



EXTENSION IN ACTION

CES Highlights of Planned Activities 2007-2008

UNIVERSITY OF GUAM
Cooperative Extension Service



From The Administrators



Hafa Adai!

The current 2009 Strategic Opportunities for US Land Grant Cooperative Extension Service outlines seven strategic goals. They include (1) Sustain profitable plant and animal production systems, (2) Prepare youth, families and individuals for success in the global workforce and all aspects of life, (3) Create pathways to energy independence, (4) Ensure an abundant and safe food supply for all, (5) Assist in effective decision-making regarding environmental stewardship, (6) Assist communities in becoming sustainable and resilient to the uncertainties of economics, weather, health, and security, and (7) Help families, youth and individuals become physically, mentally, and emotionally healthy. These 7-goals are key components to help advance Guam's importance in the middle of many challenges we currently face. They are broad yet relevant to creating a better future for our island community in the new 21 century.

I encourage each of our CES faculty, staff, stakeholders and volunteers to work hard to ensure that many of these strategic goals are a part of your daily lives and to work hard to make sure that these goals are just not words on a piece of paper but activities that will strengthen the lives of those we serve in our community.

I extend my appreciation to all of you who have worked hard in putting this annual report together and all the materials that it contains. Our uniqueness is that our individualism is intertwined with each other and together you have produced an annual report that brings all of your efforts together as one.

Si Yu'os Ma'ase'

Lee S. Yudin
Dean/Director CES

Service – To Serve – “Setbe”

The common theme among all Land Grant institutions is that they share in carrying out the tripartite mission of teaching, research and service. At the University of Guam (UOG), we relay this very mission statement as “To Enlighten, to Discover, and to Serve.” In the island vernacular, or in Chamorro, we simply state it as “Iná, Diskubre, yan Setbe.”

The UOG Cooperative Extension is one of several UOG components that carry out the Service mission by providing outreach educational programs, first and foremost, to our entire island community. In short, we are all about “people, helping people” in an informal, non-classroom setting. The areas where we provide informal education programs include:

- 4-H and youth development
- Agriculture and natural resources
- Family, Food and Consumer sciences,
- Community and Economic development
- Leadership development

As we engage in teaching and learning, we also listen to our audiences across the island to revise our educational programs accordingly. Our role as university educators working in Guam communities is to remain relevant and flexible by teaching practical life skills and providing contemporary information. The role of Guam citizens, as our partners and volunteers, is to be involved, to supply feedback about what works and what we can improve, and to apply education in meaningful ways in their lives and communities. As a member of the Land Grant system, we also partner with other regional and national Extension organizations as well as several government/non-government organizations to strengthen our programs as well as to grow our human resource capacity to effectively perform our Service role.

We in Cooperative Extension are committed to serving our island with a deep appreciation of our roots and a great belief that we can create an even better future together. In the process we will use our limited resources wisely and seek other resources to continue to partner with others. This annual report provides a sample of the yields of our program endeavors including the resulting partnerships we have developed over the years.

In closing, I extend my profound appreciation and deepest respect to all educators and staff of the UOG Cooperative Extension and our partners (on-island, regionally and nationally) for their dedication and tenacity in doing the things they do best to help make our island a better community. Kudos to all.

Victor T. Artero
Interim Associate Director
UOG Cooperative Extension



Agriculture & Natural Resources

ANNUAL REPORT

AGRICULTURE & NATURAL RESOURCES

2007



Joe Bamba participating in a workshop at Ernie Williams farm.

Animal Systems Aquaculture Development

Planned Program Activity

An article published in the Center for Tropical and Subtropical Aquaculture regional newsletter increased regional aquaculture professionals' awareness of Guam's ability to maintain breeding lines of tilapia and to supply tilapia fry to local and regional farmers. A multiagency-sponsored demonstration system was initiated that integrates rooftop rain catchments, storage tanks, filtration systems, and irrigation lines for production of tilapia and irrigation of plants. Two workshops held at the site on other topics generated numerous inquiries about the system. Workshops on this system are planned for future reporting periods. The Cooperative Extension Service (CES) Aquaculture Park at the UOG campus was maintained to demonstrate recirculating aquaculture systems and aquaponic systems, and many school field trips visited the site to view this appropriate technology.

Tilapia-hatchery production protocols were developed. Training sessions were held to transfer this technology to three hatchery technicians at the Guam Aquaculture Development and Training Center who are responsible for commercial production of tilapia seed stock for the tilapia producers on island. Future training sessions will be provided to interested aquaculture professionals interests as requested. Existing recirculating aquaculture systems at the CES Aquaculture Park were upgraded to demonstrate more efficient and appropriate technology. One example is addition of an irrigation subsystem that consists of a settling tank with pump, pressure regulators, disk filters, and drip irrigation for a bed of eggplants. The technology demonstrated the potential of tilapia- tank- based production systems to act as irrigation- water holding tanks for high- value fruit and vegetable production.

Emerging Aquaculture Technology Adoption

Many individuals involved in agriculture do not realize the potential for tilapia production in tank- based



systems. This enterprise can diversify farm income on Guam and, for subsistence producers, provide a significant amount of fish for the family diet.

In cooperation with the Guam DoAg, a demonstration system was established that is appropriate for small and backyard producers at a very visible and accessible public site. The water from aquaculture tanks is

rich in nutrients. Methods for using this water that do not clog irrigation lines hold potential for providing nutrients to plants as a by-product of aquaculture production—an innovative use of current resources for a variety of fruit and vegetable production. One aquaculture producer has adopted new aquaculture technology on the basis of information and assistance provided by CES. The system is being run to demonstrate its long-term feasibility for interested producers.

The New Farmer: Agriculture for the Next Generation

Farmers with agricultural land leases that are not using, or are under-using, the land for agricultural purposes were the target of this education and demonstration program. A farmer mini-grant program was implemented to demonstrate innovative agricultural practices; two mini-grants were awarded to farmers to plant fruit-tree windbreaks. A workshop on use of fruit trees as windbreaks, held at the program's Organic Demonstration Farm at the Guam DoAg in Mangilao, was very well attended. This workshop included a session on government incentive programs and funding opportunities for farmers, and a farm tour was conducted that visited two farmers successfully participating in these programs. Workshops and open houses were also conducted at the Dededo breeding station on the



demonstration farm activities. These included sessions on fruit-tree windbreaks, composting, mulching, and chicken tractors.

A series of train-the-trainer workshops, designed to increase the

skills of the island's agricultural professionals, addressed "Organic and Sustainable Agriculture" for the Guam (DoAg) development staff and the department's AmeriCorps volunteers. The purpose was to provide staff with basic knowledge before they held public workshops at the demonstration farms. Workshop topics included composting, chicken tractors, measuring contour lines, nitrogen-fixing hedgerows, soil testing, windbreaks, and fruit trees as windbreaks. A web site (www.guamsustainableag.org) has been established and will be maintained to promote access to and adoption of workshop curriculum materials.

A number of agencies—UOG CES, Guam DoAg, and Sanctuary, Inc. (a home for at-risk youth)—joined efforts to generate local extension outreach publications on demonstrated conservation and production practices. These included; windbreaks, composting, marking contour lines, fruit trees as windbreak materials, and use of chicken tractors.

Planning meetings among cooperating agencies and farmer groups, intended to identify priorities, were conducted, and grant funding to address identified priorities was jointly applied for. A \$50,000 grant was secured to host a sub-regional strategic planning conference on "Sustaining Our Island's Agriculture." Although the conference was actually held in the next reporting period, needs assessments were conducted on Guam and participating islands during this period. Data provided input for the next year's efforts toward collaborative grant writing.

Best conservation-management and sustainable-agricultural practices were demonstrated at two multiagency demonstration farms; new enterprises and production methods were also demonstrated. More than seven production and conservation practices were demonstrated at each farm, and three community workshops were held at these demonstration sites. In addition, six train-the-trainer workshops were conducted.



Fruit Tree Windbreak demonstration



Workshop on composting hog waste



Chicken tractor & sweet potato living mulch



CES fruit tree windbreak nursery & avocado trees

Chamorro Land Trust Commission Agricultural Lease Program

The need for outreach programs addressing traditional and innovative conservation and production practices is highlighted by the 1000+ new farm leases on Guam under the Chamorro Land Trust agricultural lease program. Many of these new farmers have limited farming experience and need education and technical support. Thirteen have indicated gains in knowledge and understanding of conservation and production practices as a result of workshops given by the New Farmer Program.

New Farmer Training Workshops

Agriculture support agencies on Guam are small and lack the breadth of expertise that can be found in analogous agencies on the mainland. Island-wide, the expertise pool is probably adequate to meet the island's needs but is fragmented among several agencies. Farmers therefore have difficulty finding the information they need or finding the expertise to explain key concepts to them when they seek advice.

Five 12-hour training modules on sustainable and organic agriculture were developed, first piloted with adults, and then adapted for youth. Train-the-trainer workshops were held with agriculture professionals at the Guam DoAg.



Fourteen agricultural professionals completed "New Farmer" training workshops, thereby increasing their skills and knowledge of conservation and environmental practices. These



agricultural professionals have conducted training sessions for AmeriCorps volunteers and Sanctuary, Inc. For the Department of Corrections, the Guam DoAg staff used this curriculum to teach their clients ways to earn money in agriculture when they are released.



Collaborative Program Grants

Through interagency collaborations, the New Farmer Program pioneered innovative solutions using new conservation practices that are unique to the island community. Collaborations have been established with agencies such as the Guam DoAg, federal Natural Resources Conservation Service, the Chamorro Land Trust Commission, and the Soil and Water Conservation Districts. These efforts leverage expertise and other resources such as outreach staff, supplies, and demonstration sites among government and nongovernmental entities in an effort to improve

outreach and education of stakeholders.

A Memorandum of understanding was signed under which CES will develop, jointly with Sanctuary, Inc., 60 hours of curriculum on organic farming for youth. A working relationship is in place between the Guam DoAg and the CES Agriculture and Natural Resources Program; eight members of the DoAg's Agriculture Development Services (ADS) have signed letters of commitment pledging a percentage of their full-time equivalency (FTE) to this program.

Their combined commitments to this program equal more than one FTE and serve as a model for leverage by personnel and fiscal resources among collaborating agencies. This model may be replicated by other projects requiring shared expertise and resources. It has increased the number of stakeholders gaining knowledge and understanding of conservation practices because of the partners' ability to increase workshops and outreach activities.

Farmers Adopting Recommended Demonstrated Practices

The absence of sites demonstrating conservation best management practices, lack of awareness of financing options, and limited farmer-to-farmer discussions on the "nuts and bolts" benefits of implementing these practices limit farmer ability to capitalize on new and innovative ways to farm. Guam is a small island; our land area for farming and water supply are limited, so conservation of these resources is critical. Priority is given to educating farmers and producers about conservation practices and about sources of funding to support adoption of best management practices that conserve natural resources.

Workshops and field days, including bus tours to other farms, were held on three demonstrations. Extension publications were developed, and interagency sharing of technical expertise between the Guam DoAg,



CES, and Natural Resources Conservation Service has been extremely effective.

Five farmers adopted several recommended demonstration practices, like mulching, composting, and windbreaks. In addition, Guam Community College, Guma Mami, and Sanctuary, Inc., have also adopted these practices.

Farmers Awarded & Implementing Mini Grants

Mini-grants for testing new conservation practices and alternatives to improve practices were promoted at all workshops. They were also advertised at the Northern and Southern Soil and Water Conservation Districts meetings.

Four farmers were awarded fruit trees for windbreaks this year. Funding from these grants has allowed farmers to adopt this conservation practice on their farms. The plants

are established and continue to do well.

Demonstration Farm Workshops & Field Days

Demonstration farms are an important tool in educating our stakeholders in conservation programs



and alternative sustainable agricultural practices. The lack of farm-community exposure to conservation programs and practices results in part from the absence of demonstration sites that farmers can easily visit, which has limited our efforts in the past. To address these issues, we held workshops at two farm demonstration sites this reporting year. Bus tours to two established farmers who are currently under the Environmental Quality Incentives Program (EQIP) were part of these workshops.

One hundred and eighty participants have gained greater

knowledge and understanding of conservation practices. Through initial exposure at the demonstration farms, farmers have adopted practices such as windbreaks and mulching. Additional workshops, not previously planned, were conducted to address the high demand these workshops generated for education on windbreaks and mulching.

Plant Health & Pest Management

The Plant Health and Pest Management program provides pest diagnostic services and control strategies to extension clientele. A comprehensive web-based pest survey list for Guam has been established and is being continuously updated. One-to-one consulting on Integrated Pest Management (IPM) was provided to individuals who had problems with crops, weeds, and/or pests. A plant-health clinic was established and took the lead role in diagnosing plant problems, and providing outreach by providing space, equipment, and expertise for publications, courses, and workshops. Through the Pesticide Safety Educator Program (PSEP) and Pesticide Applicator Training (PAT) workshops, pesticide applicators were trained in topics such as IPM, plant pests, the safe handling of pesticides, and correct application methods. Eighty-five percent of participants undergoing re-certification in



Bernard Watson conducts a no till workshop at his Yigo farm.

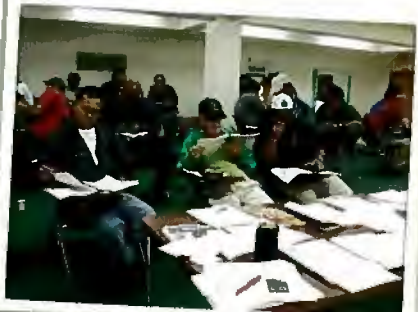


Jesse Bamba conducts a site visit for Watermelon Pest Management at Brian Leon Guerrero's farm.

2007 4-H Horticulture Summer Workshop participants visiting PIC Landscape.



Pesticides Safety Education Program Participants



these categories, reported that they had adopted IPM practices since the previous workshop. Western Plant Diagnostic Network (WPDN) invasive-pest identification and procedures training was held, and "First Detector" certifications issued.

The Plant Health Clinic identified an invasive plant disease (black rot of orchid caused by the fungus *Phytophthora palmivora*) on an orchid sample imported from Thailand by a Guam nursery in January of 2007. After the Plant Inspection Station (USDA/APHIS) was notified, the nursery was quarantined, and approximately 1000 plants were destroyed. This disease has the potential to seriously damage industry and homeowner orchids. No instances of the disease have been reported, and it is believed to have been eradicated on Guam.

In September of 2007, an insect sample brought to the ANR office was identified as the coconut rhinoceros beetle. This beetle has devastated coconut trees throughout the region, sometimes resulting in the death of over 50% of them and severe damage to those remaining. Student and community volunteers learned to identify the beetle and helped to hull infected trees for incineration. A \$250,000 grant from APHIS was secured for the control and eradication of this new invasive species. We do not yet know whether eradication efforts have been successful.

Identification of Weeds

Identification of specific weeds is essential to ensuring that proper management practices for IPM are followed and pesticide applications are employed. Proper weed identification can lead to improved plant health and crop yield and reduce negative impacts on human and wildlife health and the environment.

PAT and WPDN workshops were held to assist nurseries, landscapers, golf-course superintendents and their crews, teachers, students, government agencies, and the general public to identify weeds properly. Categories 4 (Turf and Ornamentals), 6 (Rights of Way), 8a (Commercial Agricultural

Plants), and Private Agricultural Plants PAT training workshops emphasized proper weed identification. Also, a WPDN training workshop for weed pests and weed invasive species identification and procedures was held.

Of individuals who attended the PAT and WPDN workshops, 95% increased their knowledge in the area of weed identification and passed Guam Environmental Protection Agency (GEPA) certification exams, which required the ability to identify weeds, after PSEP/PAT workshop training. Also, 86% of participants passed the WPDN training workshop for weed pests and weed invasive species. These participants received certification as First Detectors and are on an emergency notification list, to be contacted when new invasive weed pests are discovered on Guam.

Pesticides & Their Application

Local farmers, homeowners, nurseries, landscapers, and golf-course superintendents and their crews, as well as representatives of government agencies, were trained in knowledge of pesticides and their application, which is crucial for the health and safety of the applicator and consumers.

Two PAT Basic Core training workshops were held this reporting year. The Core workshop, which is a prerequisite for all categories, includes training in topics such as the principles of pest control, pesticide labeling, harmful effects of pesticides on humans and the environment, and safety techniques for handling pesticides. Eighty-seven percent of participants passed the certification exam and received GEPA Basic Training Identification Cards.

Sustainability of Small-Scale Swine & Poultry Farms on Guam

A partnership with the DoAg (service support) and the Guam CES (education and outreach) to operate a small-scale livestock and poultry demonstration facility has been established. Other activities for this year included workshops to train local and regional producers at the facility, applied research, field experiments, participatory demonstrations at the facility and on private farms, and field tours for students, 4-H-club members, and young military dependents. Animal displays and exhibits were held during school fairs.

Animal Husbandry

Farmers depend on imported resources to sustain small farm operations, even though resources such as local feedstuffs and nutrients from animal waste are not fully used. Income from these operations is therefore not maximized.

Demonstrations on an integrated approach that uses plant and animal by-products are maintained at a demonstration site for farmers to observe. Several grant-funded products are being conducted at the site to educate farmers. Local extension publications were distributed to visitors.

In demonstration surveys, 50 participants showed increases in knowledge, awareness, and understanding of husbandry skills in integrated approaches to animal and plant farm operations. Demonstrations helped farmers to increase innovative methods of capturing nutrients from animal waste. Farmers also improved their operations with innovative ideas after participating in demonstrations. Inquiries have increased from farmers on how to look for grants to assist them to implement new practices at their farm operations.

Practicing Regular Replacement of Broodstocks



Replacement of breeders (swine and poultry) is always a challenge because replacement stocks must be imported from Hawaii or the U.S. mainland. The process is expensive and bureaucratic. Adopting practices for regular replacement of broodstock will save time and money, allowing farmers to extend production stages of breeders.

A 300-egg incubator has been set up at the facility to hatch eggs from three dual-variety breeds of poultry. Chicks were sold to local farmers and poultry hobbyists. Plans are under way to get a larger incubator and increase production of chicks.

Twenty producers are now practicing regular replacement of broodstock. Demand for replacement chicks from the local and regional poultry producers is now strong. The biweekly production of 50 to 60 chicks was sold out immediately. Farmers are adopting practices leading to regular replacement of broodstocks. We expect demand to continue to increase.



Our Environment and Home and Urban Landscapes

Efforts were initiated to develop an appropriate curriculum for elementary, middle and high school age groups and homeowners. These materials were piloted in both youth and adult contexts through training of Americorps volunteers and trainers from Sanctuary, Inc. Seven Sanctuary, Inc., trainers completed a 60-hour sequence of training in organic and sustainable agriculture with a heavy focus on soil and water conservation in an urban gardening context. This training increased their capacity to deliver education programs in this area. The Sanctuary, Inc., program conducted two cycles of this 60-hour youth curriculum, each with approximately 18 participants. In addition, quarterly workshops were held for the general public that used some of these materials in conjunction with two other planned programs. A series of outreach publications on the demonstrated conservation and other environment-saving practices were developed. More than 10 planning meetings were held with DoAg and other partners for identification of priorities for curriculum contents, sequence, and future funding plans. The Guam Yard and Urban Landscapes grant is a result of the planning process funded by GEPA.

Guam Yard and Urban Landscapes Program

Soil and water conservation, organic agriculture, and sustainable agriculture efforts have all positively affected Guam's limited soil and water resources. Because Guam's soils are shallow and low in organic matter, any erosion resulting from human activities can have long-term impacts on fertility. Guam's water lens is the sole source of drinking water, so pollution from pesticides and loss of water through runoff will have long-term detrimental implications for the health and safety of our residents. A curriculum developed for the agricultural community is being adapted for homeowners. It is intended to promote environmental,



and workshops, youth develop a sense of belonging and independence and become civically engaged to act as a responsible positive influence in their communities.

In the development of the Guam Yard curriculum, 4-H field agents pilot-tested several of the modules and facilitated tree projects for windbreaks at Guam schools.

One school has introduced and adopted an environmental curriculum developed by CES. It is an experiential learning model that allows school children to apply what they have learned. From the tree-planting project, children learned to care for their environment and community; the trees they planted will remind them of the lessons they learned for years to come.

economic, and social sustainability in urban communities. In 2007 the core curriculum was developed with funds from GEPA. Implementation of this program is planned for future years.

Government Officials Become Educated on Aspects of the Environment

The Guam DoAg is a primary contact for educators wishing to find opportunities for expanding student horizons in conservation practices. Training their ADS staff and supporting their development of demonstrations provides a body of knowledgeable human resources that teachers and the public can draw on. In addition, the demonstrations sites offer solid examples that they can visit.

The Guam DoAg's ADS staff has actively worked with the Sanctuary, Inc., "Youth Organic Agriculture" by providing a demonstration site

(Mangilao Organic Demonstration farm) at which youth can gain hands-on experience.

Thirty-six at-risk teens and young adults were able to work side by side with five local government agriculture professionals at this organic demonstration farm using a common curriculum.



Learning Environmental Friendly Methods

Conserving soil and water is critical to our island's closed ecosystem. Practices adopted by youth to address this issue will have lifelong impact. Research has shown that, through environment camps



Economic Community Systems

ANNUAL REPORT

ECONOMIC COMMUNITY SYSTEMS

2007



Participants at the Mangilan Senior Citizen Center fill out journal entries as part of a pilot project on healthy aging. Seniors enrolled in the program participated six weeks of fitness and nutrition workshops.



Participant shares experience working with youth during an Appreciative Inquiry (AI) Focus Group session held at the Marriott Resort. The focus group session was part of EGS technical assistance provided to the Guam Department of Labor.

Community Capacity Building

Planned Program Activity

Capacity-building and technical-assistance workshop sessions were conducted on strategic planning, quantitative and qualitative computer software, and logic models. Focus groups were conducted that used a variety of qualitative assessments such as AI. Personal-finance workshops were conducted through the "Guam Saves" program. Telephone, face-to-face, and on-line surveys were conducted. One formative and summative evaluation was conducted on workforce development. One coalition was established for place-based economic development (community-based entrepreneurship). Seven partnerships and/or collaborative memoranda of agreement were established with government agencies and NGOs.

Community Development Practices

Government and NGO planners, agency directors, administrators, local/regional leaders, and boards. Tools for assisting clients in addressing the broader community and economic-development needs, including planning, needs assessments, policy, and initiatives, were provided. Agencies need information, data, surveys, skills, and decision-making tools to identify problems, understand issues, seek opportunities, and plan for renewal and/or growth. Community development can strengthen services, increase capacity, determine key policy actions, and satisfy stakeholder interests and needs.

Technical support, training and decision-making-tool sessions were provided to 13 government agencies and 3 NGOs. Training in needs assessment, logic models, asset mapping, and AI was conducted. CES has been instrumental in promoting the plan-of-work model throughout cooperator circles.

Program cards were created to provide information and to promote CES projects. Staff participated in various technical planning teams and has contributed to reports and data analysis. CES has been instrumental in facilitating community access to university-faculty and paraprofessional expertise.

Forty participants from various government and NGO entities have increased their knowledge and awareness of community-development practices and tools. The logic-model training with the Guam Department of Public Health and Social Service, Division of Senior Citizens, helped the agency identify service-delivery gaps and secure grant funding to address access to rural health care. Three agencies now use the AI method to address programming needs. As a result of partner satisfaction and the proven effectiveness for issues-based programming, CES has seen an increase in requests for technical assistance and training.

Understanding & Awareness of Data Set Models

Local and regional leaders, planners, agency directors, and administrators.

Current and reliable data on Guam are needed to enable entities around the island to make sound decisions, but having current and reliable data solves only part of the problem. Entities must also build the capacities to collect and disseminate data successfully.

CES has provided expertise and resources to four Government of Guam agencies and two nonprofit organizations that enabled them to collect and disseminate data properly. Early in the year, with the use of a specialized computer software, CES and the U.S. Census Bureau conducted a regional workshop on methods of data processing that included participants from Yap, American Samoa, and the Commonwealth of the Northern Mariana Islands.

Three government agencies are now using these skills to collect data on labor, economics, and health. One NGO is now using the skills learned to assist in the collection of data on homelessness. In addition, the Guam Department of Public Health is now able to analyze the Behavioral Risk

Factor Surveillance Survey, not conducted since 2003.

Adopting of Data Models for Decision-making

Local and regional leaders, planners, agency directors, and administrators. Guam needs data that reflect the economic health of the island, for two important reasons. First, Guam has not updated its Gross Domestic Product, a valuable indicator of economic growth that policy makers and investors need to make sound decisions, since 2001. Second, the increase of military personnel on the island will strain government and nongovernmental services provided to the community; without proper data, these entities will not be able to direct services to those who are most in need.

To address this situation, CES has collaborated with the Guam Department of Labor, Guam Bureau of Statistics and Plans, Guam Public Health, and the Salvation Army to provide these organizations with community data and methods for analysis. CES provided training and technical assistance to these agencies in data collection, management, dissemination, and analysis.

Five agencies have adopted models associated with the management of data sets. The



Participants vote during an Appreciative Inquiry session on regional workforce development facilitated by ECS. The session was held at the Royal Orchid Hotel in Tumon.



ECS staff Vance Terlaje conducts a telephone survey as part of the Behavioral Risk Factor Surveillance System.

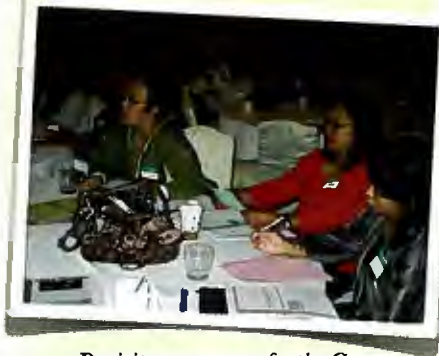


Home Emergency Tool Kit used during the 2007 National Preparedness Month Grand Finale Expo. The sample toolkit is used to educate local residents about disaster preparedness through the Extension Disaster Education Network (EDEN).

Bureau of Statistics and Plans, the lead government agency for data policy, is now in the process of establishing a government-wide data plan. These agencies have adopted these skills to collect data in areas of labor, economics, and health. One NGO is now using the skills learned to assist in the collection of data on homelessness. In addition, the Guam Department of Public Health is now able to analyze of the Behavioral Risk Factor Surveillance Survey last conducted in 2003.



Senior Citizens at the Astumbo Senior Citizen Center in Dededo do warm-up stretches as part of a six-week pilot project for healthy aging. The pilot project is administered by ECS in partnership with DPHSS Division of Senior Citizens. The program is funded by a 67K grant from CSREES.



Participants convene for the Guam Comprehensive Cancer Control Coalition focus groups facilitated by ECS.



Extension Associate Pierre Wong (right) is an exhibitor at the UOG HRO Benefits Expo 2008. ECS provided educational displays on personal finance through the Guam Saves program.



Community partners from the American Association of Retired Persons (AARP) Guam Chapter participated with ECS during the 56th Annual Charter Day.



Pete Barcinas and Gena Roajs meet with members of the Judicial Court of Guam for initial talks on the development of a Court Interpreter Program.

Enterprises & Entrepreneurs Identified

Local farmers, small business owners, local entrepreneurs, home-based business owners, and prospective farmers. Workforce development findings have identified the need to focus on entrepreneurial programs that align with the Guam's Workforce Investment Board's entrepreneurial education.

CES has helped to establish and organize producer-marketing coops, providing technical support and guidance in coop organization. Work is continuing on development, based on farmer/stakeholder input, of a resource guide to sources of value-added grants and programs.

Two entrepreneurs were provided assistance in developing value-added products from mangos. Through our assistance, one village sponsored a mango festival at Agat community center, where clients promoted value-added products made from mangoes. The event was a successful first venture and is expected to continue as a regular annual, village activity.

Developing Strategic Plans

Government and NGO planners, agency directors, administrators, and local and regional leaders and boards recognize the importance of programming collaboration to leverage resources. To respond adequately to collaborator needs and issues, we used a variety of methods to engage collaborators toward positive change. Strategic planning provides organizations with a tool that helps them understand

problems, identify opportunities, and plan for renewal and/or growth. Strategic planning formalizes goals and actions, so that they can achieve their missions in efficient and effective ways.

Activities have successfully introduced the Appreciative Inquiry (AI) method to partners. Two strategic planning sessions were facilitated by CES to help members of the Guam Comprehensive Cancer Control Coalition identify strategic themes and program priorities. The AI method was employed with Guam Historic Preservation to assign priorities to the organization's goals and objectives for project years 2007-2011. A focus group was conducted among various agency representatives taking part in the Serve Guam Commission AmeriCorps program.

Four participating agencies have produced and adopted strategic plans. The Guam Comprehensive Cancer Control Coalition has a defined vision and mission and has identified priorities in its five-year Cancer Control Plan. The Serve Guam strategic planning session helped members identify the strengths of island youth programs and identify successful components of youth programming. Participants gained increased awareness and appreciation for a mix of assessment methods used to engage stakeholders for community change. Partners are replicating the models in various groups and forums.

Family, 4-H, Food & Nutrition Program

ANNUAL REPORT

FAMILY, 4-H, FOOD & NUTRITION PROGRAM

2007



4-H Club Chartering "Merizo Elementary"



Isiano Rasmussen conducts a cooking lesson during the 2007 Food and Nutrition Workshop

Guam Families, 4-H Youth Development and Communities

Guam's youth engage in behaviors that negatively affect their well-being and the whole community and can lead to serious consequences, such as alcohol and substance abuse, teen pregnancy, juvenile delinquency, youth crime, and diseases. Research shows that youth are placed at risk by lack of life-skill knowledge. According to the Guam 2005 Youth Risk Behavior Survey, behaviors that place youth at risk are increasing at an alarming rate. Survey results from 1038 students at eight public middle schools on Guam showed that 33.5% had drunk alcohol, 14.9% used marijuana, and 14.8% smoked cigarettes during the past 30 days. These rates increase in high school; of 1265 surveyed students from five public high schools on Guam, the corresponding figures were 36.2%, 27.3%, and 30.8%.

An additional critical issue facing Guam's youth, particularly dependents of the Guam Army National Guard and Reserves, is the high levels of military deployment. Children with parents in the military face many

challenges, as their parents move frequently and are deployed for long periods of time. Other, nonmilitary children and adults often do not understand military culture and the impact of deployment, separation, or reunions on these youth and their families. These sudden changes in family structure lead to stress and to behaviors that place youth at risk.

Hands on Learning

One hundred seven life-skill workshops conducted within the Guam public schools and three military installations included learning to learn, self-responsibility, nurturing relationships, critical thinking, managing feelings, stress management, wise use of resources, accepting differences, sharing, planning/organizing, communication, character, marketable skills, social skills, teamwork, cooperation, personal safety, respect, self esteem, resiliency, stress management, and healthy lifestyle choices. Tests administered

before and after these workshops showed that 1408 participants mastered life skills in these curricula.

Focus Group

A focus session conducted this reporting year by the Guam 4-H Youth Development Program indicated that one of the major issues



Guam youth face is lack of youth activities. The absence of youth activities leads to risky behaviors such as violence, gang memberships, destruction of private property, unprotected sexual activity, dropping



4-H Youth Development Program



out of school, and drug/substance abuse. Research shows that our nation's youth are placed at risk by a lack of life-skill knowledge, and the same is true of youth on Guam. Research also shows that youth learn from both formal and informal forms of education, from both educators and peers, and that youth learn best through "hands-on" activities and interaction. Youth need opportunities to discover and expand the range of their assets and capacities and to practice and demonstrate their value to the community.

In response to these issues, Guam 4-H conducted 423 in-school and out-of-school life-skill workshops on topics that included animal husbandry, arts and crafts, horticulture, entomology, fisheries, food and nutrition, drug- and alcohol-use prevention, leadership, sports, youth finance, computer use, photography, entrepreneurship, and rocketry. 4-H also conducted Christmas and summer camps that offered 15 workshops to the public in response to the lack of youth activities. These workshops engaged youth, in partnership with adults, in high-quality learning opportunities that enable youth to shape and reach their full potential as active citizens in a

global community. The workshop stimulated youth to learn in subject areas they are interested in, engaged youth in addressing community- and youth-related issues, and encouraged youth to reach their full potential in an ever-changing, diverse world.

Testing before and after the workshops indicated that 6237 participants mastered life skills in the target curricula, such as appreciation for Pacific and Western handcrafts, animal care, creativity and imagination, basic computer skills, the importance of different areas of insect habitats, appreciation for the environment, the importance of staying fit and living a healthy active lifestyle, and the importance of substance-abuse prevention.

Lifeskill Development

Four hundred twenty workshops and life-skills presentations were conducted in 2007, reaching 6930 youth. Three thousand four hundred thirty school-aged children participated in essential life-skills training. In addition three new 4-H clubs were organized and supported; 10 4-H enrichment programs were established and are pending charter; 15 special-interest/

short-term day camps and 15 overnight camps were held; and 10 school-aged programs oriented toward 4-H curricula were organized.

Testing before and after participation showed that 3430 youth gained greater knowledge and increased essential life skills. Participation changed youth attitudes and increased their awareness in areas such as horticulture (Basic Science and Math), youth finance (Basic Math), and nutrition and fitness (Basic Science and Health). Through environment camps and workshops, youth have developed a sense of belonging and the independence needed to make positive life choices; they have become civically engaged to act responsibly to be a positive influence in their communities.

4-H Volunteer Training

Volunteers are a critical component in the success of youth development programs. Successful engagement of youth volunteers is a basic feature in youth development programs and has been fundamental to CES since its inception (Seevers Graham, Gamon, and Conklin, 1997). 4-H youth and adult volunteers play an important role in youth-development programs by extending partnerships through community involvement, building collaborations, and extending our programs to address client needs in the community. On Guam numbers of youth-development volunteers are lower than those of other 4-H extension programs, and this issue affects the level of success in both our programs and the youth we serve.

To increase the number of volunteers, we have conducted activities intended to impart orientation and training, introduce curricula, and develop leadership skills. Traditionally volunteers were used at the program-delivery level, yet during the past year, 4-H has expanded volunteer engagement to program planning, internal consultation, serving on advisory boards, and coaching and supervising.

Forty volunteers have received training and orientation in 4-H and youth-development programs, increasing their knowledge, skills, and abilities so that they can be more active and engaged. Thirty-five have committed themselves to and remained active in the various roles described above. The numbers reported reflect a 2% increase from the previous year. Moreover, adult and youth volunteers provided unpaid services, specialties, and skills to 4-H program estimated to be worth over \$52,000.00 this year.



Participants during the 2007 Christmas Fisheries Program participate in a teamwork life skill activity

Nutrition Education for Guam



Planned Program Activities

Activities this year focused on providing basic nutrition education classes for adults and youths on topics such as "MyPyramid," food safety (Kitchen & Safe Food Handling), importance of exercise, fruits and vegetables (Vitamins), shopping tips, budgeting, meal planning, reading food labels, and promoting the use of herbs and spices to help reduce the intake of salts, fats, and sugars. In addition, the following activities were conducted: nutrition workshops for target populations, food demonstrations on local dishes that incorporated healthful modifications, workshops promoting locally grown fruits and vegetables with healthful recipes (marketing healthy recipes with local produce), and establishing partnerships with local food-source businesses to promote a greater variety of healthy foods.

The target audiences in the program include school-age children (elementary through high school), families receiving public assistance, families with young children, general consumers, military families, health

educators, school teachers, local farmers, and others.

Nutrition Education

The data from the Guam Department of Public Health and Social Services, Office of Vital Statistics, continues to indicate that high numbers of chronic and preventable diseases such as diabetes, cardiovascular disease, and certain types of cancer are the primary causes of death on Guam. Preventive nutrition-education programs and services, as related to the promotion of healthy diets and lifestyle habits for the whole community of Guam, are still an important factor in reducing these chronic illnesses. A recent assessment identified the need to expand the delivery of nutrition and health information for more intervention attempts through our programs.



*2007 Kick the Fat 5K
(Health Fair Display)*



2007 Sinajana Fiesta Health Fair

Nutrition Workshops

Nutrition-Education workshops were conducted for three constituencies: (1) families with young children who are in public assistance programs, (2) families who may not receive public assistance but fall into the "low income" category, and (3) youth in Guam schools, including after-school programs and other youth-related programs. Additional educational efforts included three key venues: (1) static nutrition and health displays during island health fairs, (2) monthly (in-store) food demonstrations, and (3) distribution of nutrition education materials that provide information on how to stay healthy and prevent chronic diseases. Moreover, adult and youth volunteers provided unpaid services, specialties, and skills to 4-H programs that are estimated to be worth over \$52,000.00 this year.

Six thousand ninety-five contacts were made through the exposure of nutrition education under our programs. Testing administered before and after most workshops demonstrated improvements among both groups.



*Adult Workshop (baking EFNEP's
Peanut Butter Cookies)*



*Head-start Parent Workshop w/
Clarissa & Glenda*



Nutrition Skills

The continuous rise in obesity and associated medical complications on Guam is linked to the lack of nutrition and health education. Obviously, greater knowledge of nutrition and health are needed. Nutrition education can ensure that the people of Guam are better informed of the many health benefits of proper nutritional and the importance of regular exercise. Another issue is the increasing number of people with type 2 diabetes on Guam and the surrounding Pacific islands, which results from the increasing prevalence of obesity, poor diet, and sedentary lifestyle.

Nutrition-education workshops were conducted for the three key constituencies listed above. Additional educational efforts included the additional venues listed above.

Testing before and after workshops showed that 83% participants increased their nutrition skills in one or more lessons.

Healthy Lifestyle Choices

Poor food choices and the lack of physical activity are linked to the increasing numbers of Guam residents who suffer from chronic and preventable diseases such as diabetes, cardiovascular diseases, cancer, and obesity. Statistics indicate a great need for Guam residents to lead healthier lifestyles. Providing proper nutrition and health education that not only increases knowledge but also improves lifestyle skills can decrease the number of Guam residents affected by these preventable conditions.

Nutrition-eEducation workshops were provided for the three key constituencies listed above. The nutrition and physical-activity lessons provide detailed information and hands-on activities that help foster skill development and the ability to make healthier lifestyle choices.

Tests conducted before and after workshops, as well as follow-up surveys, indicated that 83% of participants in one or more education session have adopted skills and knowledge and are leading healthier lives.

Being Cost Efficient



Guam residents face an ever-increasing cost of living, including increasing food costs coupled with a decrease in public-assistance funding. As a result, the community needs knowledge and understanding of how to be cost efficient. Learning how to purchase healthy foods at the lowest cost possible is a major issue that can affect the health and well being of our community.

Nutrition-education workshops were conducted for the first two key constituencies listed above. In addition, monthly (in-store) food demonstrations were conducted during the reporting period; they were conducted on the first Friday of the every month to capture food-stamp program recipients shopping for food. During these demonstrations, healthy food recipes were distributed and food samples were provided. The activity was sponsored by one of Guam's largest supermarket chains. The lessons provided information on menu planning, shopping tips, and budgeting, enabling clients to a gain knowledge and understanding of how to be more cost efficient while shopping for healthy food.

Tests conducted before and after these activities demonstrated improvement among both constituencies. Seventy-six participants increased knowledge and understanding of how to be more cost efficient while shopping for healthy foods.

Nutrition & Exercise

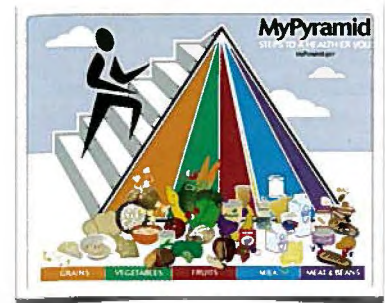
To give our communities greater knowledge and understanding of nutrition and exercise, lessons must ensure and encourage behavioral changes in the areas of food choice and physical activity. Nutrition-

education workshops were conducted for the three key constituencies. Additional educational efforts were conducted in the three venues listed above.



Tests conducted before and after these activities showed that 555 participants gained greater knowledge and understanding of nutrition and exercise during more than one nutrition education lesson.

New MyPyramid



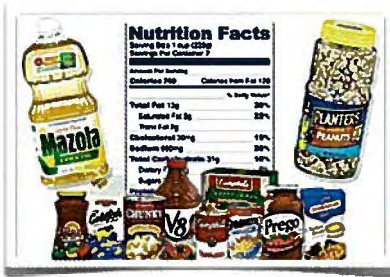
The new "MyPyramid" was introduced by USDA in 2005 and is still considered a new concept by many Guam residents. The updated 2005 Dietary Guidelines and MyPyramid information must be provided to the whole Guam community. Many schools and nutrition-education programs continue to distribute the old Food Guide Pyramid information when providing nutrition education.

The new "MyPyramid" was distributed during nutrition education workshops for the three key constituencies and in the three additional venues mentioned above.

Two thousand two hundred ninety-one residents of Guam have been exposed to the MyPyramid through youth and adult lessons.

Food Labels

A major part of providing proper



nutrition education is educating the community about the many different types of nutrients that are important for good health. Teaching the community to read and understand food labels is an important part of helping people make healthier food choices—those that will increase intake of some nutrients (like dietary fiber, calcium, and iron) and decrease intake of others (like sodium, fat, and saturated fat). Helping people to understand the components of food labels will help them adopt changes that will lead to proper nutrient intake for good health.

Nutrition-education workshops were conducted for the three key constituencies.

Testing before and after most workshops demonstrated improvements. Five hundred forty-eight participants showed greater knowledge and understanding of food labels after more than one nutrition-education lesson.

Menu Planning & Smart Shopping

Menu planning and smart shopping are integral parts of living a healthy and fit life. The goal of these workshops is to ensure that knowledge of good nutrition choices and practice can be applied during the course of everyday life.



In order to improve participants' abilities to manage resources related to food purchasing and preparation, we conducted nutrition-education

workshops for the three key constituencies.

Testing before and after most workshops revealed improvements among adults. Fifty-nine participants gained an understanding for menu planning and smart shopping by attending more than one nutrition-education class.

Food Preparation & Food Safety Practices



Foodborne illnesses are the leading causes of acute illnesses on Guam and in the United States. Because of the high frequency of foodborne illnesses on Guam, a high priority must be placed on food-safety education, especially as related to food-preparation practices.

Information was distributed through the usual three venues, and nutrition-education workshops were conducted for the three key constituencies.

Five hundred seventy-one participants showed increased knowledge and understanding after more than one nutrition lesson that incorporated food-preparation and food-safety lessons.

Proper Nutrition Habits

Poor food choices are linked to the increasing numbers of Guam residents who suffer from obesity and other chronic diseases such as type 2 diabetes, cardiovascular diseases, stroke, and certain types of cancer. Obviously, Guam residents must learn to lead healthier lifestyles. If education is provided on proper nutrition and health, not only increasing knowledge but also improving food and nutrition skills/

habits, the number of Guam residents affected by these preventable conditions can be decreased.

Nutrition-education workshops were conducted for the three key constituencies, and additional educational efforts were made in the usual three outside venues.

Tests administered before and after most workshops showed that 60 participants adopted at least one new nutrition habit, and improvements were evident among adult participants. Fifty six participants gained increased knowledge and understanding for physical activity, food labels, smart shopping, and menu planning.

Tropical Food Processing and Safety

Food Safety

Every year, several outbreaks and about 150 cases of foodborne illnesses are reported by the Guam Department of Public Health and Social Services. The number of foodborne illness occurring on Guam each year is estimated between 13,000 and 152,000. The estimated economic cost is between \$5.0 and 40.0 million per year. The high frequency of foodborne illness on Guam is attributed to the lack of food-safety knowledge and poor food-handling practice.

Food-safety education curricula were therefore developed for adults and school children. Food-safety workshops for general consumers and children were provided in the community. Proper food handling practices entitled "Key Food Handling Behaviors" and "Egg Safety in Easter" were disseminated on the island. A course in "Food Safety and Sanitation" was also provided to students at the University of Guam.

According to a report from the Guam Department of Public Health and Social Service, one of leading sources of foodborne illness is kelaguen, an ethnic meat dish. Kelaguen is a mixture of meat with lemon, onions, hot peppers, and grated coconut. Using raw or partially cooked meat or keeping the mixture too long or at inappropriate temperature are major factors leading to kelaguen foodborne illness. A study of pathogen survival in kelaguen preparation led to

determination of the a minimum amount of lemon that should be used to inhibit pathogen growth for kelaguen at parties and fiestas. A curriculum entitled "Safe kelaguen preparation" was developed, and workshops were provided to general consumers, food workers, and food-safety educators in the community. Scientifically based knowledge was developed and delivered to consumers in the community. Eighty participants in workshops gained increased knowledge in proper food-handling practices. Participants in the safe-kelaguen workshop not only increased their knowledge of how to control pathogens in kelaguen preparation and service and but also mastered the skills to prepare safe kelaguen.

Food Processing

Consumers want greater choices among local products; producers increase the varieties of locally produced crops. The high cost of imported produce adversely affects families and other consumers on Guam. The need is increasing for use of local produce in value-added food products to benefit consumers and producers. In an effort to increase locally processed food products, pickles of mango, papaya, and cucumber and sausage were selected as initial products for home-processing education in the community. Juice and powder of noni (*Morinda citrifolia*), a medicine plant of the Pacific islands, were developed or modified as dietary

supplements for home processing. The effects on radical-scavenging activity and antioxidants of noni juice caused by traditional fermentation and enzyme liquefaction technology were studied. Technical information was provided to individual entrepreneurs and individuals in the areas of canning, dehydration, and processing of tomato, jerked beef, and noni products. A healthy product—purple sweet-potato chips—was developed for school children; seminars on "Healthy purple sweet potato chips prepared by dehydration" were presented by undergraduate students at the University of Guam. Product development and processing using local produce and plants were recognized in the community and reported by local newspaper and TV programs.



Static displays on Food Safety



2007 Safe Kelaguen Preparation Workshop

Meet the Team

Administration

Dr. Lee Yudin

Dean/College of Natural & Applied Science, Director/Cooperative Extension Service

Email: lyudin@uguam.uog.edu (671) 735-2002 Fax: (671) 734-6842

Victor Artero

Associate Director/Cooperative Extension Service

Email: vartero@uguam.uog.edu (671) 735-2005 Fax: (671) 734-6842

Agriculture & Natural Resources

Dr. Manny Duguies

Extension Agent IV, Animal Health
Production & ANR Program Leader

Email: mduguies@uguam.uog.edu
Telephone: (671) 735-2088
Fax: (671) 734-5600

Robert "Bob" L. Barber

Extension Agent IV, Agricultural Economist

Email: bbarber@uguam.uog.edu
Telephone: (671) 735-2087
Fax: (671) 734-5600

Dr. Donghuo Jiang

Extension Agent III, Aquaculturist

Email: djiang@uguam.uog.edu
Telephone: (671) 735-2092
Fax: (671) 734-5600

Dr. Aubrey Moore

Assistant Professor, Extension Entomologist

Email: amoore@uguam.uog.edu
Telephone: (671) 735-2086
Fax: (671) 734-5600

Dr. Robert L. Schlub

Extension Agent IV, Plan Pathologist

Email: rlschlub@uguam.uog.edu
Telephone: (671) 735-2089
Fax: (671) 734-5600

Jans Mendiola

Administrative Assistant

Email: jmendiola@uguam.uog.edu
Telephone: (671) 735-2080
Fax: (671) 734-5600

Jesse Bamba

Extension Associate

Email: jbamba@uguam.uog.edu
Telephone: (671) 735-2093
Fax: (671) 734-5600

Phoebe Wall

Extension Associate

Email: pwall@uguam.uog.edu
Telephone: (671) 735-2093
Fax: (671) 734-5600

Economic Community Systems

Peter R. Barcinas

Extension Agent IV &
ECS Program Leader

Email: pbarcina@uguam.uog.edu
Telephone: (671) 735-2055
Fax: (671) 734-1244

Gena Rojas

Extension Agent II

Email: grojas@uguam.uog.edu
Telephone: (671) 735-2025
Fax: (671) 734-4222

Joanna Brown

Assistant Director, Guam Soil and Water
Conservation Districts

Email: j.msbrown@yahoo.com
Telephone: (671) 735-2054
Fax: (671) 734-1244

Elains Cepeda

Project Coordinator

Email: etcepeda@uguam.uog.edu
Telephone: (671) 735-2050
Fax: (671) 734-1244

Pierre Wong

Extension Associate

Email: pcwong@uguam.uog.edu
Telephone: (671) 735-2056
Fax: (671) 734-1244

Tim de La Cruz

Extension Associate

Email: timik@guam.net
Telephone: (671) 735-2061
Fax: (671) 734-1244

Family, 4-H, Food & Nutrition

Theodore Iyechad

Extension Agent IV &
F4-HFN Program Leader

Email: tiyechad@uguam.uog.edu
Telephone: (671) 735-2046
Fax: (671) 734-4448

Dr. Jian Yang

Extension Agent IV &
Associate Professor

Email: jyang@uguam.uog.edu
Telephone: (671) 735-2027
Fax: (671) 734-4222

Dr. Rachael T. Leon Guerrero

Extension Agent V & Professor
EFNEP Coordinator

Email: rachaeltg@uguam.uog.edu
Telephone: (671) 735-2026
Fax: (671) 734-4222

Ruth Barnes

Administrative Assistant

Email: rbarnes@uguam.uog.edu
Telephone: (671) 735-2021
Fax: (671) 734-4222

Clarissa S.N. Barcinas

Extension Associate
EFNEP Co-coordinator

Email: [cgsannic@uguam.uog.edu](mailto:cdsannic@uguam.uog.edu)
Telephone: (671) 735-2030
Fax: (671) 734-4222

Clifford J. Kyota

Extension Associate

4-H Youth Development Program
Email: ckyota@uguam.uog.edu
Telephone: (671) 735-2044
Fax: (671) 734-4448

Glenda Hall

Extension Associate
EFNEP - Adults

Email: ghall@uguam.uog.edu
Telephone: (671) 735-2030
Fax: (671) 734-4222

Jesse Rosario

Extension Associate
EFNEP - Youth

Email: jarosario@uguam.uog.edu
Telephone: (671) 735-2030
Fax: (671) 734-4222

Thank You!

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We look forward to the same commitment and support for continued program delivery into our villages and communities.



University of Guam “Unibetsedat Guahan”
Cooperative Extension Service
UOG Station Mangilao, Guam 96923

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