

**Guam Cooperative  
Extension**  
College of Agriculture  
and Life Sciences



**Annual Report  
1998 & 1999**

**University of Guam**



# Message from the Dean/Director

*Saludo yan Hafa Adai!* (Greetings and How are you!) The Guam Cooperative Extension (GCE) at the College of Agriculture and Life Sciences is the University of Guam's program component that brings non-formal education programs to the citizens of Guam. The GCE is one of three program components of the College of Agriculture and Life Sciences. The other two components are the Agricultural Experiment Station (AES) - whose primary charge is to conduct basic and applied research for the advancement of agriculture and related sciences, and the Resident Instruction (RI) program - whose primary charge is to provide academic instruction to undergraduate University students majoring in Agriculture, and Consumer and Family Sciences, and graduate students in the Master of Science degree program in Environmental Science.

The educational programs of GCE are carried out by our extension educators (University faculty) assigned in the following four subprogram units: Agriculture and Natural Resources (ANR), Consumer and Family Sciences (CFS), 4-H and Youth Development, and Community Resource Development (CRD). Our extension faculty offer educational workshops and seminar courses as well as teach on a one-to-one basis. While we can endeavor to seek and provide our clientele with information on just about any topic "under the sun", our program focus includes: agricultural production, natural resources protection, consumer economics, nutrition and health, family well being, clothing construction and textiles, 4-H and youth devel-

opment, and community resource development. In short, our overall goal is to inspire our island's citizenry to make informed decisions dealing with issues or problems they face as individuals or as a community.

This report highlights the GCE program accomplishments designed by our extension educators during 1995, 1996 and 1997. The programs were carried by our extension faculty and in several instances with the help of extension associates, extension assistants and most especially, citizen volunteers. The report also includes our involvement in the Western Pacific region due in part to our regional role as guided by our annual funding support by the U.S. Federal government. That is, we work collaboratively with our extension colleagues throughout the Land Grant system with a level of concentrated involvement within the Western region.

We at the Guam Cooperative Extension welcome your continued encouragement, advice and participation in our programs. On behalf of the women and men of the Guam Cooperative Extension, I extend a sincere and most heartfelt thank you to our clientele, volunteers, and both public agencies and private sector organizations for their commitment and support to extension programming. By working together in the years to come, the Guam Cooperative Extension will continue to assist the residents of our island community and region.

JEFF D.T. BARCINAS, Ph.D.

## Mission Statement of the Guam Cooperative Extension

The UOG Guam Cooperative Extension (GCE) enables the multicultural community of Guam to make informed decisions through nonformal education programs based on research and (identified) local needs.

### OVERVIEW

FISCAL YEAR	1998	1999	2000
Local Funds (Matching)	\$1,118,398.00	\$1,036,798.00	\$1,058,000.00
Federal Funds (Matching)	<u>777,947.00</u>	<u>810,370.00</u>	<u>810,370.00</u>
<b>Total Matching</b>	<b>\$1,896,345.00</b>	<b>\$1,847,168.00</b>	<b>\$1,868,370.00</b>
Federal Funds (100%)	484,311.00	310,564.00	310,319.00
ADAP Funds	100,000.00	100,000.00	100,000.00

The Guam Cooperative Extension (GCE) as part of the University of Guam, was established in 1972, after the University obtained Land Grant status. The University of Guam is obligated, under the mandate of Land Grant to carry out the threefold mission of research, extension and resident instruction in the College of Agriculture and Life Sciences. The GCE is part of the national Cooperative Extension Service, the extension component of the Cooperative State Research, Education, and Extension Service (CSREES) of the United States Department of Agriculture (USDA).

The Smith-Lever Act adopted by U.S. Congress in 1914 empowered the Cooperative Extension "... to aid in diffusing among the people of the United States useful and practical information ... Extension work shall consist of the development of practical applications of research knowledge and giving of instruction and practical demonstrations of improved practices on technologies..."

The GCE mission includes assessment of community needs and development and delivery of nonformal educational programs to address local issues, then, extension provides practical knowledge and information to the community and its residents. Our trained professionals use university generated research to carry out the task of providing the newest information and technology to the public. Our clientele demands comprehensive support tailored to local needs to

address pertinent issues of our society. We, at GCE, deliver education programs in the form of printed material, audiovisual presentation, workshops, telephone consultation and electronic communication. The GCE programs extend to residents of Guam, Micronesia and throughout the Western Pacific. We use the newest electronic technology and satellite communications to reach out to distant communities.

The GCE designs its programs based on national initiatives dealing with identified societal issues as well as problems specific to our local natural and societal needs. Guam is a multicultural society undergoing continued rapid growth and faces particular challenges in terms of society, cultural change and impact on the environment. The educational programs delivered through GCE's units of: **4-H and Youth Development, Community Resource Development, Consumer and Family Sciences and Agricultural and Natural Resources** address local needs in areas of youth development, and youth at risk, family well being, community development, nutrition, food safety and handling, diet and health, public policy, agricultural economics, agricultural production and aquaculture, sustainable agriculture, water quality, pesticides and pest management, animal waste control, and recycling.

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# AGRICULTURE AND NATURAL RESOURCES (ANR)

## **National Agriculture Pesticide Impact Assessment Program (NAPIAP)**

The primary theme of the 1999 national PIAP conference, which was held in Chicago, IL, was centered around Crop Profiles and their importance in the overall support of agricultural pesticides. Due to the enactment of the Food Quality Protection Act (FQPA), by Congress, the U.S. governments major concern is with the overall use of pesticides in our food supply, especially the OP's. Those pesticides that are applied to foods that are eaten in the diets of children are being more scrutinized than others. Each state and territory is being asked to conduct crop profiles on commodities that are grown in their locality. It is the belief of USDA that the information collected in these crop profiles will be used to help support EPA's risk assessment on the continued registration of certain pesticides where few or no alternatives are presently found. As of December 1999, Guam has two Crop profiles (watermelon and banana) that are listed on the National PIAP web site.

Due to the new Pesticide Management law that was passed by Congress towards the end of 1999, all PIAP funds, that were 3-d funds for the past 20 years, have now been redirected to an RFP that permits all 4 year colleges access to this money. A meeting was held in San Diego in January 2000 of all the PIAP coordinators from each of the western states and territories. It was that the best plan would be to section out the existing region and put states and territories together that have similar cropping patterns. It was though the greater the collaborative effort among and between states/territories the great chance we might have in competing for these funds. It was then decided that Hawaii and Guam would write up the RFP (that is to come out in May 2000) and include the tree community land grant colleges in the American Pacific (American Samoa, FSM/Palau and Saipan) into our RFP.

## **Post Paka**

The ANR unit received some such need equipment and microscope maintenance in 1999 through the Cooperative State Research, Education and Extension Services (CSREES) for the Post-Paka Equipment Replacement and Repair. This project was granted \$60,000 to replace and repair equipment that was damaged from Super typhoon Paka in December 1997.

## **Money 2000**

A total of seven (7) MONEY 2000 Seminars were held in 1999. This personnel finance series is part of the National Cooperative Extension Service program, which promotes debt reduction and increased savings by the end of the year 2000. Guam started in mid year 1999. Guam expanded this program to include related issues such as investments, insurance topics.

## **Sustainable Agriculture & Research Education**

Three Sustainable Agriculture and Research Education (SARE) grants were approved for funding: 1) Farmer Rancher Grant: \$6,000 for upgrading genetic make-up of local goat population through artificial insemination using frozen semen. This grant also includes parasite control and legume production for members of the Guam Goat Breeders Association. 2) Professional Development Program: \$47,500 to train livestock personnel and staff under the Land Grant Institution and local Department of Agriculture, hog producers and extension agents in Micronesia. Training program includes course by correspondence, conference by PEACESAT and two workshops to be held on Guam and Pohnpei. 3) Portable Extension Office for Program Literature Exchange (PEOPLE) project: \$41,300. This is a project that has and will continue to identify regional information needs and republishing out of print publications, identifying existing publications from the region and around the world, and gathering these publications onto a CD-ROM for use by agricultural professionals and individuals on Guam and through the region.

Accompanied hog producers and Land Grant staff from Guam and Pohnpei to the 1999 World Pork Exposition in Iowa. This was a learning experience for the participants as they were exposed to the world class and latest trends in swine production.

Funds of \$16,000 from Western Region SARE Professional Development project were received for the production of a Eggplant, Pepper and Tomato Growers Guide.

The sustainable agriculture program during 1999 was very active in the areas of farm management and marketing education, aquaculture demonstration and education, mushroom production research and education.

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From February to June 1999, twice a week two hour lectures were delivered to agricultural professionals on Guam and the islands of Pohnpei, Kosrae, American Samoa and Majuro on farm management and agricultural marketing. Satellite, Ham, and Internet transmissions were used and supported by recorded tapes. Four workshops were held on farm record keeping, three on Guam and one on Saipan. Participants were provided with a packaged record organization system.

One middle school (Inarajan middle school) has adopted and installed a successful recirculating aquaculture system and has made several harvests and trained students in it is operation. Another high school (Southern High School) has recently requested assistance to establish an aquaculture facility to incorporate recirculating technology and hydroponics.

A demonstration site on the University campus was established to train people in the variety of possibilities for home and small scale sustainable aquaculture and agriculture practices. These include a fish tank with filtration utilizing local materials and plants for filtration and on "aquaponics system", consisting of two (2) 40l hydroponics troughs. Other activities at the site include composting, vermiculture, mist propagation, and gardening. This site has been beneficial with clientele of other programs in Extension as well, such as the Children, Youth, and Families At Risk (CYFAR) and the 4-H Summer Fisheries Program. The site is a popular site for school field trips and a place for new farmers to view an established system. Development of a video on recirculating aquaculture systems, to be completed in June 2000, was started in Fall 1999.

Applied research is ongoing on straw and oyster mushroom production. Two workshops were held on mushroom production and another on mushroom spawn production. The mushroom production had over 70 participants. This is a very popular subject for workshops. Participants of both workshops were provided with mushroom spawn for use in home production.

### **Agriculture Marketing**

During 1999, the Guam Department of Agriculture adopted the ADAP Market Information and Agriculture Production Monitoring System. The system is the product of five years of work by CALS faculty. The system is now undergoing a complete redesign and reprogramming to accommodate all the proposed improvements suggested by the Guam department of Agriculture, Agricultural Development Services (ADS) staff. The programs final release is expected in May 2000. Three workshop training were held for the ADS staff and one for the CNMI Land Grant and Department of Land and Natural Resources staff in 1999.

### **Pesticide Applicator Training (PAT) Program**

To ensure the safety of our environment while reducing public health risks, The Guam Pesticide Applicator Training (PAT) program, In compliance of the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), continues to provide the necessary training and certification needed for persons using Restricted Use Pesticide (RUP) products. In 1998 and 1999 Guam's PAT program conducted nine workshops, certifying 108 persons and recertifying 69 others using RUP's. Certification was given in different categories such as: Private Pest Control, for farmers using agricultural pesticides on privately owned farming operations. Ornamental and Turf Pest Control certification for persons applying RUP's in ornamental plant nurseries, landscapers, and golf courses. And, Industrial, Institutional, Structural and Health Related Pest Control for persons treating for pests in the home, construction sites, public facilities, hotels and restaurants.

### **Guam Farm Safety Program (GFSP)**

In 1999, CALS received funding for implementation of the Guam Farm Safety Program (GFSP). The program has focused on the safe use of "general use pesticides" or what is termed over the counter pesticides. Based on Inspections conducted by the Guam Environmental Protection Agency (GEPA) there is a need for educating the farming and backyard gardening community on the safe and proper use of general use pesticides and pesticide equipment. Farm safety sections in at least 8 different workshops targeted the youth gardening groups in schools, village communities, Guam Farmers Market Nutritional Program participants, and farmers. Topics such as: proper use of hand tools, use your legs and save your back; safe storage of pesticides and fertilizers; pruning, and keeping your blade sharp, were covered.

### **Water Quality Initiative**

The use of fertigation systems in vegetable, fruit and ornamental production has increased by fifty percent in the past two years. Estimates based on field observations and equipment distributor records show a 35% increase in the use of drip irrigation equipment and suppliers. Although the number of requests for information on fertigation systems and general drip irrigation management has remained steady at about fifty to sixty requests per year in 1998 and 1999 the number of producers using these systems has increased. This is an indication that Extension educational programs have impacted the industry to the extent that producers are adopting the technology not only based on Extension educational programs but also based on farmer to farmer contact. Fertigation allows producers to apply fertilizers in small doses directly in the crop

root zone. Fertigation with small doses increases the efficiency of fertilizer use by crops and minimizes the risk exposure of plant nutrients leaching or running off into around and surface waters.

Crop protection related requests continue to out number all other requests in ANR. Silver leaf whitefly, thrips and aphids are the most common pests reported. Growers are reporting poor control of these pests when using pesticides with low toxicity resulting in the increased use of highly toxic material. Field observations indicate that control with these more toxic pesticides are not necessarily more effective. Producers that have adopted scouting practices and the use of low volume spraying equipment report better control. Producer who practice all-in, all-out plant rotations have fewer pest control problems.

Extension professionals working with NRCS conservationists and their staff provided technical assistance to twenty two hog producers and crop producers related to waste management storage, handling and utilization. Fertilizer recommendations were made based on soil test results, crop requirements and animal manure composition. The use of animal manure resulted in a drastic reduction in the need for commercial fertilizers. Farmers signed up with the Environmental Quality Incentive Program (EQUIP) administered by NRCS are eligible for 75% reimbursement on animal waste handling and storage facilities. NRCS has joined with Extension in the promotion of safe handling and utilization of the wastes in crop production systems.

Extension along with representatives from GEPA, GWA, DOA Forestry and Aquatic and Wildlife, Bureau of Planning, WERI, Department of Commerce, the Navy, Air Force and NRCS make up the Guam Water Planning Committee (WPC). The WPC is charged with overseeing the development and implementation of the Clean Water Action Plan for Guam. The WPC identified the Northern Guam watershed and the Ugum/Talotofo watersheds as the island's two top priority watersheds. The WPC has sponsored the planting of over 50,000 acacia seedlings over fifty acres in the Ugum watershed. The WPC allocated about \$60,000 for the tree planting aimed at reducing soil erosion and sedimentation and turbidity levels in the Ugum river. Over \$140,000 is committed toward various restoration activities in the Yigo/Tumon sub basin of the northern Guam watershed.

## AGRICULTURE & NATURAL RESOURCES PERSONNEL

### Faculty

- L. Robert Barber, Jr., M.S.**  
Extension Agent II (Agricultural Economics)
- Peter R. Barcinas, M.S.**  
Extension Agent II (Agricultural Economics)
- David P. Crisostomo, M.Ag.**  
Extension Agent III (Aquaculture)
- Frank J. Cruz, M.S.**  
Extension Agent III (Horticulture)
- Manuel V. Duguies, D.V.M., M.S.**  
Extension Agent IV (Livestock/Animal Health)
- Roland J. Quitugua, M.S.**  
Extension Agent III (Plant Pathology)
- Robert L. Schlub, Ph.D.**  
Extension Agent III (Plant Pathology)
- Lee S. Yudin, Ph.D.**  
Professor (Entomology)

### Staff

- Doris T. Camacho, Wordprocessing Secretary II  
Margaret Denney, Extension Assistant III  
Rochelle Diego, Extension Assistant II  
David Neslon, Extension Assistant II  
Kenneth Perez, Extension Assistant II  
Joseph Tuquero, Extension Assistant II  
Wilson Ng, Extension Assistant III

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# COMMUNITY RESOURCE DEVELOPMENT (CRD)

One of the major areas that CRD unit personnel were involved in during the past two years dealt with efforts to increase the capacity of communities, families, and individuals to improve their own quality of life on Guam and throughout Micronesia. A second area of focus during the past two years has involved efforts to increase economic opportunities in communities on Guam and throughout Micronesia through economic development programs in which CSREES partners and cooperators play an active research, education, and extension role.

In achieving these two performance objectives, CRD unit personnel collaborated with CSREES partners and cooperators in doing research, conducting training and providing technical assistance. The following is a summary of these efforts.

## Concerning Staff Development & Training Conducted

During this two year reporting period, CRD Unit personnel designed and conducted more than 130 organized workshops, seminars and in-service training sessions designed to equip human service professionals on Guam and throughout the region with the skills needed to more effectively work with their clients. A number of these workshops and seminars were directed towards local schoolteachers and administrators. Dr. Randall Workman conducted a multimedia presentation explaining the findings from the 1999 Guam Youth Risk Behavior Study at the regional *Education For Life: Health Risk Prevention Programs In Island Schools* at conference organized by Guam's Department of Education and the Pacific Resources for Education and Learning (PREL) Center. Dr. Lilli Iyechad, another member of the unit conducted an in-service training session for staff of C.L. Taitano Elementary School on the topic of *"Understanding Cultural Diversity In Micronesia."* More than 25 teachers and administrators participated in this session. Dr. Iyechad also helped to conduct the Department of Education's "Education for Life Conference" during which more than 20 teachers were provided with an opportunity to increase their understanding about how to access available social services in the local community. Other staff development training activities were conducted for non-governmental organizations on Guam and throughout the region. The focus of many of these training sessions was cultural diversity and sensitivity. CRD unit involvement in organized conferences and annual meetings also provided a venue for extending meaningful training opportunities to members of Guam's social service community. During the past two years, unit personnel

delivered ten professional papers and conducted more than 25 formal conference presentations and workshops that addressed a wide range of social intervention ranging from substance abuse to the use of "Story boards" as vehicles for helping family members assess needs and make chart a course for improving their lives. Dr. Lilli Iyechad was a presenter and panelist for session entitled, Transformations of Exchange Systems. Conference was held in Hilo, Hawaii. She also was active in working with the Guam Association of Social Workers, helping that organization secure formal chapter designation by the National Association of Social Workers (NASW). In addition, Dr. Randall Workman assisted the Guam Department of Public Health and Social Services in cosponsoring and facilitating a regional training by the UN World Health Organization on the International Classification of Diseases (10th Revision) May 25-28, 1999. Through this training, participants became qualified to train other health workers in each of the Micronesian Island states to use the computer ICD-10 software system to improve the quality of information systems on morbidity and mortality. Improved vital statistic information systems will intensify better planning and management in regional health care program services. Dr. Workman also assisted the Guam Department of Mental Health and Substance Abuse in cosponsoring and facilitating a regional training by the Johns Hopkins University and U.S. Substance Abuse and Mental Health Service Administration on "Establishing a Pacific Island Regional Epidemiological Surveillance Network to Assess Alcohol and Other Drug Problems."

Other workshops and training sessions were conducted to support different civic initiatives ranging from environmental preservation to board development and fund raising.

During the past two years, CRD unit personnel gave more than 20 different newspaper and/or radio interviews and also assisted in the preparation of numerous feature articles, which appeared in local newspapers and magazines.

Dr. Lilli Iyechad appeared as a guest speaker on a local radio program and shared her insights concerning the topic of reciprocity between Chamorro as well as higher education opportunities for women on Guam. Dr. Iyechad was also interviewed several times by Pacific Daily News (PDN) reporters who were preparing different articles for publication. Her contribution was used for two stories included as a part of two special series entitled, "Traveling at the Speed of Trauma," and another

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entitled, "Young People Often Have Invincible Mindset." In addition to the Pacific Daily News, members of the CRD unit have regularly contributed to local articles appearing in the Marianas Variety and Matte Magazine.

On another front, Dr. Workman's research activities served as the basis for the development of a major media presentation entitled, "The Reduction of violent behavior in Guam Schools." This media presentation was presented more than nine times at school assemblies around the Island. More than 600 high school and middle school students attended these presentations.

### **Concerning Special Project Initiatives**

**Children Youth and Families (CYFAR):** Unit personnel continue to provide operational support to the regional CYFAR project, a five-year initiative designed to institutionalize prototype programming approaches designed to address the needs of at-risk youth and other than family members. During the past two years, CRD unit personnel have taken the leadership in carrying out an assessment of the overall impact of extension educational efforts in this area. In this regard, Dr. Lilli Iyechad has had several site visits to the different participating jurisdictions across the region. She has conducted training and collected needed assessment data.

**Mentorship Training:** Working in collaboration with public school administrators and teachers as well as counterparts in the 4-H and Youth unit, Dr. Lilli Iyechad has provided subject matter support and conducted more than ten training sessions designed to equip those serving in a mentorship capacity with the skills needed for effective program delivery.

**The 1999 Guam Youth Risk Behavior Survey of Middle and High School Students:** This project was funded under "The Safe and Drug Free Schools and Communities Grant Program" in collaboration with the Guam Department of Education, and the U.S. Centers for Disease Control. Data were collected from 643 middle school and 590 high school subjects. This data was analyzed and included as a part of a formal report.

**Regional Distance Education Project:** A prototype initiative designed to create the required course development protocols and delivery models for distance education operations in the Pacific. Carried out within the context of small-scale agribusiness, this project resulted in the establishment of a regional web site, an undergraduate credit course as well as a resource library of useful materials and publications.

### **Charting the Future course of economic development in the Commonwealth of the Northern Marianas Island:**

Working collaboratively with the Small Business Development Center at the College of the Northern Marianas Island (CNMI), CRD unit personnel carried out a comprehensive study to identify the potential for existing business expansion in the jurisdiction. This study led to a commonwealth wide conference attended by more than 250 political and business leaders in the CNMI and from across the region.

### **Concerning Applied Research Activities**

**Adolescent Suicide Prevention and Intervention Manual Preliminary Needs Assessment Survey:** Coordinated with the superintendent of Catholic schools to have their counselors and other mental health providers complete said survey in order to include their input during construction of noted manual.

**Storyboard of Micronesian Peoples Chart:** This effort involved conducting interviews of key Carolinian leaders. The information obtained will be used to compile the storyboard chart.

**Adolescent Suicide Survey:** This initiative involved collecting data, primarily from GPSS counselors and other community mental health providers. The information collected is currently being used as the basis for a Adolescent Suicide Prevention and Intervention Manual.

**Suspected Influences on Methamphetamine Use:** A Pilot Study on the health needs of Guam - This initiative was carried out in collaboration with the John Hopkins University School of Hygiene and Public Health and Social Services and with the Department of Mental Health and Substance Abuse. This project focused on assessing the extent of Methamphetamine abuse amongst persons who are currently participants in treatment programs. This applied research effort resulted in practitioners and program planners having greater insights about how to design and carry out effective prevention and treatment programs in the future.

### **Concerning Technical Assistance**

During the past two-year reporting period, CRD unit personnel have continued a long tradition of providing technical assistance and consultation to a wide variety of community based groups and organizations on Guam and across Micronesia. Social service agencies like Sanctuary, In' Nafa Maolek, Coral

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Life, and Catholic Social Services have been assisted in developing treatment protocols as well as in developing strategic planning all designed to enable the se groups to better serve their respective clientele.

## COMMUNITY RESOURCE DEVELOPMENT PERSONNEL

### Faculty

**Linda Austin**  
Extension Agent II

**Lilli Ann Iyechad, Ph.D.**  
Extension Agent II  
(Social Worker & Social Research)

**John Woodard**  
Extension Agent II

**Randall Workman, Ph.D.**  
Professor and Unit Chair  
(Sociology, Social Research & Program Evaluation)

### Staff

Elaine Cepeda, Secretary

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# CONSUMER AND FAMILY SCIENCES (CFS)

The CFS unit mission supports the development of educational programs addressing the well being of individuals and families in Guam and the Western Pacific region. The activities of the CFS unit focus on: (a) Healthy People, Healthy Communities; (b) Nutrition Education; (c) Food Safety and Hazard Analysis and Critical Control Point (HACCP) education; (d) Managing resources, time, and Money.

## Healthy People, Healthy Communities

Workshops, conferences, media interviews, and culturally sensitive materials were vehicles for delivery of extension education related to Healthy People, Healthy Communities. The primary focus of the workshops and conferences were improved understanding of the relationship between nutrition and health, and developing nutrition and health policy advocacy. Radio and television interviews provided information about the relationship between nutrition and health and about existing extension programs and materials. The Agriculture Development in the American Pacific (ADAP) funded publications provided culturally relevant chronic disease prevention and management information. A November 1999 Diabetes Conference: living for Tomorrow, Not Just for Today was co-chaired by and CFS faculty and co-sponsored by Guam Cooperative Extension. Approximately 250 persons attended.

**ADAP publications developed include:** Training Material Utilizing Food Choices for Health Living (ADAP 99-4); Island Foods are Healthy: Guide for Nutritious Diets (99-7).

## Nutrition Education

Some new audiences and delivery methods joined the existing Cooperative extension nutrition education programs. New audiences include aging adults and caregivers of young children. New delivery methods include weekly newspaper columns under the "Today's Special" and "Singko kada Diha" headings. Existing extension nutrition education programs such as Team Nutrition, Expanded Food and Nutrition Education Program (EFNEP), and Training for Department of Education Food Service Workers have been strengthened and revised.

An average of four workshops per year was done for caregivers of young children. Nutrition presentations have been given at all village senior centers each year. The development of these

new audiences is in response to the importance of the extended family in the cultures of the Pacific region.

The "Singko Kada Diha" column is a project of the Team Nutrition Collaborative. Team Nutrition is a community collaborative that includes Paradise Fitness, Guam Memorial Hospital Authority, Department of Public Health and Social Services, American Cancer Society, PacificCare-Asia Pacific, Department of Education (DOE) Food Service, Guam Cooperative Extension, and Payless Markets. In addition to the weekly newspaper column, Team Nutrition has provided Nutrition Month activities, Family Fitness Fairs, Training workshops for teachers, parents, and food service workers, and a monthly newspaper that is jointly authored with Department of Education Food Service. The "Today's Special" columns focus on topics that relate to a wider scope of readers than the "Singko Kada Diha" columns that focus on child nutrition.

The EFNEP program celebrated its 17th anniversary on Guam in 1999. Since its inception on Guam in 1982, an average of 130 adult heads of household and 700 youth between the ages of 5 and 19 have received education each year. Recent cost-benefit analysis of EFNEP suggests that for every dollar spent on EFNEP ten dollars is saved in health care costs. Based on this estimate, Guam's \$59,000 annual EFNEP budget saves \$590,000 in health-care costs on Guam.

## Food Safety and Hazard Analysis and Critical Control Point (HACCP) Education

Development of new food safety education materials and expansion of the audiences for food safety and HACCP training are the highlights in this area. Recently developed culturally relevant materials served as the foundation of a two-volume curriculum set called "Food Safety At Home." This two-volume set focuses on two of the high-risk categories; young children and aging adults. Approximately 300 individuals have received education with this curriculum and its companion calendar.

Existing training programs were expanded to include more food service managers and DOE food service workers. The way this expansion was accomplished was by providing Food Safety and Hazard Analysis and Critical Control Point (HACCP) education through the Center of Continuing Education and Outreach and by closer interaction DOE that grew out of Team Nutrition collaboration.

### **Managing Resources, Time, and Money**

Recognition of personal finance issues in the community led to collaboration among economists within Cooperative Extension to develop programming. Money 2000 is the most visible of the efforts. The basic objective of this nationwide Cooperative Extension Program is to increase the financial well being of program participants through increased saving and reduced household debt. Participants are encouraged to save, and/or reduce debt by \$2000 within a year. Between May and December 1999 twenty individuals participated in seminars. They collectively established saving and debt reduction goals of \$325,000. In addition, periodic newspaper columns have been written.

## **CONSUMER AND FAMILY SCIENCES PERSONNEL**

### **Faculty**

**Janet Benavente**

Extension Agent II (Nutrition and Health)

**Mary Elaine Camacho, Ph.D.**

Extension Agent IV and Unit Chair  
(Nutrition and Health)

**Milagros K. Moguel, M.A.**

Extension Agent IV (Clothing/Textiles)  
Resident Instruction Coordinator

**Rachael Taitano, Ph.D.**

Assistant Professor

### **Staff**

Ruth Barnes, Secretary

Clarissa Barcinas, Extension Associate I

Chona Dubusan, Extension Associate I



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# 4-H YOUTH AND DEVELOPMENT (4-H)

The Guam 4-H and Youth Development non-formal educational programs creates supportive learning environment for culturally diverse youth and adults to reach their fullest potential. In support of this mission, the 4-H and Youth Development faculty and staff planned, developed, coordinated, facilitated and conducted educational activities that were curriculum and researched based which resulted in a documented continuous effort to empower youth, adult volunteer and their families to become self-reliant.

During FY98-99, the primary delivery means of the 4-H educational activities focused on the following nationally recognized program models:

## **4-H School Activities**

The programs are designed to enhance school curriculum and provide opportunities for students and teachers to gain knowledge with respect to career choices. As such students and teachers often request for faculty to serve as judges for their science projects as well as advisor for school planned activities.

**4-H Orientation Workshops:** Promoting a series of workshops such as: 4-H Orientation, Leadership, Horticulture, Plan Identification, Aquaculture, Parliamentary Procedures "Effective Meeting Management", Computer literacy, and Sports Development to our community, island schools, and interested volunteers.

**Sports Leadership Enhancement Program:** In collaboration with the Guam National Olympic Committee and the Guam Baseball Federation, 4-H took the lead role in providing a 27 hour training leading to Certification for island baseball coaches and umpires. Areas of training included team leadership, nutrition, public relations, marketing, sport medicine, conditioning, time and stress management.

**Island Schools Science Fairs:** Earth Week "Green Palms" 5<sup>th</sup> Yearly event promoting the protection of our islands natural resources by collaborating with all different federal and local government agencies. Presenting static displays of our organizations involvement in environmental protection, awareness, or education are in exhibit for the community to view.

**Youth Participating in School-Aged Child Education Program:** 4-H continued to be a popular educational program sought out by the Guam Public School System to conduct school based workshops during the education-wide "Career Day" to promote career choices in Agriculture. 4-H also coordinated school field trips to the College for over 1,200 youth who were exposed to the various career opportunities in research and extension programs in Agriculture, Nutrition, Youth Development and Community Resources. In addition, 4-H faculty worked closely with educators, to assist schools in establishing gardening projects, and workshops on plant and soil science and various topics to promote youth leadership.

## **4-H Clubs**

**4-H Animal Science Club:** Seven (7) youth and one adult volunteer. Club members learned basic animal science, role in the environment, and site visits to veterinary clinics and animal farms. Other lessons also included pet care, common diseases, and pet nutrition.

**Village 4-H Clubs:** 4-H Clubs were formed in two villages (Dededo and Yona) Club activities focused on communication projects and village beautification (citizenry). These clubs continue to build on self-esteem and leadership skills. Club members decided to promote 4-H and practice their skills during a bi-monthly cultural evening fare at the "Chamorro Village" (which is frequented by island families and tourists). These events afforded members to promote 4-H Activities and distribute educational literature and answer questions to educational videos to the general public.

**4-H Southern High 9th Grade Academy Club:** In collaboration Southern High School administration, students, faculty, staff and community volunteers to get technical assistance and educational workshops from the CALS Extension. Involved in school and community gardening and tree planting projects.

**Southern High Horticulture Club:** Involved in 4-H/Children-Youth-Family-At-Risk Nursery Project and Horticulture relating workshops.

**4-H Club-George Washing High School:** In collaboration with LOTE Teachers at the school. The 4-H Summer program included Computer Literacy Project, translation of books for use at home, training-cultural competence for therapeutic in

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intervention, knowledge navigators program (student helping parents and families learn to read and develop beginning computer skills).

**4-H Science and Beautification Club:** 4-H members applied for a Youth In Action/Community Service Grant and was awarded \$1,000.00 from the Metropolitan Life Foundation to beautify the school campus with different types of tropical ornaments and shade trees. This Club was also successful in fund raising events, being trained in the Life Skills and participating in after school programs and activities.

**4-H Yigo Youth Council and 4-H Programs:** The mission of this organization is to provide a positive interaction between youth and adult advisors and to provide youth and adult leadership training. The organization is sponsored by the Mayor and Municipal Planning Council of Yigo. Programs include life-skills workshops, leadership training, collaborating with other youth organization in village activities and projects. ñ (Drug Free Program, Adopt A School Bus Shelter Project) community service.

#### **Youth Participation in Special Interest and Short Term Programs**

**4-H Special Interest Workshops:** The 4-H Program continues to receive workshop requests for public and private sectors servicing youth. Sixty-five (65) workshops have focused on building adult volunteer skills and staff development in working with youth at risk. General topic areas of special interest workshops include Leadership Enhancement, Youth Development Issues, Effective Meeting Management, the Life Skills, Communication Techniques with At-Risk Youth, Cultural Diversity, Developing Effective Youth Programs, Understanding and Utilizing the Collaborative Framework and Parent Training. Over 1,000 youth have been directly impacted by those adult youth service workers and professional trained by 4-H faculty.

**Piti Gardening Project:** On October 1998, a partnership for the Community Project with the Piti Mayor's office and the Senior Citizens Center was organized, to start a Community Garden. A former 4-H member, Mr. Tommy Quitugua was directed by the mayor to oversee the implementation of the project. Prof. Jose Cruz, Emerita agreed to serve as the advisor to the organization. The senior citizens agreed to serve as the guardian and farms.

The primary purpose of the project was to involve youth and seniors in a community service project. The senior citizens participated in the gardening project. The main crops planted

were sweet potatoes, corn and egg plants. Fifteen youths ages 9-15 participated in the project. Both the senior citizens and youth participants learned skills in planting, watering, fertilizing, maintaining and harvesting.

The mayor's office, the senior citizens and the youth participants had expressed that the project was a good activity to strengthen citizens involvement in community. All wish to continue the project.

**4-H Youth and Adult Partnership Program:** 35 youth and 15 adults participated. Youth and adult community leaders learned the positive way of bridging the generation gap between youth and adults. Adults learned to empower and encourage youth leadership. Youth were also encouraged to make and/or participate in the decision making process.

**4-H Parenting Skills Program:** Program offers Parenting Skills Training for those parents of at-risk, involved in the court system. Pilot project with Sanctuary Inc, involving at total of 12 parents and 6 Sanctuary personnel. This program ran for 5 weeks; 2 sessions par week. Today, the 4-H curriculum on parenting has been adopted and used regularly by Sanctuary, Inc.

**The International Exchange Program:** The 4-H was awarded a resolution by the local legislature for the many years of coordinating the programs and involving generally thousands of our local students.

#### **4-H Core Programs**

4-H faculty and staff have continued to coordinate "4-H Core Programs". 4-H Core Programs are actually focused, educational workshops utilizing 4-H curriculums with registered youth. The Core experience provides opportunity to experience the University campus. The success of this program has resulted in positive youth development, addressing common barriers to excel in education, and providing life long skills for success. Embedded in each of the Core programs, were the Life Skills concerning self-esteem, communication and leadership skills, active listening, decision making, and citizenship. The following Core programs involved youth from ages 9-19: 3 on 3 Basketball, Fisheries, Sewing, Computer Training, Carpentry, and Nutrition Education.

**4-H 3 on 3 Basketball Tournament:** Using the sport of basketball 40 youth enrolled to learn fundamentals of basketball, sportsmanship, nutrition, and handling peer pressure.

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**4-H Summer Fisheries Program:** Fifty-one (51) boys and girls ages between 12-16 enrolled in a three week eight to five 4-H Summer Youth Fisheries Workshop. Sixty-eight (68) adults spent an average of four (4) hours daily, serving as volunteers and resource expertise. The subject matter experts additionally contributed 2-1/2 hours weekly to educate participants on specific topics, including oceanography, marine science, ecosystems, and study of meteorology.

The theme of the workshops are carefully selected to reflect national, regional, and local trends. In 1998, "Give Water A Hand" selection to be the theme was significant due to El Nino weather and its potential influence on marine science, ecosystems, oceanography and the weather. Because pacific island are mostly volcanic atolls water play a significant role in the daily lives of the habitants. Studying water quality, conservation, preservation, and water mapping became ideal issues to educate the participants. It was important to like the atmosphere, land and the ecosystem.

In 1999, the theme was observed to reflect the living standards and conditions. "Hook on Fishing and Not on Drugs" has a prevention attitude. The emphasis was placed on addressing an island drug epidemic that has affected families and ruined community status. Therefore, drug enforcement agencies of the federal and local were asked to speak and provide visual demonstrations of drug (specifically Ice) and its effects on the body. Local enforcement agency was requested to provide and share local tales of reported incidences in daily arrests and deaths in relation to drugs.

Fishing still was the educational activity. Participants learned skills in building friendship companions as well as, skills in honesty and trust. They also learned to maximize use of quality time when spent with a friend or family member.

Volunteers, college students, local and federal government agencies remain the backbone of the successfulness of this project. This is truly a project where success is attributed to the very volunteers and experts who work extremely hard to teach life skills through fisheries activities.

**4-H Carpentry Summer Youth Program:** New core program established in 1999, eight (8) youth enrolled and one adult volunteer 100 hours. Students learned the types and functions of carpentry tools, basic measurement, and the usefulness of carpentry. Youth made bookshelves, toolboxes, bookends, and small model framed house. Life skills such as making good decisions, teamwork, family values, and self-esteem

were incorporated into the project. A major construction company co-sponsored the event by offering free safety glasses.

### **School Field Trips**

The 4-H and Youth program faculty provides the lead coordination of school visits to the College and various experiment stations to tour such facilities as research labs and demonstration plots. During this reporting period, a total of 510 students from various public school visited the College of Agriculture and Life Sciences. School children visited such areas as a model beehive, a backyard aquaculture system whose effluence are used to supply nutrients to a garden, and laboratories and plots involving entomology, soil chemistry, animal science, agricultural engineering, horticulture, ornamental horticulture, and turf science.

### **Publication TV/Video Program**

**Community Publication:** "Teaching Aids for Emotional Recovery in Times of Disaster" 1,000 manuals were printed widely districted to Public Schools, Professional Organizations, and Civil Defense. Poster board displays at major retail outlets. 5,000 brochures were printed on Disaster Recovery distributed to utility workers, the tourist industry, government and non-profit social service agencies and the general public. Brochures were also printed in 5 languages.

**Television and Radio Appearance:** Eight (8) appearances on television and radio programs highlighting "What is 4-H and what do we do?" and encouraging 4-H volunteer involvement.

### **Grants**

**In-service Training:** Occasionally the 4-H Youth Development faculty and staff are asked to conduct educational tours as well as speak before a group of youngsters and their teachers about extension educational programs and the college functions.

In 1999, in conjunction with the National College Week and a newly funded GEAR-UP project, a faculty represented the college administration in a workshop that involved 360 middle school students and their teachers. While the goal of the project was to encourage middle school students to stay in school and continue through college, faculty spoke of programs that are available at the extension service, primarily the 4-H and Youth Development activities. Since then, we have had project activities including mentorship, listening, self-esteem, respon

sibilities, making wise decisions implemented at the school. Over 400 girls and boys participated in the project.

Other Grant Involvement Included: Youth at Risk Life Skills Mentorship Training Program, CYFAR, ADAP, and Paka Outreach-Emotional Disaster Recovery Program.

## 4-H PERSONNEL

### Faculty

**Anthony M. Artero**  
Extension Agent IV  
(Youth Leadership and Development)

**Theodore M. Iyechad, M.Ed.**  
Extension Agent IV (Unit Chair)

**Theodore D. Nelson, B.B.A.**  
Extension Agent I

**Joaquin Peter Roberto, M.S.W.**  
Extension Agent II

### Staff

**Louise Aguon, Extension Assistant II**  
**June Calvo, Secretary**



## Publication Listing

The listing below describes educational materials made available by GCE for clientele use. In general, the materials/literature cited below are free of charge, however, some materials are sold to help recover some of the production cost. Funds generated from sales are used to pay for the cost of re-production of new materials. The publications noted below may be available in finished printed format, photocopy of an earlier printed format, CDROM, video or poster.

### 4-H and Youth

- 4-H Career Clubs Guidelines
- 4-H Club Leader's Manual
- 4-H Operational Manual and Development Workbook
- CYFAR (Children, Youth & Families At-Risk) Pacific Family Youth Gardening Program
- Guide for 4-H Club Members and Officers for Guam
- Public Speaking for the Youth
- So You Want to Organize a 4-H Club
- The 4-H Program of Guam
- What is 4-H

### Agricultural Economics

- Costs (Important Concepts in Understanding Production Costs)
- Developing Budgets
- System Costs of a Small Re-circulating Tank Aquaculture System
- The Production of Oyster and Straw Mushrooms

### Agriculture Pest

- Asiatic Corn Borer
- Bean Fly
- Cascade campestris L. (Dodder)
- Chromolaena odorata: Biological Control in the Tropics
- Fertilizer Behavior on Ija Soil
- Fertilizer Behavior on Three Guam Soils
- Fleahopper
- Floating Crop Covers Reduce Problem in Watermelon
- Fruit Piercing Moth
- Grow Sclerotium sp. (Crown Rot)
- Heliconias
- Leafminer
- Legumes Make Nitrogen Fertilizer from Air
- Mango Budmita
- Phalaenopsis Mite
- Phomopsis Blight of Eggplant
- Red Orchid Scale
- Vanda Orchid Scale

### Aquaculture

Introduction to Recirculating Aquaculture (Video available September 30, 2000) - \$10.00

### Community Issues

- Becoming a Big Kid: Substance Use and Fighting In Guam's Middle School - a Community Resource Development Report
- The Reduction of Teenage Fighting Through Extracurricular Activities: Evidence from Guam - Guam Health Research Notes
- HIV/AIDS Related Behavior Among High Risk Groups on Guam, and Community Perceptions of the Situation: 1996 AIDS Prevention Needs Assessment Study - A Community Development Report
- Sexually Transmitted Diseases in Asia and the Pacific - Chapter 12 Micronesia
- The Influence of Ethnicity and Socioeconomic Status on the use of Mammography by Asian and Pacific Island Women - Journal of Women and Health
- Enhancing Family Empowerment: Leadership Curriculum for Associations, Organizations, and other Voluntary Action Groups - An ADAP publication
- Substance Use, Delinquency, and Violence in the Pacific Family Structure and Alcohol Use Among Asian-Pacific High School Students in Guam
- An Economic Study For the Commonwealth of the Northern Mariana Islands
- In Pursuit of Happiness - A Study of substance use among Guam High School Youth. A Community Resource Development Report
- 1999 Safe and Drug Free Schools and Communities Study of Youth Risk Behaviors. A Community Resource Development Report
- An Ethnography of Reciprocity Among Chamorros in Guam
- Expressions of Grief: Reciprocity, Reunification and Reverence Observed During Death
- A Storyboard of Micronesian People - A Navigation Chart to Better Understanding (\$5.00 poster)
- Developing Cultural Competence for Therapeutic Intervention. Educational Booklet for Youth-At-Risk Service Providers
- An Introduction to Therapeutic Assessment. Educational Training Supplement for Children, Youth and Families-At-Risk Service Providers
- WELLSPRINGS - A Manual for Group Facilitation Addressing Issues of Abuse In A Culturally Sensitive Manner (\$28.00)
- Bilingual Pamphlets funded by the STOP (Services Training\*Officers\*Prosecutors) Violence Against Women - Pamphlets in English, Chamorro, Palauan and Chuukese.

Topics include: Domestic Violence in the Family, How to Deal with Anger in the Family, How to Deal with Substance Abuse in the Family, Positive Parenting, and How to Use Your Extended Family as a Resource.  
The Rhythms of Our Ancestors - A compilation of articles prepared by indigenous people on traditional practices

### **Consumer & Personal Finance (Flyers)**

\$2,000 is yours if money really matters  
How to cut your fuel costs  
Check your receipt to make sure the price is right  
Education, key to unlocking Y2K issues  
Check out M2K for financial planning help  
Protecting the consumer  
Bills creep higher for island households

### **Disaster**

Emotional Recovery - Aging Adults  
Emotional Recovery - Helping Children Cope with Disaster  
Emotional Recovery - In Times of Disaster  
Helping Families in Times of Disaster  
Typhoons - Before, During and After a Storm

### **Food and Nutrition**

CALS Mushroom recipes  
Celebrating Island Food: A Guide to Good Food and Good Health  
Daily Food Guide for Healthy Bodies in Chinese, Tagalog, English, Vietnamese, and Korean.  
Pacific Food Guide Pyramid  
Food Safety at Home: Curriculum for Child Care Providers  
Food Safety at Home: Curriculum for Food Handlers for Older Adults  
Diabetes Good Guide Pyramid  
Guam: Food Choices for Healthy Living  
Island Foods are Healthy: Guide for Nutrition Diets

### **General Information**

PEOPLE (Portable Extension Office for Program Information Exchange) - A CD-Rom of hundreds of extension publications is available for \$10.00.

### **Horticulture**

A Guide to Growing Bananas on Guam  
Betel-Nut Care  
Bikkia tetrandia  
Chamorro and Scientific Names of Fruits and Vegetables  
Elaeocarpus joga

Growing Bell Peppers on Guam  
Growing Eggplant on Guam  
Growing Orchids on Guam - \$10.00  
Home Gardening on Guam  
Mango Tree Care  
Okra Yields More Between Tangan-tangan  
Scorpio: A Tip-Burn Resistant Head Cabbage Variety  
Vegetable Soybeans on Guam

### **Ornamental Horticulture**

Bikkia tetrandia  
Elaeocarpus joga  
Growing Orchids on Guam - \$10.00  
Heliconias  
Mist Propagation Systems booklet

### **Parenting**

Infant Care Guide for New Parents  
Early Experiences and Counseling for Effective Lactation  
Breastfeeding - The Natural Beginning

### **Pest/Pest Control**

Guam Fruit and Vegetable Pesticide Guide - \$10.00  
Applying Pesticides Correctly for Private And Commercial Applicators - \$10.00  
Federal and Local registered/restricted use pesticides  
Guam Cucurbit Guide - \$10.00  
Chromolaena odorata: Biological Control in Tropics  
Pests of Cabbage and Other Crucifer Crops in Micronesia  
Fleas and Their Control  
Protective Clothing and Safety Equipment Requirements for Commonly Used Pesticides on Guam

### **Poultry and Livestock**

Animal Waste Management on Guam  
Common Poultry Diseases  
Goat Management  
Laying Hen Management Guide  
Poultry Manure Management on Guam  
Poultry Production Guide for a 500 Layer Operation  
Pullet Management Manual  
Swine Management Manual  
Water-Saving Devices and Practices for Piggery Farm to Improve Water Quality

### **Soils**

Fertilizer Facts # 1: Essential Plant Nutrients  
Fertilizer Facts # 2: Fate of Nutrients in the Soil  
Fertilizer Facts # 3: Soil Reactions  
Fertilizer Facts # 4: Factors to Consider in Selecting a Fertilizer  
Fertilizer Facts # 5: Forms of Fertilizer and Other Soil Amendments  
Fertilizer Facts Number 6: Methods of Fertilizer Applications

### **Water Quality**

Conserving Water in the Home and Yard

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