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COOPERATIVE EXTENSION



1989 ANNUAL REPORT

College of Agriculture and Life Sciences, University of Guam

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Message from the Dean/Director

As in the past years, we are pleased to present in this report major highlights of Guam Cooperative Extension programs offered to the community and the Pacific region for the year 1989.

The Cooperative Extension System provides the community and the Pacific region with informal education programs in the areas of agriculture and natural resources, community resources development, 4-H and youth development and home economics.

These educational programs are carried out through classroom sessions, demonstrations, farm and home visits, mass media, and publication of printed materials relating to various topics of interest to our farmers, homemakers, and the youth.

On behalf of the Guam Cooperative Extension, I would like to thank our numerous clients, volunteers and all cooperating agencies or organizations for the support and encouragement they have given us to keep working toward the goals of our Cooperative Extension System.

C.T. Lee
Dean/Director
College of Agriculture & Life Sciences
Guam Cooperative Extension

OVERVIEW

Cooperative Extension is a national educational network that provides practical knowledge based on the research of the nation's Land-Grant universities. Although extension work goes back many years on Guam, the first Cooperative Extension system was established formally here soon after the University of Guam acquired Land-Grant status in 1972. Extension is a partnership between the U.S. Department of Agriculture, the territorial government, and the University of Guam; they share in the planning and costs of providing extension work. The Guam Cooperative Extension is one of 3,000 extension service sites located throughout the Continental United States and reaching to all the territories, the Republic of Belau, the Republic of the Freely Associated States of Micronesia, the Commonwealth of the Northern Mariana Islands (CNMI), and American Samoa.

Information is readily available from the University's College of Agriculture and Life Sciences which is home to the Guam Cooperative Extension (GCE) and its staff of extension professionals. Here is a quick reference guide to the GCE and a sample of the many services it provides to the public:

Agriculture and Natural Resources

Agricultural extension agents work to find ways to control pests and diseases such as the melon fly wasp and bacterial fruit blotch. Other services for farmers include demonstrations of electric fencing techniques, and workshops on the safe use and application of pesticides and herbicides, farm management, marketing and drip irrigation. In addition, agricultural agents assist livestock and fish pond operations with production and marketing techniques.

4-H Youth and Development

4-H is a youth education program made up of young men and women between the ages of nine and 19. The 4-H program serves Guam in villages, public schools and rural areas, with information on agriculture, home economics, community development and related subject matter pertinent to the development of the island's youth. Volunteer adult and teen leaders provide leadership and guidance to all participating members. The program is based on "learned by doing."

Community Resource Development

CRD helps residents assess social, economic and cultural changes and to find ways to adapt them into their home lives.

Home Economics

With the increasing number of women in the work force, extension home economics has changed to meet the needs of this clientele as well as serving the traditional homemaker. Programs include dress for success, financial planning, money management, managing clothing and housing resources, and parenting.

Other Programs

Project COPE—Designed to help school-age youth learn ways to cope with the problems and pressures they face today on Guam. Funding provided by the Gannett Foundation and in cooperation with the Department of Education.

Family Community Leadership—An adult education program to develop the skills and confidence people need to help lead their community groups, and to help others to understand public policy issues relating to families and communities. Funding is provided by a grant from the Kellogg Foundation and is conducted in cooperation with the Guam Council of Women's Clubs.

Agricultural Development in the American Pacific (ADAP)—Five Land-Grant institutions involved in a regional effort to promote agricultural development in the American Pacific obtained a grant from the United States Department of Agriculture to implement a reciprocal resource sharing plan. These institutions include the University of Hawai'i, University of Guam, College of Micronesia, American Samoa Community College and the College of Northern Marianas.

Expanded Food and Nutrition Education Program (EFNEP)—Administered by the Home Economics unit and helps many families improve their diet and nutrition.

Profiles of the Youth

Through its clubs, activities and programs, 4-H has taken an aggressive move toward insuring a safe and more productive future for Guam's young people.



There are more than 26,000 young people on the island of Guam. This year almost half of these youth participated in various 4-H clubs and programs. 4-H strives to teach good values and practical skills through the learn by doing technique. 4-Hers get a chance to try what they've learned in real life setting. 4-H stresses not only learning new skills and good values but how they can be used for the betterment of our community.

The emphasis this year was put on the development of new clubs; summer workshops for developing practical skills; special school enrichment programs; volunteer development training; community service programs; international exchange; career development; soil conservation and forestry; public speaking; and profiles for leadership.

The new clubs on the block this year are the 4-H Horticulture Career Club and the 4-H Culture and the Brodie Memorial 4-H Club. The horticulture career club has a growing membership and has focused its attention on tissue cultures for making corsages, and potted plants. Club members, along with volunteers, have engaged in several fundraising activities to support their projects.

The 4-H Culture Club made its way to the international scene when its members attended a ski school, and opened the doors to international exchange when it hosted more than 500 visiting youth from Japan. Club members held workshops on appreciation of Japanese art, language and culture, skiing skills and photography.

A special club was formed from the students at the Chief Brodie Memorial School for children with various learning, emotional and behavioral disorders. Tree planting and working with plants were the main activities of the Brodie Memorial 4-H Club. The 4-H Horse Club and horticulture club have helped to provide plants and a place for the club to meet.

Summer was a busy time for 4-H as it joined efforts with extension's home economics and agriculture and natural resources units to put on workshops on sewing and clothing management, veterinary science, and fisheries. In these programs young people learn to sew clothes and household items, as well as manage their wardrobe; to appreciate animals and help in control of the brown tree snake; and various fishing techniques and the importance of protecting ocean resource.

In the special school enrichment programs students learned about public speaking and listening skills; soil conservation and forestry; how to prepare for the science fair; bicycle safety; gardening; and intercultural exchange.

4-H, in looking toward the continuation and expansion of youth projects, conducted volunteer development training programs. The five-day seminar, "Profiles for Tomorrow," was attended by Raymond Crisostomo and Iona Melyan from Guam. It was conducted at the national 4-H center in Washington, D.C., and was sponsored by the Monsanto Company. "Volunteers for the Future" was held in Albuquerque, New Mexico. Guam was represented by Carol Rivera and Kathy Singh.

Closer to home, five 4-H members of the international club attended the Aho Alelo, a 4-day junior leadership training program held on the University of Hawai'i at Manoa campus. Counties in Hawai'i are invited to send representatives to the program. This is the first year Guam has been invited to participate.

At home, a special values and judgment program was offered to five 4-H members. The youth who participated in project COPE have gone on to work as junior 4-H leaders in their clubs and hold offices in their school programs.

4-Hers participated not only in their own club events but also took time to share their expertise and learn from other experts in community improvement projects. In the annual Dress-A-Living-Doll campaign, 4-Hers played a key role in collecting, wrapping, and giving Christmas clothes to children who would otherwise have nothing. They worked closely with the staff of the Department of Public Health and Social Services. The presents are given to the children by Santa Claus at the traditional Christmas party at Government House.

Community Service

Some members have shown an interest in protecting our island's resources and have joined hands with the Guam Environmental Protection Agency in clean-up projects and in the importance of recycling.

The JAL Marathon was another focus of 4-H's community service attention. 4-Hers helped with language translation and at the aid stations. For the Smokey the Bear Run, 4-Hers set the course with staff of the Department of Agriculture Forestry Division, and provided assistance and water to the runners throughout the race site.

4-H's career development clubs prepare their members for possible careers in computer science, horticulture, architecture, international exchange and veterinary science. In these clubs members learn and develop skills in leadership, organization, professionalism and innovation. Career club members interact with established professional firms and often provide assistance in community service activities.

The computer club has been especially successful in their interaction with the members of a Communications and Database task force of the Agricultural Development in the American Pacific Program. These young people have provided technical support in setting up and maintaining computer networking systems and in selecting and teaching the use of various applications in word processing, message exchange on-island and overseas, desk top publishing, statistics and graphics.

The 4-H Architecture Club received a grant for more than \$4,000.00 from the Guam Council on the Arts and Humanities Agency and is sponsored by the American Institute of Architecture. Every week a lecture or field trip is presented to the members. They work with professionals in drafting, interior design, model building and other aspects on the field.

Through its clubs, activities and programs, 4-H has taken an aggressive move toward ensuring a safe and more productive future for Guam's young people. They provide the basic skills in leadership and open the avenues to reach their goals. 4-H gives young people the tools they need to build a better future, for themselves, for their families and for their island community.

Coping with Stress

Lifestage changes are stress points for Guam families. Stress sources usually occur during early child-bearing; child-bearing; gaining financial stability and the family in retirement. Coping with problems at these stages move people to seek ways to maximize life resources for successful passage from one stage in the life cycle to the next. A 1986 needs assessment by Guam Extension showed public feeling that Guam's top family problems were drug and alcohol abuse; family financial management; child abuse; and family-related stress. In support of this feeling are the facts that the consumer price index has reported increases since 1978 with the increase being somewhere between eight percent and 11 percent during the last year. Teen pregnancies continue to increase. Reported child abuse doubled from 1982 to 1986. A 28 percent increase is projected for the elderly population growing to 12,223 by 1990.

The objectives in this project were to decrease stress in Guam families by improving family relations, increase ability to deal with family budgeting procedures, increase personal satisfaction by learning clothing and home item buying and construction skills, and improve relationships between generations in the household.

To achieve these objectives, a variety of workshops have been held. Workshops on wardrobe planning, clothes buying and care, construction of clothing, and home decoration have been held. Participants report a real sense of pride and accomplishment when they have finished a garment, quilt, bedspread, or other household items for themselves or a family member. This not only improves the participant's self-esteem which decreases stress, but also enables the participant to save money as a result of his or her own talents and energy.

Effective discipline workshops helped parents learn parenting skills that reduced stress between them and their children. Many parents reported trying out some of the techniques taught in the class with many positive results.

Workshops on communication skills enabled teachers, parents and students to improve their speaking and listening skills. Good communication can reduce many causes of stress in relationships.

The Guam Family Community Leadership (FCL) participants held stress-reduction workshops, teaching relaxation techniques as well as gave information on some causes of stress.

There have been numerous requests for more workshops in all these areas, and especially in stress management and reduction. More workshops were conducted than origi-

nally planned. Workshops will need to continue as Guam families continue to deal with stress caused by rapid social and economic changes.

PROJECT RESULTS:

A total of 330 participants attended workshops on wardrobe planning, purchasing, care and construction of clothing, and home decorations. Extended savings were experienced in both home decorations and clothing projects. Workshops were rated excellent or good.

A total of 225 participants attended four session effective discipline workshops. An additional 1,200 attended single workshops or displays on effective parenting. Seventy-five percent of those attending four-session workshops reported trying new parenting techniques, and improved relationships with their children which resulted in reduced family stress. Ninety-five percent rated workshops as excellent or very good. More students attending peer counseling classes in high schools (started in Project COPE) reported talking over problems with parents than did a non-attending comparison group. Peer counseling students were also better able to express problems and knew more coping strategies. Two-hundred three participants (teachers, parents and students) attended communication skills workshops. All rated workshops as very useful or somewhat useful. Six farmers were assisted with properly allocating resources and keeping basic records. Teen parenting classes were held with 25 Guam Community College High School female students. All increased their knowledge of parenting. Five-hundred young people attended bicycle safety workshops.

Evaluation:

Client records were kept. The telephone survey just started so more detailed evaluation data will be available after this year.

Implications:

More workshops were conducted than were planned in the clothing and parenting areas due to high requests. If requests continue either more staff will be needed or many requests will have to be denied.

Results:

- Family members participated
- Reduced family stress
- Parenting skills improved
- Financial management skills improved
- Clothing and household decor dollars saved

Citizen Involvement

The purpose has been to help leaders, their staff and their constituencies to gain skills that would increase their contributions to island problem-solving efforts that shape local policy strategies.

The need for citizen involvement in decision making ranked among the most pressing problems identified in a recent island-wide needs assessment by Guam Cooperative Extension. There has been an intensifying public dialogue reacting to the impacts of rapid economic, social and cultural change.

Extension's "Socio-Cultural Change and Public Policy Leadership on Guam" project was designed to meet local needs for technical and training assistance not only for Guam public officials but those who have traditionally deferred leadership to other authorities. The purpose has been to help leaders, their staff, and their constituencies to gain skills that would increase their contributions to island problem-solving efforts that shape local policy strategies. Several objectives guided program activities:

OBJECTIVES:

To increase group planning skills and use of community problem-solving methods among community organizations, homemakers, clubs and youth groups in such areas as crime/vandalism, public service and tourism.

To increase the knowledge of local government officials and members of public boards, commissions and advisory groups in the skills and practices of public-management policy formation.

To develop skills of citizens to increase their involvement in public affairs, women and family members in particular will increase their effective participation in community efforts that address family-related public issues.

To increase knowledge and develop skills in intercultural interaction among Cooperative Extension personnel and clients indigenous to the Marianas.

Program activities contributing toward objectives:

1. Guam Welfare Study With Public Health and Social Services

This two-phase study was commissioned in 1987-89 to understand how those who receive one type of welfare assistance are able to provide the necessities of life for their families in this day of ever spiraling upward costs of living. Public employees have received a series of cost of living increases in recent years, due to a steady rise in the prices of everyday times such as food and shelter. Yet, those who are recipients of AFDC and other welfare benefits have not. It was estimated that to adjust welfare payments in line with 1983 cost of living figures required an additional \$7 million just to provide for the 1985 case load. This excluded the additional funding support needed by the Department of Public Health and Social Services (DPHSS) to cover potential increases in operational expenses. Prospects for strong resistance to any revision were very evident. This turned DPHSS's attention to a perplexing question which has troubled them for years. If current need standards are inadequate, how are welfare recipients to meet their needs?

First Phase

The first-phase study report (Workman and Prelosky, 1988) gave insights that helped to focus and design the second phase study conducted in 1989. The findings of both efforts are presented in a final report (Workman and Prelosky, 1989) as an assessment of lifestyles among low-income families in need of welfare assistance. These reports were used by public professionals and leaders designing and planning Guam's implementation of the Welfare Reform Act of 1988.

A sizable volume of related materials is actually available to administrative, legislative and agency personnel seeking additional information.

2. 1989 AIDS Knowledge, Attitudes & Behavior Study with DPHSS



This project was made possible through a combination of resources, expertise, and personnel among three public agencies. The Communicable Diseases Control Section at DPHSS had a need to conduct a community study for program development. They had consulted with Community Resources Development in 1988 before conducting their first community study using their own resources. Making arrangements for the 1989 study, DPHSS-CDC discussed their need with various professionals on the island, including those with the Bureau of Planning. Through these discussions a proposal was developed. This project put into practice the idea of a collaborative team including the expertise of both the clients and the applied researchers. It is the essence of what is called utilization-focused research. The emphasis was not simply to produce a study report, but more so to obtain information useful for program decisions and continued public education efforts advancing the program's mission. Two reports were produced (CD Report 22: August 1989 and CD Report 23: 1989) which have been used for public education presentations and are currently the basis for solving recommendations that are redirecting and changing Guam's AIDS (Acquired Immune Deficiency Syndrome) efforts. In this way the project accomplished the higher goal of useful applied program research.

3. Public Policy Education Information Series

This mass education method had been planned and scheduled for 1989 as a good approach for reaching a larger, general audience. During July 1989, a specific community controversy erupted over a multi-million dollar tourism development project slated for Guam's Southern region. The need for action and chance for impact demanded implementation. The first three factsheets were produced to help the community deal with this local public issue: "Summary of Planned Units In Guam's major Development Boom-1987-1989," "Number of Planned Units In Guam's major Development Boom - 1987-1989," and "Defining Guam's Development Policy Issue the Community's Values Within The Debate." The third factsheet discussed results from a community forum poll developed as part of a five-day morning radio talk-show. In all, recorded notes were taken on nearly 500 Guam who made comments at several community forum events including the talk-show, three public village hearings, and letters to the editor/editorials. This issue-centered event led to changed times of public hearings to allow more public involvement. More factsheets are being developed to cover both basic educational information and, when controversies arise, specific issues.

4. Staff Development Training Workshops with DPHSS

The Division of Welfare at the DPHSS sought help from CRD

to provide a year-long training series for their staff and middle-management personnel. Assistance in needs assessment led to six workshops, involving about 100 participants in different training sessions totalling 110 hours. Workshops consisted of "Working With People and Communication," "Training and Managing the Employee," "Developing Interpersonal Interviewing Skills," "Program Monitoring and Evaluation" and "Technical Report Writing: Parts A&B." This project activity was enhanced by cooperation from the Guam Family Community Leadership program and volunteers from the Department of Education and the UOG Social Work program.

Accomplishments:

Family Community Leadership activities were developed and periodic seminars and training institutes were held to assist in leadership skills and personal-social developments.

A local government workshop for village mayors was held. Community leadership skills were enhanced. There were 200 program participants.

The Guam Extension Homemakers Council was established but needs further Extension assistance for maintenance and development of membership. Several workshops and co-sponsored activities in the community have been successful. Ways and means of recruiting and retaining members are being studied.

Several factsheets and other publications were developed and disseminated to the public to assist in problem-solving.

Tourism and village development programs and meetings were held. Various factsheets were prepared on national tourism development effort. Public awareness of social-cultural impacts were increased.

Participated in a national workshop on "Working with Our Publics."

Resources:

Volunteer and community and business experts, WRDC and Western Region specialists, FCL training materials.

Implications:

Increase citizen awareness of rapid social, political and economic change on the island and throughout the Pacific Region. Increase in active participation in the problem-solving process at the village and island wide levels. Increased involvement of women in public policy formation.

Results:

- Planning skills and community problem-solving methods learned.
- Knowledge gained in skills and practices of public management and policy formation.
- Skills developed in public affairs involvement.

Invest in Nutrition



Improving one's health through good nutrition is an investment towards avoiding costly medical care, reduced learning capabilities and diminished earning power. Through the Expanded Food and Nutrition Education Program (EFNEP) families of limited resources were taught the essentials of good nutrition to improve the quality of their diets and health.

Trained program assistants taught homemakers with young children in small groups and on a one-to-one basis. A referral system to enroll participants was established with private and public agencies.

A national food and nutrition curriculum for youth and adults "Eating Right is Basic 2" was used in teaching participants. Adults and youth learned how to improve their family's total diet, principles of good sanitation, and the importance of proper food handling and storage.

There was an improvement in dietary intake of EFNEP participants. Food recall scores showed that EFNEP brought about a dietary change by teaching the importance of eating a variety of foods from the Four Basic Food groups (milk, fruits and vegetables, breads and cereals, and meat).

Clients commented:

"I never knew I could prepare low cost nutritious convenience foods at home. I learned how to make a "magic mix" which I could use to prepare soups, creamed dishes, casseroles and desserts."

"My family and I have always been meat eaters, but now I learned the importance of eating a variety of foods. I have introduced my family to different foods from each food group."

"Before I just went and bought whatever catches my fancy, not anymore. Now I plan my meals and make a shopping list before going to the store. I learned to stick to my budget and also save time in this way."

PROJECT RESULTS:

Situation:

Food prices rose 7.8 percent from March 1986 to February 1987 and 102.9 percent from 1978 to 1987. In 1986, a monthly average of 18,322 persons participated in the Guam Food Stamp program. According to a 1985 island-wide survey, 36 percent of Guam's households will qualify for EFNEP. EFNEP helps combat problems associated with poor eating habits, inadequate financial resources and lack of nutrition education. Public education on basic nutrition, dietary guidelines, and food shopping, preparation, storage, and safety are needed.

Objectives:

1. Clients Food Behavior Checklist scores report good food shopping, preparation, storage, safety, and sanitation practices. An increase in scores is expected from the current levels in 1986-87 to 90 percent in 1991.
2. Graduates reporting improved diet on their exit scores in the Food Recall will increase from the current level of 75 percent to 85 percent by 1991.
3. Increase the annual EFNEP enrollment to 75 families per FTE paraprofessional.
4. Maintain the current level of 4-H and Youth Development contacts in three different schools yearly.

Accomplishments:

Surveys and recalls of what participants were eating when they entered the

EFNEP program and also when graduating show improvement in dietary intake and behavior patterns. Food Recall scores show major improvement from no serving at entry to adequate servings at program exit. (Milk: Fifty-six percent of the families entered the program with no servings of milk. At program exit 64 percent had two or more servings. Meat: Six percent of the families entered the program with no servings of meat. At program exit, 97 percent were consuming two or more servings. Vegetables and fruits: Twenty-nine percent of the families had no servings of vegetables and fruits at program entry. At program exit, 66 percent had four or more servings. Bread and cereal: Four percent of families had no servings at program entry. At program exit 78 percent had four or more servings. Youth contacts from three different schools and other agencies totaled 3,583.

Results:

- Ninety-seven homemakers enrolled per FTE paraprofessional is within the range of national average of 102 per FTE.
- Seventy-five percent of families graduated. The national average in 1988 was 45 percent families graduating.
- Major improvement in diet and food behavior.

Future Implications:

Working with participants in clusters of two to three individuals at a time and in small groups need to be pursued vigorously to be able to implement the program in a more cost-effective manner. Improvement in marketing efforts and on existing referral systems will greatly help in the recruitment of participants. Further studies on other delivery methods such as teaching by telephone and home study are also needed.

Import Substitution

The Import Substitution Project was started in response to the need by producers to improve and increase production and reduce importation of vegetables, pork, shrimp, and fish. The goal of the project is to directly replace the imported products or substitute the imported crop with locally produced items in the diets of the people of Guam. The need was based on the fact that locally grown crops command only a small percentage of the market: 18% of head cabbage sales is locally grown, 19% of pork sales is locally raised, shrimp consumption is high and in demand in tourist and local markets. However, the local supplier cannot generate the seed stock needed by producers. Catfish is readily available to producers and abundant in the market, but consumer knowledge of this fish is limited and thus there is a reluctance to try the product.

In 1989 several areas of the project were initiated:

- The crop report has increased to a consistent monthly release.
- Lists of growers by commodity have been started, for marketing information data collection.
- Draft script and photos were started in preparation of a post-harvest technology workshop. This will be done when the crops agent return from a Post-Harvest Technology workshop in July 1990.
- Production trials and pest control experiments have been conducted alone and in conjunction with the Agricultural Experiment Station.
- A draft publication in Black Rot disease of head cabbage is under revision for final printing.
- Several radio shows (Kuentos I Na La'la) featured head cabbage information.
- One newspaper article was published on head cabbage nutrition and preparation.
- A review of the Plan of Action for this project is scheduled for review in February 1990 with Dr. Mayeske.
- A Pig Producer's Newsletter has been produced monthly.

There are Working Groups in the areas of Market Information System, Sales and Processing, Pest Management, Crop/Commodity Management, Farm Management, Post-Harvest, and Nutrition. Working Group Task Leaders are responsible for the conduct of the Working Group.

This project is hoped to significantly affect the production of the selected commodities by causing more people to consume these products as a result of awareness and knowledge or to replace another imported item in the diet. The primary crops targeted are leafy greens, yardlong beans, pineapple, shrimp, catfish, and pigs.

Two planning meetings and working group meetings were documented and a paper entitled, "Marketing Education Designed for Calculated Impact on Guam: Using Evaluability Assessment for Program Planning" was produced.

The goal of the project is to directly replace the imported products or substitute the imported crops with locally produced items in the diets of the people of Guam.



Pesticides

National Agricultural Pesticide Impact Assessment Program (NAPIAP)

The purpose of the USDA/STATE NAPIAP is to provide the most objective and accurate information on the benefits and risks of pesticides important to agriculture and other uses. This Smith/Lever 3(d)-funded program involves agricultural inputs to the congressional mandate in the Public Law, FTFRA AMENDED. Although not all RPAR'd chemicals are used by Guam's farmers or pesticide applicators, there are those chemicals that are considered essential for agricultural production. To support continued registration of these chemicals, other chemicals registered for the same use must first be identified.

NPIRS Database has been used for retrieval of information on pesticide registration, dosage and target pests. Updating of the pesticide labels was continued. These resources served as a source of information for scientists, extension agents, gardeners, farmers, and others. Eight new fact sheets were printed and disseminated. More are expected for 1990. Four articles on pesticide screening were published in the Insecticide and Acaricide Tests. One article has been submitted and one more is being prepared. Many questionnaires were completed and returned to subcommittees (NAPIAP) for evaluation for various pesticides.

Pesticide Applicator Training Program

FIFRA requires training and certification of personnel engaged in purchase and/or use of pesticides. Many people on Guam who handle pesticides need to be trained in proper methods of pesticides and need to be educated in recognizing the toxicity and hazards of pesticides. The use of ground lens for potable water on Guam further emphasizes the need for creating an awareness of the problems involved and proper use and disposal of pesticides among the pesticide users. There is potential for training 750 backyard gardeners, 250 people associated with pest control companies, government agencies, military installations, and 300 farmers in private commercial application.

Four private applicators training and two commercial applicators training workshops were conducted. A total of 78 private applicators and 39 commercial applicators were trained

and certified. Fifty radio and 20 newspaper advertisements were made. Also, 100 flyers were sent to different agencies for announcements.

IPMM of Head Cabbage on Guam

Head cabbage is one of the major crops produced on Guam. Each year 160,000 pounds are being produced, but nearly 800,000 pounds of head cabbage are imported. Local production has not increased due to insect and disease problems while others only plant it in the dry season. Most of the planting is done during the dry season so that they can spray with chemicals frequently.

Six field trials were conducted to evaluate the efficacy of different insecticides against insect pests that attack cabbage. Naled was found to be effective against *Hellula udalis*. *Plutella xylostella* was found to be resistant to most chemicals tested. Three experiments were conducted using different cruciferous crops to check into the possibility of utilizing them as trap crops. So far, no positive results were obtained. Diazinon proved to be effective in the control of *Solenopsis geminata*. Incidence of other pests were very low, hence no testing could be carried out against those pests.

Diamondback moth incidence was noted only from January through June (traditionally known as the dry season) and it was not a problem throughout the rest of the year.



ADAP

Five Land-Grant institutions involved in a regional effort to promote Agricultural Development in the American Pacific (ADAP) obtained a Year Three Budget of \$619,200 from the U.S. Department of Agriculture (USDA). New funding will be used to implement Plans of Work that have been developed by various principal investigators and cooperators from the University of Hawaii, University of Guam, College of Micronesia, American Samoa Community College and the College of the Northern Marianas.

ADAP is divided into six task force areas: Faculty/Staff Development, Crop Protection, Communication/Database, Agroforestry, Marketing and Project Administration. The ADAP Project will be entering its third year of operations on May 1, 1990 to April 30, 1991.

The University of Guam serves as chair of the communications/database component. Its primary responsibility is to initiate development of a comprehensive and accessible information base on the physical and human resources in the region.

The Communication/Database Task force chaired by Dean C.T. Lee, received Year Three funding for \$90,500. Task force members approved a total of nine projects which are:

Database Management	
\$ 6,000	
Technical Support	
\$35,000	
Communication Network	
\$ 7,000	
Computer Training	
\$10,000	
Network maintenance	
\$10,000	
Video Training	
\$ 3,400	
Telecommunication Database	
\$ 9,300	
Fairs	
\$ 9,300	
TOTALS:	\$90,500

The Database Management component is headed by UOG. Its purpose is to expand the scope of the Micronesian Area Bibliographical Database and the Agricultural Registry Database to include resources of the University of Hawai'i and the American Samoa Community College, and make it available to the five Land-Grant institutions in a PC format.

Technical Support is headed by UOG. Its objective is to provide technical support for operating the communication database equipment and software, to provide troubleshooting assistance if problems occur in the operations of the communication/database equipment and to assist with the installation/replacement of peripherals.

The Information Database Development project, headed by UH, will continue to develop a computerized database information shell for use in producing a graphics-oriented database applicable to the five Land-Grant institutions.

The Communications Network Project also headed by UH will allow communication between ADAP institutions.

The Computer Training project, headed by College of Micronesia, is set up to teach a representative from each Pacific Land Grant institution how to more effectively use the hardware and software supplied through ADAP.

The Network Maintenance project, headed by UH, will primarily keep the present electronic mail and file transfer system functioning.

The Video Training project, headed by UOG is set up to develop video training modules for computer software and hardware use.

The Telecommunication Database project, headed by UOG, is set up to develop a telecommunications database shell for easy transfer and access to information within and among the American Pacific islands.

The Information Database Shell Development project, headed by UH, will continue to develop a computerized database information shell for use in producing graphics-oriented databases applicable to the five Land-Grant ADAP institutions.

Overall, the ADAP highlights during the period of May 1, 1989 to October 30, 1989, the first half of Year two are listed below.

Under the Staff Development Task Force, three major professional development events were successfully carried out in May-June. They were the Crop Protection Conference, the ADAP in-service training on "Using Computers for Data Analysis", and the ADAP in-service training on "Carrying out Field Trials."

Frank J. Cruz received a master of science degree in horticulture from the University of Hawaii under the ADAP Scholarship program and Vincent M. Santos is currently pursuing a master of science degree in horticulture.

The Pacific Staff Development Institute conducted from all ADAP institutions its first long distance education course for credit. Enrollment was high with 10 continuing education students and 87 Land-Grant staff, representing the five Land-Grant institutions.

The applied research projects of the Crop Protection Task Force are collecting considerable new information about incidence of pests and their natural predators. These are long-term projects but even at this early stage, they are increasing the understanding of the region's pest problems.

New ADAP Initiatives:

The directors approved the new Marketing Task Force with a budget of \$30,000 for Year two activities. On the recommendation of the ad hoc advisory group on Tropical Agroforestry, the directors established an ADAP Task Force on Agroforestry, and approved a budget of \$26,000. Five-thousand dollars of New Initiatives funds were used to support Future Farmers of America activities in the region, with the Pacific Basin Development Council coordinating. The directors also committed \$40,000 to the Low Input Sustainable Agriculture (LISA) project to supplement their current two year budget to allow LISA to include all of the major islands of the Land-Grant region in the research project.



Publications

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)
Careers in Agriculture

AGRICULTURE PEST

Bacterial Blight of Mendioca
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
Fruit-piercing moth PS.88-2
Leafminer PS.88-3
Budmite PS.88-18
Mango Shoot Caterpillar PS.88-4
Orange Spiny Whitefly PS.88-14
Phaeanopsis mite PS.88-19
Red Banded Thrips PS.88-8
Red Orchid Scale PS.88-20
Sweet Potato Whitefly PS.88-5
Termites & their Control
Vanda Orchid Scale PS.88-17
Woolly Whitefly PS.88-13

ANIMAL SCIENCE

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

AQUACULTURE

Aquaculture & Fisheries Development in the Western Pacific newsletter
Vol. 1 No. 1 Dec. 1988
Vol. 2 No. 1 Sept./Oct. 1989

CLOTHING AND CONSTRUCTION

A Guide for Sewing & Craft Supplies in Guam
A Planned Wardrobe for Guam
Accent on Colors
Building Blocks of Design
Buy Childrens' Clothes the Right Way
What's on the Label

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

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

CONSERVATION

Every B.T.U. Counts
Save Water Heating Dollars
Conservation with Major Appliances
How to get more from your Lawnmower

COOKING

Christmas Gifts from the Kitchen
Pots & Pans

FINANCE

Financial Manager

FOOD & NUTRITION

Freezing your Vegetables
Getting the Most for your Food Dollar
Guam's Favorite Foods (EHE Cookbook)
A Guide to Nutritious Snacks
Breadfruit "Lemai" is Nutritious
Homemade Jams, Marmalades & Jellies—A Special Treat
Homemade Pickles & Relishes
Pickles & Relishes put Zip in Meals & Snacks
What's on the Label

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
Going, Going, Gone (Bananas)
Growing Eggplant on Guam
Growing Pineapples in Guam (Bulletin #5)

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

HOME GARDENING

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

HUMAN DEVELOPMENT

Adult

Fact Sheets for Women on Guam
What Goes into Guidance?—Child 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 Sometimes Naughty?

Teenager

Growing Together (for teen parents)

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/August 1990

MARKETING

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
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

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?

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"The programs of the University of Guam Cooperative Extension are open to all regardless of race, age, color, national origin, religion, sex or handicap."

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