laurie Aumack.** Tehama County Resource Conservation District and the Reeds Creek/Red Bank Watershed Project. \$914. "Introduction to Watershed Functions: Spring and Fall in Reeds Creek and Red Bank Creek Watersheds (An introduction to west side watersheds in Tehama County)." Dates: Spring field tour TBA between April 15-May 15, 1998; Fall field tour TBA between October 1-31, 1998. Locations: Red Bluff to Reeds Creek and Red Bank Creek. (530) 527-4231 (White, Aumack), laumack@ca.nrcs.usda.gov
- **Paul Wills and Sue Ellen Holmstrand.** Hyampom Valley Growers Association. \$950. "Turning Dirt into Soil: What to Look for and How to Test." Dates: 2-day event TBA. Location: Hyampom Community Center, Hyampom. (530) 758-3870 (Wills), (530) 628-4621 (Holmstrand).
- **Lynn Young.** Committee for Sustainable Agriculture, with US-EPA, UC SAREP, UC Cooperative Extension, Modesto Junior College. \$3,000 (6 meetings). "Soil Fertility Conferences and Field Days: Habitat Enhancement for Biological Pest Control (2 meetings), Nutrient and Waste Management for Livestock and Dairy, Soil Fertility and Integrated Pest Management for Strawberries, Soil Fertility and Integrated Pest Management for Row Crops, and Soil Fertility and Integrated Pest Management for Stone Fruit." Dates: Modesto, March 6

- 7; Salinas, March 13 - 14, & TBA 1998. Locations: Modesto and Salinas. (408) 763-2111, csaefc@scruznet.com.

Continuing Grants

Joyce Ewen, "PIVCC's Food Security Project"; **Laura Lawson**, "Rethinking Direct Marketing Approaches Appropriate to Low Income Communities and Urban Market Gardens"; **Adina Merenlender**, "A Spacially Explicit Vineyard Model: Addressing Crop Production, Public Policy, and Environmental Concerns"; **Roger Ingram**, "Controlled Grazing on Foothill Rangelands"; **Jay Rosenheim**, "Ecology of a Group of Generalist Predators, the Green Lacewings, and Their Contribution to Biological Control in Almonds and Walnuts"; **Marita Cantwell**, "Alternative Postharvest Treatments for Decay and Insect Control"; **Patrick Brown**, "Development of a N-Fertilizer Recommendation Model to Improve N-Use Efficiency and to Alleviate Nitrate Pollution to Ground Water from Almond Orchards"; **Melvin George**, "The Contribution of Ranch Roads, Cattle Trails and Bed Load to the Sediment Budget for a Grazed Watershed in the Central Sierra Foothills"; **Joseph Hancock**, "Role of the Soil Microbial Community in Suppression of Rhizoctonia Stem Rot Disease of Cauliflower"; **John Mass**, "Environmental Fate and Characterization of Selenium Supplemented to Intensively Grazed Beef Cattle"; **Jeff Mitchell**, "Use of Cover Crop Mulches in Processing Tomato Production Systems"; **Steven Temple**, "The Transition from Conventional to Low-Input or Organic Farming Systems: Soil Biology, Soil Chemistry, Soil Physics, Energy Utilization, Economics and Risk."

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Changes at UC SAREP

Bill Liebhardt Returns to Extension Duties

SAREP director **Bill Liebhardt** will step down from his administrative duties June 30, 1998 to return to his Extension work at UC Davis. Liebhardt was hired in March 1987 after a national search for SAREP's first director.

"I'm very proud of the work we have done here at SAREP and I know that the program's capable and creative staff will continue to coordinate outstanding research and education efforts in sustainability," Liebhardt says. "I'll always appreciate the close relationship I've had with the SAREP staff and our advisory committees. I've enjoyed the opportunity to work in California both inside and outside the university," he adds. "Now, after 16 years as an administrator, I'm looking forward to doing my own research."

He will be working at UC Davis on projects related to sustainability issues in California and the U.S. A search is underway for a new director.

Liebhardt, the former director of research at the Rodale Research Center in Pennsylvania, was an associate professor at the University of Delaware and worked as an agronomist for Allied Chemical Co. in the southeastern United States as well as for Standard Fruit Co. in Honduras before coming to Davis.

A soils scientist who was raised on a Wisconsin dairy farm, Liebhardt has focused his research on soil fertility and farming systems comparison and analysis. He is the author of numerous articles on soil fertility and farming systems performance. **[Look for a farewell from Liebhardt in the Summer 1998 issue of *Sustainable Agriculture*, Vol. 10, No. 2.]**

SAREP Associate Director Heads to Washington

Jill Shore Auburn, SAREP's associate director, has been named national program leader for sustainable agriculture by the USDA. Her primary responsibility is to direct the federal Sustainable Agriculture Research and Education (SARE) program. The national sustainable ag effort is part of the Economic and Community Systems unit at the USDA-Cooperative State Research, Education and Extension Service. The sustainable ag unit awards \$11 million per year in

grants.

"We're extremely proud that someone as talented and committed as Jill has been selected to head the federal sustainable ag program," says Bill Liebhardt, SAREP director. "She has been instrumental in helping our

California program reach national and international stature, and we will miss her contributions enormously. It will also be wonderful to have another person who has personal experience in the West in Washington, D.C."



Auburn, who came to SAREP in 1987, has also worked as the USDA sustainable agriculture program's Western Region professional development coordinator since 1994. In that capacity, she directed educational efforts aimed at Cooperative Extension and other ag professionals in 13 western states and the Pacific Island region.

She also helped establish the national Sustainable Agriculture Network. Auburn initiated SAREP's award-winning World Wide Web site for sustainable agriculture, one of the first Internet sites geared to farmers and extension agents. One of her latest projects is the book *How to Find Agricultural Information on the Internet*. Auburn, who received her doctorate from UC Davis in 1985, is a board member of the Henry A. Wallace Institute for Alternative Agriculture.

On a more personal note, Auburn leaves behind many colleagues and friends in California who have enjoyed working with her since she came to California in the late 1970s. An early member of the Committee for Sustainable Agriculture, and the originator of the Organic Market News and Information Service (OMNIS) market report, Auburn has a long history of involvement in sustainable agriculture. It is hard to say goodbye to a woman who has done research, written articles, procured grants, dispersed grants, been a fine administrator, and an even better friend. We wish you well, Jill!

Restoring Native Perennial Grasses to Rural Roadsides in the Sacramento Valley of California: Establishment and Evaluation

Robert L. Bugg, Cynthia S. Brown, and John H. Anderson

Restoration Ecology, 5(3):214-228. 1997

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Editor's Note: Roadside management schemes in rural California emphasize herbicides and tillage to suppress resident vegetation and weeds. An alternative approach could involve the establishment and maintenance of native perennial grasses that suppress the growth of weeds. These grasses can be grown in conjunction with other native flora and may provide habitat for desirable wildlife while potentially reducing the threat of flooding, erosion and siltation, and wildfire.

Along rural roadsides of the Sacramento Valley of California, [the authors] seeded native and non-native perennial grasses to gauge their potential value in roadside vegetation management programs. In Trial I (polycultures), three seeded complexes and a control (resident vegetation only) were tested. Each seeded plant complex included a different mix of perennial grasses seeded into each of several roadside topographic zones. The seeded levels of Plant Complex were: Native Perennial Grasses 1 (8 species); Native Perennial Grasses 2 (13 species); and Non-Native Perennial Grasses (3 species). In Trial II, plots were seeded to monocultural plots of 15 accessions of native Californian and 3 cultivars of non-native perennial grasses. Plots in both trials were seeded during January 1992, and evaluated for three successive years.

In Trial I polycultures during 1993, canopy cover by seeded species was not significantly different among the three seeded complexes. The three seeded complexes showed statistically equivalent reduction of canopy cover by resident plant species. Biomass of seeded perennial grasses was greater for Non-Native Perennial Grasses than for Native Perennial Grasses 1 or Native Perennial Grasses 2. Total biomass (seeded + resident species) was greatest for Non-Native Perennial Grasses.

In Trial II monocultures during 1993, the non-native *Thinopyrum intermedium* ssp. *trichophorum* (pubescent wheatgrass) attained the greatest height, followed by the native species *Nassella* (*Stipa*) *cernua* (nodding needlegrass), *Nassella* (*Stipa*) *pulchra* (purple needlegrass), and *Elymus trachycaulus* var. *majus* (slender wheatgrass). By contrast, the non-native *Festuca ovina* (sheep fescue) and the native *Poa secunda* ssp. *secunda* (pine bluegrass) were particularly short. *N. cernua*, *N. pulchra*, *E. trachycaulus*, and *T. intermedium* ssp. *trichophorum* showed particularly great canopy cover, whereas particularly low values of canopy cover were obtained for *F. ovina* and *P. secunda* ssp. *secunda*. A highly significant inverse linear relationship was

obtained by regression analysis when canopy cover for seeded perennial grasses was used to predict canopy cover for resident plant species ($p < 0.0001$, $r^2 = 0.297$, slope = -0.336 , intercept = 39.442).

In 1994, the following native perennial grasses showed substantial canopy cover in Trial II monocultures, and appear promising for use in Sacramento Valley rights-of-way: *Bromus carinatus* (California brome), *Elymus glaucus* (blue wildrye), *E. trachycaulus*, all accessions of *Hordeum brachyantherum* ssp. *brachyantherum* (meadow barley), a prostrate accession of *Hordeum brachyantherum* ssp. *californicum* (California barley), *N. cernua*, and *N. pulchra*. In addition, the non-native *T. intermedium* ssp. *trichophorum* performed well. By contrast, virtual failure of stands was observed for the non-native *F. ovina* and the following native species: *Elymus multisetus* (squirreltail), two accessions of the *Festuca idahoensis* (Idaho fescue), *Festuca rubra* (creeping red fescue), and *P. secunda* ssp. *secunda*.

For more information: Robert L. Bugg, Sustainable Agriculture Research & Education Program, University of California, One Shields Ave., Davis, CA 95616. rlbugg@ucdavis.edu

DEC.550

Contributed by Robert Bugg

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Biologically Integrated Farming Systems: Approaches to Voluntary Reduction of Agricultural Chemical Use

J.C. Broome, W.H. Settle, R.L. Bugg, M. Gibbs, C.P. Ohmart

Poster presentation at SETAC 18th Annual Meeting, Bridging the Global Environment: Technology, Communication, and Education, November 16-20, 1997, San Francisco, Calif. Society of Environmental Toxicology and Chemistry, Pensacola, Florida 1997.

In the 1990s, several community-based, whole farming system projects for pollution prevention have been developed in California. In 1993, the Biologically Integrated Orchard Systems (BIOS) project was initiated to support almond production in Merced County. This project was founded and is administered by a non-profit corporation, Community Alliance with Family Farmers together with various public and private entities. The BIOS projects feature management teams that include farmers, researchers, private pest control advisors, UC farm advisors, and representatives of the USDA Natural Resource Conservation Service. These teams craft and implement technical support packages for growers. BIOS growers in Merced and Stanislaus County eliminated dormant (winter) sprays of diazinon during the 1993-94 and 1994-95 seasons, respectively. Mean application rates of synthetic nitrogen fell by 41 percent, from 187.21 kg/ha pre-BIOS to 110.98 kg/ha in 1996. The BIOS program has expanded to seven counties in the Central Valley. Other projects have developed that are similar to BIOS and supported by the UC Sustainable Agriculture Research and Education Program and the California Department of Pesticide Regulation. Crops addressed include wine grapes, cotton, prunes, peaches, and vegetables. One such project is the Biologically Integrated Farming Systems project of the Lodi-Woodbridge Winegrape Commission (LWWC). This project has emphasized community-building through on-farm meetings, intensive monitoring of pests, and the use of cover cropping to improve access to vineyards, maintain soil quality, and reduce pests. In 1997, 56 vineyard demonstration plots were established totaling 810 hectares. Cover crops are used in 84 percent of the vineyards and leaf removal for non-chemical pest management in 55 percent of the vineyards. No insecticides or miticides were used in 50% of the vineyards. After the first year of the program, use of the reduced-risk contact herbicide glyphosate increased from 0.26 kilograms per enrolled hectare to 0.75 kilograms per enrolled hectare and use of simazine, a known groundwater contaminant, appears to be decreasing, from 0.59 kilograms per enrolled hectare to 0.28 kilograms per enrolled hectare.

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Contributed by Jenny Broome

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Proposed National Organic Rules

The U.S. Department of Agriculture issued its proposed National Organic Program rule on December 16, 1997. The Organic Foods Production Act of 1990 provided authority for this proposed rule. It was developed from recommendations of the National Organic Standards Board, an advisory board appointed by Secretary of Agriculture **Dan Glickman**, and in cooperation with the Food and Drug Administration and the Environmental Protection Agency.

The deadline for submission of public comments regarding the USDA's proposed national organic foods production standards has been extended to on or before **April 30, 1998**.

Persons submitting written or faxed comments are requested to identify the topic and section number, if applicable, to which the comment refers: For example, for a comment regarding feed for organic livestock, reference Livestock and Section 205.13. Topics should be selected from the following list: General, Proposed Effective Date, Regulatory Impact Assessment, Regulatory Flexibility Analysis, Paperwork Reduction Act, Definitions, Applicability (Section 205.3), Crops, Livestock, Handling, National List, Labeling, Certification, Accreditation, State Programs, Fees, Compliance Appeals, and Equivalency.

It is the intention of the USDA's Agricultural Marketing Service to have all comments available for viewing on the National Organic Program homepage at: <http://www.ams.usda.gov/nop> in a timely manner.

Comments may be sent to the same Web site, and may be mailed to:

Eileen S. Stommes, deputy administrator
USDA-AMS-TM-NOP
Docket # TMD-94-00-2
Room 4007-S, AgStop 0275
PO Box 96456
Washington, D.C. 20090-6456

or faxed to:

USDA-National Organic Standards
Docket # TMD-94-00-2
(202) 690-4632

Resources

New Report Highlights SAREP Work 1995-1997

UC SAREP, now in its eleventh year, highlights the last two years of program work in *UC SAREP Biennial Report: 1995-1997*. Since 1987, SAREP has awarded more than \$3.5 million to approximately 260 basic and applied research projects, community development and public policy projects, seminars, field demonstrations and graduate student awards.

"The greatest successes in the first years of the program were in working with systems-based projects that helped identify how agricultural systems worked and showed how their component parts were connected. Our new *Biennial Report* shows that the most successful recent projects in both production agriculture and community and public policy areas have been community-based," says **Bill Liebhardt**, SAREP director.

Premier examples of collaborative work in production agriculture detailed in the *Biennial Report* are the Biologically Integrated Orchard Systems (BIOS) and Biologically Integrated Farming Systems (BIFS) projects. These voluntary team-management approaches to helping farmers solve orchard and farming systems challenges include farmers, UC farm advisors and researchers, independent pest control advisors, and industry representatives.

SAREP projects aimed at community food systems, regional "food sheds" and similar concepts have brought momentum to economic and public policy issues affecting sustainable agriculture. Some of the pivotal projects in this area are also community-based and highly collaborative. An outstanding example included in the *Biennial Report* is the PlacerGROWN Agricultural Marketing project in Placer County.

The *Biennial Report* also includes summaries of SAREP-funded projects that are both production-oriented and intrinsically tied to community sustainability issues, including a project seeking to improve the health of the Tulelake ecosystem while maintaining viable agriculture critical to the region's economy.

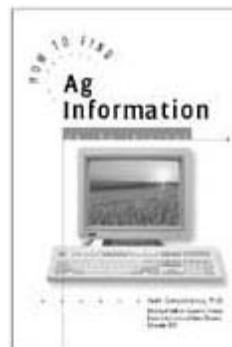
A limited number of printed copies of *UC SAREP Biennial Report: 1995-1997* are available free from the SAREP office. Contact the office at SAREP, University of California, One Shields Ave., Davis, CA 95616-8716; Tel: (530) 752-7556; email: sarep@ucdavis.edu The report will be available on SAREP's World Wide Web site at: <http://www.sarep.ucdavis.edu/>

Print Publications from SAREP

- *Community Food Systems in California: Profiles of 13 Collaborations*, edited by **Gail Feenstra**, UC SAREP, and **David Campbell**, California

Communities Program, UC Davis, 45 pages, 1998. California is a leader in both large-scale agricultural interests which feature global marketing, and small-to-medium scale farms which rely on diversification and direct marketing and a reconnection of agriculture and community. This publication profiles 13 of the growing number of local community food system initiatives that have developed in California in the last few years. The publication aims to provide basic information that can assist individuals or groups interested in starting similar projects in their regions, including Cooperative Extension advisors, community development practitioners, nutrition, youth and public health professionals, economic development planners, church personnel, academics and others. The organizations profiled have well-developed roots in a geographically distinct community, a holistic and comprehensive approach to addressing goals, and the cooperation of multiple organizations and individuals. They address several of the following goals: community food security (access to a nutritious, affordable diet), sustaining family farms using production practices that are less chemical- and energy-intensive; promoting direct marketing; community economic development; farm labor equity; and farmland protection. [Ordering information.](#)

- *How to Find Agricultural Information on the Internet*, by **Mark Campidonica**, edited by **Jill Shore Auburn**, UC SAREP, published by UC Division of Agriculture and Natural Resources Communication Services, Publication No. 3387, 100 pages, 1997. This useful manual is designed for farmers, ranchers, gardeners, extension agents, consultants, and scientists who want to get results using the Internet. Aimed at both Internet beginners and intermediate users, the publication explains how to: choose an Internet provider; send and receive electronic mail; get answers from email discussion groups; search the World Wide Web for practical information; and copy information from the Internet for individual use. It includes real-life examples of how farmers and marketers have used email and the Web to answer questions, do research and improve their bottom line. A graphic Web sampler and other illustrations provide links to useful sites. [Ordering information.](#)



relate to the broader challenge of building healthy communities, a more vital democracy, and a civil society. [Ordering information.](#)

- *Sustainable Farming Systems: A Guide to the Transition*, by **Ann D. Mayse**, UC SAREP, 84 pages, 1997. Aimed at California farmers, this book on the transition to more sustainable farming systems presents ideas on subjects ranging from soil quality and pest management to farm design and the economic impacts of changing production practices. It focuses on the impact of management decisions at the farm level, and includes many references. Twelve California farmers representing a wide range of farming operations from throughout the state contributed ideas to the book in extensive interviews, and numerous other farmers, consultants, farm advisors and researchers supplied information. [Ordering information.](#)

Other Print Publications

Organic Citrus Studies

Production Practices and Sample Costs for Fresh Market Organic Valencia Oranges, South Coast 1997, 27 pages; *Production Practices and Sample Costs for Fresh Market Organic Lemons, South Coast 1997*, 27 pages, by **Karen Klonsky** and **Laura Tourte** (contributing authors: **Nicholas Sakovich**, **Chuck Ingels**, and **Etaferahu Takele**, UC Cooperative Extension, and **Pete Livingston**, UC Davis). These new organic cost-of-production studies are available from UC Cooperative Extension. They include information on production and processing practices, cover crop management, pest management, risk and marketing, state and federal regulations, sample cost and return estimates, and enterprise budgets. Other organic cost-of-production studies are available for cotton, apples, coastal vegetables, almonds, wine grapes, rice and walnuts. For copies of any of the cost studies, contact Laura Tourte, Department of Agricultural and Resource Economics, University of California, Davis, CA 95616; Tel: (530) 752-9376; Fax: (530) 752-5614) or email: tourte@primal.ucdavis.edu. The publications are also available in selected UC Cooperative Extension offices.

Sustainable Ag Reference

Future Horizons: Recent Literature in Sustainable Agriculture [Extension and Education Materials for Sustainable Agriculture: Volume 6], edited by **Gabriel Hegyes** and **Charles Francis**, Institute of Agriculture and Natural Resources, University of Nebraska, Lincoln, 222 pages, September 1997. This compilation of material is designed to fulfill three goals: be an anthology of reviews familiarizing the reader with some of the authors, topics and titles that make up the last ten years of sustainable agriculture literature; serve as an annotated bibliography supplemented with essays; and, primarily, serve as a language text, exposing the user to the semantics, symbols and syntax of sustainable agriculture. To order the \$10 volume, contact Center for Sustainable Agricultural systems, University of Nebraska-Lincoln, 225 Keim Hall, Lincoln, NE 68583-0949; Tel: (402) 472-2056; Fax: (402) 472-4104; email: csas003@unlvm.unl.edu

Small Farm Handbook

Rebirth of the Small Family Farm: A Handbook for Starting a Successful Organic Farm Based on the Community Supported Agriculture Concept, by

Bob and Bonnie Gregson, published by IMF Associates, 64 pages, 1996. Washington State farmers Bob and Bonnie Gregson have written this book to inspire others to do what they've done: make a successful living on two acres on which they produce more than 60 crops organically integrated with livestock. They wrote their book "from the perspective of two people working together to make a reasonable, community-oriented living on a very small farm, in the fervent hope that many thousands of these 2-10 acre farms will pop up and be successful all over the country with many fewer trials and errors than we experienced!" Available for \$9.95 (plus \$0.70 tax for Washington State residents) from IMF Associates, Box 2542, Vashon Island, WA 98070 (includes postage). Bulk discounts available.

Tools and Sustainability

Steel in the Field: A Farmer's Guide to Weed Management Tools, published by the USDA's Sustainable Agriculture Network (SAN), 128 pages, September 1997. This publication shows how today's implements and techniques can handle weeds while reducing or eliminating herbicides. It presents what farmers and researchers have learned in the last 20 years about cutting weed-control costs through improved cultivation tools, cover crops and new cropping rotations. It combines farmer accounts, university research and commercial agricultural engineering expertise on the topics of complying with erosion-prevention plans, remaining profitable, and managing residue and moisture loss. Twenty-two farmer interviews are included. To order the \$18 book, send a check or purchase order to Sustainable Agriculture Publications, Hills Building, University of Vermont, Burlington, VT 05405-0082, including mailing address, daytime phone number, and the reference number MP091197. For information on rush orders, international orders or bulk discounts, call (802) 656-0471.

Farmers' Market Sales

Dynamic Farmers' Marketing: A Guide to Selling Your Farmers' Market Products, by **Jeff W. Ishee**, Bittersweet Farmstead, 148 pages, 1997. One of the only books available dedicated to the sole topic of selling farm products via the local farmers' market. Includes information about vendors' successes and the efficient organization of a public farmers' market, interviews with sellers, an appendix of sample market rules and sample news releases from the Shenandoah Valley farmers' market. "I hope this effort can facilitate the survival of a few more small family farms by their becoming more profitable via the local farmers' market. That is really important to me," Ishee writes. To order a copy (\$14.95 plus \$2.50 shipping and handling), contact Bittersweet Farmstead, PO Box 52, Middlebrook, VA 24459; Tel: (540) 886-8477; email: ish-bittersweet@juno.com

Sources of Funding

Biologically Integrated Farming Systems (BIFS) Grants

Farmers, commodity groups and academic researchers are encouraged to apply for grants administered by SAREP to improve soil fertility and crop protection with cultural practices and biological pest control that reduce reliance on agricultural chemicals. Awards will range from \$80,000 to \$100,000 per year and will be available through the Biologically Integrated Farming Systems (BIFS) program. The first round of BIFS grants--funded by the California Environmental Protection Agency's Department of Pesticide Regulation and the U.S. Environmental Protection Agency--supports ongoing projects in winegrapes and field crops. New funding from the federal EPA and the University of California Division of Agriculture and Natural Resources permits SAREP to fund two or more additional projects. The core of the BIFS program is a team-based approach to information exchange with farmers, consultants, UC farm advisors and researchers, and independent pest-control advisors working together.

"An increasing number of California farmers representing many commodities and counties have been able to maintain yields and quality while greatly reducing their reliance on agricultural chemicals, including pesticides and synthetic fertilizers," says SAREP Director **Bill Liebhardt**.

The elements these farmers integrate into their production systems include biological and cultural control of pests; on-farm habitats for beneficial insects, mites and spiders; a strong emphasis on soil-building practices, often including biological nitrogen fixation to supply all or part of the nitrogen needed by crop plants; and reduced reliance on agricultural chemicals.

Applicants for BIFS funds may employ additional techniques, such as field monitoring for pest and beneficial organisms; collection of weather data; reliance on research-based action thresholds; use of selective biorational pesticides; and soil, water and plant-tissue testing.

"For this round of grants we are inviting interested individuals to submit a two-page pre-proposal," says **Jenny Broome**, BIFS coordinator, so principal investigators may obtain feedback on their potential project to enable them to develop full proposals that will most effectively fulfill the program's criteria.

New proposals for BIFS funding to study these farmers' production systems are now being sought. A formal Request for Proposals (RFP) was recently released. Pre-proposals may be submitted by **March 16, 1998**. It is not necessary to submit a pre-proposal, but the feedback provided may help clarify program goals. Full proposals are due **May 15, 1998**. California

institutions and individuals are invited to apply for funding. Principal investigators on BIFS projects may be private individuals, for-profit and non-profit corporations, including commodity boards, Resource Conservation Districts, Natural Resources Conservation Service Districts or soil conservationists, University of California Cooperative Extension farm advisors, Cooperative Extension specialists, area IPM advisors, and faculty of any accredited California institution of higher learning. To obtain the RFP, or for more information, contact SAREP at (530) 752-7556 or visit its Web site at <http://www.sarep.ucdavis.edu>.

Organic Research Grants

The Organic Farming Research Foundation is offering funds for organic farming research, dissemination of research results to organic farmers and growers interested in making the transition to organic production, and consumer education on organic farming issues. Projects should involve farmers in design and execution, and take place on working farms when possible. Proposals of \$3,000-\$5,000 are encouraged. Matching funds and/or in-kind contributions are recommended. Proposals are considered twice a year; the next round of proposals must be received by **July 15, 1998**. To receive copies of grant application procedures and the OFRF Research and Education Priorities describing target areas, write Grants Program, Organic Farming Research Foundation, PO Box 440, Santa Cruz, CA 95061; Tel: (408) 426-6606.

Funding Resources/Web sites:

- Funding-seekers may want to investigate the *Environmental Grantmaking Funding 1998 Directory*, published by Resources for Global Sustainability, PO Box 22770, Rochester, NY 14692-2770; Tel: (800) 724-1857; Fax: (716) 473-0968; email: rgs@environmentalgrants.com Web site: <http://www.environmentalgrants.com/> The 1050-page directory includes information on 800 grantmaking foundations. Cost is \$94 plus \$6 shipping and handling; a CD-Rom version is \$104 plus handling.
- Another Web site for funding sources is *The Foundation Center* at <http://fdncenter.org/> (or the "no frills" site for those with lower bandwidth Web access: <http://fdncenter.org/2index.html>). This site includes tips on the fundraising process, links to Web sites of more than 190 grantmakers, the *Philanthropy News Digest*, and other information.

Another site:

- *Philanthropy Journal Online*, <http://www.philanthropy-journal.org>

Calendar

SAREP offers a regularly updated sustainable agriculture calendar on our World Wide Web site at: <http://www.sarep.ucdavis.edu/> (click on "Course, Workshops, Events"). Please feel free to add sustainable agriculture events to our Web site calendar.

MONTHLY MEETINGS

Lighthouse Farm Network The Community Alliance with Family Farmers Foundation sponsors informal monthly meetings for growers to discuss issues related to pesticide use reduction. Contact: Reggie Knox, CAFF, (408) 457-1007.

February

21 *Beef Day*, California State University, Chico Farm. Jointly presented by CSU, Chico, UC Cooperative Extension, UC SAREP. Aimed at Northern California ranchers. Reports on two SAREP-funded research projects (Natural Grass-Fed Beef, History of Public Land Grazing in the Trinity Forest) will be featured. Contact: Dave Daley, CSU, Chico Animal Science Dept., (530) 898-4539, Glenn Nader, UCCE, (530) 822-7515.

21 *Promoting the Adoption of Integrated Pest Management Practices to Southeast Asian Strawberry Growers*, Sacramento. Sponsors: UC Cooperative Extension, UC SAREP. Translated into Mien. Contact UCCE: Chuck Ingels, (916) 875-6913. For information about Stockton & Merced presentations, contact Benny Fouche, (209) 468-2085 (Stockton) or Maxwell Norton, (209) 385-7403 (Merced).

24 *Improving Water Quality Through Sustainable Agricultural Practices--A Workshop Series for Dairy Producers, Orchardists & Rowcrop Farmers*. Glenn County Resource Conservation District, UC Cooperative Extension, UC SAREP. Various locations in Glenn County. Contact: Barbara Reed/Bill Krueger, UCCE (530) 865-1107; Andrea Sexton, RCD, (530) 934-5713.

March

5-6 *Building on a Decade of Sustainable Agriculture & Education: Sharing Experiences to Improve our Agriculture*, conference, Austin, TX. Sponsor: USDA Sustainable Agriculture Research & Education (SARE) program. Poster session, presentations, discussion groups, speakers, field trips, exhibitors. Contact: SARE, 0322 Symons Hall, Univer. of Maryland, College Park, MD 20742-5565; (301) 405-5270; vberton@wam.md.edu; <http://www.ces.ncsu.edu/san/>

6-7 *Soil Fertility and Pest Management Conference*, Modesto Junior College,

Modesto. Sponsors: US-EPA, UC SAREP. Conference highlights composts/cover crops for fertility needs; pest control strategies in stone fruits/vegetables; organic dairy management. Farm & compost facilities tour Mar. 6. Soil fertility, IPM workshops Mar. 7. Contact: Jo Ann Baumgartner, Committee for Sustainable Agriculture, 406 Main St., Suite 313, Watsonville; (408) 763-2111.

9 & 12 *Integrating Agriculture with Wildlife Conservation*, Chico City Council Chambers. Sponsor: California State University, Chico, UC Cooperative Extension, UC SAREP. Contact: Patricia Delwiche, CSU, Chico, (530) 898-4146.

11 *Reducing Green Waste & Water Use in the Landscape: A Workshop for Professional Landscapers in Sacramento County*, La Sierra Community Center, Carmichael. Sponsors: UC Cooperative Extension, Sacramento County Public Works Dept., Waste Management & Recycling, & Transportation divisions, Calif. Landscape Contractors Assoc. Free. 8 a.m.-noon. Contact: Chuck Ingels, UCCE, (916) 875-6913, caingels@ucdavis.edu

13-14 *Soil Fertility and Pest Management Conference*, Salinas Agriculture Center. Sponsors: US-EPA, UC SAREP. Conference highlights composts, cover crops, insectary plants for vegetables/ strawberries re. soil fertility/pest management. Morning workshops, afternoon farm/compost operations tours. Contact: Jo Ann Baumgartner, Committee for Sustainable Agriculture, 406 Main St., Suite 313, Watsonville; (408) 763-2111.

18 *Improving Water Quality Through Sustainable Agricultural Practices--A Workshop Series for Dairy Producers, Orchardists & Rowcrop Farmers*. Glenn County Resource Conservation District, UC Cooperative Extension, UC SAREP. See Feb. 24.

31-Apr. 2 *Ecology, Management and Restoration of California Annual Grasslands*, UC Davis Buehler Alumni & Visitors Center. Sponsors: UC Cooperative Extension, UCD Dept. of Agronomy & Range Science, UC SAREP. 3-day short course on ecological history of California grasslands, livestock grazing & watershed management, yellow starthistle control, managing for biological diversity, prescribed burning, ecological restoration principles, grassland & riparian restoration, non-point pollution, & habitat value of annual grassland ecosystem. Contact: Craig Thomsen, Agronomy & Range Science, UCD, (530) 752-8810, cdthomsen@ucdavis.edu

April

29 *Improving Water Quality Through Sustainable Agricultural Practices--A Workshop Series for Dairy Producers, Orchardists & Rowcrop Farmers*. Glenn County Resource Conservation District, UC Cooperative Extension, UC SAREP. See Feb. 24.

May

12 *Agriculture & Ethics Symposium*, Sierra Health Foundation facility, 1321 Garden Hwy., Sacramento. Sponsors: UC Small Farm Center, UC SAREP. Contact: Small Farm Center, (530) 752-7774.

13 *Improving Water Quality Through Sustainable Agricultural Practices--A Workshop Series for Dairy Producers, Orchardists & Rowcrop Farmers.*
Glenn County Resource Conservation District, UC Cooperative Extension,
UC SAREP. See Feb. 24.

June

4-7 *Joint Annual Meeting Agriculture, Food & Human Values Society, & Assoc. for the Study of Food & Society, San Francisco.* Topics: food, dietary, nutritional behaviors; food & ag practices; ethical & values issues in food & ag; public policies. Papers, posters, panels sought (deadline Mar. 1). Contact: Jacqueline Newman, Queens College, CUNY, Dept. of Family Nutrition and Exercise Science, 6530 Kissena Blvd., Queens, NY 11367; (718) 997-4150; email: newman@qcvaxa.acc.qc.edu

July

15 *Improving Water Quality Through Sustainable Agricultural Practices--A Workshop Series for Dairy Producers, Orchardists & Rowcrop Farmers.*
Glenn County Resource Conservation District, UC Cooperative Extension,
UC SAREP. See Feb. 24.

October

14 *Improving Water Quality Through Sustainable Agricultural Practices--A Workshop Series for Dairy Producers, Orchardists & Rowcrop Farmers.*
Glenn County Resource Conservation District, UC Cooperative Extension,
UC SAREP. See Feb. 24.