

1995-1997 Annual Report
**GUAM
COOPERATIVE
EXTENSION**



*College of Agriculture & Life Sciences
University of Guam*



Opening Ceremony of the College of Agriculture and Life Sciences: L to R: Dr. Chin-tian Lee (former Dean/Director); Mr. Jose T. Barcinas (former Associate Dean/Director); Former Governor Joseph F. Ada; Mr. J.U. Torres, UOG Regent Chairman; Lieutenant Governor Madeleine Z. Bordallo; Dr. Peter Melynk, UOG Regent; Dr. Franklin Quitugua, UOG Regent; Mrs. Rita Guedon, UOG Regent; Dr. Jose T. Nededog, UOG President; President of Huijin Construction; Dr. David Shimizu, UOG Regent.



4-H Youth Development: 4-II Computer class coordinated by Mr. Tony Artero.



Consumer and Family Sciences Nutrition Program: Sister Mary Elaine Camacho and youth group.



Message of the Dean / Director

Hafa Adai! 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, infant and child development, clothing construction and textiles, 4-H and youth development, 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.

I am also delighted to report that despite budgetary constraints, our resourceful extension faculty pursued external funding to assist us in our delivery of high level programs. We accomplished this by responding to calls for grant proposals issued

periodically by the federal government or by private organizations that make financial assistance available to professionals committed to addressing real life problems.

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.

This reporting period also marks our inaugural move to our new facility on campus, namely the College of Agriculture and Life Sciences building. While we generally bring our programs out to the community, the new facility has given us the opportunity to host the community at the Mangilao campus. After all, the University of Guam is a Land Grant institution funded by public (taxpayers) funds and as such it is public domain.

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 pursue its mission.

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	1995	1996	1997
Local Funds (Matching)	\$1,215,495.07	\$1,164,000.00	\$1,033,660.01
Federal Funds (Matching)	<u>792,879.00</u>	<u>777,947.00</u>	<u>777,947.00</u>
Total Matching	\$2,007,879.00	\$1,941,947.00	\$1,810,947.00
Federal Funds (100%)	450,385.00	452,000.00	498,000.00
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..."

Extension provides practical knowledge and information to the community and its residents. The GCE mission includes assessment of community needs and development and delivery of nonformal educational programs to address local issues. 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 aims its programs on national initiatives dealing with identified societal issues as well as problems specific to our local natural and societal needs. Guam has a multicultural society undergoing continued rapid growth and faces particular challenges in terms of society, cultural change and impact on the environment. 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 human development, youth 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.

College of Agriculture and Life Sciences - Extension Administration

Jeff D.T. Barcinas, Ph.D., *Dean / Director*

Victor T. Artero, *Interim Associate Dean, CES*

Ilse Silva-Krott, Ph.D., *Assistant Director - Resident Instruction Coordinator.*

Frances Tomboc, *Accountant II*

Amanda E. Arceo, *Accountant Technician II*

Jesse B. Rosario, *Administrative Assistant*

Janet T. Dirige, *Secretary*

Jane C. Mendiola, *Secretary*

Robert T. Untalan, *Extension Assistant*



Guam
Cooperative
Extension

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(1996 & 1997)

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(1997)

Remington Rose Crossley, Ph.D., *Vice President - Academic Affairs*
(1995 & 1996)

AGRICULTURE AND NATURAL RESOURCES (ANR)

Faculty and staff continue their work in the following issues and programs: ***Water Quality, Integrated Pest Management, Pesticide Applicator Training, National Agriculture Pesticide Assessment Program, Agricultural Marketing, Sustainable Agriculture and Americorps.*** Educational activities and basic applied research were conducted on issues pertaining to aquaculture, entomology, farm management, horticulture, marketing and swine production.

Water Quality Initiative

Extension professionals consulted with more than fifty crop producers on plant nutrient management and irrigation management. Twenty three of the producers adopted new management practices utilizing fertigation, which allows for small doses of plant nutrients to be directly placed in the crop root zone. The use of fertigation results in more efficient utilization of the nutrients. Small dose applications also reduce the possibility of nutrients leaching or running off into the environment and contaminating Guam's water resources.

Requests for information on pests, diseases and recommendations for their control continue to outnumber all requests in ANR. Silver leaf whitefly and thrips are the most common pests reported. Inadequate control using the least toxic pesticides on the market have resulted in the increased use of broad spectrum higher toxicity materials. Growers that have adopted pest monitoring practices and use low volume spraying systems seem to fair better than average. Growers who practice all in and all out plant rotations also seem to have fewer pest control problems.

National Agriculture Pesticide Impact Assessment Program (NAPIAP)

The purpose of National Agricultural Pesticide Impact Assessment (NAPIAP) is to promote informed regulatory decisions on registered pesticides. This is accomplished through the coordination of USDA and University of Guam activities to develop and analyze information on pesticide use and pest management practices;

to determine impacts of pesticide regulations on agricultural productivity, the supply of agricultural products, and product price; and to address pest control issues related to health and the environment. Guam's 1995-96 NAPIAP program is in the process of developing a Territory pesticide-use database. A pesticide-use survey form is being developed for Guam's commercial farmers. The data fields include, but are not limited to, specific data fields on: *crop, acres grown, acres treated, pests, pest control agents, rate applied, method of application, number of applications, crop production cost, crop yield-quality, crop price/unit.* In addition, farmers will be surveyed to find out if they were aware of health and the environment issues related to pest controls.

Lastly, the Guam NAPIAP program encourages participation of multi-disciplinary research scientists including entomologists, plant pathologists, and horticulturists. Guam's PIAP core is to develop and maintain where possible a pesticide-use database that contains specific data fields on: *crop, acres grown, acres treated, pests, pest control agents including non-chemical methods, rate applied, method of application, number of applications, crop production costs, crop yield and quality, and crop price per unit.*

Pesticide Applicator Training (PAT)

The fundamental purpose of Guam's Pesticide Applicator Training (PAT) is to provide pesticide education to all potential users of Restricted Use Pesticides (RUP). Mandated by Congress under FIFRA (Federal Insecticide Fungicide Rodenticide Act) any individual who handles, mixes, or applies any RUP must be certified. In a previous agreement with federal Environmental Protection Agency (EPA) and the United States Department of Agriculture (USDA), the Cooperative Extension Service was held responsible for educating the public in RUP products. Guam's PAT program continues to certify and recertify individuals interested in using RUP's. The PAT program certified 162 and recertified 81 individuals during 1995 and 1996. Certification in the PAT program allows for the licensing of individuals either to use or supervise the use of Restricted-Use Pesticides. The PAT certification program is available for both the Private and

Commercial pesticide applicators. Commercial application includes Agriculture, Right-of-Way, Turf and Ornamental, Industrial, Institutional, Structural, and Health Related Pest Control. While the Private program focuses on the individual farm owner.

Integrated Pest Management (IPM)

The goal of IPM is to have agricultural producers adopt a pest management system which utilizes all available means of pest control rather than solely relying on the use of chemical sprays. Guam's IPM program produced the "**Guam Cucurbit Guide**" which was designed to provide Guam's cucurbit growers, agricultural extension agents, agricultural students, and homeowners with a comprehensive manual covering all aspects of cucurbit production. The goal of this publication is to empower any cucurbit producer with enough general and specific information to enhance learning and encourage sound production practices on Guam also to assist growers in applying the principles of integrated pest management, a chapter was devoted on the Management of Insects and Mites.

In the second series, an Eggplant, Pepper and Tomato Guide is currently in the planning stage and will include IPM principles throughout its content.

Sustainable Agriculture

Five Americorps volunteers received training in composting and a wide variety of relevant sustainable agriculture issues. These volunteers were supported and supervised by the college's sustainable agriculture programs. Extension clients set up 13 tank based recirculating aquaculture systems on Guam. At least three of these have integrated vegetable production into their operations. These tanks based systems have the potential of increasing the islands Tilapia production by at least 5%.

Two papers resulted from need assessments in the areas of added processing and market problems. One was presented at a conference on "**Enhancing the Role of Value Added Agriculture in Tropical Island Economies**" sponsored by the Pacific Basin Administrative Group (PBAG) and the Caribbean Basin Administrative Group (CBAG) of the Cooperative State Research, Education and Extension Services (CSREES) in Kona, Hawaii. The other paper was presented at the 1996 Guam Economic

Conference sponsored by the Small Business Development Center (SBDC). Both papers served to increase the awareness of the constraints farmers and agri-businesses face on Guam and identified areas for future efforts.

The sustainable agriculture program during the 1996-1997 fiscal year involved local and regional agriculture professional training, local field demonstrations in farmer fields, several grants, work with volunteer groups and teachers.

One experiment station researcher and a local farmer applied for farmer researcher grant and were funded. The project was to investigate the feasibility of Edamame Soybeans on Guam. An extension publication was prepared and a field day was held in the farmer's field.

The regional sustainable agriculture grant applications were widely distributed. This resulted in an increase in the number of grants applications submitted. One research grant for two years for approximately \$120,000 was funded to investigate the feasibility of using an extrusion process to process hotel restaurant waste for production of livestock feed. One extension grant based out of Guam but involving all the Land Grant Institution of the Western Region was funded for approximately \$40,000 to develop a CD-ROM of extension publications on sustainable agriculture publications that have relevance for island agriculture production in the unique environmental and social setting of tropical islands. At least one farmer researcher grant was funded for investigation of sustainable cucumber production.

Training were conducted for local and regional agricultural professionals on the subjects of recirculating aquaculture systems, field level nutrient monitoring systems, farm record systems, alternative crops, pest identification, composting and budgeting. The college's sustainable agriculture needs assessment to prioritize issues in order to help guide regional allocation of funds to the islands. This session involved participants from NRCS and all of the Pacific Island Land Grant Institutes and received excellent evaluations.

A regional one week workshop was held on Guam for training of agriculture professionals from the region and then three extension agents went to Pohnpei to assist in the second phase of this training. In the region Guam agents collaborated with the FSM Department of Agriculture and the Asian Development Bank to conduct a

series of training for farmers and extension workers both on Pohnpei and Kosrae on post harvest handling of fruit and vegetable, production monitoring, developing budgets and market information systems.

On Guam, training were held for farmers, teachers and the community on recirculating aquaculture systems, farm records, papaya and other crop cost of production, post-harvest handling of bananas, composting, agriculture in the classroom, mulching, mushroom production, farm planning, agricultural production information sources, aquaponics. Two very successful programs have been the involvement of public school class in integrating gardening and composting in the classroom. A teachers sustainable agriculture information resource book was developed and distributed to participating teachers. A new group of clients are the Chamorro Land Trust Agriculture Lease applicants. Several orientation sessions on information sources, services and other planning activities were held. In the next two years this group could represent a fourfold increase in potential producer clients from the present levels.

During this year a guide to farmers, chefs and roadside stand was started and the primary data collected. This publication has generated strong farmer interest and is in the final stages of preparation.

Two of the Extension specialists were sent to attend regional sustainable agriculture meetings in order to increase awareness of the approaches and directions that other states in the region are using in their sustainable agriculture programs. Information obtained in these meetings was disseminated to college faculty to assist them in their programming activities.

Several Extension publications are currently in review that are products of multi-disciplinary efforts. Several involve the pooled resources of such programs as Sustainable Agriculture and Water Quality through the ANR Units print on demand efforts.

Teachers have been very enthusiastic about their involvement with composting in the classroom. In 1996, many have express a strong interest in adapting Extension information into a "grade appropriate" materials complete with project outlines. At least two schools will be active in the next years program efforts to adapt materials, which were prepared with sustainable agriculture funding, for classroom use.

Agricultural Marketing

The Market Information System (MIS) project has linked up with the Pacific Collaboration Network (ADAP project) to standardized the purchase of computer equipment and software. Ten notebook computers with software have been purchased for use between two projects. This has effectively provided the region with a self-assembling computer lab that can be brought together at any ADAP sponsored training. This will enable the region to provide computer training at a significantly lower costs by adding time for computer training to the beginning or end of regional workshops.

The pilot automated MIS system has been completed using a database and one year of data from CNMI and Guam. Data collection of the yield studies has been expanded by utilizing information obtained during the activities of the USDA Sustainable Agriculture efforts of the Guam Cooperative Extension, Americorps volunteers, Guam Department of Agriculture and CNMI Department of Natural Resources.

A one week regional workshop was held in the CNMI to train cooperators in the basic skills necessary to implement Year 9 programs. The participants were trained in field data collection, Windows 95 and the Microsoft Office Pro Suite. Many members of the CNMI Land Grant faculty and staff have increased their computer skills and usage. New data collection methods are being used and implemented on both Guam and CNMI. Cooperators in FSM and Palau are prepared to initiate an annual statistical survey. A regional mobile computer laboratory has been developed by collaborating with Resource Development Building Network, in standardizing the purchase of laptop computers with the same software and coordinating training. The impact on the region's computer literacy is beginning to be felt.

Americorps

The Americorps project, a federal volunteer program, was launched in July of 1995. The program encouraged the public to get involved in the community and had the logo "**Getting Things Done.**" Five members worked in the area of Agriculture and Natural Resources. Members wrote and or edited newspaper articles on their various Americorps project such as composting, container gardening, Ifit tree, and environmental awareness. Other accomplishments include farm data collection, creating a vertical file of newspaper clippings for ANR and the

library, teaching hundreds of students about composting and the life tree through school presentations and assisting university faculty and organizations. They participated in UOG's Charter Day (CALs) and the UOG's earthweek by providing information to thousand of students and adults on the Americorps program, recycling programs on island, and science projects for the classroom.

Regional Activities

In regional work, ANR Extension Faculty participated in three Agricultural Development in the American Pacific (ADAP) programs. The ADAP is an association of five Land Grant Institutions in the Pacific including American Samoa Community College, College of Micronesia, Northern Marianas College, University of Guam and University of Hawaii that fosters joint projects. The ADAP program and projects during 1995 and 1996 included: Animal Health Survey for Guam, Northern Marianas Islands, Palau, Federated States of Micronesia and American Samoa; documentation of infectious disease agents recognized by the Office of International Epizootics (OIE) as well as important zoonotic diseases; Management of Livestock Waste to Enhance Environment and Sustainability in American Pacific; Improve the management and use of livestock waste in order to improve the environmental concerns and sustainable development in the American Pacific; and On-Farm Implementation of Sustainable Management Systems for Tropical Agriculture in the Western Pacific Region; to develop training modules, emphasizing hands-on demonstrations of sustainable agricultural practices and skills for agricultural professionals.

AGRICULTURE and NATURAL RESOURCES PERSONNEL

Faculty

- L. Robert Barber, Jr., 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 II (Plant Pathology)
- Vincent M. Santos, M.S.**
Extension Agent III (Horticulture)
- Robert L. Schlub, Ph.D.**
Extension Agent III (Plant Pathology)
- Lee S. Yudin, Ph.D.**
Associate Professor (Entomology)

Staff

- Jesse P. Bamba, *Extension Assistant I*
Owen F. Butz, *Extension Associate I*
Doris T. Camacho, *Secretary*
Jeraldine F. Cruz, *Extension Assistant I*
Liborio G. Dumaliang, *Extension Associate I*
Wilson C. Ng, *Extension Assistant III*
Maria I.D. Pangelinan, *Extension Associate II*

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)** Decisions for Health, **(b)** Reaching limited resource individuals and families, **(c)** Expanded food and Nutrition Education Program (EFNEP), **(d)** Food Safety First, **(e)** Guam Nutrition Initiative (GNI), **(f)** Early Experiences and Counseling for Effective Lactation (EXCEL), **(g)** Managing resources, time, and money, **(h)** Strengthening Families, **(i)** Coalition building through volunteerism and leadership.

Nutrition Programs

The EFNEP program continued to provide nutrition and food resource management education for a variety of community groups. Clients of the Women, Infant, and Children Supplemental Food program (WIC), Catholic Social Services, Headstart, and public and private schools are among the participant groups served by EFNEP. An average of 280 adult participants and 350 youth participants were enrolled each year from 1995 through 1997. Clients consistently exhibit improved ability to manage food resources and choose a healthful diet. Furthermore, EFNEP graduates often become recruiters of new clients and volunteers in classes given at community sites. Success stories of Guam EFNEP participants was acknowledged as demonstrating program impact by the national reviewer of the 1996 Annual Report and 1997 Plan of Work Update.

The EXCEL and GNI projects contributed a several nutrition education materials that have proven to be effective. These materials include an eight (8) lesson curriculum set, with companion video, designed to provide prenatal nutrition and breast-feeding education for adolescents. Many of the 574 participants in the EXCEL program exhibited improved diet behavior, nutrition and breast-feeding knowledge, and breast-feeding success when compared to a control group. GNI participants showed improved knowledge of safe food handling practices and more healthful diet choices. Even though federal funding for EXCEL and GNI ended in September of 1996, the materials continue to be implemented in the

EFNEP program, at all WIC clinics, public health clinics, and at some private medical clinics in the region.

Decisions for Health program continued to provide successful workshops. There were six Management Sanitation Training and Health certification training with two Continuing Education units. A total of 150 Food Manager participated. The mean average scores of 53% (pretest) and 87% (post-test) proved how successful the training was. They have reduced risky behaviors by taking responsibility for their health decisions in the food and beverage establishments. Another 771 attended the Decisions for Health workshops conducted. Nutrition and fitness, the use of home grown vegetables, and food safety practices were adopted. The workshop evaluation gave examples of behavioral changes. Some examples of participants comments are: "I am increasing the number of serving of milk and vegetable in my diets." "I am applying the Hazard Analysis Critical Control Point principles." And, "I am purchasing, storing, preparing, and serving food safely." These workshop/training will contribute to better health status of the community.

Decisions for Health provided workshops and materials for many community groups. The primary focus of the workshops and materials was improved knowledge of the relationship between nutrition and health. The primary focus of the workshops and materials was improved knowledge of the relationship between nutrition and health. Participants reported increased consumption of calcium, vitamin C, vitamin A, and other important nutrients as a result of attending these workshops.

The groups that were involved in Decisions for Health workshops include the Guam Diabetes Association, American Association of Retired Persons, Islandwide Breast-feeding Coalition, the Family Health and Community Nursing Bureau of the Department of Public Health and Social Services, Seventh Day Adventist Clinic, Guam Association for the Education of Young Children, Department of Education Food Service workers, Single Parent's Network, Guam Caregivers Association, and Headstart parents. The national reviewer of the 1996 Plan of Work Annual Report and the 1997 Plan of Work

A Guide Into the 21st Century" received average evaluation ratings of 4.8. Ratings of 4.9 out of 5 in the areas of appropriateness of the subject for Pacific Children's education and usefulness of ideas validate the importance of this information dissemination approach. Concerns identified by participants in these workshops were used in designing the proposal for the "Food Safety at Home" project. A publication The Pacific Family and Food Safety: a Guide Into the 21st Century was created based on these presentations.

Agriculture Development in the American Pacific (ADAP)

Projects funded by ADAP included Family Empowerment with a CFS faculty member as Co-Principal Investigator. This project led to the publication of the leadership development and family empowerment curriculum developed during while working with Headstart and GHURA families.

Two nutrition-related ADAP projects were co-written with extension specialists from the region. Both projects build on the programming established as part of Decisions for Health and are related to chronic disease risk reduction.

Managing Family Resources

Workshops conducted in this focus area were designed to help participants save money; gain knowledge and skills; and beautify home environments using local and recycled materials. Secondary outcomes recognized by participants include: increase sense of self-worth; personal growth and satisfaction; and stronger family bonds and feelings of connectedness.

The 223 adult and youth participants in these workshops came from varied backgrounds that include GHURA neighborhoods, public and private schools, 4-H members, University of Guam students, and summer trainees. The participants were eager to share their success with family and community through fashion shows and displays.

Appreciation of creative and innovative work in the community was demonstrated by CFS faculty participation as judges in Science fairs, art exhibits, poster contests, and the SPIMA Arts and Crafts fair. Serving as judges at these events increases community appreciation of the expertise of CFS faculty and nurtures collaborative relationships with community organizations.

CONSUMER AND FAMILY SCIENCES PERSONNEL

Faculty

Janet Benavente

Extension Agent II (Nutrition and Health)

Joyce Marie Camacho, Ph.D.

Associate Professor (Clothing / Textiles)

Sister Mary Elaine Camacho, Ph.D.

Extension Agent IV (Nutrition and Health)

Erlinda Demeterio, Ph.D.

*Unit Chair / Extension Agent III
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Extension Agent II (EFNEP)

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Staff

Rogelia Barber, *Extension Associate I*

Ruth Barnes, *Secretary*

Natividad Calvo, *Extension Associate I*

Rose Renee Flores, *Extension Assistant I*

Kanchan Sadwani, *Extension Associate I*

4-H AND YOUTH DEVELOPMENT

The 4-H and Youth Development Educational Program promotes the development of youth's potential through educational learning experiences as a result of research based curriculum. 4-H educational programs are designed to foster healthy learning experiences by offering educational activities addressing topics such as self-improvement and management, global understanding, family communication, diversity, leadership skill and career choices. An increased enrollment in various 4-H educational activities along with leadership training skills for volunteers attest to the "learn by doing" 4-H motto.

The results were educational activities conducted addressing issues related to ***Community Service Programs, Youth Empowerment, Youth at Risk Alcohol and Drug Issues, Children, Youth & Families At Risk and 4-H Core programs.***

Community Service Programs

4-H Dress-A-Living Doll program and Sugar Plum Tree, a nonprofit local organization cooperatively shared responsibilities in providing new clothing, toys and necessary items for children and elderly on Guam for the holidays. The essence of partnership building created a shared ownership of program delivery efforts. It eliminated duplicity and allowed the contributions by donors to be maximized in expenditures. It strengthened volunteer commitment by allowing them to have a sense of accomplishment through participation of citizenship program. In addition, it significantly increased a sense of comraderie which provides needed service to the recipients of the project.

Over 1,100 youths and 400 senior citizens were the recipients of the new clothing, toys and needed items that included fans and fruit baskets. The project recipients were identified by the Child Protection Services (CPS), Department of Public Health and Social Services, Sanctuary Inc., Department of Youth Affairs and several village mayor offices.

Over 1,100 youths plus over 400 senior citizens (manamko) were reached by the program. The recipients were identifies by the Child Protection Services,

Department of Public Health and Social Services, Sanctuary (a home for troubled youths), The Department of Youth Affairs, and from several village Mayors. Over 5,000 packages were wrapped by about 300 volunteers, each averaging over eight (8) hours of community service. The average gift per recipient was about \$125.00. A committee of eight (8) was able to organize this big project. It cumulated in a party at the Governor's house, where over five hundred (500) people were in attendance. The highlight of the event was Santa and the distribution of gifts.

Another program accomplished was a workshop for incarcerated female youths at the Department of Youth Affairs. Twenty-six (26) detainees made decorative items and Easter baskets. Surprisingly, the girls worked and helped each other, "a rare sight" as stated by several officers. A similar program was also started and completed the workshop which ended with a small contest sponsored by the Guam Housing and Urban Renewal Authority a collaborating partner in the event.

Youth Empowerment

The program objective allowed participants to learn the basic employment skills and opportunities to get educated. The following were some of the results and accomplishments of the project.

- 66% of the students enrolled in the program, completed the program.
- 92% of the participants increased their self-esteem.
- 90.5% of the participants acquired employment skills.

The pretest score showed a composite increase of scores to 1.13% and 1.17% respectively. The youths involved in the program had a rating scale that showed more than 90% of the skills taught were learned.

The students' log book indicated that they acquired skills in the work assigned to them and they enjoyed and had fun with the new knowledge/skills.

Based on the training session and graduation, more parents, teachers and school administrators were involved

in the training and very receptive to the program. In fact, all schools would like to see more of this type of training.

YAR Alcohol and Drug Issue

Over twenty (20) workshops were conducted in such areas as self-esteem, decision making, peer pressure and listening skills in the public and private schools along with several community service organizations.

Over one hundred (100) student participants learned management skills and parliamentary procedures through four (4) effective meeting management workshops. The workshops provided the participants an opportunity to practice leadership skills in group management, using parliamentary procedures. Participants learned that they are required to lead and be led through dynamics of effective meeting management.

A personality profile, Systems instrument was administered with over fifty (50) students learning how to understand one- self and others in a specific environment. They also learned the process of building self-esteem and making wise decisions. The PPS enabled participants to (1) identify their behavioral profile, (2) capitalize on their behavioral strengths, (3) increase their appreciation for different profiles and, (4) anticipate and maximize potential conflicts with others. Participants were able to associate with their major strengths in working with others.

4-H Core Programs

Summer has been traditionally the busiest time of the year for 4-H program planing and development. Programs are designed by extension faculty, staff and volunteers for youth participating in 4-H special interest or short term programs with specific learning experiences. The workshops are usually two weeks in duration. Since 1995, the following programs have been conducted with over 300 youth participating.

- *Arts and Crafts*
- *Youth Summer Choir*
- *Sewing - Beginning and Advance*
- *Nutritional Snacks*
- *Computer - Beginning and Advance*
- *Fisheries*
- *International Exchange Programs*
- *Veterinarian Science*
- *Environmental Science*

Volunteers have spent approximately 1,300 hours on these projects. An average of 2.5 hours per volunteer is spent educating the participants. This is estimated with about 18,000 annually. Faculty and staff have also contributed many long hours on the project activities. As a result, it saved the 4-H program approximately \$2000 to \$5000 every year.

Following is a short highlight of the conducted activities:

Twenty youths and adults learned creative skills in the arts and crafts workshops. A mother and daughter session provided a unique opportunity for bonding as well as allowing them to discover their own individualized creativity.

Eight (8) elementary schools, five (5) middle schools and three (3) high schools that totaled about 10,000 have been participating in the international exchange program with 5,000 Japanese students annually. The results have been students and parents who understand cultural differences. In addition, students from Japan have been able to learn how western schools operate.

Veterinary Science provided an opportunity for youth to learn basic responsibility of owning and caring for animals. Ten (10) participants also learned skills in management of farm animals and basic administrates of farm and pet care.

Environmental Science project focused on conservation, prevention and sustainability of our natural resources. Eight (8) participants learned skills in tree planting, composting, recycling and plant identifications.

Health continues to be an important part of the 4-H program. Youth participated in a nutritional snack project. The emphasis of the project is to help families learn to eat healthy snack that are economically viable while having to obtain most possible nutritional value based on the recommend nutrition and food chart.

Sewing teaches skill in measurements, style, color selection, pattern and machine operation. The participants at the end of the sessions were able to complete their own clothing based on instructions given. Most beginners would continue lessons by enrolling in the advance sessions.

The fisheries project had over 75 participants. The emphasis of the program has been conservation, water quality, sustainability, oceanography, marine science, fish ecology, safety, traditional and modern fishing techniques and fun. Participants who reached the age of 14 and above completed two years of the workshop have become volunteers for this project. Twelve (12) returnees have served as volunteers. The goal is to have them serve as mentor as well as leaders. Six (6) of the returnees continues to serve as volunteers annually.

4-H AND YOUTH DEVELOPMENT PERSONNEL

Faculty

Anthony M. Artero, B.B.A.
Extension Agent III (Youth Leadership & Development)

Theodore M. Iyechad, M.Ed.
Extension Agent IV (ADAP Coordinator)

Allan D. Searle, M.A.
Extension Agent II (4-H and Youth Development)

Staff

June Aguon, *Secretary*

COMMUNITY RESOURCE DEVELOPMENT (CRD)

The faculty of Community Resource Development spelled out the unit's mission as "promoting self help initiatives and programs at village, territorial and regional levels through the production of research based information, educational materials, learning events, and resource collaborations that enhance the capacity of culturally diverse people and emerging citizen advocacy groups to take action to improve the well-being of individuals, families, the community and the environment (UOG Academic Master Plan)." Our vision is that the residents of Guam will come to possess the knowledge and skills for effective citizenship and democratic participation. Our work has successfully taken us closer to that vision. Over the years 1995- 1997 the CRD faculty and staff directed their work at issues within the following program areas: Family Community Leadership, Volunteer Management and Development, Village Government/Public Affairs Education, and Development Planning and Applied Research.

Family Community Leadership

Reading Rainbows Program - Was a collaborative initiative involving Extension faculty and support staff from other GCE units as well as faculty members from the College of Education. This effort targeted parents of preschool children within the Chuukese and Pohnpeian communities on Guam. Effective teaching techniques that parents could use in preparing their children to enter school were modeled.

Follow up surveys with the more than 36 parents involved in this initiative, revealed that, among other positive outcomes, more than 80% of the parents indicated their children manifested much greater self confidence and less apprehension about starting school on Guam. A basic skill screening test (standardized) was also administered to the more than 91 children who, indirectly, were reached through this initiative on a regular and consistent basis. This test was administered six months into the project period showed 47 of the 91 children were able to master more than 80% of the basic skills

Be Prepared for Change Workshop Series - Conducted a series of workshops for the 1300 individuals from the Ship Repair Facility and the Fleet Industrial Supply Center who were affected by the BRAC downsizing, decisions in February and May 1996. The event was coordinated with the U.S. Naval Human Resources Office and TRAC (Transition and Relocation Assistance Center) program to provide.

How to do Workshops Workshop - This FCL (Family Community Leadership) workshop focused on how to organize and conduct workshops. The workshop conducted jointly by the applicant and Janet Benavente, offered members of various youth organizations knowledge in organizing workshops (as they prepare their own youth conference). There were 40 individuals in attendance of this workshop held on October 14, 1995.

Personality and Compatibility Workshop - Conducted two sessions for two different groups of twenty-seven individuals in the Couples in Recovery Groups of the Drug and Alcohol Branch, Division of Clinical Services, Department of Mental Health and Substance Abuse on March 14th and 21st, 1996.

Multiculturalism and Spirituality Workshop - Conducted a workshop for the adult advisors on "Multiculturalism and Spirituality," as part of the 6th Annual Youth-to-Youth conference theme, "These are the days... Drug-Free." The workshop was held on April 28th, 1996, and there were 33 people in attendance.

Understanding Cultural Diversity Presentation - Presented information on Cultural Diversity and Sensitivity to Parenting Practices of various Micronesian communities to twenty-four teachers of Price Elementary School on March 15th, 1996.

Appreciating Cultural Diversity Workshop - Co-facilitated six sessions for the student body of Agueda Johnston Middle School as part of an effort to curb gang related violence. This was done in conjunction with Dr. Marilyn Salas of the Multi-cultural Education Resource Center. There was a total of 1,361 students and teachers in attendance between February 21st through 23rd, 1996.

Conducted four workshops on Cultural Diversity as part of the staff training provided to the Division of Public Welfare, Department of Public Health and Social Services. The overall training effort entitled, The Global Family, The Human Connection, was held on January 25, 1997. There were 131 participants who benefited from the training.

Wellsprings Training Conference for Service providers of Domestic Violence Victims - Organized and facilitated this training held on November 13th and 14th, 1996. There were 52 individuals in attendance. The Wellsprings manual was showcased and provided to participants. Also developed and distributed was a directory of participants.

Domestic Violence Educational Support Sessions - Co-facilitated a fifteen week Educational program in coordination with Family Pacific, which focused on changing behavior patterns of women who have been or remained in abusive situations. The program also served as a practicum placement for a master's student. There were six participants in the sessions that ran from February through May 1996. The program served as the basis for developing the Wellsprings Training Manual.

Personality Profiling Components Workshop - Co-facilitated a session on Personality Profiles Inventory to twenty-five participants as part of the 16th Annual Guam Association of Social Workers conference theme, "Healing Minds, Healing Hearts," held on March 21st, 1996. Professors Ted Iyechad and Janet Benavente also functioned as facilitators.

Volunteer Management and Development - Following a national Pathways From Poverty conference sponsored by the Kellogg Foundation and the Western Rural Development Center, a coalition team was formed on

Guam to implement an "Alliance For Empowerment" project between the Department of Education's Head Start Program and Guam Cooperative Extension. This project led to the establishment of "Kuatton Famaguon Ta (Our Children's Room)" as part of the Agat Village Parent Resource Center, and the formal organization of a nonprofit association The Head Start Alumni and Friends Group composed of volunteers to help operate the program. The Alliance project group gracefully dissolved as the newly empowered Head Start Alumni and Friends Group took control of their project efforts.

Service Learning Through Volunteer Involvement - Spring 1995 and continuing work efforts have focused on promoting and expanding civic participation in volunteer service learning opportunities on Guam and throughout the Pacific region. Specific initiatives have included:

Providing staff development and training opportunities to more than 50 island wide subprojects personnel involved in implementing the AmeriCorps program on Guam, (June 1995, November 1996).

Designing and conducting AmeriCorps member orientation training for a total of 78 AmeriCorps members involved in the FY 1996 and FY 1997 program (May 1995 - October 1996).

Leadership and Personality Workshop - Conducted an enrichment workshop for the Head Start Parents Alliance on "Personality Compatibility, Group Formation and Group Processes." The workshop was held on June 1st, 1996, and was attended by 12 participants. The workshop was requested and coordinated in part by the Family Life Skills group (AmeriCorps, CALS/UOG).

Family Life Skills Development Workshop - Coordinated and facilitated a skill-building workshop on volunteer groups, creative conflict management, communication, group process and leadership styles for participants of the AmeriCorps/Family Life Skills program. The training was held on October 23, 1995.

Defining Community: Head Start Support Staff Training - Facilitated five Social Work students from the Practice with Communities class in conducting a training for employees of the Head Start Program on multi-ethnic perspectives in parenting and communication from material compiled by the students. Training was held on April 21, 1995.

Cultural Considerations for Domestic Violence Counseling Training - Provided two training sessions for the volunteer members of VARO (Victims Advocates Reaching Out), a crisis-intervention entity. There were 22 volunteer crisis counselors in attendance of the October 1995 session and 15 in attendance of the July 1996 session.

'Family Violence ... as seen through the eyes of different cultures' Panel Presentation - Coordinated a panel presentation on the various views of domestic violence as seen by Chamorro, Filipino, Chuukese and Japanese women. There were 10 adults in attendance. This event was held on November 4, 1995, and done in conjunction with Family Violence Awareness Month.

Play Therapy Basics Workshop - Coordinated a workshop on Play Therapy with the late Carl Diaz (Family Pacific), funded by a sub-grant entitled, Pution I Famaguon'ta. It was attended by 45 service providers from June 4th - 7th, 1996. An Educational Booklet was generated from the workshop, which included a Directory of Participants and Summary of Workshop Discussion and evaluation. The booklet was accompanied by a series of video cassettes which were donated to the RFK Library.

Designing and conducting an Island Wide Policy Forum that involved 47 key leaders from across the island. This forum set the foundation for formulating a coherent Island Wide Policy framework and supporting infrastructure needed to promote and expand opportunities for volunteer service learning on Guam. This effort resulted in the establishment of a separate staffed unit within the Governor's Office, dedicated solely to promoting and coordinating service learning activities on an island wide basis.

Volunteer Management and Leadership - The Model Extension Village Center project located at House #2 Dean's Circle is a collaborative effort of CRD's work with community nonprofit organizations and ANR's work maintaining client demonstrations for learning under their Sustainable Agriculture and Aquaculture curricula. The Center is a support resource for several community volunteer organizations which in turn contribute volunteer time toward Extension programs. The Recycling Association of Guam (RAG) maintains a "composting" demonstration that includes a number of different kinds of home

compost bin-examples along with a Vermiculture (worm) composting demonstration box. RAG holds its public meetings and several annual activities (e.g. shopping bag promotion, aluminum can bins for fiestas) and helps with educational sessions for school field trips to the Center. The American Association of Retired Persons (AARP) also maintains its organizational offices at the Center and provides resource services to senior citizens (e.g. The Widow/Widower's Support Group, Internet Information Search access). AARP volunteers handle the EV's reception desk daily and have also conducted several computer training workshops for senior citizens and the Extension Children, Youth, Families At Risk program (Chuukese youth group, Sanctuary Inc., and the VARO - Victim Advocates Reaching Out - organization).

Institutional and organizational development of community based organizations - Three separate initiatives were undertaken in an effort to enhance the capacity of community based organizations to function in a sustainable and effective manner. Specifically, these initiatives included:

a. VARO boards training - A six-session series of workshops were conducted for the newly elected VARO Board. Topics ranged from policy formation to financial management. A follow-up survey conducted five months after the initiative was completed indicated that eight of the ten participating board members were still active. Six of these eight members indicated that they attributed at least a portion of their success as board members to the fact that they had received training prior to assuming office.

b. Developing UOG Mission Statement - An effort was undertaken to encourage UOG faculty and staff involvement in formulating a new mission statement for the University. More than 75 faculty members and staff were involved in a two-day workshop which resulted in the drafting and acceptance of a new institutional mission statement for the university.

c. Legislation - Assistance was extended to members of the 23rd Guam Legislature in drafting tailored legislation designed to increase training opportunities for newly appointed members of boards and commissions. This legislation was successfully passed into law on April 22, 1998.

Village Government/Public Affairs Education Women and the Land, Women and the National Panel Presentation - Organized a panel presentation on traditional roles of women, how they keep their culture alive, and how these roles have changed with time. All four presenters were from the Marshall Islands. The presentation was in March 1995 and there were 18 people in attendance.

The Rhythms of Our Ancestors Conference - Served as the Chairperson of this regional conference jointly sponsored by Cooperative Extension Service and the Guam Association of Social Workers. The event was both cross-disciplinary and cross-cultural in nature and highlighted the integration of traditional knowledge with contemporary concepts. Presenters were from Utah, Guam, Chuuk, Pohnpei, Palau, Saipan, the Marshall Islands and the Caroline Islands. There were 250 people in attendance of this event held on March 15th through 17th, 1995.

Rooting Our Identities in Pacific Island Soil Panel Presentation - Presented this piece as part of a panel addressing the "Rooting of our Identities in Pacific Island Soil: Challenges in Indigenization in Guam and Micronesia," as part of the 16th Annual Guam Association of Social Workers conference theme, Healing Minds, Healing Hearts." There were 72 individuals in attendance of the panel presentation on March 20th, 1996. Additional panelists included: The late Carl Diaz (Family Pacific), Dr. Vince Diaz (Humanistic Studies), Senator Lou Leon Guerrero, Tina Delisle (Political Status Education Commission), and Don Ploke (Senator Judith Won Pat-Borja's office).

Promoting Economic Development through Environmentally Friendly Practices on a Regional Basis (October 95 - March 96) - On a collaborative effort involving two external grants, funding of more than \$90,000.00 were secured for the purpose of demonstrating the use of distance education and telecommunications technology as vehicles for disseminating information about the use of appropriate technology as vehicles for disseminating information about the use of appropriate technology to promote small-scale enterprise development in ways that are environmentally friendly. During the 1996 reporting period the following accomplishments have been realized:

Demonstrating sites have been established in Yap, Palau, and Pohnpei. These sites have effectively demonstrated different appropriate technology solutions for increasing the value of agricultural/aquacultural production in the region through the application of environmentally friendly production practices.

Twelve seminars have been delivered to producers and government officers throughout the region via the PEACESAT distance education system. These seminars have involved more than 245 local producers vocational agriculture teach-

ers, extension agents and other interested parties from throughout the region. To date five producers have invested more than \$100,000 in developing needed infrastructure to capitalize on one or more of the environmentally friendly production practices introduced through the distance education seminars.

Follow-up inquiries with both the UOG-GCE seminar presenters as well as the cooperating extension personnel from throughout the region clearly shows that extension personnel are becoming increasingly comfortable in using available distance education capabilities to deliver distance education course offerings related to environmental resource education.

Development Planning and Applied Research Prepared the grant application for the STOP Violence Against Women grant, and developed the FY 1996-97 and FY 1997-98 STOP Violence Against Women Territorial Plans - Involved a major effort to facilitate the formulation of a territorial plan which served as the basis of securing more than \$1,250,000 in external financial assistance to battle the increasing problem of domestic violence on the island of Guam. Specific initiatives involved the following:

A year long needs assessment involving more than 160 key leaders and agency representatives in thirteen different focus group sessions.

The formal creation of an island-wide consortium made up of nine different volunteer agencies and organizations involved in delivering services to female victims of violence. This consortium was in turn very much involved in the drafting and eventual passage of territorial legislation, which significantly increased the level, and type of punitive measures brought to bear against.

Weaving a Pacific Net ... for Children, Youth and Families At Risk Conference 1st - Chairperson of the first annual regional conference to facilitate regional networking. It was organized as part of the National Network on Collaboration's efforts to promote increased collaboration within the Pacific/Micronesian region. The project was 100% federally funded by ADAP (Agricultural Development in the American Pacific). There were 250 professionals and students in attendance of this event held on November 15th through the 17th, 1995.

Weaving a Pacific Net ... for Children, Youth and Families At Risk Conference 2nd - Second Annual Conference focused on the 'Processes in Securing Desired Program Outcome.' There were approximately 36 individuals in attendance of the Guam portion of the training held on October 28th and 29th, 1996. The phase of the training

was collaborative effort with the Northern Marianas College and was held in Rota on October 30th and November 1st, 1996. There were 42 service providers in attendance.

Development Planning and Applied Practices - CRD faculty have worked with the STD/HIV Prevention Program at the Department of Public Health and Social Services for several years helping them facilitate their Community Planning Group, a federal funding requirement for a public advisory group to program planning. This work has led to workshops and seminars needed for producing the Annual Guam Community HIV/AIDS Prevention Plans for 1996 and 1997. This Extension work activity also produced the HIV/AIDS Prevention 1996 Needs Assessment Study and numerous community forums among the religious community (1995) the Health/medical services community (1995), the drug and substance abuse treatment community (1996), the gay/lesbian community (1996), the business community (1997), and the Micronesian ethnic leaders community (1997).

Development Planning - Agricultural Distance Education Project - Secured funding in the amount of \$130,000 to launch a regional initiative designed to provide local people with the knowledge and skills needed to add value to their agricultural development. Specific outcomes from this initiative to date include:

a. Web site - A fully functional web site has been established and serves as a conduit for disseminating project related information throughout the region.

b. Publications - Seven projects specific publications and other media have been developed.

c. Regional Networking - A collaborative regional network has been established with representatives from each of the five participating jurisdictions. For the first time, a detailed action plan and programmatic agenda has been established on a regional basis. This action plan and agenda is currently be used as the basis for the systematic expansion of distance education opportunities throughout the region.

d. PEACESAT Seminar Series - A total of twelve distance education seminars addressing a wide range of agricultural production/management topics were aired via the PEACESAT network. More than 140 producers, extension agents and agribusiness operators from across the region participated in one or more of these seminars. As a result of this initial series of seminars

CONSUMER RESOURCE DEVELOPMENT PERSONNEL

Faculty

Linda Austin

Extension Agent II (Media)

Lilli Ann Perez-Ten Fingers, M.H.R.

Extension Agent II (Social Worker & Social Research)

John Woodard

Extension Agent II

Randall Workman, Ph.D.

Unit Chair / Professor (Sociology, Social Research and Program Evaluation)

Staff

Elaine T. Cepeda, *Secretary*

AGRICULTURAL DEVELOPMENT IN THE AMERICAN PACIFIC PROGRAM (ADAP)

The ADAP is a collaboration of five Land Grant institutions in the affiliated American Pacific Island: American Samoa Community College, Northern Marianas College, College of Micronesia, University of Guam and the University Hawaii. The primary role of ADAP is to foster joint efforts among the institutions working towards resolving like-issues affecting tropical agriculture and the general well being of Pacific Islanders.

The following report highlights accomplishments in various proposed activities directed by CALS faculty in cooperation with participants from the other Pacific Land Grant Institutions.

Degree Studies

Professor Manuel Dugies completed a MS degree in animal Science at the University of Hawaii, Manoa in June 1995. He returned to the University of Guam and has since been promoted to Extension Agent IV. He has submitted proposals to ADAP and was awarded funding to carry out a project in Animal Health Survey and Management of Livestock Waste. He currently serves as the Project Investigator and Co-Project Investigator of these projects.

Marketing Information System coordinations and Development of Agriculture Statistics Systems (MIS) Professor Bob Barber and Dr. John Brown (1995-1996)

Results and Accomplishments

Objective 1. Improve and standardize the MIS and Agstats programs of Guam and the CNMI.

A five day computer training workshop was held at the Northern Marianas College on Saipan, July 15-19, 1996. Attendees came from ADAP institutions: 1 from ASCC, 3 from COM, 3 from UOG, and 16 from NMC. Workshop topics included an overview of MS Windows 95, MS Office 95 Professional, data collection procedures, use of the MIS database, WWW browsing and WWW

publishing. The training also identifies many needs of each participating institution and also meets portions of Objective 3.

The project collaborated with the Guam AmeriCorps Program (October 1995 to September 1996) and the Guam Department of Agriculture (May 1995 to December 1996) for the data collection portion of MIS in Guam. Collaboration in data collection for 1997 with the Guam Department of Agriculture awaits an evaluation of the release of the new MIS database (late June 1997). The Guam Department of Agriculture has undergone a change in their approach to data collection and AG statistics and the new MIS database is being modified to accommodate these changes. These changes include changes in monitoring personnel and frequency and the ability to provide needed information following natural disasters. Meetings and demonstrations of the new system were scheduled for July 1997.

Collaboration with the CNMI Department of Lands and Natural Resources in staffing the data collection activities is ongoing.

The pilot database for the Market Information System (MIS) was designed and is in a beta testing stage on Guam and Saipan using 1996 data. Data collection methods for the system have been standardized with participants across the region. Crops to be monitored in the first release of the MIS and their names have also been standardized with input from across the region.

Project PIs are working with the Guam Cooperative Extension Horticulturists to improve the accuracy of the crop growth parameter and yield was provided to Federal agencies following Typhoon Dale and was used in the calculation of disaster awards. Interest has been expressed in expanding the yield studies conducted under this study (meets portions of Objective 2 also).

Project PIs met with Guam Department of Agriculture staff to explain the MIS database system and identify modifications needed by the Department of Agriculture. Several modifications have been incorporated into the system.

Objective 2. Update and monitor the MIS delivery system and the usefulness of the information.

On Saipan, project personnel collaborated for a second year with the NMC-UH Business Internship Program. During the summer of 1996, UH graduate student Mitchell Bednarsh surveyed the Saipan hotel industry to estimate monthly demand for fresh produce. Meetings were held following Typhoon Dale in October of 1996, with Federal officials from Hawaii and the mainland U.S., to determine what information is needed in times of natural disasters. Much of this has been incorporated into the new database system.

Objective 3. Provided the framework, training, equipment and software necessary for Palau and the FSM to establish agricultural statistics programs.

Equipment necessary to support the first year project efforts were purchased and distributed. Coordinating equipment purchases with other projects has resulted in a standardization of equipment for personnel, greatly facilitating computer training in the region. In addition, a computer training lab is now in place that can be quickly and easily set up at different regional activities and sites using the portable computers brought by the participants.

The initial agricultural statistics survey was conducted on Palau. Data sources for information on traditional substance farmers were identified. The methodology for monitoring the commercial vegetable farms on a regular basis was demonstrated to the Palau cooperators, who visited these farms and collected the annual survey data. It was determined that there was significant growth in the commercial vegetable production on Palau, primarily due to the increase in tourism. The Land Grant is well positioned to monitor this production growth.

Pohnpei and Kosrae were visited. The local government on Kosrae expressed strong interest in both market information (market information on post harvest handling and information from Guam and the Marshall Islands' markets). They are also interested in setting up some form of expert and farm production monitoring. At the moment the Division of Agriculture is involved in an internal needs assessment and training process, but would like to resume discussions in late July 1995 or early August. The Division of Agriculture works very closely with a group of model farms and would like to set a monitoring system to keep track of production of these farms.

On Pohnpei agriculture has transferred groups of agents to the Land Grant office, these agents will be trained in monitoring methodologies by the FSM Cooperator. This will take place in July 1997.

Objective 4. Link the MIS information to geographical information system and train the regions' agricultural statisticians in its use.

Geographical positioning systems (G.P.S.) Were obtained for Guam and Saipan and are being used to pinpoint farm locations. The locations of twenty one commercial vegetable farms in the airport area on Palau were identified using Guam and Saipan's geo-positioning equipment. These farms were then marked on a US Geological Survey map of Palau with pins using this data. A training is scheduled for September on Guam and Saipan on the use of GIS systems and G.P.S. equipment use following the purchase of FSM's equipment.

Impact

Prior to this project data collection and reporting in the CNMI and Guam was very time consuming. Each month data collectors started from scratch with no record in hand of the previous months activities. The calculations for estimating production were very laborious using a pencil and calculator. With budget cuts and manpower reductions the system would have died (on Guam and Saipan) in the fall of 1995, if not for this project. The early spreadsheet based data systems greatly reduced the reporting burden enabling few man-hours to accomplish the same level of reporting. It has also brought a focus on the issue of what is the important data that needs to be gathered.

The new MIS data system will, if adopted, provide local governments with the information necessary to secure available benefits for local farmers in times of disaster. It will also provide the appropriated agricultural statistics for policy and resource allocation decisions. The system meets these objectives using less manpower than the previous methods of data collection and reporting.

In Palau and the FSM tourism is growing. This is resulting in a growth in the commercial vegetable industries. The project has identified these trends and is setting place systems to monitor this growth.

Collaboration with the Resource Development and Capacity Building Network project has put in place a mobile computer lab for the region.

Identification of market information needs of the region that were not initially anticipated.

Important yield data developed and used to provide to the typhoon dale emergency response team.

A data collection and reporting database system designed to improve accuracy and reduce labor requirements has been developed. In Guam and Saipan training in data collection and reporting have been conducted and the information is being used.

The project has initiated on Guam a long distance goal of transferring data collection from the College of Agriculture to the Department of Agriculture. With the provision of the system, equipment and training provided by the project these efforts have a better chance.

Effects of Nitrogen, Calcium, and Potassium Nutrition on the Resistance and/or Susceptibility of Polynesian Taros, Colocasia Esculenta, to the Taro Leaf Blight, Caused by the Fungus Phthophthora Colcasiae. Dr. George Wall (1995-1996)

Results and Accomplishments

Objective 1. Determine the effect of balanced N, P, K, and Ca nutrition of Samoan, Micronesian, and Hawaiian taro cultivars on the cultivars on the incidence of Phytophthora leaf blight.

Effects of complete fertilization on disease incidence and taro yield in American Samoa. This work was initiated by Dr. Diane Greenough, and at her termination of employment in 1995, Dr. Eduardo Trujillo assumed responsibilities for these investigations. Two farms, one at A'asu and another at Pawai'ai districts of Tutuila, American Samoa were used to determine effects of balanced nutrition on the incidence of Phytophthora colocasiae leaf blight and yields of taro. Each area was planted with Bun-long and Lehua Maui, Miue and Manu'a. The Palauan cultivars Ochab and Ongdibel were planted at a'asu and Pawai'ai, respectively, on November 15, 1995,

by Dr. Greenough. A block design was used to study the following 4 variables: TR-1=Chemical fertilizer and Ridomil.

Fertilizer for treatments TR-1 and TR-2 was incorporated a week before planting. Disease incidence was recorded monthly on all leaves of 5 data plants. Plots were harvested on June 3, 1996, and corm weight of date plants recorded.

Taros planted at A'asu at ca. 400m elevation had severe taro leaf blight incidence and all varieties except for P5 grew poorly and had over 80% leaf damage, small corm development and in the most susceptible, Niue, plant death occurred. Similar results were obtained at Pawai'ai except for P3, which was significantly more resistant than the Hawaiian and Samoan cultivars. The corm yield of P5 at A'asu was higher than P3 at Pawai'ai. Leaf damage significantly different on fertilizer treatments as compared to no fertilizer treatments. The effect of Ridomil in disease was not clearly elucidated. Treatments with and without fungicide were not significantly different.

A taro field day was conducted on June 4, 1996, and more than 20 taro growers attended. Palauan taro cultivars resistant to taro leaf blight were shown to the growers. Taro varieties P3 and P4 were taste tested by participants, and taste rating evaluated by Cooperative Extension personnel. Planting material from resistant Palauan cultivars were distributed to all growers.

Objective 2. Determine susceptibility and/or resistance of taro cultivars from Samoa, Micronesia and Hawaii under Samoan and Marinas Island climatic conditions.

Disease resistance of Palauan taro cultivars. The taro cultivar collection made in Palau, Guam and Rota July 4-15, 1994, was evaluated the first time for disease resistance at Hakaau, Hawaii June 20, 1995, and harvested March 20, 1996. A second evaluation was done from December 15, 1995 to November 21, 1996. Corm and leaf samples from each cultivar were done by the Hawaii county Cooperative Extension taro testing panel. Disease rating was done monthly by visually assessing the percentage of leaf damage per plant, beginning with #1 leaf. A one way ANOVA and T-tests using least squares analysis was used to evaluate disease. All taro cultivars from Palau, Guam and Rota were significantly

less susceptible to *Phytophthora colocasiae* than the cultivar Niue, from American Samoa.

In the last field evaluation of cultivars grown for 11 months P1, P7, P10, P1, P13, P15 and P16 were compared to Lehua Maui, Bun-long, Niue, R1 and G1 by a Samoan tasting panel. The best tasting taro was P10.

A taro field day was conducted at Hakalau, Hawaii on March 21, 1996. Although the day was rainy, more than 30 taro farmers attended. Extension personnel from all taro growing islands also attended. Plant material of the resistant cultivars were distributed to participants.

All Palauan cultivars with high resistance to taro leaf blight and edible quality similar to taro Niue have been sent to Western and American Samoa where field tests are now in progress.

A total of 29 taro cultivars collected from Pohnpei, Yap and Guam were screened for resistance to taro leaf blight. Plants were inoculated with *Phytophthora colocasiae* using Dr. Trujillo's procedures. Each inoculation test consisted of 3 replicates per cultivar and the tests were repeated twice. Tests were carried out in the screen house at Mangilao. The most susceptible cultivar was Niue, which was obtained in tissue culture from CTAHR. The resistant cultivars need to be field tested under high disease pressure.

Objective 3. Determine viability of zoospores in soil at different moisture and temperature regimes.

Mr. Roland Quitugua, from the territory of Guam completed the requirements for the degree of Master of Science at the Manoa campus of the University of Hawaii in 1996. His research on survival of *P. colocasiae* zoospores in soils, part of the requirements for the degree of M.S. in plant pathology, demonstrated that this pathogen extended viability in soil.

Impact

The impact of this research has provided an immediate solution to the taro production crisis in the Samoa Islands. 13 of 119 Palauan varieties of taro study have been found in possess intermediate to high disease resistant to taro leaf blight. These taros are now being

tested in American and Western Samoa. Their resistance to the disease has enabled one farmer in American Samoa to produce taro of fine quality in his land.

The superior resistance of his taro to leaf blight in Hawaii makes them ideal for production of taro leaf for laulau traditional Hawaiian cultivators such as Lehua and Bon Long. The limiting factor for expansion of dry land taro production is the lack of planting material. An integrated pest management system using tolerant or resistant cultivars from Micronesia and Hawaii, coupled with mineral nutrition and judicious use of fungicides provides the information needed to control taro leaf blight by *P. colocasiae*, the most destructive disease of taro in the Pacific Basin.

Results and Accomplishments

Objective 1. To conduct the periodic assessment of instructional materials needed within the communities served by all ADAP institutions.

A needs assessment was conducted in year 6 and high priority areas were identified which determined the development of products by AIMS. However, an evaluation and assessment on products were never completed.

Objective 2. To collect and evaluate existing instructional materials for regional use.

Various instructional materials were collected and evaluated by Michael T. Harrington, AIMS Coordinator.

Objective 3. To coordinate and produce new AIMS packages based on needs not met by the collection of existing materials.

Objective 4. To provide technical publications support for other ADAP projects having instructional materials as an intended outcome.

AIMS assisted in the production of the following publications with existing ADAP projects.

- *Proceedings of the Symposia for the Improvement of Resident Instruction.*
- *Pacific Islands Farm Manual.*
- *Samoan Food Choices for Healthy Living Based on Food Group Lists.*
- *Hawaiian Food Choices for Healthy Living Based on Food Group Lists.*
- *Guam Food Choices for Healthy Living Based on Food Group Lists.*

- Marshall Islands Food Choices for Healthy Living Based on Food Group Lists.
- Chu'uk Food Choices for Healthy Living Based on Food Group Lists.

Objective 5. To maintain a catalog of regionally appropriate instructional materials that makes these materials available to ADAP faculty, staff and clients on a cost recovery basis.

The AIMS Catalog was published and distributed to ADAP institutions, appropriate community organizations, government, private organizations and clientele. It contained approximately 80 regionally-appropriate instructional materials that were identified and compiled based upon a needs assessment CONDUCTED IN YEAR. However, due to copyright issues, sales of Non-ADAP publications were discontinued.

Over 2,000 copies of different publications were distributed to ADAP institutions, clients and individuals requesting copies through the catalog.

Objective 6. To coordinate in-service training events for dissemination of AIMS materials using the most appropriate delivery mechanisms with an emphasis on distance education.

The Pesticide Applicator Training Manual was used in pesticide applicator in-service training courses for participants from NMC, ASCC and UOG.

The Pacific Foods Resource Manual has been used in classrooms and communities in Saipan, Tinian and Rota. Home economists, nutritionists and other paraprofessionals have used the manual to teach adult EFNEP, 4-H EFNEP in elementary and high schools, and to college students in food nutrition and home economics courses. Over 700 individuals were taught from this manual. The manual is also used by EFNEP and ES-WIC agents for nutrition lessons in American Samoa. Approximately 200 individuals have been taught using the lessons in the manual.

One course in crop protection was taught at NMC with the Crop Protection for Pacific Islands; **Instructor Manual and Student Workbook**. Two students completed this course.

There are plans to use Crop Production for Pacific Islands: **Instructor Manual and Student Workbook In a Cop** production course at NMC.

The two videos on tropical trees were used at pesticide workshops attended by extension and research staff. The grafting video is also used to teach a community class in grafting at the Pearl City Urban Garden in Honolulu.

Pacific Island Spaces is being piloted at four elementary schools in Saipan. It was incorporated into the science classes as well as after-school activities for 4-H club members. Feedback from the elementary schools indicated that they were fairly pleased with added curriculum and that the materials are very detailed and easy to implement. An in-service training for ADAP Regional 4-H agents via PEACESAT was also held focusing on this publication.

Objective 7. To encourage the use of evaluation instruments that will assess the impact of ADAP instructional materials and learning events.

AIMS PRODUCT DISTRIBUTION TO ADAP INSTITUTIONS

Number	Title
ADAP 96-4	Animal Health Swine Production
ADAP 96-3	Tropical Fruit Production Extension Manual
ADAP 96-2	Pesticide Applicator Training Manual (Participant)
ADAP 96-1	Pesticide Applicator Training Manual (Instructor)
ADAP 95-7	Pacific Island Spaces
ADAP 95-6	Crop Protection (Students)
ADAP 95-5	Crop Protection (Instructor)
ADAP 95-4v	Exotic Fruit Trees (video)
ADAP 95-3v	Grafting Tropical Fruit Trees (video)
ADAP 94-8	Crop Production (Student)
ADAP 94-7	Crop Production (Instructor)
ADAP 94-5	Pacific Foods Resource Manual
ADAP 94-4	Pacific Islands Cookbook

Impact

The AIMS Project was effective in coordinating the production of needed instructional and extension materials for the Pacific region. Many of the materials developed were used for training courses and college level instructional courses. These publications have added to the resources of land-grant institutions as well as proven to of international interest to locations such as USA, Ethiopia, Panama, Netherlands, Germany, Papua New Guinea and many others.

Cucurbit Pest Management Ilse Schreiner and Lee Yudin (1995-1997)

Results and Accomplishment

Collaborative efforts among all the institutional cooperators during this period were initiated. Project data continues to be collected and the final emphasis of Cucurbit Guide is being developed. However, due to staff changes (i.e. Ms. Almario left NMC to COM, Ms. Vargo reigned from ASCC, and both Drs. Schreiner and Nafus retired from UOG) further collaboration was difficult. Dr. Lee Yudin was asked to take on the responsibilities as the Principal Investigator effective June 1996.

In Guam, six farmers were surveyed throughout one or more crop cycles of several cucurbit crops in regards to their pest Management practices. All of them sprayed pesticides by the calendar, once a week, no samples taken before pesticides were applied. Pest identification is still missing piece of the puzzle. In American Samoa, an island wide survey was completed and a list of the most important pests has been compiled, downy and powdery mildew were considered most important pests along with slugs and snails. Few Cucurbits are presently being grown. In the College of Micronesia, a training workshop on identification of insects pests and disease of Cucurbits has held. A list of the pests that are the most important is presently being compiled.

Impact

Initial objectives of this project were directed toward collecting field data that will be used to generate a cucurbit management guide for the Pacific region. Impacts at this stage are difficult to measure. However, farming clientele throughout the region are becoming aware of indiscriminately spraying pesticides without having prior knowledge of biotic pests and their fluctuating numbers.

Resource Development and Capacity Building Network - Theodore M. Iyechad

Results and Accomplishments

Objective 1. To establish and maintain a functioning electronic communication system among all five Land Grant institutions and the National Network for Collaboration assessing issues on children, youth and families at risk. The second training workshop established an

electronic mail directory with the name <CocoNet@CSTC.Guam.Net> which is accessible through e-mail. A directory of the Pacific Collaboration Network that includes e-mail information of all the participants was completed. A revised directory was completed after the third workshop and plans to reorganize this directory to reflect the participants profession/area of expertise and expansion to include other Pacific Island CYFAR resources is scheduled for year 10.

With funding from a connectivity Grant received from USDA, computers were purchased and are being used for electronic mail and to access a data base containing information necessary to address children, youth and families at risk issues and in particular, cultural diversity issues with Youth at risk, Violence Against Women, and Family Community Leadership in the Pacific Region. Each participating member from the land grant institution received orientation and training on the use of personal computers. This was done as part of the 1st Annual Weaving a Pacific Net conference. At the 2nd Annual Weaving a Pacific Net conference, printers were purchased to accompany the computers. In addition, a web page entitled "Pacific CYFAR Net," was developed.

Objective 2. To provide training for the coalition and collaboration team members on resource development and capacity building.

The first resource development and capacity building network training workshop was held in the Republic of Palau, coordinated by the Co-PI and staff from Palau Community College, July 18-20, 1995. The primary objectives of the training were to: 1) Train the cooperators of the project in the areas of collaboration, 2) Provide a framework of the organizational structure of the Pacific Collaboration Network Team and, 3) Invite participants from Palau governmental agencies and private organizations to become involved in collaborative partnership.

Of the 36 professionals and collaborative partners participating, 9 represented the Pacific Land Grant Institutions, one facilitator represented the National Network for Collaboration, the other facilitator represented - Strengthening Our Capacity to Care - DeWitt Wallace Grant with 25 who represented 7 different local governmental agencies, state offices, and private organizations.

It provided opportunities for the participants to learn and strengthen their educational collaborative partnerships through participatory approaches to community level

opment programming and hands on practical case studies dealing with the issues of Children, Youth and Families at Risk. The specific areas and topics for which the participants focused on included: **1) Mobilizing the Community, 2) Working with Diverse Groups, 3) Tapping Private Sector Resources, 4) Turf Issues, 5) Understanding Collaboration Structure, 6) Forming a Collaboration Group/Coalition, 7) Functions of the Collaboration Teams, 8) Communication in Coalition: a.) Developing Members, b.) What is Collaborations/Coalitions? And c.) How do we do it?**

The second training workshop was held in Guam on November 13-17, 1995, entitled, "A Pacific Collaboration Network Training Conference Weaving a Pacific Net ... for Children, Youth and Families at Risk." This conference was organized and planned by cooperators: Lilli Iyechad, Frank J. Cruz, Dr. Ilse Silva-Krott, Bob Barber and Dr. Jim McConnell, along with the support staff in CALS. The primary objectives of this conference were to: **1) Learn electronic technology e-mail specifically and print on demand, 2) Understand the components of successful collaborative networks, 3) Understand the collaboration characteristics which facilitate planned impact, 4) Implement successful collaboration networks, and 5) To have the cooperators share their Pacific Collaboration experience as a result of the training in Palau.**

The first two days of the conference was devoted to the computer skills that included the following specifics: **1) Window '95, 2) Word Processing, 3) Spreadsheet, 4) Bull Cart Trail/Print on Demand, 5) E-mail/Print on Demand.** The last three days consisted of a training conference for people who work with community programs. It was designed for participants who desired to improve their skill in working with people in a variety of settings. Approximately, 130 human service professionals from throughout the Pacific region attended the conference. The Pacific Network on Collaboration is the "child" of the National network for Collaboration for which Ms. Teresa Hogue, Oregon State University, and Mr. Arena, Bergstrom, Washington State University, facilitated the educational learning component.

Three themes of the conference included specific topics for the participants.

I. Presentation of Collaboration Concepts.

- A. Understanding collaboration and the Framework. The What, Why, and How to of Collaboration

- B. Initiating Collaboration
- C. Survey on Collaboration

II. Practical; Application of Collaborations.

- A. Defining relationship
- B. Focusing on Outcomes
- C. Building Relationships
- D. Insuring Successful Collaborations

III. Collaborations in the Pacific.

The aim of this topic was to provide opportunity of the cooperators to share their experience as a result of the training in Palau. A. "Pulling in the Net" - Pacific Showcase Panel - cooperators presented oral and written reports about their successful accomplishments as a result of the training in Palau

The 2nd Annual "Weaving a Pacific Net...for Children, Youth and Families at Risk" conference was organized by the University of Guam and the Northern Marianas College. The initial phase of the training was held at the Guam Hilton Hotel on October 28 and 29, 1996. As was done the first year, the Guam AmeriCorps participants who continued with an exclusive Americorps workshop on October 30 were included in the training. The second phase of the training was held in Rota at Tony's Resort on October 31 and November 1, 1996. 36 participants were from Guam and 42 participants were from Rota. The focus of the second year's training was on the presentation of evaluation concepts, specifically: **1) impact measures of outcome; 2) evaluation activities from conceptualizing to implementing and assessing; 3) linking evaluations to programs; and 4) further strengthening the Pacific Collaboration Network.**

The primary training facilitators for both Guam and Rota were members of the National Network for Collaboration; Mrs. Ellen Rowe from the University of Vermont and Dr. Fred Schmidt from the Center for Rural Studies in Vermont. They utilized the Collaboration Framework, with much emphasis given to the evaluation process and its various components.

Guam Portion of the Conference - The main highlight of the Guam training was the panel presentation conducted by the ADAP participants. This gave the other participants the opportunity to learn how the Collaboration Framework was utilized in different settings, institutional and otherwise.

Rota Portion of the Conference - Lilli Ann Perez conducted a training that focused on linking evaluations to programs. In addition, Professor Frank Cruz conducted a workshop on plant propagation that provided practical information, but more importantly, illustrated how reporting impact could be measured based on using the Collaboration Framework in addressing community capacity building.

A practical exercise was conducted to illustrate how to address the needs of a community by empowering them to produce public education materials. The groups decided on pacific networking, agricultural development, and family welfare as their three main topics for developing educational pamphlets. This was an exercise of group work to develop a low-cost item to improve the quality of life in their communities.

Results Achieved - CocoNet continues to be used by those with access to e-mail. Plans were made at the second conference to expand the boundaries of CocoNet. The Directory of Participating collaborators was completed for both the first and second years. Year Two Participants Directory is a listing of participants. Each year, the directory was forwarded to each participant. This same practice will continue in this third year. In addition, a logo is now included on the cover of the Directory for Year Two.

In addition, the Weaving a Pacific Net conference was scheduled so that the ADAP representatives could participate in the CYF State Strengthening Project brainstorming session on November 4 and 5, 1996.

Objective 3. To help secure funding for the Network on Collaboration in the Pacific Islands.

With the State Strengthening grant for Youth at Risk, each institution is now an equal partner in this collaborative effort to Marshall limited resources and build on existing assets, facilitating sustainability.

Objective 4. To conduct training in Guam and Palau using National 4-H Council expertise and coalition building expertise from extension land-grant personnel. This training will provide "hands-on", train-the trainer experience on how to raise funds, maintain resource capacity and develop programs based on outcome evaluations model.

This objective was addressed by the 1st and 2nd Annual Weaving a Pacific Net conferences as reported above. The impact of the first two years is the value investments to the participants community is reflected in the use of the newly gained knowledge and skills in their respective workplaces. More importantly, is in the securing of additional federal funds to further meet the needs of their respective client communities.

Impact

Participants from ASCC, UH, and COM were able to establish collaborations and partnerships in different community projects with a wide range of government and private organizations such as Red Cross, Headstart, 4-H, local agencies, health agencies, sports agencies, churches and other community organizations.

Collaboration among people from different disciplines and organizations has allowed people to share experiences and expertise and capitalize on limited fiscal and human resources.

A full page article highlighting the first conference was printed in the Guam Pacific Daily News.

Pacific Land Grant Youth Professional workers adopted the collaborative learning process as a result of the National Network for Collaboration for Youth at Risk initiative. The Pacific region is now a part of the mainland land-grant institutions in this area.

Additional federal funds were secured to further meet the needs of client communities. At ASCC, two proposals for youth community programs were developed.

Participants have applied the skills obtained at the conference in their respective jobs, as well as in their volunteer time as leaders in their respective ethnic or professional communities (i.e. the United Women of Micronesia, the Guam Association of Social Workers, and the Nein Chuuk Association of Guam). Difficulties encountered in the application of this new knowledge and skills focus primarily on the circumstances of having to work within the government bureaucracy.

Publication Listing

Agriculture Pest Flyers

- Asiatic Corn Barer
- Bean Fly
- Cascade campestris L. (Dodder)
- 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 Budmite
- Okra Yields More Between Tanga-tangan
- Phalaenopsis Mite
- Red Orchid Scale
- Vanda Orchid Scale

Agriculture Fact Sheet

- Phomopsis Blight of Eggplant
- Scorpio: A Tip-Burn Resistant Head Cabbage Variety

Booklets

- Infant Care Guide for New Parents - a component of EXCEL curriculum packet, 34 pages
- Celebrating Island Food: A Guide to Good Food and Good Health - a component of EXCEL curriculum packet. 27 pages

Curriculum Packet

- Early Experiences and Counseling for Effective Lactation - an eight (8) lesson series for nutrition and lactation education. Each booklet has 30 pages

Electronic (Web) Publication

- Pacific Basin Natural Resources Conservation Service, updated June 1998. Original site mounted July 1997.
- University of Guam Policies and Procedures Manuals Internet site. May-October 1997.
- Chromolaena odorata: Biological Control in the Tropics. Revision: August-September 1997. Original site mounted in September 1996.

Pamphlets

- Daily Food Guide for Healthy Bodies - in Chinese, Tagalog, English, Vietnamese, and Korean.

Pest/Pest Control

- Guam Fruit and Vegetable Pesticide Guide Applying Pesticides correctly for private and commercial applicators
- Federal and Local registered/restricted use pesticides
- Heliconias Fact Sheet Mist Propagation Systems booklet

Posters

- Pacific Food Guide - 24" x 32" full color poster

Poultry and Livestock

- Swine Management Manual
- Pullet Management Manual
- Laying Hen Management Guide

Presentations, Workshops and Lectures

- Bi-weekly computer training and ESL for Chuukese Youth-At-Risk, CYF project, November- December 1997.
- "Preparing Text for the World Wide Web," October 1997, Distance Education Seminar, RFK Library.
- "Design Tips for Electronic Presentations," Distance Education for Regional Nurses, Sawakawa Peace Foundation training series, October 1997.

Video

- Breastfeeding - The Natural Beginning - a component of EXCEL curriculum packet-three parts; length: 15 minutes

The University of Guam and its Land Grant Status

Often times people wonder why the University of Guam is referred to as a Land Grant institution. While it may appear that the University operates an office that grants land, the name Land Grant comes from being a recipient of a U.S. Federal Government program mandate for the advancement of the nation's agriculture as well as for making higher education more accessible to the general public.

The discussion below, taken mostly from the publication: "Colleges of Agriculture at the Land Grant Universities - A Profile," is offered as a means of explanation. The publication is the work of the Committee on the Future of the Colleges of Agriculture in the Land Grant System, the Board on Agriculture, and the National Research Council.

"The history of land grant colleges of agriculture is intertwined with the history of higher education for U.S. citizens of average means. The land grant system began in 1862 with a piece of legislation known as the Morrill Act. This law gave states public lands provided the lands be sold or used for profit and the proceeds used to establish at least one college hence, land grant colleges that would teach agriculture and the mechanical arts. Land grants for the establishment of colleges of agriculture and mechanical arts were also later given to U.S. Territories and the District of Columbia. [In the case of the University of Guam, in lieu of land - a \$3 million endowment fund was given to the University] The legislative mandate for these land grant colleges helped extend higher education to broad segments of the U.S. population.

Public universities existed already in some states; however, most states responded to the Morrill Act by legislating new agricultural and mechanical arts colleges rather than by endowing existing state institutions (Kerr, 1987). The act gave rise to a network of often poorly financed colleges known as the "1862s". The Second Morrill Act, which provided for annual appropriations to each state to support its land grant college, was passed by Congress in 1890. [The annual appropriation for academic programs was later ended in 1993.]

In addition to appropriating funding, the Second Morrill Act also forbade racial discrimination in admissions policies for colleges receiving these federal funds. A state could escape this provision, however, if separate institutions were maintained and the funds divided in a "just," but not necessarily equal, manner. Thus the 1890 act led to the establishment of land grant institutions for African Americans known as the "1890s." Today there are seventeen (17) 1890 institutions including one private institution, Tuskegee University located primarily in the southeast. In addition to being part of the land grant system, these seventeen 1890 schools are among the more than 100 historically black colleges and universities in the United States. [In addition to the 1862s and 1890s, Congress, in 1994, extended land grant status to twenty-seven (27) native American tribal colleges also known as the 1994s.]

Over the decades, as the U.S. economy grew and changed, so did the nature of demands for education and scientific pursuit. As more and more U.S. citizens began to attend college, most colleges of agriculture were transformed into full-fledged universities. In some states, like California, Maryland, Minnesota, and Wisconsin, land grant universities have become the foremost public institutions of higher education and scientific research. In other, such as North Carolina, Michigan, and Oregon, higher education and research functions are shared with other prominent public institutions.

Today, although many land grant universities are still known for their agricultural college roots, others have little agricultural identity and students are rarely from farm families. Despite their expansion well be-

yond the teaching of agriculture and mechanical arts, almost every land grant university still has a "college of agriculture" colleges more similar to each other than are the universities where they are located.

The 1862 Morrill Act gave the land grant colleges their mandate to teach. The colleges acquired a research function in 1887 through the Hatch Act, which recognized the need for original research to underpin the teaching of agriculture and help develop agricultural innovations. The legislation funded a system of state agricultural experiment stations (SAESs), most of which were established under the direction of the 1862 land grant colleges.

Today SAESs operate in conjunction with and, in almost all cases, on locations at colleges of agriculture. Connecticut and New York, in addition to on-campus SAESs, have an off-campus SAES. Many other states have branch stations, that is, SAESs, have an off-campus and often in agricultural areas of direct interest to the branch station's research.

Most faculty at land grant colleges of agriculture have SAES appointments. This grants them potential access to "Hatch" research funds, which are administered by USDA and funneled to the SAESs on a formula basis. Some faculty scientists who have SAES appointments also conduct research at other colleges that have related programs, such as in the life sciences. The SAES director and the dean of the college of agriculture are usually, but not always, the same person.

With the passage of the 1914 Smith-Lever Act, the colleges took on a third function, called "extension," which was designed to disseminate agricultural college-generated knowledge beyond the campus to farms and consumers. The Smith-Lever legislation funded a system of state cooperative extension system (CES), most of which are established in 1862, 1890 and 1994 land grant colleges. Extension was to be a cooperative activity between the federal government (through USDA) and the states (through the land grant colleges). County governments, through a network of county extension agents, soon became cooperative extension partners

Each land grant college or institution has a designated extension director, who may also be the same individual as the dean of the college and director of the experiment station, that has responsibility over funds administered by USDA and funneled to the college/institution's Cooperative Extension organization on a formula basis

Today, agricultural extension specialists are usually located at colleges of agriculture. Aside from their University extension appointments, they often have joint appointments in research and/or teaching. University based extension specialists must interact with research scientists and relay scientific learning and other knowledge to farmers and other users. They also serve as the university's link to the county extension agents and the USDA's Extension Service.

The tripartite mission teaching, research, and extension has been a hallmark of the land grant college of agriculture system. Over the years, however, divisive elements within the three-part mission have emerged. Teachers, researchers, and extension specialists often respond to different administrators, to different constituents with different interests, and to different incentives and awards.

ADMINISTRATORS - PAST AND PRESENT

Soon after the University of Guam achieved its Land Grant status in 1972, Mr. Gerald S.A. Perez was appointed Director, Land Grant Programs and began developing the manpower recruitment needs to execute the programs in extension and research. After a year, Mr. Perez left to serve in other capacities in the Government of Guam and is now President of Guam Duty Free Shoppers, Ltd.

At the occasion of the ribbon cutting ceremony of the new College of Agriculture and Life Sciences, the home offices for the Guam Cooperative Extension, Agricultural Experiment Station and the academic programs in Agriculture, Consumer and Family Sciences and Environmental Science, former and present administrators gathered for a photo opportunity.



From **Left to Right**: Dr. Jeff D.T. Barcinas, Dr. Chin-tian Lee, Mr. Jose T. Barcinas, and Dr. Wilfred P. Leon Guerrero.

Dr. Jeff D.T. Barcinas is the current Dean / Director. Dr. Chin-tian Lee was Dean / Director from 1989 to 1995. Mr. Jose T. Barcinas was Associate Dean, CES from 1975 to 1991 and served as acting Dean / Director from 1988 to 1989. Dr. Wilfred Leon Guerrero, the first Dean / Director, served from 1973 to 1988 and was UOG President from 1988 to 1993. Mr. Barcinas and Drs. Lee and Leon Guerrero are all retirees of the University.

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Dr. Jeff D.T. Barcinas, Dean / Director, College of Agriculture and Life Sciences, Guam Cooperative Extension, University of Guam, UOG Station, Mangilao, Guam 96923

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