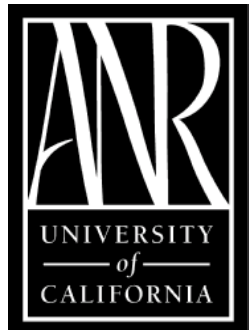


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**Year 2002 Report**  
**University of California Cooperative Extension**  
**Santa Cruz County**

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**University of California**  
**United States Department of Agriculture**  
**and the**  
**County of Santa Cruz Cooperating**

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Santa Cruz County  
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**Our Mission: To protect and improve the resources and quality of life in Santa Cruz County by providing research-generated knowledge and techniques related to agriculture, marine sciences, youth development, nutrition, and family and consumer sciences.**

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**Year 2002 Report**  
**University of California Cooperative Extension**  
**Santa Cruz County**

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## Introduction

I am pleased to submit this Year 2002 Report for the University of California Cooperative Extension (UCCE) Santa Cruz County. UCCE is a cooperative county, state and federal activity authorized by the Federal Smith-Lever Act. It serves as the link to the Land Grant University System to bring applied research and education identified as important to county businesses and local residents.

Our mission and goals are to protect and improve the resources and quality of life in Santa Cruz County by providing research-generated knowledge and techniques with respect to our major programs, including those in agriculture, environmental horticulture, marine resources, and youth development. We conduct multiple applied research projects within each program and further provide technical advice and education to such diverse groups as farmers, fishers, home gardeners, landscapers, nurserymen, resource managers, teachers, and teen leaders. In addition, we work closely with other educational institutions, governmental agencies, and local non-profit organizations to provide information and assistance in support of our mission and goals.

The Division of Agriculture and Natural Resources (ANR) of the University of California provides the professional staff for UCCE Santa Cruz County as well as overall supervision and management of the department. The county provides office space, vehicles, supplies, and administrative support. For every county dollar, federal, state, University and extramural funding sources provide at least three additional dollars. The following report includes a brief overview of each of the major programs in our department. It then highlights work accomplished by our professional (advisor) staff in the attached annual reports.

**Agriculture and Environmental Horticulture.** The largest program in the county is applied research and education in the areas of agriculture and environmental horticulture, which is geared toward solving problems and strengthening practices of local clientele and industry. Integrated pest management (IPM) strategies, horticultural improvements for berries, farm management, marketing, and the viability of small farms are research priorities. Sudden Oak Death continues to be an important research activity for Santa Cruz County. During 2002 we welcomed a new Strawberry and Caneberry Advisor and a new Sudden Oak Death Education Coordinator to Santa Cruz County. Both have research and/or education responsibilities in neighboring counties, including Monterey and San Benito Counties. Both positions fill critical program needs for our office and the county, and further provide support to major industries and activities in the area. Ultimately, our work is geared towards advancing agriculture and environmental horticulture that is environmentally sound, economically viable, and socially responsible to the agricultural and non-agricultural/horticultural communities alike.

The general public and home gardeners are ably served by the UCCE Monterey Bay Master Gardener Volunteer Program, which helps solve problems and provides public education through a telephone hotline, community service projects, and other outreach activities. One notable local project is the Master Gardeners Youth Garden, which was recently recognized for its excellence in working with youth in the juvenile justice system.

**Marine Science (Sea Grant) Program.** The marine science program conducts applied research and education in the areas of coastal and marine resources within Santa Cruz and Monterey Counties. In addition to applied research and education, activities are focused on the transfer of information to solve practical problems for a wide variety of commercial and industrial businesses as well as recreation, education, and conservation user groups.

**Youth Development.** This position supports applied research and education in the areas of natural resource, environmental stewardship, science, and technology programs for youth in Santa Cruz and Monterey Counties. This position also provides oversight for the 4-H Youth Program, which includes projects and activities that focus on cooperation and teamwork while developing citizenship and leadership skills in order to prepare today's youth for adulthood.

**Nutrition Education Program.** This program provides information to the Santa Cruz County public at large on a variety of subjects pertaining to human nutrition, food preparation, and healthful cooking through educational activities and a periodic newsletter.

Respectfully submitted,

Laura Tourte  
County Director

# **University Academic Staff**

## ***ADVISORS IN SANTA CRUZ COUNTY***

<b>Laura Tourte</b>	<b>County Director &amp; Farm Management Advisor</b>
<b>Mark Bolda</b>	<b>Strawberry &amp; Caneberry Advisor</b>
<b>Lynn Schmitt-McQuitty</b>	<b>Youth Development Advisor</b>
<b>Richard M. Starr</b>	<b>Marine Science/Sea Grant Advisor</b>
<b>Steven A. Tjosvold</b>	<b>Environmental Horticulture Advisor</b>

## ***ADVISORS IN MONTEREY COUNTY WITH CROSS COUNTY ASSIGNMENTS TO SANTA CRUZ COUNTY***

<b>Larry J. Bettiga</b>	<b>Viticulture Advisor</b>
<b>Michael Cahn</b>	<b>Water Resources &amp; Irrigation Advisor</b>
<b>William E. Chaney</b>	<b>Entomology Advisor</b>
<b>Steven T. Koike</b>	<b>Plant Pathology Advisor</b>
<b>Richard Smith</b>	<b>Weed Science &amp; Vegetable Advisor</b>

## ***ADVISORS IN SAN BENITO COUNTY WITH CROSS COUNTY ASSIGNMENTS TO SANTA CRUZ COUNTY***

<b>William W. Coates</b>	<b>Tree Crops &amp; Pomology Advisor</b>
<b>Sergio Garcia</b>	<b>Livestock &amp; Range Science Advisor</b>

## **University Research & Education Support Staff**

**Karl Buermeyer**

**Sudden Oak Death  
Education Coordinator**

**David Chambers**

**Staff Research Associate**

**Mary Cross**

**4-H Program Representative**

**Kathleen Nolan**

**Nutrition Education Coordinator  
(headquartered at UCCE Monterey County)**

## **County Administrative Staff**

**Judy Bettencourt**

**Division Secretary**

**Robin Friedman**

**Clerk III**

## Relevant Workload Statistics

### Volunteer Programs

• Master Gardener Certified Volunteers	75
• Master Gardener Trainees	40
• Master Gardener Hotline Hours	819
• Master Gardener Community Service & Project Hours	4,500
• 4-H Adult Volunteers	141
• 4-H Club Youth Members	256
• 4-H Community Service & Project Hours - Adults	3,000
• 4-H Community Service & Project Hours – Youth	2,500

### Outreach & Education

• Field Days, Workshops & Conferences with Advisors	39
• Consultations (Field, Office, Phone, E-Mail)	2,606
• News Releases & Mass Media	17
• Publications Distributed	1,052
• Newsletters Mailed	14,696

## Funding Sources (2001-2002)

### University of California & Federal Funds

• Direct & Indirect	\$853,666
• Grants & Contracts	<u>243,885</u>
Total University & Federal Funds	\$1,097,551

### County of Santa Cruz Funds

• Direct & Indirect	<u>\$247,002</u>
Total County Funds	\$247,002

### Total Funding

• University, Federal, & County	\$1,344,553
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University & Federal Funds as a Percent of Total 82%

County Funds as a Percent of Total 18%



**STEVEN A. TJOSVOLD****ENVIRONMENTAL HORTICULTURE  
& FARM ADVISOR (100% FTE)  
SANTA CRUZ & MONTEREY COUNTIES  
YEARS IN COUNTY – 20*****PROGRAM DESCRIPTION***

The Environmental Horticulture advisor is responsible for the planning and implementation of educational and adaptive research in floriculture, nursery production, turf management, and landscape horticulture in Santa Cruz and Monterey Counties.

The environmental horticulture position helps support an industry with significant local economic impact. Flower and nursery production in the Monterey Bay area exceeded \$290,764,500 in 2000. As evidence of the importance of the area to the California floral industry, the California Cut Flower Commission is now located in the Pajaro Valley.

California's landscape maintenance and installation industry is booming. It is a multi-billion dollar industry with over 86,000 people employed. The Monterey Bay region is noted for its many beautiful and varied state, county, and city parks and its private gardens that are maintained by professional landscape gardeners. The environmental horticulture advisor serves the professional clientele working in public parks, private gardens and landscapes, and the landscapes of state and local municipalities.

The environmental horticulture advisor has an important role in the implementation of the Integrated Pest Management Policy for the County of Santa Cruz. He has an active role in the Department Advisory Group and several important subcommittees—glassy-winged sharpshooter control alternatives, vegetation management alternatives, and gopher control alternatives.

Many residents of Santa Cruz and Monterey Counties are dramatically affected by the introduction of a new important pathogen of forest and woodland species—the disease it causes is commonly known as Sudden Oak Death. The environmental horticulture advisor provides educational outreach, helps coordinate UC research in the County, and researches management practices with respect to this disease.

The general public is served admirably by the UCCE Monterey Bay Master Gardener Volunteer Program, which provides public gardening and pest control problem solving through a telephone “hotline” and many community educational outreach activities. Reduction of pesticide use in gardens is achieved by the proper identification of pests and by implementing integrated pest management approaches, information for which is provided by the hotline personnel and at public forums. The Master Gardeners group is backed by the full scientific might of the University of California. The environmental horticulture advisor provides oversight and management for this local volunteer program.

## ***SITUATION STATEMENT***

### ***This Year's Challenges and Opportunities:***

#### *1. Sudden Oak Death*

Sudden Oak Death (SOD) is a serious disease on coast live oak and other native species in the forests and woodland in parts of central and northern coastal California. It is particularly serious in many parts of the Santa Cruz County mountains, in some parts of Monterey County (Big Sur), and Marin County where it has caused epidemic levels of coast live oak and tanoak mortality. We discovered, in December 2000 and March 2002 infected rhododendrons in a commercial nursery in Santa Cruz County, and now nursery products are implicated as potential sources for long distance movement of the pathogen. Research has been funded in 2002 to evaluate the control of the pathogen in rhododendron. In the last three years, there has been a dramatic demand to respond to the public, professionals, and governmental agencies at the local, statewide, and national levels. In 2002, the California Department of Forestry funded a Sudden Oak Death Educational Coordinator position. The coordinator was hired in August to provide direct educational outreach and disease monitoring, and to serve as a liaison for researchers. The coordinator is housed at our offices in Watsonville, now providing a close contact for the residents of Santa Cruz County.

#### *2. Floriculture and Nursery Industry*

The flower and nursery industry is faced with unprecedented international competition, rising energy costs, and pressures to reduce environmental impact. Educational programs and applied research programs are directed to soften agriculture's impact on the environment in the Monterey Bay Area and to reduce pesticide exposure to workers in a practical and economical manner. In 2002, research programs are testing alternatives to the soil fumigant methyl bromide used by many ornamental production nurseries. Research programs have been involved with the reduction of conventional pesticides. In particular, a statewide research program was completed in 2002 to develop and provide the latest in integrated pest management (IPM) practices for commercial rose nurseries. That research and educational outreach was, in part, accomplished in the Pajaro Valley. Educational programs are directed to educate the floriculture and nursery clientele on IPM practices and use of reduced risk pesticides.

#### *3. Santa Cruz County IPM Policy Program*

Pesticide use and its potential impact on the environment and the health and safety of Santa Cruz County citizens is an issue of great importance and increasing concern. In August 2000 Santa Cruz County's Board of Supervisors adopted an Integrated Pest Management (IPM) Policy for the management of pests on all County maintained facilities and property. The stated goal of the policy was to eliminate the use of pesticides wherever possible, and, in situations where pesticides could not be totally eliminated, reduce the quantity and risk level to the maximum extent possible.

To achieve the goal of the policy, a two-year contract was awarded to UCCE Santa Cruz County to plan, develop, and implement an IPM Program. Critical to the process and success of the program was hiring a UCCE-based IPM Coordinator, setting up a novel relationship

between the County and local UCCE programs. An IPM Department Advisory Group made up of UCCE Staff (County Director; Environmental Horticulture Advisor; IPM Coordinator), County Staff, and various departments and community organizations was also established to assist in the implementation process and report to the County Board of Supervisors.

Research activities included the collection of background information on IPM policies in other municipalities and organizations and data collection of pesticide use, as well as possible alternatives, for the County. Subcommittees were established to tackle the most significant barriers to implementing the goals of the policy. These included gopher control (for the local levee system and parks), control of roadside vegetation, and control of the Glassy-winged Sharpshooter (GWSS).

The Santa Cruz County IPM Policy has been implemented as fully as possible during the contractual period with UCCE Santa Cruz County. The road map to good IPM practices has been established for the County. An IPM Program Manual, developed by UCCE Staff, County Staff and the IPM Department Advisory Group was also prepared and distributed. This “hands-on” manual will assist all departments within the County in a greater understanding of pests and pest management in general, and in making appropriate management decisions when pest problems arise.

Pesticide use was reduced by 87% in total since the beginning of the program. All pesticides identified by the State of California to cause cancer or reproductive harm (Prop 65 list) and pesticides listed by the US EPA as known human carcinogens were eliminated.

The UCCE Santa Cruz County Director and Environmental Horticulture Advisor continue to work with the County through continuing research (gopher control on levees), subcommittee work (GWSS and vegetation management), monthly meetings of the IPM Department Advisory Group, and advice for sound IPM practices specific to Santa Cruz County.

#### *4. Glassy-winged Sharpshooter (GWSS)*

An educational effort has been implemented to educate the public in identifying potential GWSS introductions into Santa Cruz County. Associated with the possibility of introduction of GWSS, there are contentious issues related to potential pesticide use to control introduced GWSS. There are two fronts where the environmental horticulture advisor has worked: 1) an advisory committee that was initiated by the Board of Supervisors and 2) an industry sponsored committee supported by the Farm Bureau. In 2002, educational programs were implemented and information was accumulated on alternative control strategies.

### ***RESEARCH ACTIVITIES***

#### *Integrated Pest Management on Roses*

This project, completed in 2002, was a statewide, multi-year, research and demonstration project bringing together multiple disciplines, IPM techniques and methods for the commercial greenhouse cut rose industry. The project incorporated IPM strategies for insect, mite and disease control, with emphasis on scouting, biological control of spider mites, and threshold levels. An alliance of researchers, farm advisors and industry representatives

cooperated on this statewide program to implement practical reduced-risk pest management strategies. The Department of Pesticide Regulation and USDA funded the project. The project leader was Dr. Michael Parrella, with researchers: Dr. Jim MacDonald, Dr. Karen Robb (UCCE San Diego), Julie Newman (UCCE Ventura), and Christine Casey (UCD graduate student) cooperating.

#### *Development of a Predictive Model and Action Thresholds for Control of Powdery Mildew on Rose*

Research with Dr. Jim MacDonald, plant pathologist, UC Davis, Linda Bolkan, UC Davis, and Carla Thomas, an agricultural consultant, will formulate a predictive model for rose powdery mildew. The goal is to develop a useful disease model that a grower can use to predict periods that the environment is conducive for pathogen development. With the development of action threshold levels, a grower could effectively time applications of protective fungicidal sprays.

#### *Evaluation of Alternatives to Methyl Bromide in Floriculture Crops*

With the impending elimination of methyl bromide in 2005, alternatives to this soil fumigant need to be investigated. Local research is testing the use of chemical alternatives and solarization for flower and nursery crops. Alternatives tested have used a novel biofumigation with discarded broccoli plants and corn gluten meal. Chemicals being tested include chloropicrin, methyl iodide, and Telone, applied through traditional “flat fume” as well as novel “drip” application methods. Dr. Clyde Elmore (UC Davis) and Dr. Jim MacDonald (UC Davis) are investigators, with UCCE Santa Cruz County.

#### *Reduced Risk Nematode Control in Greenhouse Roses*

Nematodes can be a serious threat to many greenhouse crops. There is only one nematicide registered for greenhouse use and that product in the field has proven to be marginally effective. Experiments evaluated the efficacy of four reduced-risk pesticides to root-knot (*Meloidogyne hapla*) and lesion (*Pratylenchus vulnus*) nematodes in roses in greenhouse pot experiments. These experiments determined that one product Avid (abamectin) might be useful as a postplant treatment to reduce nematode infestation in roses. Dr. Anton Ploeg (UC Riverside) is principal investigator, with UCCE Santa Cruz County.

#### *Sudden Oak Death (SOD) Field Research*

Multiple projects emphasize issues and problems related to oak trees at the urban interface and rhododendron and azaleas that are produced by nurseries and could be moved to other non-affected areas. The environmental horticulture advisor coordinates local work on SOD with a statewide task force and the statewide research community. Projects include:

- ♦ Control of Phytophthora in California Live Oak (Garbelotto, Tjosvold, et. al.)
- ♦ Azalea and Rhododendron Host susceptibility; Fungicide control; Native rhododendron occurrence (Tjosvold, Koike, Rizzo, Garbelotto, et.al.)
- ♦ Transmission in water and soil sources (Tjosvold, Davidson, Rizzo, Tjosvold, et. al.)
- ♦ Sampling techniques for SOD with ooze exudate from cankers (Tjosvold, Garbelotto, et. al.)
- ♦ Monitoring SOD in Santa Cruz and Monterey Counties (Tjosvold and Koike)

*Integrated Pest Management Policy Program - Santa Cruz County*

The traditional control of gophers on local levee systems has been with a highly toxic fumigant. As part of the goal of the IPM policy, alternatives to this fumigant are being investigated. Research is being coordinated with Drs. Desley Whisson (UCD); Laura Tourte (UCCE Santa Cruz County), and the County Department of Public Works to study treatments and cost of chemical and alternative controls for gophers on the Salispuedes and Pajaro Levees, Watsonville.

***EDUCATIONAL ACTIVITIES & PRESENTATIONS****Problem Solving and Providing Research-Based Information*

One important mission of the environmental horticulture advisor is to help solve clients' acute production and pest problems and answer general questions related to environmental horticulture. This could include: identifying pests, diseases, weeds, and post harvest problems and giving the latest research-based recommendations to correct the problem. The advisor disseminates information that will help growers make decisions about buying equipment, supplies, or technology related to the client's business.

*CORF(California Ornamental Research Federation)*

CORF represents the efforts of many University of California academics working effectively together to meet the statewide educational needs of the floriculture and nursery industry. Planning meetings are held at least four times a year. Members consist of professors, extension specialists, farm advisors, growers, and associated industry members.

*2002 Chronological Listing of Presentations Organized and Extended at Local and Statewide Meetings****Meetings Organized***

Date	Meeting Topic	Meeting Content	Meeting Location
01/13/02	Glassy-winged Sharp Shooter	Presentation by Dr. Lucia Varela. Coordinated workshop to train retail nursery workers to aid in the identification of the pest.	Watsonville
3/20/02	Gerbera Pest Management Alliance Meeting	Grower Alliance Formation, Information Gathering. Julie Newman, co-organizer.	Carpinteria
5/30/02	ABC's of Horticulture: A Bilingual Workshop for Growers	Co-organizer. Don Merhaut and Maria de la Fuente (Spanish) primary speakers.	Watsonville
10/10/02	IPM Strategies: Innovations in Biological control, Pesticide Resistance Management, and Monitoring	Organized, moderated. Worked on funding for travel for two Australian entomologists, meeting logistics.	Watsonville

***Educational Presentations at Meetings***

Date	Meeting Topic	Meeting Content	Meeting Location
3/19/02	Alternatives to Methyl Bromide, Field Day	Steam Sterilization: Effectiveness, Process and Field Use	Half Moon Bay
3/21/02	Restoration Nursery Conference	Sudden Oak Death in Container – grown Native Species	Davis
4/27/02	Sudden Oak Death in the Monterey Bay Area	Sudden Oak Death for Public and Master Gardeners	Watsonville
5/15/02	California Oak Mortality Task Force “Broadening Our Understanding of Sudden Oak Death”	Studies to Determine the Susceptibility of Azaleas to <i>Phytophthora ramorum</i>	Santa Rosa
5/30/02	ABC’s of Horticulture: A Bilingual Workshop for Growers	Plant Disorders	Watsonville
6/26/02	Growers’ School New Field Flower Crops	Diseases of Field Flowers and Control	Ventura
8/24/02	National Dahlia Society Meeting	Powdery Mildew and Spider Mite Control in Dahlias	San Jose
9/25/02	Tree Care Update	Update on Sudden Oak Death	Walnut Creek
9/26/02	Tree Care Update	Update on Sudden Oak Death	Roseville
10/10/02	IPM Strategies: Innovations in Biological control, Pesticide Resistance Management, and Monitoring	Introduction, overview to Symposium	Watsonville
11/16/02	Incidence of <i>Phytophthora ramorum</i> inoculum in streams of Santa Cruz County	Invited presentation at SOD Science	Monterey

***AFFIRMATIVE ACTION***

My floriculture colleagues and I have planned and implemented comprehensive, statewide, educational programs to meet the needs of Spanish-speaking growers and farm workers. In the last several years, programs have included: insect and disease identification, scouting, pesticide spray application, and management training. For 2002 we initiated a new program for Spanish-speaking supervisors and workers on “ABC's of Horticulture”. The class was held in English in the morning and Spanish in the afternoon. The classes have been well attended and well received. A clear need has been determined and programs planned to meet those needs.

There was a continued push this year for educational efforts on heightening awareness about glassy-winged sharpshooter (GWSS) in hopes that an educated public could aid in the early detection of an infestation in Santa Cruz County. This educational effort was made in 2001 and again in 2002 at a booth at the Santa Cruz County Fair. Lucia Varela (UCCE Sonoma County) produced an educational poster and video on GWSS and the related Pierce's disease. The poster was produced with Spanish and English text. This, in conjunction with the Spanish publications already produced by Agriculture and Natural Resources (ANR) Communication Services, made an exceptionally nice educational booth at the fair. Publications in English and Spanish were handed out. In 2002, the video and poster was distributed by the County Agricultural Commissioner biologists for training at local retail nurseries.

## **PUBLICATIONS**

### CORF News

CORF (California Ornamental Research Federation) News is a statewide floriculture and nursery newsletter. An advisory committee in 1996 consisting of growers, industry representatives, farm advisors and specialists recommended establishment of a statewide newsletter for the floriculture industry. With initial funding from the California Cut Flower Commission and subsequent advertising income, the newsletter was established in late 1997. This publication provides horticulture, pest management and business information from University of California researchers, farm advisors and industry leaders. There are four issues a year and there is no cost to local county constituents. The readership exceeds 3,000, virtually the entire floriculture industry. The CORF News represents the efforts of many University of California academics working effectively together to meet the educational needs of the floriculture and nursery industry. My responsibilities: 1) managing editor (manages salesperson, layout coordinator, and coordinates production and operational leadership), 2) writer of a regional report and field observations for each issue, 3) writer and researcher of feature and grower articles.

### *Other non-peer reviewed publications:*

Koike, S.T. and Tjosvold, S.A. 2002. Oak Disease-Still A Major Local Threat. *Coastal Grower*, Winter issue.

Tjosvold, S.A. 2002 . Sudden Oak Death (SOD) affects the local ornamental production industry. *Between the Furrows*. March issue. Santa Cruz County Farm Bureau Newsletter.

Tjosvold, S.A. 2002. Newly introduced plant disease?" *Between the Furrows*. July issue. Santa Cruz County Farm Bureau Newsletter.

### *Peer reviewed publications:*

Davidson, J. M., Wickland, A. C., Morse, A. C., Tjosvold, S. A., Chambers, D. L., Jensen, C. E., Slaughter, G., Garbelotto, M. and Rizzo, D. M. 2002. Transmission of *Phytophthora ramorum* in Coast Live Oak woodlands. Abstract. In: Sudden Oak Death, a Science Symposium: *The State of Our Knowledge*. December 17-18, 2002. Monterey, CA.

McPherson, B. A., Rizzo, D. M., Garbelotto, M., Svihra, P., Wood, D. L., Storer, A. J., Kelly, N. M., Palkovsky, N., Tjosvold, S. A., Standiford, R. B., and Koike, S. T. 2002. Sudden oak death in California. *Pest Notes*. Publication 7498. University of California ANR Publications.

Tjosvold, S. A., Chambers, D. L., Davidson, J. M. and Rizzo, D. M. 2002. Incidence of *Phytophthora ramorum* inoculum found in streams running through areas of high incidence of Sudden Oak Death in Santa Cruz County. Abstract. In: Sudden Oak Death, a Science Symposium: *The State of Our Knowledge*. December 17-18, 2002. Monterey, CA.

Tjosvold, S. A., Chambers, D. L., Davidson, J. M. and Rizzo, D. M. 2002. Incidence of *Phytophthora ramorum* inoculum found in soil collected from a hiking trail and hikers' shoes in a California park. Abstract. In: Sudden Oak Death, a Science Symposium: *The State of Our Knowledge*. December 17-18, 2002. Monterey, CA.

Tjosvold, S. A., Koike, S. T. 2002. First occurrence of Downy Mildew on *Digitalis purpurea* (Common Foxglove), caused by *Peronospora digitalidis*, in California and the United States. *Plant Disease*. Vol. 86. No. 10. :1176

Tjosvold, S. A., Koike, S. T., Davidson, J. M. and Rizzo, D. M. 2002. Susceptibility of Azalea (*Rhododendron*) to *Phytophthora ramorum*. Abstract. In: Sudden Oak Death, a Science Symposium: *The State of Our Knowledge*. December 17-18, 2002. Monterey, CA.

Tjosvold, S. A., Chambers, D. L., Tse, J., Davidson, J. M., Garbelotto, M. and Koike, S. T. 2002. Evaluation of a novel diagnostic procedure to detect the presence of *Phytophthora ramorum* by sampling ooze from infected cankers. Abstract. In: Sudden Oak Death, a Science Symposium: *The State of Our Knowledge*. December 17-18, 2002. Monterey, CA.



**RICHARD M. STARR**

**MARINE ADVISOR (100% FTE)  
SANTA CRUZ & MONTEREY COUNTIES  
YEARS IN COUNTY – 11**

***PROGRAM DESCRIPTION***

Marine Advisors in UC Cooperative Extension help identify and solve coastal and marine resource problems. We apply and transfer research information to solve practical problems for a wide variety of commercial and industrial businesses as well as recreation, education, and conservation user groups. Marine Advisor Rick Starr is currently working in four primary areas. He is:

- 1) Developing educational programs regarding marine resources and the Monterey Bay National Marine Sanctuary (MBNMS),
- 2) Helping promote and coordinate marine research and education in this region,
- 3) Providing technical advice and training, and providing leadership to help governmental agencies, environmental organizations, and resource users coordinate coastal resource management plans; and
- 4) Conducting research on rockfish and lingcod distribution and abundance to help promote the wise use, conservation, and management of valuable fishery resources.

***SITUATION STATEMENT***

The focus of marine and coastal activities in Santa Cruz and Monterey Counties is on resource conservation, education, and the development of world-class marine research institutions. Tourism, recreation, research, and education are the primary marine related revenue generators in the local area. The existence of the Monterey Bay National Marine Sanctuary, the nation's largest marine sanctuary, provides a backdrop for these activities. Fisheries are less important components of the coastal economy than they were in the past, but still play an important role in the culture of central California.

The focus on resource conservation has brought a greater attention to the need for a high quality marine and coastal environment. The current issues in fisheries revolve around the need to conserve fished populations and improve fishery management while maintaining viable commercial and recreational industries. Other pressing resource conservation issues include the decline in abundance of some non-harvested species, coastal development and habitat loss, degradation of water quality, user conflicts, and a need to maintain recreational opportunities. Additionally, there is a need for coordination of the many research, education, conservation, and recreation groups in this area.

***RESEARCH ACTIVITIES***

1) Fisheries

A current challenge in fisheries science is to develop a better understanding of population abundances, fish habitat requirements, and resource management alternatives. Fishery

managers need better ways to determine how many fish are available for harvest and better ways to distribute allowable catch. Fisheries research conducted by Rick Starr includes the development of techniques to estimate population structure, habitat requirements, and movements of harvested species. His objectives are to provide fishers and resource managers with information that will allow them to develop better resource management strategies for fishery resources.

In 1998, two marine protected areas (MPA) that encompass about 4,300 mi<sup>2</sup> from 40-1,800 m water depth were closed to all fishing for groundfish species off southern California. The intent of the closure was primarily to protect cowcod, an overfished species of rockfish. Most of the information that resource managers use to evaluate the status of fish populations, however, is derived from commercial and recreational catch data. In the absence of a fishery, there is no way to determine if a species has recovered. In 2002, Starr was asked to participate with a team of scientists to use a submersible to survey the closed area to determine relative abundance of different species in the area and to establish a baseline for future comparisons of fish abundances. In just over one month of research at sea, the research team surveyed more than 12 major offshore fishing banks; all are longtime fishing sites. The submersible observations provided sufficient data to assess the populations of cowcod and bocaccio (as well as other species) inside the closed areas, and compare results with those of the more traditional stock assessment methods.

In the past eight years, much of Starr's work has been designed to evaluate the marine reserve concept as a tool for managing fisheries. His primary research in 2002 involved placing sonic tags in lingcod and conducting tracking studies to determine their home ranges. The results of these studies are useful in evaluating and designing marine fishery reserves. His work has shown, for example, that marine reserves that protect a portion of the stock, combined with community quota systems and co-management of fisheries outside reserves, provide the best chance of maximizing economic benefit of lingcod fisheries while ensuring lingcod stocks are conserved for future generations. These results should lead to improved lingcod management.

#### Selected Accomplishments:

In 2002, Starr and colleagues published several papers related to species-habitat associations, techniques for tracking marine fishes, and the use of marine reserves as a fishery management tool. He served as a member of a panel of national scientists who provided advice on the development of marine reserves in California. Additionally, he was an invited speaker at several national and international symposia related to techniques for evaluating movements of fishes. He also organized and facilitated several workshops intended to help resource management agencies design improved management plans for nearshore fish species. In addition to research, Starr provides information for the public and scientists to help develop sound resource management policies.

## ***EDUCATIONAL ACTIVITIES & PRESENTATIONS***

### 1) Central California Coastal Resource Education

For the past two decades, the United States has experienced a well-documented decline in the quality of science education. Mean Scholastic Aptitude test scores have declined for all ethnic groups, gender and racial differences in mathematics and sciences have increased, and as a result, teachers have experienced increasing difficulty maintaining proficiency in science literacy. For this reason, Starr has been working with leading educators, business people, scientists, researchers, and resource managers in this region to establish a national ocean science camp for children. The school is named S.E.A. Lab Monterey Bay. S.E.A. stands for Science, Education, and Adventure. The vision is to develop a school that utilizes community resources to provide children with an appreciation for science, resource conservation, and potential marine related careers. The goal is to provide a year-round, high quality marine science education experience within a camp setting for middle school and high school-aged children.

#### Selected Accomplishments:

Starr is president of the Board of Directors, and is working with a full time planning director for S.E.A. Lab Monterey Bay. In the summer of 2002, Camp S.E.A. Lab presented five, week-long sessions to students ranging in age from 8 to 14. The campers came from the Monterey Peninsula, the Salinas Valley, Santa Cruz, and the San Jose/East Bay area. They represented a broad diversity of ethnic groups including Hispanic, Asian American, African American, Caucasian, Indian, and Filipino. The students experienced a series of guided explorations through the habitats of the Monterey Bay National Marine Sanctuary—from the watersheds and rivers through coastal environments out to the deep sea. Each day they had an opportunity to interact with and work beside coastal naturalists, marine biologists, oceanographers, and local business people as they explored habitats on foot, in kayaks, and by boat. They snorkeled, observed the operation of remotely operated submersibles, and got close views of marine mammals and birds. For many, this experience marked the first time they had been on or near the ocean.

### 2) Coordination of Monterey Bay Researchers and Educators

The Monterey Bay area contains over 25 university, governmental, and private research organizations. There are over 2,000 marine scientists working in this region. With a combined budget over \$200 million, this group represents a large constituent for the Marine Advisor. Rick Starr acts as a liaison between research and public groups. Starr is also working to help coordinate federal, state, and local management of coastal resources with respect to the MBNMS.

#### Selected Accomplishments:

Starr is a member of several advisory committees for the MBNMS and Elkhorn Slough National Estuarine Research Reserve.

### 3) Presentations

Sonic tagging and automated tracking of Pacific rockfishes, lingcod, and Nassau grouper. 2002. Invited speaker at American Fisheries Society Symposium, Baltimore, Maryland.

Movements of lingcod associated with a marine reserve in Alaska. 2002. Moss Landing Marine Labs Seminar Series. Moss Landing, California.

Socioeconomic research needs related to marine protected areas. 2002. Central California Fishermen's Forum on Marine Protected Areas Workshop, Watsonville, California.

### ***AFFIRMATIVE ACTION***

The university commitment to affirmative action is to make all programs available to any person interested in coastal or marine topics. Although more than 80% of marine users are male, 50% of the people Starr contacted in 2002 were women. Over one-half of his "key" contacts, people from whom he obtains advice and direction, are women. Although Starr's program is in compliance with university affirmative action criteria, he is trying to develop ways to increase cultural diversity among coastal users. One of Starr's long-range goals is to try to achieve a greater involvement of Hispanics in marine issues.

### ***SELECTED PUBLICATIONS***

Starr, R.M., J.M. Cope, and L.A. Kerr. 2002. Trends in fisheries and fishery resources associated with the Monterey Bay National Marine Sanctuary from 1981–2001. California Sea Grant College System Publication T- 046. 156 pp.

Starr, R.M., M. H. Carr, J. Caselle, J. A. Estes, C. Pomeroy, C. Syms, D. A. VenTresca, and M. M. Yoklavich. 2002. A Review of the ecological effectiveness of subtidal marine reserves in Central California. Part I. Synopsis of scientific investigations. A report to the Monterey Bay National Marine Sanctuary: 299 Foam Street, Monterey, CA. 93940. 133 pp.

Starr, R.M., M. H. Carr, J. Caselle, J. A. Estes, C. Syms, D. A. VenTresca, and M. M. Yoklavich. 2002. A Review of the ecological effectiveness of subtidal marine reserves in Central California. Part II. Summary of existing marine reserves in Central California and their potential benefits. A report to the Monterey Bay National Marine Sanctuary: 299 Foam Street, Monterey, CA. 93940. 14 pp.

Yoklavich, M., G. Cailliet, R.N. Lea, H.G. Greene, R. Starr, J. De Marniac, and J. Field. 2002. Deepwater habitat and fish resources associated with the Big Creek Ecological Reserve. California Cooperative Fisheries Investigation Report. CalCOFI MS2002-03. 25 pp.

Starr, R.M., J.N. Heine, J.M. Felton, and G.M. Cailliet. 2002. Movements of bocaccio (*Sebastes paucispinis*) and greenspotted (*Sebastes chlorostictus*) rockfishes in a Monterey submarine canyon: Implications for the design of marine reserves. Fishery Bulletin Vol. 100, No. 2. pp. 324-337.

**LAURA TOURTE****FARM MANAGEMENT ADVISOR (30% FTE)  
SANTA CRUZ, MONTEREY &  
SAN BENITO COUNTIES  
YEARS IN COUNTY – 3*****PROGRAM DESCRIPTION***

Farm advisors in UC Cooperative Extension help identify and work on issues of concern to local growers. Applied research and educational programs are at the forefront of the effort to provide the local agricultural community with information to help problem solving capabilities. Work associated with this program include performing research and providing information to help farmers understand the relationship of farm and financial management to healthy, viable agricultural enterprises. More specifically, program activities are being tailored to include information on costs of production, farm profitability, record keeping, alternative practices, and marketing.

***SITUATION STATEMENT***

From an economic standpoint, “success” in farming is harder than ever before, with multiple pressures hampering farmers’ ability to remain in business. The overriding goal of my farm advisor work is to help strengthen farm businesses—especially those that are small, beginning and/or limited in resources. In order to achieve this, my efforts are focused in two areas: farm management—extending knowledge and information to improve business skills for the short-term; and decision-making—performing research and creative activity that will ultimately provide area farmers with research results, thus tools, to help them make informed choices and business decisions for the long-term. Extension activities, research results, and impacts are briefly discussed below.

***Farm management.*** I planned, organized, co-coordinated, and/or presented information at several educational events during 2002. These events ranged from “hands on” record keeping, financial management, and crop budgeting workshops for Spanish speaking audiences, to extending information on possible new market models for California’s small-scale farmers.

***Decision-making.*** I was principal investigator, co-principal investigator and/or collaborator on four research projects, which were designed to generate new information and knowledge to farmers and other organizations that serve the farming community. These projects have or will all yield publications and/or other tools to help farmers make judicious business decisions. One such project, estimating costs and potential benefits for water quality conservation practices, will provide farmers, agencies, and other users with the “first ever” detailed analyses for Santa Cruz County, Central Coast, and California farmers, managers and landowners.

## ***RESEARCH ACTIVITIES***

**Project 1.** County Planning and Development Code Constraints: Opportunities for Agricultural and Nature Based Tourism. January 2001 to December 2002 (completed).

Agricultural and nature based tourism provides interested farmers with a means of securing additional farm income. However, regulatory agencies may hamper opportunities for developing tourism-based farming enterprises because of complex permitting and other processes. This study was undertaken to identify current constraints and opportunities for the future. Interviews and surveys with both county planning departments and farm operators in 10 counties throughout the state (Santa Cruz County was one) were conducted, with results analyzed.

A publication describing constraints and opportunities is forthcoming, and will be made available through educational presentations, UCCE County offices, the UC Davis Agricultural Issues Center, and Small Farm Program.

**Project 2.** Phase I: Marketing Alternatives for Small-Scale Farmers: A Pre-Feasibility Study of Cooperative Auctions; Phase II: A Feasibility Study for Establishment of Pilot Project Cooperative Auctions in California. March 2001 to Present (scheduled for completion September 2003).

Small-scale farmers face more challenges than ever before. In order to remain economically vital new low cost market options must be developed. This project was undertaken to examine the concept and feasibility of cooperative auctions and other novel marketing models for small-scale farmers in the Central Coast and other areas in California.

Two “round table discussion” sessions/meetings with UCCE Farm Advisors, Specialists and local grower-shippers were held to introduce this project and the concept of cooperative produce auctions, and ascertain potential interest and feasibility for the Central Coast and other areas in California. The concept and work was also introduced at the recent California Farm Conference in Ventura, CA. Two potential market models were identified as potentially viable, with a business plan for one in development.

**Project 3.** Implementing Monterey Bay National Marine Sanctuary Water Quality Protection Program – Economic Component. January 2002 to Present (scheduled for completion in early 2003).

Multiple watersheds in six counties within the Central Coast of California drain into the Monterey Bay National Marine Sanctuary. These counties and watersheds have significant agricultural activity within their boundaries. USDA-Natural Resources Conservation Service (NRCS), Resource Conservation Districts (RCD), private consultants are working with local farmers to implement conservation practices to protect water quality. Studies are being developed to evaluate estimated costs and potential benefits of these practices. They will be essential to assisting local farmers in making informed business decisions about the economics associated with their installation, operation, and maintenance.

When completed, the information will be presented at UCCE Farm Water Quality Short Courses (one is tentatively scheduled for March 2003) and other educational events. It will also be available through multiple extension offices, as well as multiple NRCS and RCD offices, and our local website.

**Project 4.** Raspberry and Organic Strawberry Costs of Production - Santa Cruz and Monterey Counties. August 2002 to Present (scheduled for completion in early 2003).

In order to make informed business decisions, farmers rely on various tools and support materials to provide information and assistance. Costs of production for various crops are one such tool. Raspberries and organic strawberries are high value crops for Santa Cruz and Monterey Counties. However, up-to-date, detailed costs of production are not currently available. This project was undertaken to fill a knowledge gap and to help farmers with decision-making processes.

Results for organic strawberries will be presented at a February 2003 organic strawberry production short course. Completed studies will also be distributed at UCCE County Offices and various extension meetings. In addition, they will be available/downloadable from Department of Agricultural and Resource Economics, UC Davis website <http://coststudies.ucdavis.edu>.

### ***EDUCATIONAL ACTIVITIES & PRESENTATIONS***

As farm advisor, goals for my program include extending practical and useful economic and management information to farmers with respect to record keeping, costs of production, and marketing, emphasizing the needs of small, beginning, and/or limited resource farmers. Aside from disseminating information through telephone, e-mail, surface mail and in-person inquiries, I extended knowledge and information as follows.

#### ***Meetings Organized***

Date	Meeting Topic	Meeting Location
5-02	Conservation Practices for Water Quality Protection (co-sponsor & outreach)	UCCE Santa Cruz County Watsonville, CA
6-02	Focus Agriculture: Agricultural Biotechnology (co-coordinator)	UCCE Santa Cruz County Watsonville, CA
6-02	Beahr's Environmental Leadership Program – Programs & Services of UCCE Santa Cruz County (coordinator, host, speaker)	UCCE Santa Cruz County Watsonville, CA
8-02	Marketing Alternatives for Small Farmers (co-organizer & presenter)	Kearney Agricultural Center Parlier, CA
8-02	Marketing Alternatives for Small Farmers (co-organizer & presenter)	UCCE Ventura County Ventura, CA

***Educational Presentations***

Date	Meeting Topic	Meeting Location
4-02	Record Keeping, Financial Management, Crop Budgets – in Spanish (workshop leader)	Agricultural Land-Based Training; Salinas, CA
10-02	ANR-UCCE Program & Services (speaker)	Structural Pest Control Operators; Castroville, CA
10-02	Integrated Pest Management for Santa Cruz County (poster)	UCCE CC&S Regional Conference; San Jose, CA
11-02	Record Keeping & Financial Management (workshop leader)	California Farm Conference Ventura, CA
11-02	Regional Cooperative Marketing (speaker)	California Farm Conference Ventura, CA
12-02	Record Keeping, Financial Management, Crop Budgets – in Spanish (workshop leader)	Agricultural Land-Based Training; Salinas, CA

***AFFIRMATIVE ACTION***

Efforts are made to assure access of knowledge and information to all clientele, including underserved clientele, through various outreach methods including personal contact, newsletters, announcements and educational workshops. The *Central Coast Family Farm Report* is offered in English and Spanish to make certain that small and limited resource Hispanic farmers have access to this information. In addition, all articles, announcements and resources are designed and included in the newsletter with all small and limited resource farmers specifically in mind. Simultaneous Spanish translation services for many workshops are also offered at UCCE.

***PUBLICATIONS*****Peer-Reviewed**

Klonsky, Karen, Laura Tourte, Robin Kozloff and Benjamin Shouse. 2002. *A Statistical Picture of California's Organic Agriculture 1995-1998*. University of California Agricultural Issues Center. UC Davis. Davis, California. Also available at <http://aic.ucdavis.edu/pubs/spoa.html>. My role: co-author and reviewer.

**Non Peer-Reviewed**

Tourte, Laura. 2002. "Ask Laura": Protecting Farmland with Conservation or Agricultural Easements. *Between the Furrows*. 26(4):3. Santa Cruz County Farm Bureau Newsletter. Article was excerpted from larger articles by Alvin D. Sokolow. California Agriculture, Volume 56 Number 1.



Tourte, Laura. 2002. Keeping Records for a Small Farm. *Vegetable Magazine*. June/July. Pp. 18.

Tourte, Laura. 2002. "Ask Laura": Crop Insurance for Central Coast Farmers. *Between the Furrows*. 26(12):3. Santa Cruz County Farm Bureau Newsletter.

Tourte, Laura. 2002. *Central Coast Family Farm Report*. Periodic newsletter for the small farm community with contributions from Santa Cruz, Monterey and San Benito County Advisors. Printed in both English and Spanish. Issues: June and December 2002. My role: editor and contributor.

Tjosvold, Steve, Laura Tourte, David Chambers, et al. 2002. County of Santa Cruz Integrated Pest Management Program Manual. University of California Cooperative Extension Santa Cruz County. My role: coordinator, contributor, editor.

**LYNN SCHMITT-  
MCQUITTY**

**YOUTH DEVELOPMENT ADVISOR (100% FTE)  
SANTA CRUZ & MONTEREY COUNTIES  
YEARS IN COUNTY – 2**

### ***PROGRAM DESCRIPTION***

This position provides applied research, outreach and leadership in the areas of science, technology, environmental stewardship and natural resource education for youth. Programs focus on integrating issues related to coastal resources, the environment, and agriculture with human and community development.

Additionally, this position works with associated organizations involved in youth development and education in Santa Cruz and Monterey Counties. Work is also geared towards coordination with other UCCE programs in neighboring counties, and with external agencies.

This position serves clientele in Santa Cruz and Monterey Counties, with the position head quartered in Santa Cruz County.

### ***SITUATION STATEMENT***

The University of California Cooperative Extension Youth Development Program embraces multi-disciplinary methods of working with youth in local communities. The major themes or goals of my program are to:

1. Conduct applied research, outreach and leadership in the areas of science, technology, environmental stewardship and natural resource education for youth in Santa Cruz and Monterey counties.
2. Serve as an educational resource by providing local leadership and knowledge of youth development, science, technology, environmental stewardship and natural resource education through collaboration with local youth and community groups.
3. Extend knowledge and information to the Santa Cruz and Monterey County 4-H community club programs and staff.
4. Serve as the liaison between the California State 4-H Office and national youth development programs, trainings and opportunities in environmental stewardship and natural resource education.

### ***RESEARCH ACTIVITIES***

1. **Research and creative activity through conducting applied research, outreach and leadership in the areas of science, technology, environmental stewardship and natural resource education for youth in Santa Cruz County.**

- *Junior Master Gardener Training. Live Oak School District.*  
The Junior Master Gardener program engages children in novel, "hands-on", group and individual learning experiences that provide opportunities to develop an appreciation for the environment and cultivate the mind. To date four schools from the 21<sup>st</sup> Century Community Learning Center Program sites in the Live Oak School District are implementing the program. In total, there are eight site staff members providing garden based learning to over 80 youth.

Many of the students participating in this program attend schools that have free and reduced lunch programs. The development of the Junior Master Gardener program has allowed students to build an understanding of where foods come from which we hope will lead to youth making healthier food choices.

**2. Research and creative activity serving as an educational resource by providing local leadership and knowledge of youth development, science, technology, environmental stewardship and natural resource education through collaboration with local youth and community groups.**

- *Environmental Education and Training Partnership Program (EETAP).*  
The Environmental Education and Training Partnership (EETAP) States Program is a consortium of leading education and environmental education organizations working to advance education and environmental literacy. In California, we are focusing on training for Colleges and Universities faculty in pre-service (teacher preparation) programs and working to increase the capacity of environmental educators to work with and serve culturally and ethnically diverse audiences.

The EETAP program has provided environmental educators in California with training and information to advance key objectives identified in the new California Environmental Education Plan. This has taken place by expanding leadership and participation of pre-service instructors in the delivery of environmental education training, by increasing the number of educators using environmental education in partnership with the California Association of Bilingual Education, and through involving environmental education leaders in cultural diversity competency training to improve outreach and participation in environmental education by California's culturally diverse student and teacher population.

I have made connections and collaborated with local educators who are members of the California Association of Bilingual Education. As a result, I have had the opportunity to conduct classroom education to bi-lingual English/Spanish students, as well as provide Spanish language resources to educators.

- *Together For Youth*  
Together for Youth is a community collaborative representing members of public and private health and human service organizations, schools, the juvenile justice system, community members, parents and youth. Together for Youth is an outgrowth of the Community Assessment Project (CAP), a ten-year project designed to measure and improve the quality of life in Santa Cruz County. The recommended components,

strategies and activities described in the CAP led to the formation of the seven essential components to reduce alcohol and other drug use among youth in Santa Cruz County. I am on the committee addressing “Providing Youth Access to Leadership Training and Volunteer Opportunities.

I am involved with conducting a community inventory aimed at identifying what is available to teens in the areas of leadership training and volunteer opportunities. To complete this task, I am reviewing a variety of youth/community-based websites, interviewing community collaborators, and reading youth focused and youth produced publications, for example the free newspaper Shout Out.

Anticipated results and impacts for this project include youth and youth organizations having an increased awareness of trainings and skill development resources available in Santa Cruz County, therefore leading to youth building life skills and leadership and citizenship competencies, as well as a centralized location that identifies youth access to leadership training and volunteer opportunities, increases in the number of youth taking advantage of such opportunities and community awareness and support for youth-led leadership training and volunteer opportunities.

- *Youth Community Science Education Resource Guide.*  
I designed a resource guide entitled “Youth Community Science Education” which outlines over twenty science, technology, natural resource education, environmental stewardship, garden-based learning and educator training resources. Understanding that clientele participating in the outlined programs have a variety of needs, interests and resources, I have created a four-level participation scheme, which consists of: 1) *Program Sites*: which are cooperative ventures between a facility and the University of California Cooperative Extension’s Youth Development Program. By designating a facility as a program site, educators and clientele are provided with curriculum, ongoing training, support, resources, evaluation tools and possible grant support in order to sustain programs. 2) *Curriculum Training*: provides educators with six to twelve hours of hands-on training to develop skills necessary to successfully implement a curriculum at their site. 3) *Educators In-services*: are two to six hour professional development experiences to provide educators with practical tools and resources to work with clientele. 4) *Program Visits*: are one-time one to three hour visits to conduct a lesson with clientele at site.

My methods of distributing this guide include sending it to members of the California Association of Bilingual Education in Santa Cruz and Monterey Counties, posting in on the county CE websites, mailing it along with a cover letter to all Pajaro Valley Unified School District Principals and all 21<sup>st</sup> Century Community Learning Center Program site directors, handing them out at meetings such as Together For Youth, e-mailing and mailing them to potential program collaborators that are identified through reading the local newspapers and through community based organization newsletters, and by making them available at functions and events the Youth Development Program participates in.

This guide has been distributed to over 300 educators in Santa Cruz and Monterey Counties as a way to introduce myself, my program and the resources I have available in

an effort to identify community partners and program collaborators. The distribution of the guide has provided me with avenues to meet and collaborate with educators through each county and has led to sixteen personal meetings. From these meetings, I currently have eleven sites identified as “program sites”, with another two coming on board in 2003. In addition, I have also conducted three program visits and am working on implementing two educator in-services for 2003.

**3. Research and creative Activity through extending knowledge and information to the Santa Cruz County 4-H community club programs and staff.**

- *Experiential Learning Training and Design.*

Santa Cruz County 4-H Leaders are participants in a training development model providing step-by-step instruction in developing educational programs using the experiential learning cycle. The three-step training model incorporates *exploration* in phase one, *concept development and introduction* in phase two, and *concept application* in phase three. The three-step model will be implemented as a way to move the learner from understanding to implementation.

As a result, 78% of the participants reported a learning gain in their knowledge of experiential learning during phase one of the training, and 68% reported a learning gain in their knowledge of the learning cycle as a result of participating in the phase one training. Key 4-H adult volunteers have been trained utilizing the experiential learning model and have been encouraged to work on modifying their teaching techniques and strategies to more fully incorporate the learning model into their activity lessons. These providers are poised to become key contacts and leaders within the program, as they gain additional awareness, knowledge and skill in delivering the learning model.

**4. Serve as the liaison between the California State 4-H Office and national youth development programs, training’s and opportunities in environmental stewardship and natural resource education.**

- The Wildlife Habitat Evaluation Program (WHEP) is a national 4-H program created to teach youth about wildlife ecology and management. WHEP teaches youth wildlife management concepts through participation in educational lessons focused on developing the following skills: 1) interpretation of aerial photographs, 2) identification of wildlife foods, 3) developing management practices for featured species, and 4) working with land owners in the development of wildlife management plans for urban and rural situations. To date over 100 youth and adults have been participated in WHEP “sampler” mini-trainings, with an additional 50 youth and adults participating in the complete three-day WHEP training program.

Through the creation of the California WHEP concept and activity guide, the program not only focuses on fish and wildlife management concepts, but also fosters relationships among professional and private land managers, creates service learning opportunities for youth and provides them with hands-on experiences to work and learn about wildlife and fisheries management in a natural setting. The California version of the WHEP is now

being implemented in 4-H camps around the state, such as in Merced, Sonoma and Sacramento Counties, and we have had inquiries regarding our materials from folks in South Carolina and the California Mountain Lion Foundation. To date, the WHEP is not currently being implemented in Santa Cruz and Monterey Counties despite being heavily promoted in the County 4-H Newsletters, at meetings and among wildlife project leaders. As a result, I have concluded my involvement with this project, effective January, 2003.

### ***EDUCATIONAL ACTIVITIES & PRESENTATIONS***

#### **1. Extending knowledge and information in the areas of science, technology, environmental stewardship and natural resource education for youth in Santa Cruz County.**

- *Live Oak School District's 21<sup>st</sup> Century Community Learning Center After School Program Staff Training.*

I taught a six-hour training to after school providers on the Junior Master Gardener and Health and Nutrition from the Garden Curriculums.

#### **2. Extend knowledge and information by serving as an educational resource by providing local leadership and knowledge of youth development, science, technology, environmental stewardship and natural resource education through collaboration with local youth and community groups.**

- *Watsonville Neighborhood Conference.*

I was part of a panel that addressed programming options for youth in Watsonville, and also developed an information resource table for youth and families to learn more about 4-H Youth Development Program opportunities.

- *Youth Community Science Education meetings*

I met with sixteen different potential program collaborators to introduce myself, my program, and the resources I have available in an effort to develop community programs.

#### **3. Extend knowledge and information to the Santa Cruz County 4-H community club programs and staff.**

- *Experiential Learning Cycle Training*

I taught a 90-minute session on the experiential learning model to 4-H leaders, in an effort to boost their understanding and usage of the model in their 4-H activities.

- *Santa Cruz County 4-H Community Club Leader Training.*

I presented a three-hour training on reporting policies and procedures for 4-H Community Club Leaders, therefore providing them with the reporting tools and expectations for the 2002-2003 4-H year. The goal of this training was to alleviate last minute reporting requests, to clarify expectations and to establish a well-defined time line for collecting materials.

**4. Serve as the liaison between the California State 4-H Office and national youth development programs, training's and opportunities in environmental stewardship and natural resource education.**

- *WHEP Training at the California 4-H Leaders Forum*

I was part of a team that taught a two-hour workshop that took a sampling of lessons from the Wildlife Habitat Evaluation Program.

### ***AFFIRMATIVE ACTION***

I am committed to implementing outreach efforts to ensure nondiscrimination in program identification and delivery. Program delivery and implementation promotes and encourages maximum participation of minorities, women and other underserved or protected groups. Affirmative action is included in my program outreach objectives as well as a component in planning, implementing and evaluating. Current statistical data pertaining to populations served and to be served by programs is maintained and considered for program development and implementation.

In an effort to increase traditionally underserved audiences, the 4-H Leaders Councils in both Santa Cruz and Monterey Counties each received a \$1,000 grant to promote science, technology and natural resource education among low to moderate income youth. In an effort to reach underserved audiences, we have promotional flyers in English and Spanish for the 4-H community club program available. These resources are used at public events, at the fair, and in educational booths. I have also listed all of the Spanish curriculum materials that are available to educators in my youth community science education resource guide, and have had several educators order Spanish language materials.

### ***PUBLICATIONS***

#### **Non-Peer Reviewed**

Schmitt-McQuitty, L. S. (2002). "Ask Lynn": Working with nine to eleven year olds. *Between the Furrows*. January. Volume 26. Issue 1. Santa Cruz County Farm Bureau.

Schmitt-McQuitty, L.S. (2002). "Ask Lynn": Working with twelve to fourteen year olds. *Between the Furrows*. February. Volume 26. Issue 2. Santa Cruz County Farm Bureau.

Schmitt-McQuitty, L.S. (2002). "Ask Lynn": Working with fifteen to eighteen year olds. *Between the Furrows*. June. Volume 26. Issue 6. Santa Cruz County Farm Bureau.

Schmitt-McQuitty, L. S. (2002). "Ask Lynn": Understanding the Experiential Learning Model. *Between the Furrows*. November. Volume 26. Issue 11. Santa Cruz County Farm Bureau.

**University of California Newsletters**

Schmitt-McQuitty, L. S. (2002). Editor and Contributor. *4-H “Club Notes”*. January – December. Santa Cruz County 4-H newsletter.

Schmitt-McQuitty, L. S. (2002). Editor and Contributor. *4-H “News Notes”*. January – December. Monterey County 4-H newsletter.

**Informational Packages**

Schmitt-McQuitty, L. S. (2001) *Youth Community Science Education Resource Guide*. Educational program and curricula listing for community partners and collaborators.



**MARK BOLDA****STRAWBERRY & CANEBERRY ADVISOR (100% FTE)  
SANTA CRUZ, MONTEREY &  
SAN BENITO COUNTIES  
YEARS IN COUNTY - 1*****PROGRAM DESCRIPTION***

The Strawberry and Caneberry Advisor is responsible for the planning and implementation of an applied research and educational program for strawberries and caneberries in Santa Cruz, Monterey and San Benito Counties. The position is headquartered in Santa Cruz County.

The Strawberry and Caneberry Advisor works with, assists and supports a significant economic engine of the Central Coast. In 2001, the value of production for Central Coast strawberries exceeded \$427 million. Caneberry production, which includes blackberries and raspberries, was valued at approximately \$61 million in 2001. Strawberries and caneberries are notably the two highest value crops in Santa Cruz County.

***SITUATION STATEMENT***

As Central Coast farmers of strawberries and caneberries look to the future, the phase-out of methyl bromide as a pre-plant soil fumigant in 2005, discontinuation of certain classes of pesticides, new pests, resurgence of resistant pests and domestic and international competition all challenge them.

Research has and is being performed to evaluate economically viable alternatives to methyl bromide for use as a pre-plant soil treatment. Because many alternatives to methyl bromide involve using different application technologies and combinations of materials, growers must be trained and guided as to how to use these technologies properly and safely. In addition, discontinuation of two pesticide classes, the organophosphates and carbamates, has meant the testing and introduction of "reduced risk" pesticides for use in crop production. It is important that growers learn about and understand how to become good stewards of these new materials in order to mitigate possible resistance to their use and to maintain their effectiveness for the long-term.

Non-chemical pest management such as cultural and biological control methods can be useful tools for addressing pest problems in the field, at times with lessened environmental consequences. Non-chemical methods are currently being researched in Central Coast berry production, with the goal of discovering effective and economically sound alternatives to chemical controls.

Finally, in order for Central Coast growers to stay competitive in today's marketplace, they must seek advantages over foreign and domestic producers through better and innovative methods of production, quality plant materials, and improved agricultural technologies.

### ***RESEARCH ACTIVITIES***

- Traditionally, the harvest season for strawberries in Santa Cruz and Monterey Counties ends with the first heavy rain in late October or early November. Continuing production through and beyond Christmas may be one way for Central Coast growers to take advantage of strong seasonal domestic markets for strawberry fruit. With this in mind, macro-tunnels, also known as hoop houses, are being evaluated as a method of extending local production through the holiday season.
- Two natural parasites of the strawberry pest lygus bug, *Peristenus digoneutis* and *P. stygicus* are being studied in a cooperative effort with the California Department of Food and Agriculture to evaluate establishment of these organisms and to evaluate natural control of lygus in the field. This project, which began in 2002, will continue in 2003.
- Costs of production for raspberries and organic strawberries. Studies are being performed to evaluate estimated costs and potential returns for two locally produced berry crops. When completed, these studies will provide growers with information important for decision-making.

### ***EDUCATIONAL ACTIVITIES & PRESENTATIONS***

Speaker - "Proper Application of Drip Applied Fumigants", Strawberry Production Meeting, September 4, 2002 Oxnard, CA Coordinated by: Oleg Daugovich, UCCE, Ventura County.

Speaker - "Use of Macro-Tunnels to Potentially Enhance Winter Strawberry Yield", September 13, 2002, Watsonville Berry Bowl Grower's Cooperative.

Speaker - "Strawberry Research Update/Fumigation Issues", November 14, 2002, Annual Plant Disease Seminar, Salinas Community Center, Salinas. Coordinated by Steve Koike, UCCE, Monterey County.

Speaker - "Methyl Bromide Alternatives", December 10, 2002. Nutter Agricultural Center, UCCE, Salinas. Sponsored by California Agricultural Production Consultants Association.

### ***AFFIRMATIVE ACTION***

I am committed to integrating affirmative action components into my program. Significant outreach has been made to Hispanic and Asian clientele, which is made easier by fluency in Spanish, and to a lesser extent, Japanese. During 2002 I also received training in working with underserved clientele.

***PUBLICATIONS***

Bolda, Mark. 2002. Planting Strawberries. *Between the Furrows*. Volume 26. Issue 3. Santa Cruz County Farm Bureau.

Bolda, Mark. 2002. Use of Macro-tunnels for Enhancement of Yield in Strawberries in Winter Months. *Monterey Crop Notes*. November/December edition.