

1990 - 1992 ANNUAL REPORT

GUAM COOPERATIVE EXTENSION



COLLEGE OF AGRICULTURE AND LIFE SCIENCES
UNIVERSITY OF GUAM

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Message from the Dean/Director

Chin T. Lee, Ph.D.
Guam Cooperative Extension
College of Agriculture & Life Sciences

We at Guam Cooperative Extension are again pleased to present in this annual report major highlights of the programs offered to the communities of Guam and neighboring islands during 1990-1992.

Despite budgetary fluctuations caused by a slowing regional economy, the Guam Cooperative Extension continues to provide Guam and greater Micronesia with pertinent informal education programs in the areas of agriculture and natural resources, 4-H and youth development, family and consumer sciences, and community resource development.

Traditionally, these programs were and continue to be carried out through classroom sessions, workshops, con-

ferences, home and farm visits, the mass media, and the production of printed and video material. Last year, as in recent years, new technologies such as computer networks and satellite tele-conferencing have taken more prominent roles in Guam Cooperative Extension's efforts to reach out to farmers, homemakers, professionals, youths and the elderly throughout the western Pacific.

On behalf of Guam Cooperative Extension, I would like to thank our numerous clients, volunteers and all cooperating agencies and organizations for their support and encouragement. Our combined efforts and dedication keep us working to fulfill the goals of our Guam Cooperative Extension.

Message from the Associate Dean

Jeff D.T. Barcinas, Ph.D.
Guam Cooperative Extension
College of Agriculture & Life Sciences

Hafa Adai! As the Guam Cooperative Extension's newest Associate Dean, I am pleased to present this annual report summarizing highlights from our 1990-1992 programs.

It is my intention through my new administrative position to carry on with heightened enthusiasm the traditions and goals of the Guam Cooperative Extension, which has been my home as a extension agent since 1979.

Efforts begun in 1992 have set a solid foundation for the future. 1993 should see us continue working on phase two of our new building, expand even far-

ther in the field of satellite communication and other emerging technologies, and continue providing outreach educational programs throughout Micronesia as well as fresh and innovative projects for our communities on Guam.

I would like to join Dr. Lee in offering heartfelt thanks to Guam Cooperative Extension's many clients and volunteers as well as cooperating government agencies and private organizations. Working together in the island spirit will find us all building toward a prosperous and joyful future.

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OVERVIEW

The Cooperative Extension Service is a partnership between the United States Department of Agriculture (USDA), the Government of Guam and the University of Guam. As a Land Grant university, the University of Guam and the Guam Cooperative Extension (GCE) are part of a vast national educational network designed to provide practical knowledge and information to the community and its residents. GCE's mission is to help people improve their lives by using university-generated research to address local issues and fulfill human needs.

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

The GCE was established in 1972 soon after the University acquired its Land Grant status. Trained professionals

assess community needs, then develop and deliver educational programs through the units of Agriculture and Natural Resources (ANR), the Community Resource Development, 4-H and Youth Development, and Consumer and Family Sciences (formerly Home Economics). The Media unit helps these program units produce and distribute information through print and broadcast formats.

With Guam's rich multicultural diversity, the GCE is constantly evolving to meet the changing needs and priorities of the people it serves.

Among the recent issues GCE has addressed are:

- Water quality
- Agricultural marketing
- Food and nutrition education
- Limited resource/low income individuals and families
- Pest management and pesticide use
- Volunteer development and management
- Youth at risk
- Community leadership and policy development
- Multicultural diversity
- Parenting and the family.

To overcome the vast ocean distances which separate Guam and Micronesia from the rest of the world, the latest in electronics technology and communications is often used to propel GCE programs. New technologies such as computer networking, electronic mail and satellite communications are becoming familiar tools for GCE's outreach efforts.

The GCE follows the traditions Congress had intended for education-based cooperative extension work and uses national initiatives for guidelines as it develops responses to societal problems. These areas include:

- Agricultural competitiveness and profitability
- Community resource and economic development
- Family development and resource management
- 4-H and youth development
- Leadership and volunteer development
- Natural Resources and environmental management
- Nutrition, diet and health.

As part of the effort to make agricultural products more widely available to Guam residents, the Agriculture and Natural Resources (ANR) staff offered 24 workshops in the areas of crop production, livestock and aquaculture. Computer literacy workshops were also held.

Seven workshops were held for private and commercial pesticide applicators, both for first-time certificate holders and those seeking recertification. The workshops were co-sponsored by the Guam Environmental Protection Agency. More than 100 farmers, ornamental and landscape workers, pest-control operators, golf course personnel and backyard gardeners were certified or

AGRICULTURE ***AND*** ***NATURAL RESOURCES***

recertified, enabling them to responsibly use general and restricted-use chemicals.

In recent years, Guam residents have expressed concern about the amount and type of pesticides used locally, including those which might leave toxic residues residue on vegetables, ornamentals, and fruit trees. In response, Guam initiated a fruit and vegetable pesticide guide to help farmers, backyard gardeners and others to responsibly select and use pesticides. The guide covers 18 fruit trees and 38 vegetables commonly grown on Guam. Each is listed in alphabetical order and includes which insecticide, miticide, fungicide or nematicide can be legally used, which pests are best controlled, the best rate of application, and how close to use before crop harvest. The guide also touches upon pest control strategies, pesticide labels and labeling, pesticide safety, and pesticide laws and regulations.

An Integrated Pest Management program on watermelons was developed to help farmers control the six major pests which eat away crop profits. During the next four years, Guam's watermelon growers will be able to track the pest levels within their fields and determine when to apply pesticides. A sampling plan has been designed allowing farmers to determine within 15 to 20 minutes the current pest levels in their fields. Those readings, when compared to the "action level" or that point at which a pest starts to reduce farm profits, will tell a grower whether pesticides are needed in his field. Treatment of a field is recommended only if current levels are higher than the action level. The use of the threshold method can lower pesticide usage by 10 percent or more.

ANR staff with support from the Department of Agriculture, successfully encouraged the Governor to establish an Agricultural Development Committee to create and implement an Agricultural Development Policy. The committee is working closely with key federal and local government agencies and the Guam Agricultural Board of Commissioners to make the Policy Plan a reality.

ANR personnel also helped about 30 farmers with applications for farm loans through the local Department of Agriculture and the Guam Economic Development Authority or for long-term agricultural land leases from the Government of Guam. Financial statements and projections of farm income are the more involved aspects of these applications.



Efforts also began, with the help of the Hog Producers Association of Guam and the Board of Agricultural Commissioners, to search for funds to build a waste-disposal facility under the cost-share programs of the U.S. Soil Conservation Service. For Guam's hog producers, a "pig on litter" management session was held. In addition, 10 farmers converted their open water troughs to nipple waterers as part of a water conservation measure.

The College of Agriculture teamed with the Soil Conservation Service, the Department of Agriculture and the Public Utilities Agency of Guam to review rules and regulations for surface and ground water, wellhead protection, fertilizer and pesticide usage, waste management, land use and clearing, and irrigation water management. The team will also prepare material on water quality protection for the Environmental Protection Agency, other policy makers and the general public.

As of last year, 12 farmers were applying multiple applications of split nitrogen fertilizer, an increase of 60 percent in the number of growers using the method during the previous year. Two farmers are now using hydraulic metering valves. Seven farmers have applied the use of plastic mulch in vegetable production. These practices will minimize nutrient leaching and runoff and will maximize water-use efficiency.

Efforts are ongoing to improve the existing crop market report. A Marketing Information System is being developed to make available accurate and reliable production and marketing data to current and potential users.

GCE is also working closely with the Department of Agriculture and the Department of Commerce to create a centrally located farmers market. A marketing plan called "Marketing Guam" will start when the new farmers market opens and will use a logo to identify locally grown commodities. A policy addressing the marketing, sale and handling of agricultural commodities is also being developed and reviewed by the Governor's Agricultural Development Committee.

1990-91

The Agriculture and Natural Resources unit continued its work in the areas of crop, livestock and aquaculture production, pesticide certification, fertilization, irrigation, animal waste, water quality and farm management. Staff members worked closely with the Agricultural Board of Commissioners to outline agricultural policies for Guam in the areas of education, marketing, tax rebate, insurance and labor. The unit also teamed with Guam's two soil and

water conservation districts to implement conservation programs. In regional efforts, agroforestry workshops were held on Guam, American Samoa, Pohnpei and Palau.

ANR staff searched for alternatives to traditional farm pesticides through such projects as pesticide applicator training, the National Agriculture Pesticide Impact Assessment Program, and Integrated Pest Management programs. Participants in these programs were taught the proper use of pesticides, pesticide safety, safety equipment, first aid and environmental hazards associated with pesticides. A pesticide guide for vegetables and fruits was produced for those grown on Guam.

GCE personnel also assisted farmers with their agricultural land lease applications, revolving loan applications, Guam Economic Development Authority loan applications, and land-use permit applications.

Entomological and horticultural advice was offered to landscapers, golf course superintendents, land developers, homeowners and farmers. There was inter-agency cooperation on water quality, non-point source pollution, and soil and water conservation projects.

AGRICULTURE AND NATURAL RESOURCES

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CRD continued its focus on social, cultural, economic and health issues. Many of the training programs targeted government personnel and non-profit organizations. Topics included meeting management, strategic planning, conflict resolution, waste management, intercultural partnership development, the aging process, crime prevention, health education and group participation, effectiveness and leadership skills building. The sessions were offered to encourage greater public involvement in the community decision-making process. A semi-monthly social and behavioral research colloquium on health-related issues was developed and is ongoing.

In other areas, the Community Resource Development unit conducted an islandwide needs assessment study of households and target groups such as farmers, ManAmko, ManHoben, Cooperative Extension Advisory groups,

COMMUNITY **R**ESOURCE **D**EVELOPMENT

turf management and pesticide application trainees, municipal planning council members, and the business community. Findings were analyzed and disseminated to the public through publications, radio shows, workshops and seminars.

A demographic and economic profile is being developed for each Guam village from the 1990 US census data. The findings should be helpful in designing future educational programs.

Another popular program was in waste management, specifically the use of recycled newspapers and other wastes as a growing compound for gourmet mushrooms.

Family Community Leadership

The Family Community Leadership (FCL) component of the Community Resource Development unit was busy last year sponsoring training sessions throughout Micronesia. They included:

- Two 30-hour training sessions for employees of the Guam Department of Public Health and Social Services.
- The Islandwide Training Institute held at Adelup in October and November 1991 for 50 participants.
- The first FCL training in Chuuk State, the Federated States of Micronesia, held at the request of the College of Micronesia and co-sponsored by the South Pacific Commission.
- FCL co-sponsored with the Pacific Women's Resource Bureau a communication and networking training session in Palau for 500 women participants from throughout the Pacific region.
- Training for seniors from Guam, Chuuk, and the Philippines at the SPIMA (Servicio Para I ManAmko) center in Toto was presented. The

theme was "Understanding and Valuing Diversity."

- An Intercultural Partnership training was offered to participants in the Western Pacific Regional Social Work Conference. The training, which used the "In Reach" methodology, was aimed at Chamorro, Caucasians, Filipinos, Chuukese, Yapese and Palauans.
- An inter-ethnic training session intended to introduce elderly Chuukese residents of the "tent city" refugee shelter to activities at the village senior citizens center was held in the aftermath of Typhoon Omar.
- An ongoing intercultural program involving women's groups from Yaizu, Japan, and the Guam Family and Community Leadership volunteers and GCE faculty. The Guam-Yaizu Friendship Association has promoted these annual exchange visits as a way of building positive international relations.

Support for FCL comes from special funding from the Government of Guam and from the Farm Founda-

tion, Western Rural Development Center, Kellogg Foundation and the Agricultural Development in the American Pacific (ADAP) project.

Responding to Rapid Change

Guam's rapid population and economic growth continue to fuel the need for education to enhance the decision-making skills and leadership capacities of island residents. The public seeks thoughtful, comprehensive policy development to resolve the uncertainty and confusion that surround many public issues. GCE's 1991 needs-assessment study identified six potential trouble spots. Among them were: the impact rapid development (both tourism related and from intensified immigration) has on Guam's rural community life; the cost of living; and the quality of social and family services in areas like schooling, utilities, health and welfare needs. The localized effects of Japan's slowing economy were also considered. Three other problem areas are volunteer development and management, organizational board effectiveness education and public policy education.



Volunteer Development and Management

Under the Volunteer Development and Management component, FCL conducted activities and workshops using trained volunteers or resource persons. These sessions were co-sponsored by the Guam Department of Education, the Department of Public Health and Social Services, the Guam Mayors Council, the Navy Family Services Agency, the Guam Police Department, and other groups. Fifty-six workshops were held to train high school student-government participants, school nurses, SPIMA (Servicio Para I ManAmko) staff, municipal planning council members and the Guam Council of Women's Clubs.

Organizational Board Effectiveness Education

Organizational Board Effectiveness Education focuses on consulting and advisory methods. This effort resulted in the formation of a Guam chapter of the National Council on Drug Abuse and Drug Dependency and the work with the Guam State

Council on Vocational Education. A five-part educational radio show broadcast helpful tips.

Public Policy Education

Public Policy Education 1992 events consisted of consulting and working with the Guam Department of Commerce (specifically the tourism master plan development policy), the Guam Agricultural Board of Commissioners (pesticide and land-use policy) soil and water conservation districts (legislation to protect prime agricultural lands), the inter-agency review of Guam Environmental Protection Agency rules and regulations, and the Department of Public Health and Social Services (planning and evaluating database systems development). These efforts resulted in three radio spots targeting tourism, agricultural land use and health services.

In an effort to better equip island residents to deal with rapidly changing social and economic issues and to better mold their futures, the GCE initiated a series of leadership-development and policy-making programs.

For example, GCE and the Guam Police Department held meetings in the village of Dededo to help municipal planning council members there address increasing vandalism and neighborhood crime. Dededo is the largest and most urbanized of Guam's 19 villages. The workshop resulted in the creation of neighborhood watch groups.

Recent Finding: A Community at Risk

Heart disease is the leading cause of death in the United States. For Guam, the situation is even more alarming. According to local health statistics, the rate of death from heart disease among island residents runs twice that of the U.S. mainland. Death rates from other degenerative, diet-linked diseases like diabetes, cancer, heart disease and strokes is also rising. One contributing factor seems to be the traditional island diet which is heavy in meat and fats but lacking in vegetables, fruit and milk products. GCE's outreach programs have emphasized wiser food choices and more physical exercise that can combat degenerative diseases.

COMMUNITY AND RESOURCE DEVELOPMENT

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1990-91

CRD continued training government personnel and staff of non-profit organizations in the areas of boardsmanship, strategic planning, group participation, effectiveness and leadership skills.

Leadership materials, previously developed in the western states with funding from the Kellogg Foundation, were adapted and used locally with other training material to encourage greater public involvement in the government decision-making process.

Research efforts included an islandwide needs-assessment study of households and target groups.

Research findings were used to determine future program priority needs.

GCE teamed with the Department of Public Health and Social Services to compile "behavioral risk factors" studies. The results are expected to help in the designing of future educational programs.

Work continued on the development of a training manual on multicultural education as well as on waste management, research into the social-cultural, economic and environmental impacts of tourism, and distance in-service adult education via satellite for the Pacific islands.

The Government of Guam offered \$55,000 in support of leadership training through the Family Community Leadership division.

The Farm Foundation, the Western Rural Development Center, the Kellogg Foundation and Agricultural Development in the American Pacific project all provided travel grants for off-island meetings and conferences for Community Resource Development faculty.

Media productions included training materials and radio shows .

The Consumer and Family Sciences (CFS) unit offers services to the community of Guam and neighboring islands in Micronesia.

A total of 61 workshops were conducted at the end of the four-year plan of work (a number which exceeded the 48 workshops specified in the plan.) These workshops included Dress for Success; Beginning, Intermediate and Advanced Sewing; Basic and Advanced Pattern Drafting; Quilt in a Day; Holiday Gifts and Decors Using Local Materials; and Your Best Foot Forward (for senior citizens.)

Under the Child Development area, workshops on Effective Discipline, Parenting and Teen Pregnancy were conducted. Clientele came from the

C O N S U M E R A N D **F** A M I L Y S C I E N C E S

military, the community at large and referrals from the courts. Two grants — Project Intercept and Project Microscope — were also carried out. The latter was conducted with the 4-H and Youth Development unit. These grants trained teachers and school aides on how to provide classroom activities that would increase self-esteem, values identification and decision making.

Health Start, a joint project with the Department of Education and the Department of Public Health and Social Services, assessed the risk of obesity and provided nutrition education to elementary schoolchildren in three schools in Southern Guam.

Guam's first Family Forum, held in March, was entitled "Family Well-Being in the '90s" and was sponsored by CFS. Dr. Shirley Baugher, deputy administrator of Community and Family Sciences and Human Nutrition, ES-USDA, was the keynote speaker.

Ten community residents learned about the dangers of high blood cholesterol through the two Blood Sugar and Cholesterol Count sessions held last year. The program continues this year and is expected to include tips on high-blood pressure and body fat. Under last year's program, participants learned about the nature of cholesterol, how to control their diets to reduce their exposure to it, and whether they personally were at risk from high cholesterol.

Undergraduate students will soon

pikue, and the making of novelty gifts like refrigerator magnets, candy-grams, Easter baskets, Santas, and snowmen. Participants learned practical skills such as how to fill out an application form and a log book, complete a checklist of activities and a time sheet. The importance of teamwork and business ethics were emphasized in the training. Earnings from product sales were returned to the students as part of their stipends. Business training was undertaken by Junior Achievement while the stipends were funded by a

- ries topics;•Coordinating programs already implemented that involve two or more subject areas;
- Developing and strengthening community coalitions and linkages;
- Documenting participants who adopt practices that improve basic life skills (ie: managing resources, choosing nutritious foods.)

Also a top priority last year was working with the Mayors Council in a grass-roots effort to reach island residents. Twenty-one mayors and five vice mayors participated. GCE also worked with other agencies such as Small Business Administration, Department of Revenue and Taxation, Bureau of Women's Affairs, Alee Center for Abused Women and Children, Guam Housing Corporation, the Guam Chamber of Commerce and Guam Economic Development Authority and selected legislative committees.



The Family and Consumer Issues

have the opportunity to earn a degree in Family and Consumer Sciences. The program curriculum is now under design.

Youth Empowerment

"Earn While You Learn," a pilot program of the Project Youth Empowerment, trained four groups of middle school students. Each two-hour session, held twice weekly, was attended by 15 to 20 middle school youths. Activities included the processing, drying and packaging of "pickle fruit," known locally as bilimbi or

donation from the Rotary Club of Guam.

Family Resource Management

Two new programs, Money Sense and the Senior Series, are development programs that have been introduced and targeted to limited resource individuals and families. The major objectives of this type of programming include:

- Training volunteers in basic money management skills and Senior Se-

newsletter, which contained general information about recent research, health care, consumerism, stress management, communications, legal issues and community resources, was mailed to school principals, teachers, homemakers and farmers.

Expanded Food and Nutrition Education Program (EFNEP)

The Expanded Food and Nutrition Education Program (EFNEP) is a community outreach program adminis-

tered by GCE, the University of Guam and its College of Agriculture and Life Sciences. Through the program, limited-resources families, families with young children and youths are taught the essentials of food nutrition.

Last year, EFNEP increased the number of nutrition-education workshops due to the heightened awareness among island residents about food, nutrition and food safety caused by last year's unusual spate of typhoons.

The unit spread its message through radio talk shows, leaflets, public displays, small groups discussions, video tapes, computer software and interactive video.

1990-91

The Consumer and Family Sciences unit conducted workshops on teen parenting, effective discipline, food sanitation and safety, island cooking, clothing resources, interior design, Dress for Success and sewing classes targeted at military dependents, day-care providers, teachers, students, youth, school aides and senior citizens.

The unit also implemented Project Intercept, a values-identification and self-esteem program, and, on neighboring islands, a similar program called Project Microscope.

Publications, presentations, and radio tapings continued. Ties were also established with public and private agencies for family resources. EFNEP taught 141 homemakers new ways to improve their family diets. A Consumer and Family Sciences major was being developed and a survey was done to indicate a preference for a fashion merchandising major or a general Consumer and Family Sciences major. A family-oriented 1992 calendar was also created and distributed. The unit participated in the grant proposal for Youth At Risk entitled Project Youth Empowerment.

CONSUMER AND FAMILY SCIENCES

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The 4-H Program involved more than 18,000 local youngsters last year in a variety of programs.

At the core of the 4-H program are the areas of career planning, fishing and aquaculture, clothing construction, veterinary science, horticulture, forest restoration, plant science and gardening.

Last year, students and faculty members at three local schools worked with 4-H leaders to create mini-gardens or plant trees on school campuses. Workshops on nutrition and self-esteem and listening skills were popular as were special computer-skills courses, funded in part by a \$20,000 grant from the 21st Guam Legislature. Four after-school computer workshops were held for interested youngsters.

4-H **AND** **YOUTH DEVELOPMENT**

The 4-H International Exchange played host to more than 5,000 Japanese schoolchildren who came by sea to Guam to learn firsthand about the American school system last year. Many of the visiting youngsters planted trees at the "international forest" located on Cross-Island Road, continuing a yearly tradition. A select group of Guam students was also invited aboard the visiting Japanese ships for a special day of fun and friendship.

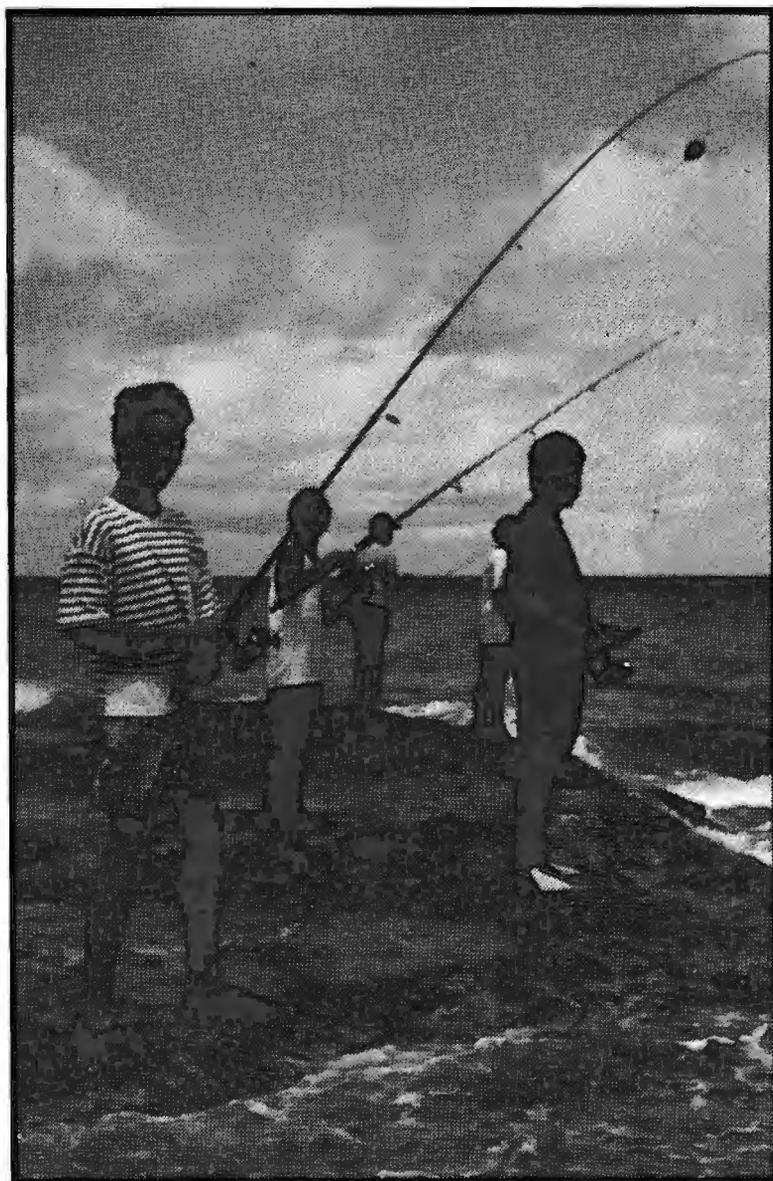
Youth at Risk

Under the direction of the Guam Cooperative Extension, a coalition called Project Youth Empowerment was formed to explore different ways to encourage youths to lead more productive lives. The number of coalition members grew to 15 last year with the addition of the Rotary Club of Guam, the American Association of University Women, and the Junior Achievement. The Rotary Club donated \$2,000 to Youth at Risk activities.

Several programs for youth empowerment were launched including the Earn While You Learn workshop co-sponsored by GCE's 4-H and Consumer and Family Sciences units. A resource folder of coalition members and their programs was published. 4-H co-sponsored two radio shows, "Teen Reality" and "Kids Talk." Also, a workshop for young women was co-sponsored with the American Association of University of Women.

Popular summer programs continue

to be the annual fisheries project and the veterinary science club, both of which combine classroom knowledge with field experience. The fisheries program, which last year highlighted spear-fishing, will be augmented this coming year by a \$50,000 Legislative grant. A grant from the Council on the Arts and Humanities Agency enabled 4-H to host a series of workshops with local artists. Youngsters were able to dabble in such diverse media as glassworks, acrylic painting and charcoal drawing.



Microscope, a training program for school administrator, teachers, classroom aides and others who work with schoolchildren, continued its work in outlying Micronesian islands. Funding comes from the U.S. Department of Education's efforts to promote drug-free schools. Last year's program found 4-H leaders in Saipan, Majuro and Palau teaching courses on decision making, peer pressure and self esteem.

1990-91

The 4-H and Youth Development unit held a series of workshops on computer graphics and desktop publishing for students from ages 9-16.

The International Exchange program attracted to the island more than 5,000 Japanese youths who were hosted by 16 local elementary and middle school students. Under a grant from the Guam Legislature, 4-H clubs traveled to Australia and Hawai'i.

4-H has continued its programs in the areas of fishing, aquaculture, clothing construction, architecture, veterinary science, horticulture, junior careers and plant science. The unit also continued to teach communications skills in public and private schools.

A \$54,000 federal Youth Empowerment grant was used to organize a coalition of organizations and agencies which provide youth services and which could identify future projects for Youth at Risk. A brochure was also created highlighting the coalition's activities.

4-H AND YOUTH DEVELOPMENT

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The Media unit supports the work of other GCE departments by publicizing and documenting their events, projects and programs. The unit works with the latest in computer technology to create a variety of print publications and videos. It works in tandem with Guam's print and electronic media to publicize GCE's activities and faculty projects.

MEDIA



Recent activities included:

- The production of annual reports, newsletters, manuals, calendars, posters and brochures.
- Production of the college's newsletter, *I Lina Chok*.
- The production of the "Cuentos Ina La'la" (the Farm, Home and Community Report) daily radio program.
- Ongoing documentation using both still and video photography.
- The Teletips phone-in information service offering advice on a range of topics.
- Exhibits were produced for national conventions and for local public awareness events.
- Staff gave presentations in Islandwide Pagemaker Workshop and Adobe Illustrator Workshop.
- Production of promotional literature for cooperating agencies such as the Department of Public Health and Social Services.

1990-91

The Media unit continued its distribution of the crop and market report, *Fan'gualoan* newsletter, the Swine newsletter, and the Aquaculture newsletter while continuing its broadcast and print production.

MEDIA

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The American Pacific spans five island groups — American Samoa, Federated States of Micronesia, Commonwealth of the Northern Mariana Islands, Guam and Hawai'i — and encompasses a variety of social, geographical, cultural and political considerations. ADAP is an Extension education resource network initiated by the directors and deans of the islands' Land Grant institutions. It is designed to encourage agricultural development and regional economic stability by strengthening the working relationships among the region's colleges and universities.

AGRICULTURAL **D**EVELOPMENT **I**N THE **P**ACIFIC

ADAP is divided into six focus areas: staff development, crop protection, communication and database, agroforestry, marketing and project administration. Funding is provided by the USDA Cooperative Extension. Curriculum offerings also include environmental education. Satellite teleconferencing and other long-distance communications methods are widely used to help ADAP participants overcome their geographic isolation.

ADAP projects which involve GCE agents include:

- PEACESAT Link to enhance access to computer bulletin boards in outer islands.
- Management Services
- Ag Statistics
- Taro Planthopper Predator
- Dietary Guidelines
- Diet Assessment
- Ag Instructional Materials (AIM) Services for classroom, extension and distance-education programs.
- Agroforestry Extension Training
- De Consortium Delivery for preparation, delivery and evaluation of a one-credit course via PEACESAT.

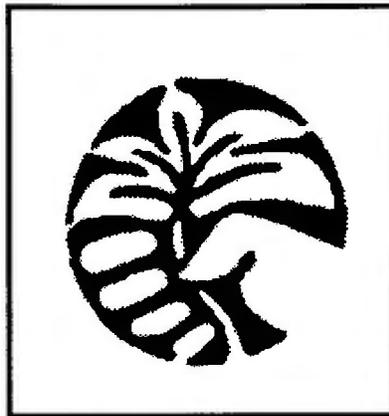
GCE's crop-protection experts have been researching the fruit-piercing moth, a pest which damages the marketable appearance of fruit.

Faculty members have been researching plant-virus distribution by using immunoblotting kits prepared in Hawai'i to collect samples on Guam, Saipan, Tinian, Rota, Chuuk, Pohnpei and Kosrae. An initial survey to control virus spread in Guam and Micronesia has been completed despite disruptions by typhoons.

In the communications and database area, faculty members have been providing technical support for database equipment and software. A plant disease database is being compiled and will include high resolution graphics and about 50 slides of various plant disease symptoms.

Other recent accomplishments include:

- The Communication Database Task Force's work linking Guam with other ADAP sites through a bulletin board system.
- A computerized database of crop production information, which uses avocados as a model applicable to the American Pacific.
- The expansion of the Micronesian Area Bibliographic database and



the Agricultural Registry database to include resources of the University of Hawai'i and American Samoa Community College.

- The creation of 16 new pest identification leaflets which enable the public to identify some of the major pests plaguing important regional crops.
- The development of a system to digitize high-resolution color images for use in computer databases and for electronic and print media. This tool will help extension agents more widely disseminate their research findings.

- The creation of a computer program (shell) capable of handling a plant-disease database with high-resolution graphics within the ADAP telecommunications network.
- A crop-protection/biological-control database was developed to identify pests in the American Pacific and their biological-control agents.

In the agroforestry area, the first course in agroforestry extension training was held at the Ija Experiment Station and was intended for resource personnel from the College of Agriculture, the Guam Department of Agriculture and the USDA Soil Conservation Service and the Soil and Water Conservation districts. The workshops included information on hedgerow and wind-break planting, critical area planting, and field assessment for preparing conservation plans.

In marketing, training modules were developed to provide Extension Agents and other field workers with educational materials as part of an effort to teach outer island people about the "cash economy," its fundamentals and its function. A Market Information System project is also underway.

Efforts to reduce the use of pesticides in the region by developing alternate management strategies, such as biological control and host plant resistance methods.

PUBLICATIONS LISTING

AGRICULTURAL CHEMISTRY

- Assessing Alternate Sources for Commercial Inorganic Nitrogen Fertilizers on Guam #59
- Playing it Safe with Pesticides
- Sprays, Sprayers and Spraying

AGRICULTURE GENERAL

- Guam Planting Calendar (2nd revision)
- Guam Planting Calendar (circular #3)
- Guam Farm Recorder Book
- Careers in Agriculture
- Fanguluan Newsletter Vol. 1 No. 1 May 1991, Vol. 1 No. 2 July 1991.

AGRICULTURE PEST

- Bacterial Blight of Mendioca PP 88-1
- Banana Skipper PS.88-15
- Bean Fly PS.88-11
- Bean Pod Borer PS.88-10
- Black Citrus Swallowtail PS.88-7
- Citrus Leafminer PS.88-6
- Cockroaches and their control
- Coconut Scale
- Eriophyd Mite
- Fruit-piercing moth PS.88-2
- Hemispherical
- Leafminer PS 88-3
- Budmite PS.88-18
- Mango Shoot Caterpillar PS.88-4
- Masigsig
- Melon Aphid
- Mexican Creeper
- Orange Spiny Whitefly PS.88-14
- Phaleanopsis mite PS.88-19
- Powdery Mildew
- Red Banded Thrips PS.88-8
- Red Orchid Scale PS.88-20
- Southern Blight

- Sweet Potato Whitefly PS.88-5
- Swine Pest Control
- Taro Hornworm
- Termites & their Control
- Vanda Orchid Scale PS.88-17
- Woolly Whitefly PS.88-13
- Yam Rust Mite

ANIMAL SCIENCE

- Baby Pig Care (Bulletin #1)
- Common Poultry Diseases (Cir.#4)
- Cost and Returns of Hog Production on Guam
- Goat Management
- Pig Production Newsletter March-April 1990
- Swine Management

AQUACULTURE

- Aquaculture: Most commonly asked questions about aquaculture on Guam and a description of some species commonly grown on Guam. AQ90-1
- Aquaculture & Fisheries Development in the Western Pacific newsletter, Vol. 1 No. 1 Dec. 1988, Vol. 2 No. 1 Sept./Oct. 1989, Vol. 3 No. 1 Dec. 1990, Vol. 4 No. 1 June 1991

CLOTHING AND CONSTRUCTION

- The Perfect Fit
- A Planned Wardrobe for Guam
- Accent on Colors
- Building Blocks of Design
- Color Wheel

COMMUNITY DEVELOPMENT

- A Limited Preliminary Assessment of Guam's Social Service Needs

- A Social Assessment of Public Reactions and Input to the Bureau of Reclamation's Guam Potential Water Resources Development Planning Study Educational Information Center
- An Introduction to Community Development Institute
- Behavioral Risk Assessment Survey Related to the AIDS Prevention and Education: The 1989 KAB Survey
- Chamorro Family Structure and Childbearing Practices with Implications for Services to Families and Children
- Characteristics & Housing Preferences of the Elderly on Guam
- Family Community Leadership Brochure
- Health Needs Assessment of Northern Guam
- Health Status of the Population of Guam: Dental Needs and Care.
- Health Status of the Population of Guam: Health Care Accessibility, Utilization, Satisfaction and Responsibility
- Health Status of the Population of Guam: Salient Social and Economic Characteristics
- Health Status of the Population on Guam: An Analytical Discussion of Selected Lifestyle Patterns
- Health Status of the Population: Morbidity
- Helping Pacific Island Youth Cope in Today's World
- Immunization Status on Guam's Children Under Ten Years of Age: A Statistical Report
- Lifestyles and Welfare Among Low-Income Families on Guam: A Study of AFDC Clients
- Resources Development Planning Study (May '85)

- Salient Characteristics of Unemployed, Underemployed and Economically Disadvantaged Residents on Guam: A Statistical Report
- Survey on Knowledge, Attitudes, and Beliefs Related to AIDS Prevention and Education: The 1989 KAB Study
- Volunteers—Guam's People Helping People
- Waste Management

CONSERVATION

- Every B.T.U. Counts
- Save Water Heating Dollars
- Conservation with Major Appliances

COOKING

- Christmas Gifts from the Kitchen
- Pots & Pans

EXTENSION GENERAL

- Extension Proceeding 1990
- Extension 75th Anniversary 1989
- Guam Cooperative Extension Annual Report 1988
- Guam Cooperative Extension Annual Report 1989
- Teletips Directory

FINANCE

- Financial Manager

FOOD & NUTRITION

- Expanded Food & Nutrition Education Program Poster
- Freezing your Vegetables
- Getting the Most for your Foods
- Guam's Favorite Foods (EHE Cookbook)
- A Guide to Nutritious Snacks
- Breadfruit "Lemai" is Nutritious
- Homemade Jams, Marmalades & Jellies—A Special Treat
- Pickles & Relishes put Zip in Meals & Snacks
- What's on the Label
- What will you do with all the mangoes

FRUITS & VEGETABLES

- A Guide to Growing Bananas
- An Economic Assessment of Producing and Marketing Fresh Pineapples on Guam
- Classification of Selected Vegetable & Fruit Crops
- Cost and Returns of Producing Bananas on Guam
- Disease Control Guide for Vegetable

Growers

- The Guam Fruits & Vegetables Pesticide Guide
- Going, Going, Gone (Bananas)
- Growing Eggplant on Guam
- Growing Pineapples in Guam (Bulletin #5)
- Mango tree care

FURNITURE

- Rattan, Wicker, Buri and Bamboo...Good Choices for Island Decor

HOME ECONOMICS GENERAL

- Extension Home Economics
- Home Economics Careers
- Home Economics Gets it all Together
- How to get more from your Lawnmower
- WHAT is EFNEP
- Expanded Food and Nutrition Education Program poster
- Home Economics Calendar

HOME GARDENING

- Vegetable Minigardens
- Introduction to Home Gardening Fruit and Vegetables
- Home Gardening on Guam

HUMAN DEVELOPMENT

ADULT

- Fact Sheets for Women on Guam
- Adult What Goes into Guidance?
- Parents are Teachers too
- Nutrition for Older People

CHILD

- ABC's for Parents of Young Children
- Breastfeeding your Baby
- Choosing Baby's Diapers
- Effective Discipline
- To Spank or Not to Spank
- Why is my Child Sometime Naughty?

TEENAGER

- Teen Parenting

I LINA CHOK (College of Agriculture & Life Sciences newsletter)

- Vol. I. No. 1 July 1988
- Vol. I. No. 2 August 1988
- Vol. I. No. 3 Sept./Oct. 1988
- Vol. I. No. 4 Nov./Dec. 1988
- Vol. II. No. 1 May/June 1989
- Vol. II. No. 2 July/Aug. 1989
- Vol. II. No. 4 Sept./Oct. 1989
- Vol. II. No. 5 Nov./Dec. 1989
- Vol. III. No. 1 Jan./Feb. 1990
- Vol. III. No. 2 March/April 1990
- Vol. III. No. 3 May/June 1990

- Vol. III. No. 4 July/Aug. 1990
- Vol. III. No. 5 Sept./Oct. 1990
- Vol. III. No. 6 Nov./Dec. 1990
- Vol. IV. No. 1 March/April 1991
- Vol. IV. No. 2 July/August 1991
- Vol. VI. No. 3 Sept./Oct. 1991
- Vol. VII. No. 4 Nov/Dec 1991
- Vol. VIII. No. 1 Jan/Feb. 1992
- Vol. VIII. No. 2 March/April 1992
- Vol. VIII. No. 3 May/June 1992
- Vol. VIII. No. 4 July/Aug.1992
- Vol. VIII. No. 5 Sept./Oct. 1992
- Vol. VIII. No. 6 Nov./Dec. 1992

MARKETING

- Roadside Advertising bulletin
- Roadside Marketing of Agricultural Products on Guam

PUBLIC POLICY EDUCATION

- Defining Guam's Development Policy Issues: The Community's Values within the Debate
- Governing Boards: Fact Sheet
- Public Policy Education. Fact Sheet I: Summary of Planned Units on Guam's Major Development Boom, 1987-89.

RECRUITMENT

- College of Agriculture & Life Sciences Recruitment brochure
- College of Agriculture & Life Sciences Recruitment Academic Year 90-91 Calendar
- College of Agriculture & Life Sciences Recruitment Academic Year 91-92 Calendar
- College of Agriculture & Life Sciences Recruitment Poster

SAFETY

- Be Prepared for the Typhoon
- Protect Kids use Car Seats (Series #4)

SOIL

- Soil Taxonomy & Agrotechnology Transfer

WEEDS

- Common Weeds on Guam

YOUTH DEVELOPMENT

- 4-H 16th Annual 1979 Year of the Child
- 4-H Gardening Program
- 4-H Program on Guam
- 4-H Volunteer Brochure
- Guam's One-on-One 4-H Basketball
- Guide for 4-H Clubs, Members and Officers of Guam
- Installation of New Officers for 4-H Club
- Volunteer as a 4-H Leader
- What is 4-H?
- Power Up folder

DISCLAIMER

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