

# 2008 University of Guam Extension Annual Report of Accomplishments and Results

**Status: Accepted**  
**Date Accepted: 05/29/09**

2008 University of Guam Extension Annual Report of Accomplishments and Results

---

## I. Report Overview

### 1. Executive Summary

Fulfilling our mission as a Land Grant institution requires strong linkages with the communities of Guam, Micronesia and the Asia-Pacific region. These linkages are based on research and on curricular and co-curricular programs that engage Extension with community needs in ways that develop stakeholders' skills, and capitalize on the region's cultural and economic diversities. As the only four-year institution of higher education in the Western Pacific, the University makes unique contributions to positive change in the communities served. The University of Guam Cooperative Extension Service (UOG-CES) is the leveraging point for building valued partnership with public and private sector stakeholders. We continue to engage the University and Community through a multi-disciplinary approach to address the complex issues facing the People of Guam, and we continue to remain the institutional leader in making the University of Guam and its Land Grant mission relevant.

Consistent with the concept of the engaged institution, UOG-CES is strongly committed to becoming of greater value to the Island and the Western Pacific Region. As the University of Guam's primary public service-oriented unit, Extension actively partners with other University colleges, schools, regional campuses, and distributed (distance) educational delivery systems to meet the changing lifelong educational needs of our diverse population.

Through strategic partnerships with higher and basic education, government, and private and nonprofit organizations UOG-CES has leveraged expertise and resources allowing us to serve a greater number of people than would be reached with our limited resources. This is important to note since unlike most Land Grant institutions which receives support from three levels of government (federal, state and county), UOG-CES only receives support from federal (USDA) and the Guam Territorial Government. Further, the territorial government only provides funding to match those received through the Smith-Lever formula funds and statutorily only 50% of said federal formula funds. This makes the work of UOG-CES more challenging as well as financially difficult as it not only fully funds the salary and operational needs of state level Extension activities, but is likewise required to fund all aspects of county level activities (in 19 villages), including salary and operational needs of county or field agents/educators. Yet, despite this challenge UOG-CES has delivered programs that continues to invigorate Guam agriculture with research based knowledge and marketing strategies; strive for food safety and security, improve the nutritional and lifestyle habits of residents to reduce the high incidences of chronic diseases; promote natural resource development along conservation and sustainability awareness and practices; and, create and foster positive models for youth development and capacity building of both individuals and the community.

There has been much progress for UOG-CES in FY2008. The Agricultural and Natural Resources unit has overcome many barriers this past year by gaining government support to assist in resolving long-standing issues with the Chamorro Land Trust Commission (CLTC) and their 1,000+ agricultural land lessees holding leases on small acreage of farm land. A memorandum of agreement was effectuated in 2008 among cooperating agencies such as the Chamorro Land Trust Commission, Guam Department of Agriculture, and the Office of Attorney General. This MOA requires UOG-CES to develop and train a Cooperative Compliance Team in uniform monitoring techniques and compliance assessment for all land lease holders, including assessing the use of appropriate/inappropriate soil and water conservation practices. As well, UOG-CES is responsible to develop, improve and pilot programs to address identified educational needs of the CLTC agricultural leaseholders.

The Sustainability of Small Scale Swine and Poultry Farm program has also seen significant progress. Several sustainable farms have been established that can be contributed in part through one-to-one consulting, innovative ideas sparked through demonstrations and workshops, and mini-grant awards to help establish integrated methods to their operations. These farms are applying integrated approaches utilizing plant and animal by-products to reduce reliance on imported resources thereby maximizing income from their operations.

UOG-CES has worked diligently and succeeded to secure a total of \$548,000 in additional funds directed towards plant health and pest management. Grants awarded during FY2008 include a \$140,000 USDA Western Sustainable Research and Education (WSARE) Research and Education grant to study the decline of *Casuarina equisetifolia* (Ironwood Tree) on Guam and the Northern Marianas Islands; \$50,000 WSARE Professional Development grant to train agriculture professionals on Guam in plant soil nutrition and it's relationship to disease suppression; \$14,000 WSARE Farmer/Rancher grant to study the use of aquaculture effluent for growing papaya; and, \$254,000 USDA Forestry Service grant and \$190,000 USDA APHIS grant for the control/eradication of the Coconut Rhinoceros beetle on Guam.

The close working relationships between local government entities and UOG-CES has had substantive impact on local policy development. The UOG-CES has collaborated with Guam Department of Public Health and Social Services (GDPHSS) to conduct the Behavioral Risk Factor Surveillance Survey to measure risk behaviors of our population. This past year UOG-CES developed a localized data methodology, a series of data quality checks, software, and a training curriculum for telephone interviewers. Having gained the knowledge and ability to conduct and analyze results of this type of survey, GDPHSS will now adopt the practices and products developed from this project in 2010 when they resume responsibility of this important survey. Another medium term impact is the influence this project has had on informing policy development in high risk behaviors associated with preventable diseases such as diabetes and certain types of cancer. From data tables on nutrition, diabetes and tobacco created by UOG-CES, GDPHSS was able to craft data supported legislation for a proposed tobacco tax in an effort to curtail health risks associated with tobacco use.

Data from the Guam Department of Public Health and Social Services, Office of Vital Statistics continue 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. We continue to see the need for preventive nutrition educational programs and services as they relate to the promotion of healthy diets and lifestyle habits for the whole community of Guam. Also, a recent needs assessment identified the need to expand the delivery nutrition and health information for more intervention attempts through our programs. The Nutrition Education Program for Guam has reached over 300 adults and 2,000 children in 2008 and has expanded the youth target audience by implementing the first Nutrition Summer Camp for Youth focused on demonstrating and teaching youth the health benefits of good nutrition. The demand for the camp has been overwhelming and UOG-CES has responded by replicating the camp at several elementary schools in their after-school programs. Guam's elderly has also been touched this past year through the Pilot Project for Healthy Aging. Seventy-six elderly have increased their knowledge and awareness of the benefits of healthy aging through nutrition and exercise. To allow for wider reach of the elderly population, the Guam Department of Public Health and Social Services, Division of Senior Citizens has used their resources to replicate this program in senior citizen centers across the island.

The Pacific Islands Sustainable Teen Entrepreneurial Programs completed its first year of programming in 2008. Our partnerships with organizations such as the Educational Talent Search Program on Guam, the Young Women's Club Association in American Samoa, Emmaus High School in Palau and faith based organizations on Marshall Islands and Kosrae as well as the Small Business Development Centers throughout the island provided 40 hours of programming in financial management, enterprise interests, technical and trade knowledge as well as setting and achieving goals and developing business plans. Youth participants now have the capacity to earn money through entrepreneurial activities increasing their quality of life and preparing them for the business world. Seventy-six youth are able to understand the basics of starting a small business, identify potential ventures, apply their financial skills through the use of computer technology and write a business plan. Teen network ventures such as recycling on Guam, egg production and vegetable farming on American Samoa, traditional arts and crafts on Marshall Islands and farming and small engine repair on Kosrae have been established. One participant won a Shell Live-Wire entrepreneurial award to start his business.

UOG-CES acknowledges that we cannot answer every question or address critical issues alone. Our greatest asset is our ability to bring people and groups together, to employ the knowledge and the research of the University and our Land-Grant Partners as our foundation, and to find and apply innovative solutions to the unique and varied needs among Guam's people and communities. However, we face increased expectation from clients with limited resources. We are approaching this challenge by investing in Extension capacity through grant-writing opportunities, realigning extension associate roles, reviewing budget status and operational inefficiencies, exploring viable options for government funded "extension village agents", developing incentives to attract more inter-disciplinary and integrated research, and increasing sponsored programs.

The 1999 Kellogg Commission report on the Future of State and Land Grant Universities states that it is not enough for a university to produce graduates who will serve their communities. A university must also provide direct service to these communities, through teaching, research and service that address immediate and long-term challenges. The continued success of the UOG-CES will depend in part on the efficient use of funds presently available and on developing new sources of revenue for new initiatives. UOG-CES continues to stay attuned to the community needs through the broader Extension Service, we continue to help create a climate more open to inventing new models for doing our work and involving stakeholders in reviewing our vision and mission as well as strategic plan implementation, and we continue to develop new programs that are relevant and improve existing programs to help meet the needs of our communities.

**Total Actual Amount of professional FTEs/SYs for this State**

Year:2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	28.6	0.0	0.0	0.0
<b>Actual</b>	22.8	0.0	0.0	0.0

## II. Merit Review Process

### 1. The Merit Review Process that was Employed for this year

- External University Panel
- External Non-University Panel

### 2. Brief Explanation

The University of Guam's College of Natural and Applied Sciences (CNAS) requested a CSREES review of Cooperative Extension Service (CES) and the Agricultural Experiment Station (AES) with the intent of enlisting recommendations and assessments to help CES and AES better meet the future needs of the citizens of Guam and the region. In May 2008, a review team of four extension and research professionals from Land Grant institutions, and the CSREES Program Leader – Animal and Plant Systems, Dr. Richard Hegg, conducted the review over four days. Recommendations and assessments were based on self-study reports, supplemental information, visits and interviews with administration, faculty, staff, students and clientele. The recommendations from this review were presented to Extension professionals and paraprofessionals.

The review team commended Extension's dedication to "*delivering programs that resulted in tangible and measurable improvement in the economic status, quality of life and environmental situations of the people of Guam and the region. Programs were found to be relevant and built on the knowledge that mutually beneficial and collaborative community partnerships are key to their success.*" However, the report cautioned that our work must be promoted to the University and communities served by CES.

The report also highlights two initiatives that would provide CES further opportunity to demonstrate its effectiveness and be recognized as integral to the University: 1) Enhance academic competitiveness to participate in the military growth and provide student opportunities; 2) Reinvigorate the University by strengthening community connections so that the University is the natural choice on the island and in the region. Other recommendations include:

- College administration should position Extension "at the table" to participate in the planning projects of the University and the community, and to assist the University in leadership community engagement.
- Administration including the Program Leaders should stimulate faculty teams to develop integrated research and extension projects.
- Market UOG-CES with a consistent, unified voice and look of printed publications and materials, web sites, and curricula. Identify specific support to update materials.
- Determine the appropriate employment model for extension associates to ensure that they are valued members of the team who have appointments with opportunity for long term service.

UOG-CES has begun to act on these recommendations by investing in Extension capacity through grant-writing opportunities and developing incentives to attract more faculty to inter-disciplinary and integrated research. We anticipate establishing a task force to address the extension associate recommendation since it will require more in-depth development and human resources specialist involvement.

## III. Stakeholder Input

### 1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to selected individuals from general public

### Brief Explanation

Three stakeholder input sessions were held during 2008. The Plant Health group hosted a four day IPM training workshop for the Micronesian Islands. Trainers and trainees from Palau, Yap, Pohnpei, Kosrae, Chuuk, and the Marshall Islands as well as trainers from the University of Guam Cooperative Extension Services Plant Health group participated in the workshop. Training was conducted in the areas of IPM practices and techniques as well as pesticide usage and major crop pests of the Micronesian islands.

The Community Capacity Building program conducted stakeholder input sessions with senior citizens, students, youth, government leaders, public officials, members of the soil and water conservation districts, farmers and non-government leaders. Participants provided their input on issues on a court interpretation program and workforce development

Led by University of Guam Cooperative Extension in cooperation with Western Region Sustainable Agriculture Research and Education (WSARE) program, focus groups were held among both farmers and agriculture professions on the islands of Guam, Federated States of Micronesia, Hawaii, Marshall Islands, Republic of Palau, Commonwealth of the Northern Mariana Islands and American Samoa, on the issues and needed programs to ensure the long term viability of agriculture on our islands. A follow-up 3-day regional conference (100+ participants) was held on Guam to bring teams from each island to present the findings of the focus groups, examine past programs, identify common issues and develop preliminary strategic plans for regional cooperation. This process involved farmers and agricultural professionals (both government and private) traditional and nontraditional stakeholders from beginning to end. Processes and activities, the data generated and results from the conference can be found on the web at <http://wsare.usu.edu/conf/pac/>

**2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them**

**1. Method to identify individuals and groups**

- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions

**Brief Explanation**

Stakeholder identification is generally a sequential process. First we seek to identify emerging needs within communities. This is often initiated through searches of the literature and review of demographic (census) data followed by in depth discussions with local decision-makers and others with unique knowledge about emerging needs. Once groups are broadly defined, care is taken to understand most effective mechanisms of engagement. Selection methods varied from issue to issue. Individuals were identified based on their current or past involvement to the related issue, based on a sample size of the target group, or their prior work or life experiences. Individuals were selected and invited via written correspondence to participate in stakeholder input sessions.

**2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them**

**1. Methods for collecting Stakeholder Input**

- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Meeting with invited selected individuals from the general public

**Brief Explanation**

In all three stakeholder input efforts, the use of focus groups and meetings were employed. For the Community Capacity Building program the Appreciative Inquiry Method was used to identify assets of the community relating to establishing a court interpreter program at the University of Guam.

Focus groups were held with both farmers and then with agricultural professions on five questions on seven island groups in the American affiliated Pacific. On each island farmer leaders were identified starting including Soil and Water Conservation District membership and these leaders were asked to invite others (snowballing) for the focus groups. Targeted Agricultural professionals were selected from the Land Grant institutes, local Departments of Agriculture and Federal agencies supporting agriculture professional groups.

In all three stakeholder input efforts, the use of focus groups and meetings were employed. For the Community Capacity Building program the Appreciative Inquiry Method was used to identify assets of the community relating to establishing a court interpreter program at the University of Guam.

Focus groups were held with both farmers and then with agricultural professions on five questions on seven island groups in the American affiliated Pacific. On each island farmer leaders were identified starting including Soil and Water Conservation District membership and these leaders were asked to invite others (snowballing) for the focus groups. Targeted Agricultural professionals were selected from the Land Grant institutes, local Departments of Agriculture and Federal agencies supporting agriculture professional groups.

**3. A statement of how the input was considered**

- To Identify Emerging Issues
- In the Action Plans
- To Set Priorities

**Brief Explanation**

New projects and grants have been initiated to address many of the issues identified with several already funded. From the conference collaborations new partnerships are being formally established through memorandums of agreement (MOA). One MOA has been signed between UOG Cooperative Extension, Guam Farmers' Cooperative Association, Guam Hotel and Restaurant Association and Guam Department of Agriculture to work together in promoting sales of local produce to the tourism industry in an import substitution effort. The Co-Op and the Northern Soil and Water Conservation District have both used the data and issues identified in developing their multi-year strategic plans. The issues and data generated by the conference serve as powerful justification of local and regional need in developing programs and seeking funding both locally and from grant sources.

**Brief Explanation of what you learned from your Stakeholders**

Long term issues and needs in the area of agricultural development and sustainability are amazingly similar for Guam and all the Island groups that make up the American Affiliated Pacific Islands. Some key issues common to all are the need for market development, development of local livestock feed sources, more work on invasive species, promoting farming as a noble and profitable profession to our youth, and improving new farmer education programs. Guam and partnering island focus groups results are posted at <http://wsare.usu.edu/conf/pac/docs/>.

**IV. Expenditure Summary**

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
883294	0	0	0

<b>2. Totaled Actual dollars from Planned Programs Inputs</b>				
<b>Extension</b>			<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	883294	0	0	0
<b>Actual Matching</b>	500000	0	0	0
<b>Actual All Other</b>	239785	0	0	0
<b>Total Actual Expended</b>	1623079	0	0	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years</b>				
<b>Carryover</b>	417006	0	0	0

**V. Planned Program Table of Content**

<b>S. NO.</b>	<b>PROGRAM NAME</b>
1	Animal Systems - Aquaculture Development
2	Community Capacity Building
3	Guam Families, 4-H Youth Development and Communities
4	Our Environment and Home & Urban Landscapes
5	Sustainability of Small Scale Swine and Poultry Farms on Guam
6	Nutrition Education for Guam
7	CYFAR Pacific Islands Communities: Building (STEPS) Sustainable Teen Entrepreneurial Programs
8	Plant Health and Pest Management
9	Tropical Food Processing and Safety
10	The New Farmer: Agriculture for the Next Generation

**Program #1**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Animal Systems - Aquaculture Development

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%			
111	Conservation and Efficient Use of Water	15%			
133	Pollution Prevention and Mitigation	10%			
301	Reproductive Performance of Animals	10%			
307	Animal Management Systems	20%			
403	Waste Disposal, Recycling, and Reuse	20%			
604	Marketing and Distribution Practices	15%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	1.7	0.0	0.0	0.0
<b>Actual</b>	1.4	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
81278	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
275861	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
12849	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

A new aquaculture extension agent was hired middle of this fiscal year. To better serve aquacultural farms on Guam and to shape out the future aquaculture development, a workshop involving majority of aquaculture stakeholders and government agencies was organized and several issues were prioritized: 1) to increase supply of shrimp postlarval and tilapia fry; 2) to utilize alternative local ingredients to lower feed costs; 3) to implement regional biosecurity measurements to reduce on risks associated with importation of live aquatic animals; and (4) to explore other culture species. Major efforts were in establishing a family-based shrimp genetic breeding program in Guam Aquaculture Development and Training Center (GADTC) to provide superior specific-pathogen-free (SPF) shrimp postlarvae to farmers and to develop GADTC a regional center for SPF shrimp broodstock. Special mating scheme was implemented for tilapia strains in GADTC to maintain good seed stocks and to minimize the accumulation of inbreeding. Hand-on training was made for four technicians of GADTC. Shrimp postlarvae and tilapia fry productions have been increased over 50% this year. Existing recirculating aquaculture systems at the CES Aquaculture Park was upgraded to demonstrate more efficient and appropriate technology to aquaculture class and potential new farmers. Direct contacts were made with all major aquaculture producers to assist their production needs, and technical supports were made to eight people who plan to get involved in aquaculture, with one interested in ornamental aquaculture business. A grant proposal was submitted to Western SARE in developing aqua- and agri-feeds using local ingredients, and collaborations with world known experts in this area and corresponding agencies of other Pacific islands have been established. Technical progress in Open Ocean Aquaculture Technology was closely monitored and its potential application on Guam was carefully assessed. With Western SARE grant support one new farmer was assisted in setting up an intergrated aquaculture/aquaponics system the produces tilapia and leafy greens.

**2. Brief description of the target audience**

The target audience includes the following: existing aquaculture farmers, related governmental agencies, potential interested individuals (investors, fishermen, hobbyists, or new farmers), aquaculture class students, and various youth groups, especially high school students. Fish processing plant owners/managers, boat operators and agricultural farmers were also targeted to make joint efforts in developing animal feeds using locally available ingredients.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	100	500	30	100
2008	100	300	30	80

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- number of popular articles in newsletters, magazines and newspapers

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	3	2

**Output #2**

**Output Measure**

- number of extension articles

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	4	0

**Output #3**

**Output Measure**

- number of workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	1

**Output #4**

**Output Measure**

- number of extension brochures/pamphlets

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	0

**Output #5**

**Output Measure**

- number of requests for research and new technology information

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	9

**Output #6**

**Output Measure**

- number of one to one intervention

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	5	7

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

<b>O No.</b>	<b>OUTCOME NAME</b>
1	number of participants gaining awareness of emerging aquaculture technology
2	Number of participants gaining basic aquaculture knowledge
3	Number of individuals adopting enhancements to existing production systems
4	Number of individuals adopting new aquaculture technology
5	Increased number of producers in aquaculture
6	% substitution of imports

**Outcome #1****1. Outcome Measures**

number of participants gaining awareness of emerging aquaculture technology

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	25	20

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Promote the utilization of genetically improved tilapia fry and SPF shrimp postlarvae to reduce risks of disease outbreak and to improve production output per unit, and to encourage recirculating system for intensive culture.

**What has been done**

Conduct workshop session on biosecurity, and produce more shrimp PL and fish fry on GADTC and demonstrate recirculating system setup.

**Results**

Most farmers use better seed stocks to improve production efficiency, and more interests shown in using recirculating system for small operation.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
307	Animal Management Systems
111	Conservation and Efficient Use of Water

**Outcome #2****1. Outcome Measures**

Number of participants gaining basic aquaculture knowledge

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	20	25

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Water recirculating system for intensive fish/shrimp culture, to conserve water source and improve production efficiency

**What has been done**

Water recirculating system for intensive fish/shrimp culture, to conserve water source and improve production efficiency. Modified the recirculating system in CES aquaculture park for demonstration and education purpose; distribute related flyers to interested individuals; and direct consultation on recirculating system design.

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
403	Waste Disposal, Recycling, and Reuse
307	Animal Management Systems
133	Pollution Prevention and Mitigation
301	Reproductive Performance of Animals
604	Marketing and Distribution Practices
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #3**

**1. Outcome Measures**

Number of individuals adopting enhancements to existing production systems

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	5	6

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Utilization of genetically improved fish/shrimp stocks for aquaculture and application of recirculating system for aquaculture

**What has been done**

Technical supports were provided for farm feeding management for the improved stocks, and on how to improve the existing culture system to make it more efficient.

**Results**

Most existing fish farms purchased the improved fry from GADTC, instead of using self-produced fry; one facility modified existing to improve water quality.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
307	Animal Management Systems
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

**Outcome #4**

**1. Outcome Measures**

Number of individuals adopting new aquaculture technology

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Improve production output using the existing facility to generate more income. One farmer wanted to explore increasing the profitability of recirculating tilapia production by utilizing hydroponic troughs growing lettuce and KangKong as biological and chemical filters.

**What has been done**

Technical supports and consultation were provided for system modification and water quality management and on one farm technical physical support were provided to farmer in system design and installation.

**Results**

One farm applied the recirculating culture principles and modified the existing system to maintain better quality and higher profitability.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
133	Pollution Prevention and Mitigation
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #5**

**1. Outcome Measures**

Increased number of producers in aquaculture

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	3	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Increased awareness of health benefits of seafood consumption attracted more people involved in aquaculture, either to generate more income or support more family seafood consumption

**What has been done**

Technical supports and consultation provided for site preparation and system setup.

**Results**

Two new small aquaculture farming entities on Guam

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
604	Marketing and Distribution Practices
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse
301	Reproductive Performance of Animals
111	Conservation and Efficient Use of Water

**Outcome #6**

**1. Outcome Measures**

% substitution of imports

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	0	10

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Importation of fish fry and shrimp postlarvae increases the risk of bringing potential diseases into Guam, which could impact the existing aquaculture farms

**What has been done**

Workshop to educate on principle of quarantine and on-farm biosecurity, and produce more high health fish fry and shrimp postlarvae in GADTC for local farmers

**Results**

Imported shrimp larvae was reduced by 10% As for fish and shrimp consumption, the increase of local productions are minimal at this time.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
604	Marketing and Distribution Practices
307	Animal Management Systems
111	Conservation and Efficient Use of Water

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)

**Brief Explanation**

## **V(I). Planned Program (Evaluation Studies and Data Collection)**

### **1. Evaluation Studies Planned**

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

### **Evaluation Results**

### **Key Items of Evaluation**

**Program #2**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Community Capacity Building

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
604	Marketing and Distribution Practices	10%			
606	International Trade and Development	10%			
608	Community Resource Planning and Development	10%			
609	Economic Theory and Methods	10%			
610	Domestic Policy Analysis	10%			
611	Foreign Policy and Programs	10%			
802	Human Development and Family Well-Being	10%			
803	Sociological and Technological Change Affecting Individuals, Fam	10%			
805	Community Institutions, Health, and Social Services	10%			
902	Administration of Projects and Programs	10%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	4.0	0.0	0.0	0.0
<b>Actual</b>	4.3	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
183248	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
40811	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
60511	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

CES provided training on the Appreciative Inquiry method and the basics of focus group facilitation to community members and students. Government agencies and community entities received training and technical support to increase their organizational capacities. CES provided Strategic Planning to non-profit and government agencies. Individuals received statistical methods, data dissemination, data editing, consistency checks and quality control and collection methods training. CES has collaborated with Dept. of Public Health to develop a localized data collection methodology for BRFSS to collect 800 interviews pertaining to the health and health practices of island residents. To improve data quality CES developed a series of data quality checks, developed software and created a training curriculum for telephone interviewers. During the 2008 Survey of COFA migrants, CES developed a compensation methodology for its field representatives, designed an ideal organizational plan and developed a project management structure that contributed to the overall success of the survey. CES created diabetes, tobacco and nutrition tables from BRFSS data for the Department of Public Health. CES also collaborated with the Division of Senior Citizens to collect individual nutrition and physical fitness and program planning data from Guam's senior population. Money management and budgeting workshops were conducted. CES developed disaster preparedness materials and participated in an island-wide campaign on disaster preparedness.

**2. Brief description of the target audience**

The target audiences in the program included: local government leaders (15 senators, 19 village mayors and 26 government agencies, 2 public corporations), numerous commissions and boards; 4 federal government agencies; non-governmental organizations. Other target audiences also included economic development professionals, small businesses and industries, community groups, senior citizens, youth and the general public.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	50	80	10	20
2008	684	15000	75	400

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- number of extension articles

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1	1

**Output #2**

**Output Measure**

- number of workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	3	76

**Output #3**

**Output Measure**

- number of brochures

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	0	869

**Output #4**

**Output Measure**

- number of disseminated research results, new technology and information

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	0	3

**Output #5**

**Output Measure**

- number of surveys

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1	4841

**Output #6**

**Output Measure**

- number of focus groups conducted

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	13

**Output #7**

**Output Measure**

- number of popular articles in newsletters, magazines and newspapers

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1	1

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

<b>O No.</b>	<b>OUTCOME NAME</b>
1	number of participants gaining increased knowledge and understanding in community development practices
2	number of participants increasing knowledge, understanding and awareness of data set models
3	number of data supported legislation enacted
4	number of entities adopting of data models for decision-making
5	number of entities developing strategic plans
6	number of entities gaining increased knowledge and understanding in community development practices
7	number of entities increasing knowledge, understanding and awareness of data set models
8	number of participants gaining knowledge and awareness of disaster preparedness
9	Number of participants gaining knowledge and awareness of personal finance and money management

**Outcome #1**

**1. Outcome Measures**

number of participants gaining increased knowledge and understanding in community development practices

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	15	91

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Government and NGO leaders, agency directors, administrators, local/regional leaders, boards and public admin/policy students require tools and skills to respond and develop programs that deal with their respective needs and issues.

**What has been done**

Ten members of the Guam Comprehensive Cancer Coalition received training on the Appreciative Inquiry Method and the basics of focus group facilitation. Thirty students from the school of Public Administration and College of Agriculture received training in the Logic Model. One participant from the Public Health, Div. of Senior Citizens received training on focus group facilitation. Fifty participants were trained on three sessions on census enumeration and survey work.

**Results**

Participants have increased their knowledge of community development practices, which included understanding the logic model process, basic focus group and Appreciative Inquiry facilitation, data collecting techniques and community planning. Comprehensive Cancer Control Coalition members applied their understanding of Appreciative Inquiry and basic focus group facilitation during a series of stakeholder sessions to prioritize Guam's strategic plan on cancer control. CES was instrumental in developing a of survey enumerators, increasing their individual skill sets and employability. College of Agriculture students applied their understanding of the logic model to apply for a minigrant and school project on environmental conservation.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development
902	Administration of Projects and Programs
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services

**Outcome #2**

**1. Outcome Measures**

number of participants increasing knowledge, understanding and awareness of data set models

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	7

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local and regional leaders, planners, agency directors and administrators need timely and accurate economic, social and health data to influence policies, develop programs and manage and distribute resources.

**What has been done**

Individuals received statistical methods, data dissemination, data editing, consistency checks and quality control and collection methods training. As part of our unit's continued capacity investment efforts, Four extension associates and assistants attended the annual Behavioral Risk Factor Surveillance System (BRFSS) Training Conference in Atlanta, GA.

**Results**

Seven individuals increased their knowledge and awareness of data set models and reduced errors associated with data collecting. Extension associates and assistants attending the Atlanta BRFSS training increased their knowledge and skills in data set models, which included awareness and understanding on sample efficiency and response rates, interviewer training and monitoring, reviewing quality control reports, managing multiple follow-up studies, obtaining quality data and survey collecting using mail and cellular devices.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development
610	Domestic Policy Analysis
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services
803	Sociological and Technological Change Affecting Individuals, Fam
609	Economic Theory and Methods

**Outcome #3**

**1. Outcome Measures**

number of data supported legislation enacted

*Not reporting on this Outcome for this Annual Report*

**Outcome #4**

**1. Outcome Measures**

number of entities adopting of data models for decision-making

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local and regional leaders, planners, agency directors and administrators need timely and accurate economic, social and health data to influence policies, develop programs and manage and distribute resources.

**What has been done**

CES has collaborated with Dept. of Public Health to develop a localized data collection methodology for BRFSS to collect 800 interviews pertaining to the health and health practices of island residents. To improve data quality CES developed a series of data quality checks, developed software and created a training curriculum for telephone interviewers. During the 2008 Survey of Compact of Freely Associated (COFA) migrants, CES developed a compensation methodology for its field representatives, designed an ideal organizational plan and developed a project management structure that contributed to the overall success of the survey.

**Results**

Two agencies have developed and/or are developing programs based on data. The Dept. of Public Health has health prevalence data to develop and deliver socially appropriate programs and can draft legislation to improve the health and well-being of the community. The Governor's Office, Bureau of Statistics and Plans has preliminary data that will substantiate reimbursements from the Federal Government to the Government of Guam for dollars spent as a result of the migration of citizens from the freely associated states. A total of \$30 mil. is available through the reimbursements to Guam, Hawaii, the CNMI and American Samoa.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
604	Marketing and Distribution Practices
608	Community Resource Planning and Development
805	Community Institutions, Health, and Social Services
803	Sociological and Technological Change Affecting Individuals, Fam
609	Economic Theory and Methods
902	Administration of Projects and Programs
610	Domestic Policy Analysis

**Outcome #5**

**1. Outcome Measures**

number of entities developing strategic plans

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	3	4

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Successful organizations plan. Government and NGO planners, agency directors, administrators, local and regional leaders, and boards use strategic planning to formalize goals and actions to achieve their organizational mission in efficient and effective ways. Strategic planning provides organizations with a tool to help them understand problems, identify opportunities and plan for renewal and growth.

**What has been done**

CES facilitated 4 strategic planning sessions with the Department of Public Health to identify priorities to fulfill its aging and midlife planning five year state plan. The Guam Judicial Court's Court Interpreter Program benefited from employing the Appreciative Inquiry method. CES facilitated focus groups with members of St. Thomas Aquinas (STA) Catholic High School to identify its strategic plan for the school. The University of Guam's Professional and International Program sought CES support to revise their organization's vision, mission and values and to identify strategic goals.

**Results**

Four participating agencies produced and adopted their strategic plans. The Dept. of Public Health and the Guam Judicial Court identified new priorities to address their respective programs on midlife planning and court interpretation. The Court Interpreter strategic planning results serve as the basis for developing a court interpreter certification program at the University of Guam. The Professional and International Program defined their vision, mission, values and strategic goals. St. Thomas Aquinas Catholic High School's strategic plan benefited from a well represented from key stakeholders, students and faculty. STA's efforts now focus on addressing student enrollment and institutional growth.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Fam
606	International Trade and Development
608	Community Resource Planning and Development
902	Administration of Projects and Programs
805	Community Institutions, Health, and Social Services
604	Marketing and Distribution Practices

**Outcome #6**

**1. Outcome Measures**

number of entities gaining increased knowledge and understanding in community development practices

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1	8

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Government and NGO planners, agency directors, administrators, local/regional leaders and boards used a wide range of community development tools to help clients address community and economic development needs. Tools and activities include planning sessions, needs assessments, policy and initiatives. Agencies need information, data, surveys, skills and decision-making tools to identify problems, understand issues, and identify 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.

**What has been done**

Eight government and non-government agencies received training and technical support to increase their organizational capacities. CES simplified community access to resources and faculty/extension expertise with partners that included Public Health (Division of Senior Citizens and the Guam Comprehensive Cancer Coalition), the Gov't of Guam Association of Retired Persons and participating Mayor's Offices, the Dept. of Labor and the Division of Vocational Rehabilitation. In addition, partners trained on the plan of work model helping them to focus on outcomes and impacts.

**Results**

Agencies adopted the logic model for the following: decision making, identifying funding opportunities, developing programs and policies. Through technical and training support, the Bureau of Statistics and Plans, Public Health and various government and non-government agencies have increased organizational capacity. This has resulted in collaborative projects such as the Freely Associated States Migrant Survey to decide federal reimbursements to the Government of Guam. Capacity building efforts have led to a continuing effort to institutionalize healthy aging and mid-life planning programs through select village senior citizens centers.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
802	Human Development and Family Well-Being
902	Administration of Projects and Programs
610	Domestic Policy Analysis
803	Sociological and Technological Change Affecting Individuals, Fam
805	Community Institutions, Health, and Social Services
609	Economic Theory and Methods
604	Marketing and Distribution Practices
608	Community Resource Planning and Development

**Outcome #7**

**1. Outcome Measures**

number of entities increasing knowledge, understanding and awareness of data set models

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2008	1	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local and regional leaders, planners, agency directors and administrators need timely and accurate economic, social and health data to influence policies, develop programs and manage and distribute resources.

**What has been done**

CES created diabetes, tobacco and nutrition tables from BRFSS data for the Department of Public Health. CES also collaborated with the Division of Senior Citizens to collect individual nutrition and physical fitness and program planning data from Guam's elderly population through the Guam Pilot Project on Healthy Aging funded in 2007 by CSREES.

**Results**

The Dept. of Public Health used the diabetes, tobacco and nutrition tables to develop the 2008 Nutrition and Physical Activity Conference. These tables were also used to modify and inform priorities of the Guam Comprehensive Cancer Control Strategic Plan. The department is drafting legislation to increase the tax on tobacco. Nutrition and physical fitness and documented qualitative data collected during the healthy aging project will be used in future healthy aging program planning and model replication.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
611	Foreign Policy and Programs
604	Marketing and Distribution Practices
609	Economic Theory and Methods
803	Sociological and Technological Change Affecting Individuals, Fam

608	Community Resource Planning and Development
610	Domestic Policy Analysis
802	Human Development and Family Well-Being
902	Administration of Projects and Programs
805	Community Institutions, Health, and Social Services

**Outcome #8**

**1. Outcome Measures**

number of participants gaining knowledge and awareness of disaster preparedness

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	{No Data Entered}	75

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Individuals, families, youth, senior citizens, vulnerable populations, first responders, emergency personnel, crisis workers, law enforcement officials and community organizers need information on disaster preparedness. Guam is prone to typhoons and earthquakes. The island is also the center of one of the largest US defense presence in the Asia-Pacific region. These realities increase the potential threats of man-made and natural disasters. When it comes to disaster preparedness, being informed and having a disaster plan is key to saving lives and lessening potential risks

**What has been done**

CES participated in the 2008 National Preparedness Month with the local Homeland Security. CES gave out Disaster preparedness materials and In Case of Emergency (ICE) Cards, created Disaster Preparedness posters and disseminated preparedness paraphernalia to the island Mayor's Council and posted posters at all 19 village mayoral offices. CES produced A healthier alternatives to nonperishable food tips in times of disaster brochure. One extension associate took part in the Extension Disaster Education Network (EDEN) annual meeting in Vermont and engaged in network committee work.

**Results**

Individuals have increased their knowledge about disaster preparedness and how to create a basic home emergency supply kit. Individuals have ICE cards and are aware of the importance of having contact information of loved ones in times of emergency. The Extension Associate's participation in the EDEN annual meeting resulted in face-to-face networking opportunities and increased understanding of the current state of disaster preparedness throughout the nation and has applied new knowledge on developing disaster preparedness information and projects.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Fam
805	Community Institutions, Health, and Social Services

**Outcome #9**

**1. Outcome Measures**

Number of participants gaining knowledge and awareness of personal finance and money management

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	{No Data Entered}	250

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

The rising cost of living, increasing government fees with the increasing cost of consumer goods and services on Guam is creating greater financial burdens on individuals and families living on limited, single household or fixed income.

**What has been done**

CES provided savings and money management educational materials to parents during the 2008 Guam Head Start Program Parent Conference. 250 parents participated in the conference. 30 parents participated in a 60 min. workshop on financial goal setting and the values of money based on the Consolidated Credit Counseling Services publication 'Talking Money With Your Kids'. Participants created a household budget plan and were taught basic money management techniques. 30 people completed a savings pledge and are aware of having a savings goal.

**Results**

250 Participants increased their knowledge and awareness of personal finance and money management. Participants completed a personal savings goal and have been motivated to have a savings plan. They have increased their knowledge of strategies they can employ to realistically save money based on a curriculum developed by the University of Hawai'i at Manoa called 'A recipe for Success' and 'Goal Setting'. Participants have increased their knowledge of budgeting and can create a household budget.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being

**V(H). Planned Program (External Factors)****External factors which affected outcomes**

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)

**Brief Explanation**

Outcome #3: CES has taken preliminary steps in 2008 to address this long term outcome by working with agencies such as the Bureau of Statistics and Plans and the Department of Integrated Services for Individuals with Disabilities. CES provided technical assistance to identify funding to convene a data workgroup to introduce legislation to create a data repository and assisted with legislation to merge the rehabilitation department with the dept. of mental health. In addition diabetes, tobacco and nutrition data tables were used to draft legislation to increase tobacco tax.

**V(I). Planned Program (Evaluation Studies and Data Collection)****1. Evaluation Studies Planned**

- Retrospective (post program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

**Program #3**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Guam Families, 4-H Youth Development and Communities

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	10%			
802	Human Development and Family Well-Being	30%			
803	Sociological and Technological Change Affecting Individuals, Families and Communities	10%			
806	Youth Development	50%			
	<b>Total</b>	<b>100%</b>			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	4.0	0.0	0.0	0.0
<b>Actual</b>	4.5	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
111991	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
32336	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
46123	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Life skills lessons and experiential activities were presented and implemented in the schools, 4-H clubs, community organizations, Christmas and Summer Break programs and on the military installations. The lessons and activities delivered included communication and expressive arts, food, nutrition and health programs, natural resources and environmental education, plant, soils and entomology, science and technology education and economic education and entrepreneurship. A total of 361 workshops were conducted with 10,081 youths participating. This is approximately a 45% increase in youth participants from the previous year. The 363 workshops delivered were: 31 in communication and expressive arts; 179 in health programs; 63 in natural resources and environmental education; 24 in plant, soils and entomology; 10 in technology; 9 in entrepreneurship and; 47 in special enrichment programs

**2. Brief description of the target audience**

Primary target audience includes: children, youth, and families in the community, at-risk children, youth and families, and schools including military establishments and their families including teachers, educators, and organizations that may request our services in a collaborative manner. Efforts are being made to reach targeted populations who are underserved.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	15	50	6000	8000
2008	1500	600	10081	9000

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	2	2	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1****Output Measure**

- (1) # of club members

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	175	200

**Output #2****Output Measure**

- (2) # of volunteer leaders

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	10	40

**Output #3****Output Measure**

- (3) # of workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	15	434

**Output #4****Output Measure**

- (4) # of brochures

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	5

**Output #5****Output Measure**

- (5) # of surveys

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	0	1

**Output #6****Output Measure**

- (6) # of media articles and promotions

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	3	25

**Output #7****Output Measure**

- (7) # of focus group

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	1

**Output #8****Output Measure**

- (8) # of volunteers trained

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	8	107

**Output #9****Output Measure**

- (9) # of extension staff trained

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	10	5

**Output #10****Output Measure**

- (10) # of collaboration established

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	6	40

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	(1) # of 4-H members mastering life skills in the selected targeting life skill curriculum,
2	(2) # of participants gaining life skills knowledge in the workshops they chose and participate in,
3	(3) # of volunteers trained in youth development process and leaderships skills,
4	(4) # of school aged children gaining knowledge and experiences in the essential elements in the 4-H curriculum.

**Outcome #1****1. Outcome Measures**

(1) # of 4-H members mastering life skills in the selected targeting life skill curriculum,

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	2000	1408

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Guam's youth are engaged in risk behaviors that affect their well-being and the whole community. Consequences lead to serious at-risk behaviors such as alcohol and substance abuse, teen pregnancy, juvenile delinquency, youth crime and diseases. An additional critical issue facing Guam's youth 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. Research indicates that youth learn from both formal and non-formal forms of education and that peers and youth learn best through 'hands-on' activities and interaction.

**What has been done**

Three hundred sixty three life skill workshops were conducted within the Guam public schools, local 4-H clubs, community organizations, summer and Christmas break workshops and three military installations. Workshops consisted of the following life skills: 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, critical thinking, personal safety, respect, self esteem, resiliency, stress management and healthy lifestyle choices.

**Results**

Pre and post tests show that 1408 participants mastered like skills in targeted life skills curricula.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families and Communities
801	Individual and Family Resource Management

**Outcome #2****1. Outcome Measures**

(2) # of participants gaining life skills knowledge in the workshops they chose and participate in,

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	2000	9073

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

One of the major issues Guam youth face is the lack of youth activities. The absence of youth activities leads to at-risk behaviors such as violence, gangs, destruction of private property, teen pregnancy, dropouts and drug/substance abuse. Research shows that our youth become at-risk due to lack of life skill knowledge. Youth learn from both formal and non-formal forms of education and learn best through 'hands-on' activities and interaction. The youth need to be made aware of programs and activities that will offer them the opportunity to gain knowledge and increase life skills in order to make educated decisions when faced with situations due to at-risk behaviors.

**What has been done**

UOG's Cooperative Extension service continues to partner with schools, local organizations and the military to provide awareness, education and opportunities through life skills training workshops, experiential activities and demonstrations.

**Results**

A total of 9073 participants taking part in the workshops, activities and demonstrations showed mastery of life skills in targeted areas such as public speaking, visual and performing arts; making healthy choices in foods, taking part in more physical fitness activities; becoming more environmentally responsible; learning the interconnectedness of organisms and their environment; participating in technology education; in creasing their knowledge and skills related to economic education and entrepreneurship and; overall being able to demonstrate the use of value skills developed.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families and Communities
801	Individual and Family Resource Management
806	Youth Development

**Outcome #3**

**1. Outcome Measures**

(3) # of volunteers trained in youth development process and leaderships skills,

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	107

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Volunteers are a vital resource necessary for the success of our youth development programs and play an important role by extending partnerships through community involvement, building collaborators, and delivering the programs to address client needs in the community. The volunteers must be supported with development opportunities, capable management and leadership as well as adequate resources in order for them to increase their own skills and knowledge base, so they can engage and work with the youth and community.

**What has been done**

Continual training in curricula and developing leadership skills is provided. In addition to the standard program delivery volunteer participation has expanded to program planning, internal consultation, serving on advisory boards, and coaching and supervising.

**Results**

One hundred seven volunteers have received training and orientation in 4-H and youth development programs increasing their knowledge, skills and abilities to be active and engaged volunteers. Ninety have committed and remained active in the various roles described above. This is over a 100% increase in committed volunteers from the previous year. The time and services of the volunteers bringing in their own specialties and skills to the 4-H program is estimated to be equivalent to \$135,000.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
801	Individual and Family Resource Management
806	Youth Development
803	Sociological and Technological Change Affecting Individuals, Families and Communities

**Outcome #4**

**1. Outcome Measures**

(4) # of school aged children gaining knowledge and experiences in the essential elements in the 4-H curriculum.

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	2000	9073

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Issues facing Guam's youth today are recurrences of family violence, gang related violence; increasing teen pregnancy and high school drop out rates as well as suicide; dwindling educational resources and; economic hardships relating to drug and alcohol abuse. Youth must be given the opportunity to gain knowledge and ability through role play, to be able to identify and deal with at-risk behaviors in a positive manner.

**What has been done**

Three hundred sixty three workshops were conducted to aid the youth in increasing their knowledge and skills in leadership, character building and positive attitude change towards at-risk behaviors, health and physical fitness, environmentally responsible behaviors, economic and entrepreneurship education, and science and technology programs.

**Results**

Participating youth have changed attitudes and increased awareness in areas such as horticulture, youth finance, nutrition and fitness, science and technology. Through their increased knowledge and skills the youth are better able to engage in the issues at hand that affect them directly or indirectly at home, in school or in the community. Their sense of belonging and ability to make positive life choices, allows them to become civically engaged and to act responsibly. The youth assume more self responsibility and become positive influences in their communities.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
803	Sociological and Technological Change Affecting Individuals, Families and Communities
806	Youth Development
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Other ( )

**Brief Explanation**

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- Before-After (before and after program)

**Evaluation Results**

**Key Items of Evaluation**

**Program #4**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Our Environment and Home & Urban Landscapes

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
104	Protect Soil from Harmful Effects of Natural Elements	10%			
111	Conservation and Efficient Use of Water	20%			
112	Watershed Protection and Management	15%			
123	Management and Sustainability of Forest Resources	5%			
133	Pollution Prevention and Mitigation	10%			
135	Aquatic and Terrestrial Wildlife	15%			
216	Integrated Pest Management Systems	5%			
403	Waste Disposal, Recycling, and Reuse	5%			
605	Natural Resource and Environmental Economics	15%			
	<b>Total</b>	<b>100%</b>			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	1.2	0.0	0.0	0.0
<b>Actual</b>	1.3	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
55248	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

This year curriculum was developed for use with middle and high school age groups. These same curriculum effort developed versions of the matter for use with seniors and other adult groups in workshops. Curriculum training for agricultural professionals from Guam Cooperative Extension, Guam Department of Agriculture, and Sanctuary Inc. were conducted to increase the teaching capacity to deliver curriculum. Guam Elderly at senior centers were surveyed on their topics of interest in these areas to help prioritize the curriculum development. Two field days for school groups were held at the on campus demonstrations. University 4-H personnel are now able to deliver trainings since the adoption of the curriculum at three middle schools. A series of outreach extension publications on environmental conservation practices for the yard and herb production have been developed for review. Planning meetings between the cooperating agencies (mayors offices, senior centers, Guam Public Health, Guam EPA and Guam Department of Agriculture and UOG CES) were held to identify priorities to shape educational programs.

**2. Brief description of the target audience**

School aged children and youth in all grades interested in ways to protect the environment in our homes and yards. Teachers are another key audience, they utilize our extension publications to enhance their science curriculum. Guam's Elderly at senior centers are also interested in ways to increase the productivity of their yards. The adult audience comprises traditional extension homeowner clients wanting more information on appropriate methods of gardening and yard for our island context.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	50	2000	30	500
2008	154	3000	528	150

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year	Target
Plan:	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	0	
2008	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of extension articles

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	4	2

**Output #2**

**Output Measure**

- Number of workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	7

**Output #3**

**Output Measure**

- Number of brochures

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	5

**Output #4**

**Output Measure**

- Number of requests for research results and new technology and information

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	22

**Output #5**

**Output Measure**

- Number of one to one intervention

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	5	6

**Output #6**

**Output Measure**

- Number of popular articles

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	2

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

<b>O No.</b>	<b>OUTCOME NAME</b>
1	Number of participants gaining awareness of environmental issues
2	Number of Government officials become educated on aspects of the environment
3	Number of contractors learning environmental friendly methods to reduce the impact of development on the environment.
4	Number of schools to introduce an environmental curriculum to their students.
5	Percent decrease in erosion of sediment into the streams, improving the health of Guam's reefs.

**Outcome #1****1. Outcome Measures**

Number of participants gaining awareness of environmental issues

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	100	560

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Urban landscapes (yards) comprise a large portion of the island of Guam. Promoting environmentally friendly practices on this significant land are will have a large impact on the island's environment.

**What has been done**

Seven workshops were held with school age youth on topics like chicken tractors, fruit trees and fruit trees as windbreaks, mulching, and water catchments. Over 528 youth participated in these workshops and 22 teachers.

**Results**

In post workshop surveys 98% of the youth reported an increase in awareness of the discussed practices and how they impact on the island's yards.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation
605	Natural Resource and Environmental Economics
403	Waste Disposal, Recycling, and Reuse
112	Watershed Protection and Management
111	Conservation and Efficient Use of Water

**Outcome #2****1. Outcome Measures**

Number of Government officials become educated on aspects of the environment

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	9

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Guam Department of Agriculture is a primary contact for educators wishing to find opportunities for expanding student horizons in environmental conservation practices. Training agriculture development staff and supporting their development of demonstrations provides a body of knowledgeable human resources which teachers and the public can draw on. As well, demonstrations offer solid examples of conservation practices.

**What has been done**

Environmental workshops using the curriculum developed through this program were conducted for Guam Department of Agriculture, Guam Public Health and Guam EPA.

**Results**

Nine government personnel have adopted curriculum to both train educators and teachers in curriculum delivery as well as to conduct workshops in conservation practices.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
403	Waste Disposal, Recycling, and Reuse

**Outcome #3**

**1. Outcome Measures**

Number of contractors learning environmental friendly methods to reduce the impact of development on the environment.

*Not reporting on this Outcome for this Annual Report*

**Outcome #4**

**1. Outcome Measures**

Number of schools to introduce an environmental curriculum to their students.

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	2	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The Guam 4-H program is enhancing the schools curriculum by working with the youth outside of the classroom. This is important since the teachers time with the kids is very limited and on Guam heavily scripted by the Direct Instruction Program.

**What has been done**

Seven workshops were held at three schools involving 528 youth and 22 teachers on topics including; chicken tractors, water catchments, fruit tree windbreaks and mulching.

**Results**

Through the adoption of environmental curriculum at three schools, 4-H staff are able to deliver lessons on environmental conservation practices to school-age youth.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

216	Integrated Pest Management Systems
111	Conservation and Efficient Use of Water
123	Management and Sustainability of Forest Resources
133	Pollution Prevention and Mitigation
112	Watershed Protection and Management

**Outcome #5**

**1. Outcome Measures**

Percent decrease in erosion of sediment into the streams, improving the health of Guam's reefs.

*Not reporting on this Outcome for this Annual Report*

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Competing Public priorities
- Other (Personnel changes.)

**Brief Explanation**

Outcome #3 and #5: The faculty who planned to measure erosion and sedimentation in the rivers and work with Guam contractors retired. No CES faculty or staff plan to work on these issues. These outcomes have been adjusted accordingly beginning with the 2010 plan of work.

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- 

**Evaluation Results**

**Key Items of Evaluation**

**Program #5**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Sustainability of Small Scale Swine and Poultry Farms on Guam

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
302	Nutrient Utilization in Animals	15%			
307	Animal Management Systems	35%			
601	Economics of Agricultural Production and Farm Management	10%			
703	Nutrition Education and Behavior	15%			
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%			
806	Youth Development	15%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	1.4	0.0	0.0	0.0
<b>Actual</b>	1.7	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
79120	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
30237	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
12849	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Numerous activities were conducted this reporting, these activities include: 1. A partnership with the Department of Agriculture (service support) and the Guam Cooperative Extension Service (education and outreach) to operate a small-scale livestock and poultry demonstration facility was established; 2. Conducted workshops and training to local and regional producers at the facility; 3. Delivered services and products (Department of Agriculture) and educational and technical support (Guam Cooperative Extension Service) to local and regional producers; 4. Conducted applied research and field experiments at the facility and on farmers farms to conduct participatory and demonstrations; 5. Conducted field tours to educate students, 4-H club members and Military Kids through tours of the facility.

**2. Brief description of the target audience**

Primary local clients will include former, existing and potential new animal producers (swine and layer) both small-scale and subsistence level. On Guam over the past decade, 1,000+ new agriculture land leases have been signed by the Chamorro Land Trust. Many of the producers possess limited resources and are in desperate need of education and technical support programs.

Second target groups are the island’s youth particularly youth at risk and military kids. Life skills program by 4-H that relates to animals care and management will also be conducted at the demonstration site and the animals will be displayed at various schools during schools’ celebration of Chamorro Week and fairs. The 4-H military Kids program will also utilize the demonstration farm for hands-on learning on animal care, and integration with gardening.

A third target group is the local and regional agricultural professionals. Regional workshops related to animal production will be conducted at the demonstration farm. Extension agents and local and regional professionals from the different Land Grant Institutions from Micronesia and Northern Marianas will participate in activities at the site. Guam will continue to be the source of swine breeders and replacement chicks for Marianas and Micronesia.

A fourth audience is University agricultural students. The demonstration farm will be utilized as laboratory classroom for students enrolled in agriculture courses (Introduction to Agriculture and Introduction to Animal Science) at the University of Guam.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	80	200	200	400
2008	60	150	100	300

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	8
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- # of workshops

Year	Target	Actual
2008	4	4

**Output #2**

**Output Measure**

- # of extension publications

Year	Target	Actual
2008	2	1

**Output #3**

**Output Measure**

- # of field trips

Year	Target	Actual
2008	4	1

**Output #4**

**Output Measure**

- # of applied research conducted in demonstration site

Year	Target	Actual
2008	1	2

**Output #5**

**Output Measure**

- # of visitors

Year	Target	Actual
2008	125	200

**Output #6**

**Output Measure**

- # of one to one contacts

Year	Target	Actual
2008	100	80

**Output #7**

**Output Measure**

- # of request for animal displays

Year	Target	Actual
2008	5	2

**Output #8**

**Output Measure**

- # of 4-H / Military Kids programs conducted at site

Year	Target	Actual
2008	4	2

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

<b>O No.</b>	<b>OUTCOME NAME</b>
1	# of producers increasing in knowledge and husbandry skills on an integrated to approach to animal and plant farm operations (short term)
2	# of producers adopting demonstrated practices
3	# of producers practicing regular replacements of broodstocks (medium term)
4	# of producers decreasing in feeding imported commercial feeds (medium term)
5	% increase in sustainable small-scale farms (long term)

**Outcome #1**

**1. Outcome Measures**

# of producers increasing in knowledge and husbandry skills on an integrated to approach to animal and plant farm operations (short term)

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	40	20

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Farmers depend on imported resources to sustain small farm operations. Resources such as local feedstuffs and nutrients from animal waste are not fully utilized. Income from operations are not maximized.

**What has been done**

Demonstrations on an integrated approach utilizing plant and animal by-products are maintained at demonstration site for farmers to observe. Several grants are being conducted at the site to educate farmers. Local, regional workshops conducted and extension publications were distributed to visitors.

**Results**

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

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
703	Nutrition Education and Behavior
307	Animal Management Systems
806	Youth Development
601	Economics of Agricultural Production and Farm Management

**Outcome #2**

**1. Outcome Measures**

# of producers adopting demonstrated practices

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	4	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Producers adopting practices are low due to expenses related to making improvements in the farm. Slow market and high cost of oil and fuel also affected improvement in farm practices.

**What has been done**

Farmers are provided assistance to apply for grants from SARE and NRCS. A limited number of \$500 mini-grants awarded to interested farmers. Continue conducting more demonstrations

**Results**

Grantwriting and application assistance was provided to farmers. Through our assistance three farmers were awarded mini-grants allowing them to adopt practices on their farms.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
601	Economics of Agricultural Production and Farm Management
307	Animal Management Systems
302	Nutrient Utilization in Animals

**Outcome #3**

**1. Outcome Measures**

# of producers practicing regular replacements of broodstocks (medium term)

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	20	30

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

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

**What has been done**

A 300 egg incubator was set up at the facility to hatch eggs from three breeds of dual variety of poultry. Chicks were sold to local farmers and poultry hobbyists. There are plans to get a bigger incubator and increase production of chicks.

**Results**

Thirty producers are now practicing regular replacement of broodstock. There is now strong demand for replacement chicks from the local and regional poultry producers. The bi-weekly production of 50-60 chicks was sold out immediately. Farmers are adopting practices leading to regular replacement of broodstocks. We expect demand to continue to increase. Chicks were also sold to one neighboring island.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
307	Animal Management Systems

**Outcome #4**

**1. Outcome Measures**

# of producers decreasing in feeding imported commercial feeds (medium term)

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	25	10

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Imported commercial feeds reached the maximum prices ever during the increase in price of oil and fuel prices.

**What has been done**

More local feeds such as coconut meat was used as feed for animals at the facility. Two regional grants under Sustainable Agriculture for further study of local feedstuffs for animal feeding was sought. One was approved for funding while the other one is still under review.

**Results**

Ten farmers are now using local feeds such as coconut meat for their animals. A SARE grant for studying local feedstuffs will be implemented this year. Findings will be adopted at the demonstration facility to educate farmers on the local feed options. Reduction in reliance of imported commercial feeds is expected to reduce further.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management
302	Nutrient Utilization in Animals

**Outcome #5**

**1. Outcome Measures**

% increase in sustainable small-scale farms (long term)

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	5	3

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Farmers depend on imported resources to sustain small farm operations. Resources such as local feedstuffs and nutrients from animal waste are not fully utilized. Income from operations are not maximized. The high reliance on imported commercial feedstuffs have hurt farmer profits, as well, the oil and gas prices reached its highest levels in decades causing a dramatic increase in the costs of operating a farm.

**What has been done**

Demonstrations on an integrated approach utilizing plant and animal by-products are maintained at demonstration site for farmers to observe. Several grants are being conducted at the site to educate farmers. Local, regional workshops were conducted and extension publications were distributed to visitors.

**Results**

Three farmers have established sustainable farms using alternative local feedstuffs and animal by-products on their farms. These farmer showed increases in knowledge, awareness and understanding of husbandry skills on integrated approaches to animal and plant farm operations. Demonstrations helped farmers to increase innovation methods of capturing nutrients from animal waste. Also, farmers have improved their operations with innovate ideas after participating in demonstrations.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
601	Economics of Agricultural Production and Farm Management
302	Nutrient Utilization in Animals
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
307	Animal Management Systems
806	Youth Development

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Appropriations changes
- Government Regulations
- Other (Increase in oil and gasoline prices)

**Brief Explanation**

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

**Evaluation Results**

**Key Items of Evaluation**

**Program #6**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Nutrition Education for Guam

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food	15%			
702	Requirements and Function of Nutrients and Other Food Components	20%			
703	Nutrition Education and Behavior	20%			
704	Nutrition and Hunger in the Population	5%			
724	Healthy Lifestyle	20%			
802	Human Development and Family Well-Being	15%			
805	Community Institutions, Health, and Social Services	5%			
<b>Total</b>		100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	5.0	0.0	0.0	0.0
<b>Actual</b>	1.6	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
53832	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
34780	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
12849	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Activities this year focused on providing basic nutrition education classes for adults and youths on topics that relate to nutrition and food such as 'MyPyramid', food safety (Kitchen & Safe Food handling), importance of exercise, fruits & 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 established partnerships with local food source businesses to promote a greater variety of healthy foods.

**2. Brief description of the target audience**

The target audiences in the program include: school-aged children (elementary through high school), families receiving public assistance, families with young children, general consumers, military families, health educators, school teachers, local farmers, and other audiences

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	300	3000	2000	1000
2008	330	1393	1726	359

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- # of workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	50	45

**Output #2**

**Output Measure**

- # of brochures

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1	1

**Output #3**

**Output Measure**

- # of dissemination of research results and new technology and information

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	200	655

**Output #4**

**Output Measure**

- # of one to one intervention

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	10	76

**Output #5**

**Output Measure**

- # of focus group

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	0	0

**Output #6**

**Output Measure**

- # of work with media

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	5	1

**Output #7**

**Output Measure**

- # of articles in newsletter, magazines, and newspapers

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1	1

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

<b>O No.</b>	<b>OUTCOME NAME</b>
1	# of participants in the community who have been expose to nutrition education
2	% increase of nutrition skills
3	% increase of participants leading Healthier Life Styles
4	% increase knowledge and understanding for being a cost efficient Community in relation to healthy food shopping
5	# of participants gaining increased knowledge and understanding on nutrition and exercise
6	# of participants to be introduced to the new "MyPyramid"
7	# of participants identifying knowledge for reading and understanding food lables
8	# of participants gaining enhanced understanding of menu planning and smart shopping
9	# of participants gaining skills for food preparation and food safety practices
10	# of participants adopting increased practice of proper nutrition habits through-out the community
11	# of participants possessing increase knowledge and understanding for: physical activity; food labels; smart shopping; and menu planning skills

**Outcome #1****1. Outcome Measures**

# of participants in the community who have been exposed to nutrition education

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1300	1009

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

The data from the Guam Department of Public Health and Social Services, Office of Vital Statistics continue 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. We continue to see the need for preventive nutrition educational programs and services as they relate to the promotion of healthy diets and lifestyle habits for the whole community of Guam. Also, a recent needs assessment identified the need to expand the delivery nutrition and health information for more intervention attempts through our programs.

**What has been done**

Nutrition Education workshops for: 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; 3) youths in Guam schools, including after school programs and other youth related programs; 4) Nutrition, Fitness & Fun Summer Camp; 5) Chronic Disease Prevention Workshop Series; and 6) A (Guam Pilot Project) Nutrition education workshop for the Elderly in our community. Additional educational efforts include: 1) static nutrition and health displays during island health fairs; 2) monthly (in-store) food demonstrations; and 3) distribution of nutrition education materials which provide information on how to stay healthy and prevent chronic diseases

**Results**

A total of 1,009 had an increase in nutrition knowledge.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
701	Nutrient Composition of Food
724	Healthy Lifestyle
704	Nutrition and Hunger in the Population
802	Human Development and Family Well-Being
703	Nutrition Education and Behavior
805	Community Institutions, Health, and Social Services
702	Requirements and Function of Nutrients and Other Food Components

**Outcome #2****1. Outcome Measures**

% increase of nutrition skills

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	76

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The continuous rise in obesity prevalence and associated medical complications on Guam is linked to the lack of nutrition and health education. Obviously, there is a need for increase nutrition and health knowledge skills. Through nutrition education the people of Guam would be better informed of the many health benefits of proper nutritional intake of foods and the importance of regular exercise as it too links to good health. Another issue would be the increasing number of people with type 2 diabetes on Guam and the surrounding Pacific islands due to the increasing prevalence of obesity, poor diet, and sedentary lifestyle.

**What has been done**

Nutrition Education workshops for: 1) families with young children who are in public assistances programs; 2) families who may not receive public assistance but fall into the 'low income' category; and 3) youths in Guam schools, including after school programs and other youth related programs. Additional educational efforts include: 1) static nutrition and health displays during island health fairs; 2) monthly (in-store) food demonstrations; and 3) distribution of nutrition education materials which aid in increasing the percentages of nutrition skills gained through provided educational activities/workshops.

**Results**

Pre and post tests showed 76% participants increased nutrition skills in one or more lessons

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
701	Nutrient Composition of Food
802	Human Development and Family Well-Being
704	Nutrition and Hunger in the Population
703	Nutrition Education and Behavior
805	Community Institutions, Health, and Social Services
724	Healthy Lifestyle

**Outcome #3**

**1. Outcome Measures**

% increase of participants leading Healthier Life Styles

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	76

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Poor food choices and the lack of physical activity all are linked to the increased number of Guam residents who suffer from chronic and preventable diseases such as diabetes, cardiovascular diseases, cancer prevention and obesity. Obviously, there is a strong need for Guam residents to lead healthier lifestyles. By providing proper nutrition and health education that not only increases knowledge, but also improves lifestyle skills, the number of Guam residents affected by these preventable conditions may be decreased.

**What has been done**

Nutrition Education workshops for: 1) families with young children who are in public assistances programs; 2) families who may not receive public assistance but fall into the 'low income' category; and 3) youths in Guam schools, including after school programs and other youth related programs. The nutrition and physical activity lessons provide detailed information and hand-on activities that help foster skill development and the ability to make healthier lifestyle choices.

**Results**

Pre and post test and follow-up surveys indicate 76% of participants in one or more education session have adopted skills and knowledge and are leading healthier lives

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population
701	Nutrient Composition of Food
805	Community Institutions, Health, and Social Services
802	Human Development and Family Well-Being
724	Healthy Lifestyle
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

**Outcome #4**

**1. Outcome Measures**

% increase knowledge and understanding for being a cost efficient Community in relation to healthy food shopping

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	76

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Guam residents face an ever-increasing cost of living, including increasing food costs, and yet a decrease in public assistance program funding. Therefore, there is a need to provid knowledge and understanding on how to be cost efficient, as a community. One way this can be achieved is by learning how to purchase healthy foods at the lowest cost possible since it is a major issue that relates to the health and well being of our community.

**What has been done**

Nutrition Education workshops for both families with young children who are in public assistances programs; and families who may not receive public assistance but fall into the 'low income', category. In addition, monthly (in-store) food demonstrations was conducted during the first Friday of the every month to capture food stamp program recipients shopping for food. During these food demos, healthy food recipes were distributed and food samples were provided and sponsored by one of Guam's largest supermarket chains on island. The lessons, which provided information on menu planning, shopping tips, and budgeting, enabled the clients to a gain knowledge and understanding on how to be more cost efficient while shopping for healthy food.

**Results**

Pre and post test results showed improvements for both groups, 76% of participants increased knowledge and understanding of how to be a more cost efficient while shopping for healthy foods.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
802	Human Development and Family Well-Being
702	Requirements and Function of Nutrients and Other Food Components
805	Community Institutions, Health, and Social Services
704	Nutrition and Hunger in the Population
701	Nutrient Composition of Food

**Outcome #5**

**1. Outcome Measures**

# of participants gaining increased knowledge and understanding on nutrition and exercise

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1300	831

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

In order for our Communities to have increased knowledge and understanding on nutrition and exercise, we must insure that our lessons encourage behavioral changes in the areas of food choice and physical activity.

**What has been done**

Nutrition Education workshops for: 1) families with young children who are in public assistances programs; 2) families who may not receive public assistance but fall into the 'low income' category; 3) middle-age working professionals at risk for chronic diseases; and 4) youths in Guam schools, including after school programs and other youth related programs. Additional educational efforts include: 1) static nutrition and health displays during island health fairs; 2) monthly (in-store) food demonstrations; and 3) distribution of nutrition education materials which provide information on how to stay healthy and prevent chronic diseases.

**Results**

Eight-hundred thirty-one participants, through pre and post tests, showed an increase in knowledge and understanding of nutrition and exercise during one or more nutrition education lessons.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
701	Nutrient Composition of Food
805	Community Institutions, Health, and Social Services
704	Nutrition and Hunger in the Population
703	Nutrition Education and Behavior
702	Requirements and Function of Nutrients and Other Food Components
724	Healthy Lifestyle

**Outcome #6**

**1. Outcome Measures**

# of participants to be introduced to the new "MyPyramid"

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	400	2105

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

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

**What has been done**

Distribution of the new 'MyPyramid' during Nutrition Education workshops for families with young children who are in public assistances programs (also, those who don't receive assistance but fall under the low income category of single parent homes) and for youths in our schools (including after school and other youth related programs); static displays during health fairs; monthly (in-store) food demonstrations.

**Results**

Two thousand one hundred and five Guam residents have been exposed to the MyPyramid through youth and adult lessons.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services
701	Nutrient Composition of Food
704	Nutrition and Hunger in the Population
703	Nutrition Education and Behavior
802	Human Development and Family Well-Being
702	Requirements and Function of Nutrients and Other Food Components
724	Healthy Lifestyle

**Outcome #7**

**1. Outcome Measures**

# of participants identifying knowledge for reading and understanding food labels

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1300	684

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

A major part of providing proper nutrition education is to educate the community on the many different types of nutrients that are important for good health. Educating the community on how to read and understand food labels is a vital part in helping people to make healthier food choices by increasing intake of some nutrients (like dietary fiber, calcium, and iron) and decreasing intake of other nutrients (like sodium, fat and saturated fat). Having people understand the components of food labels will help them acquire nutrient in the proper amounts for good health.

**What has been done**

Nutrition Education workshops for families with young children who are in public assistances programs (also, those who don't receive assistance but fall under the low income category of single parent homes) and for youths in our schools (including after school and other youth related programs).

**Results**

Pre and post tests were given for most workshops which showed improvements. Six-hundred eight-four participants identified knowledge and understanding for reading food labels during more than one nutrition education lesson.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being
702	Requirements and Function of Nutrients and Other Food Components
704	Nutrition and Hunger in the Population
703	Nutrition Education and Behavior
724	Healthy Lifestyle
805	Community Institutions, Health, and Social Services
701	Nutrient Composition of Food

**Outcome #8**

**1. Outcome Measures**

# of participants gaining enhanced understanding of menu planning and smart shopping

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	300	54

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

In order to reach the goals of improving the abilities to manage resources that relate to food; buy and prepare nutritious foods we must educate our participants on menu planning and smart shopping habits to accomplish the mentioned goals which all interns link to providing proper nutrition education for leading healthy lifestyles.

**What has been done**

Nutrition Education workshops for: 1) families with young children who are in public assistances programs; 2) families who may not receive public assistance but fall into the 'low income' category; and 3) youths in Guam schools, including after school programs and other youth related programs.

**Results**

Pre and post-tests were given for most workshops which showed improvements for adults. Fifty-four participants gained an understanding for menu planning and smart shopping by attending more than one nutrition education class.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
805	Community Institutions, Health, and Social Services
703	Nutrition Education and Behavior
802	Human Development and Family Well-Being
701	Nutrient Composition of Food
702	Requirements and Function of Nutrients and Other Food Components
724	Healthy Lifestyle
704	Nutrition and Hunger in the Population

**Outcome #9****1. Outcome Measures**

# of participants gaining skills for food preparation and food safety practices

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2008	1300	655

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Foodborne illnesses are the leading causes of acute illnesses on Guam and the United States. Due to the high number of foodborne illnesses on Guam, there is a continued need and high priority for food safety education, especially as it relates to food preparation practices.

**What has been done**

Nutrition Education workshops for: 1) families with young children who are in public assistances programs; 2) families who may not receive public assistance but fall into the 'low income' category; and 3) youths in Guam schools, including after school programs and other youth related programs. Additional food safety education efforts include static displays during island health fairs, and distribution of food safety information/materials.

**Results**

Six hundred fifty-five participants increased knowledge and understanding during more than one nutrition lesson that incorporated food preparation and food safety lessons.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
702	Requirements and Function of Nutrients and Other Food Components
704	Nutrition and Hunger in the Population
802	Human Development and Family Well-Being
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
805	Community Institutions, Health, and Social Services
724	Healthy Lifestyle

**Outcome #10****1. Outcome Measures**

# of participants adopting increased practice of proper nutrition habits through-out the community

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1300	71

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Poor food choices are linked to the increased number 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, there is a strong need for Guam residents to lead healthier lifestyles. By providing proper nutrition and health education that not only increases knowledge, but also improves food and nutrition skills/habits, the number of Guam residents affected by these preventable conditions may be decreased.

**What has been done**

Nutrition Education workshops for: 1) families with young children who are in public assistances programs; 2) families who may not receive public assistance but fall into the 'low income' category; 3) middle-age working professionals at risk for chronic disease; and 4) youths in Guam schools, including after school programs and other youth related programs. Additional educational efforts include: 1) static nutrition and health displays during island health fairs; 2) monthly (in-store) food demonstrations; and 3) distribution of nutrition education materials which provide information on healthy nutrition habits.

**Results**

Pre and post tests were given for most workshops which showed that seventy-one participants adopted at least one new nutrition habit.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
724	Healthy Lifestyle
802	Human Development and Family Well-Being
704	Nutrition and Hunger in the Population
702	Requirements and Function of Nutrients and Other Food Components
701	Nutrient Composition of Food
805	Community Institutions, Health, and Social Services
703	Nutrition Education and Behavior

**Outcome #11**

**1. Outcome Measures**

# of participants possessing increase knowledge and understanding for: physical activity; food labels; smart shopping; and menu planning skills

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	300	57

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Poor food choices are linked to the increased number 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, there is a strong need for Guam residents to lead healthier lifestyles. By providing training that not only increases knowledge of the benefits of physical activity, smart food shopping, menu planning, and food labels, but also improves food and nutrition skills, the number of Guam residents affected by these preventable conditions may be decreased.

**What has been done**

Nutrition Education workshops for: 1) families with young children who are in public assistances programs; 2) families who may not receive public assistance but fall into the 'low income' category; and 3) youths in Guam schools, including after school programs and other youth related programs. Additional educational efforts include: 1) static nutrition and health displays during island health fairs; 2) monthly (in-store) food demonstrations; and 3) distribution of nutrition education materials which provide information on how to stay healthy and prevent chronic diseases.

**Results**

Pre and post tests were given in most workshop. Results showed improvements among adult participants. Fifty-seven participants gained an increase in knowledge and understanding for physical activity, food labels, smart shopping and/or menu planning.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle
805	Community Institutions, Health, and Social Services
702	Requirements and Function of Nutrients and Other Food Components
802	Human Development and Family Well-Being
704	Nutrition and Hunger in the Population
703	Nutrition Education and Behavior
701	Nutrient Composition of Food

**V(H). Planned Program (External Factors)****External factors which affected outcomes**

- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)

**Brief Explanation****V(I). Planned Program (Evaluation Studies and Data Collection)****1. Evaluation Studies Planned**

- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Other (Study Assessments)

**Evaluation Results****Key Items of Evaluation**

**Program #7**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

CYFAR Pacific Islands Communities: Building (STEPS) Sustainable Teen Entrepreneurial Programs

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	50%			
801	Individual and Family Resource Management	10%			
802	Human Development and Family Well-Being	20%			
806	Youth Development	20%			
<b>Total</b>		100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	4.0	0.0	0.0	0.0
<b>Actual</b>	0.8	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
10285	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
3678	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
798	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Implementation of the program on all five island sites (Guam, Palau, Marshall Islands, American Samoa and Kosrae) was delivered through lessons and experiential activities to 86 youth participants from organizations such as the Educational Talent Search Program on Guam, the Young Women's Club Association in American Samoa, Emmaus High School in Palau and faith based organizations on Marshall Islands and Kosrae. Program staff and volunteers trained in the curriculum delivery provided 40 hours of programming in financial management, enterprise interests, technical and trade knowledge as well as setting and achieving goals and developing business plans. Teen network ventures such as recycling on Guam, egg and vegetable farming on American Samoa, traditional arts and crafts on Marshall Islands and farming and small engine repair on Kosrae have been established

**2. Brief description of the target audience**

Primary target audience is 14 to 19 year old at risk teens. A secondary target audience is the myriad community youth workers, high school teachers and parent volunteers participating in the program that will also receive training and gain an enhanced skill set.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10	0	40	0
2008	10	5	100	150

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year	Target
Plan:	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	0	
2008	1	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Curriculum development and delivery on writing business plans, goal setting and developing enterprise budgets.

Year	Target	Actual
2008	1	1

**Output #2**

**Output Measure**

- Number of youth workers completing 10 hours of train the trainer in youth entrepreneurial materials

Year	Target	Actual
2008	10	13

**Output #3**

**Output Measure**

- Number of workshops/classes on the project curriculum delivered to youth by trainers.

Year	Target	Actual
2008	5	5

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	20% of teens participating develop a written set of goals.
2	20% of youth participating in training will completing business plans.
3	10% of youths participating will develop an enterprise budget.
4	30% of participants in the train the trainer workshops will conduct or assist in youth trainings on topics.

**Outcome #1****1. Outcome Measures**

20% of teens participating develop a written set of goals.

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	8	89

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Guam's high school drop-out rate is an alarming 40%; this is an issue for every member of the Guam community. Each opportunity a community has to teach children how to set and reach goals enables them to achieve success, no matter how small. Goal setting is one of many tools which allow to student to sort through relevant aspects of what they desire to achieve.

**What has been done**

Entrepreneurship programs were set up in 5 island sites. Curriculum components relating to exploring, identifying and articulating entrepreneurial interests were delivered.

**Results**

Eighty-nine percent of participants completed written goals after exploring and identifying their entrepreneurial interests. Teens gained the ability to developed written goals with measurable standards track their progress. Teens now have the ability to link their aspirations to career goals.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development
801	Individual and Family Resource Management

**Outcome #2****1. Outcome Measures**

20% of youth participating in training will completing business plans.

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	8	82

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Economic challenges and strains in each island have limited the ability for families to earn money. Guam's poverty level is at 24%, almost twice the national average. Opportunities for teens to earn money not only contributes to the economy but also provides a vehicle to develop a sense of independence, accomplishment and self-esteem.

**What has been done**

Lessons and activities in business plan writing was provided by the Small Business Development Centers in all 5 islands of Guam, American Samoa, Kosrae, Marshall Islands and Palau in collaboration with the PIC:STEPS project.

**Results**

Eighty-two percent of teens have increased their financial skills through business plan development. Students increased their knowledge and ability to set goals, describe their entrepreneurial venture, forecast budgets, apply cash flow essentials, product pricing and marketing.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development
801	Individual and Family Resource Management
806	Youth Development
802	Human Development and Family Well-Being

**Outcome #3**

**1. Outcome Measures**

10% of youths participating will develop an enterprise budget.

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	4	0

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Economic challenges and strains in each island have limited the ability for families to earn money. Guam's poverty level is at 24%, almost twice the national average. Opportunities for teens to earn money not only contributes to the economy but also provides a vehicle to develop a sense of independence, accomplishment and self-esteem.

**What has been done**

Lessons and activities focused on financial skill development for enterprise budgets were conducted.

**Results**

Eighty-five percent of participants increased and applied knowledge in the four methods of income, decision-making, business expense and revenue, legal requirements of running a business. Students also increased their ability to use programs such as Excel and Powerpoint to develop and present their budgets.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development
802	Human Development and Family Well-Being
806	Youth Development
801	Individual and Family Resource Management

**Outcome #4**

**1. Outcome Measures**

30% of participants in the train the trainer workshops will conduct or assist in youth trainings on topics.

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	3	20

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Communities are more committed to helping their youth when they are involved and engaged in programs that help youth develop their skills and abilities to be successful adults. Successful replication and sustainability of this program will require engagement and involvement from members of faith based organizations, non-profits, business members and other community organizations.

**What has been done**

Thirty participants from faith-based organizations, middle schools and non-profits, were trained in the Tennessee YES and Be the E! entrepreneurial curriculum

**Results**

Six participants now have the ability to conduct youth entrepreneurial lessons and activities in their communities.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
801	Individual and Family Resource Management
608	Community Resource Planning and Development
802	Human Development and Family Well-Being
806	Youth Development

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Competing Programmatic Challenges
- Other (Staffing challenges)

**Brief Explanation**

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- During (during program)

**Evaluation Results**

**Key Items of Evaluation**

**Program #8**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Plant Health and Pest Management

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%			
205	Plant Management Systems	10%			
211	Insects, Mites, and Other Arthropods Affecting Plants	10%			
212	Pathogens and Nematodes Affecting Plants	15%			
213	Weeds Affecting Plants	5%			
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%			
215	Biological Control of Pests Affecting Plants	10%			
216	Integrated Pest Management Systems	40%			
<b>Total</b>		<b>100%</b>			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	3.0	0.0	0.0	0.0
<b>Actual</b>	2.0	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
144160	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
17650	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
66108	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

A comprehensive web based pest survey list for Guam has been established and has been continuously updated. Provided one-on-one consulting on IPM to individuals who have problems with crops, weeds and/or pests. A plant health clinic has been established and took a lead role in diagnosing plant problems and provided outreach by providing space, equipment, and expertise for publications, courses and workshops. Through the Pesticide Applicator Training program instructed applicators on the safe handling of pesticides and administered certificates.

The Plant Health group hosted a four day IPM training workshop for the Micronesian Islands. Trainers and trainees from Palau, Yap, Pohnpei, Kosrae, Chuuk, and the Marshall Islands as well as trainers from the University of Guam Cooperative Extension Services Plant Health group participated in the workshop. Training was conducted in the areas of IPM practices and techniques as well as pesticide usage and major crop pests of the Micronesian islands. Ninety percent of the trainees showed a substantial knowledge increase from pre-test to post-test scores.

Grants awarded to the Plant Health group in 2008 included a USDA Western Sustainable Research and Education (WSARE) Research and Education grant for \$140,000 to study the decline of *Casuarina equisetifolia* (Ironwood Tree) on Guam and the Northern Marianas Islands; a WSARE Professional Development grant for \$50,000 to train agriculture professionals on Guam in plant soil nutrition and its relationship to disease suppression; a WSARE Farmer/Rancher grant for \$14,000 to study the use of aquaculture effluent for growing papaya; and a \$254,000 USDA Forestry Service grant and a \$190,000 USDA APHIS grant for the control/eradication of the Coconut Rhinoceros beetle on Guam.

**2. Brief description of the target audience**

The target audience for this program includes local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, school children, and government agencies.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	330	430	135	435
2008	4875	74000	2517	8253

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	0	2	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- # of research papers

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1	10

**Output #2**

**Output Measure**

- # of research citations

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	5	20

**Output #3**

**Output Measure**

- # of extension fact sheets or articles

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	3	3

**Output #4**

**Output Measure**

- # of workshops/trainings/classes

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	9	22

**Output #5**

**Output Measure**

- # of brochures

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	4	4

**Output #6**

**Output Measure**

- # of research or new technology reports

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	3

**Output #7**

**Output Measure**

- # of one-on-one interventions

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	175	3810

**Output #8**

**Output Measure**

- # of surveys

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	10

**Output #9**

**Output Measure**

- # of focus groups

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	0	1

**Output #10**

**Output Measure**

- # of news media activities (TV and radio)

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	1	19

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

<b>O No.</b>	<b>OUTCOME NAME</b>
1	% of participants gaining skills in identification of insects and related pests
2	% of participants gaining skills in identification of plant diseases
3	% of participants gaining skills in identification of weeds
4	% of participants gaining knowledge about pesticides and their application
5	% of participants reducing indiscriminate use of chemical pesticides
6	% of participants adopting some established IPM practices

**Outcome #1****1. Outcome Measures**

% of participants gaining skills in identification of insects and related pests

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	85	86

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

Local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, students, teachers, government agencies and the general public. Identification is essential in determining the difference between beneficial insects and insect pests, and to insure that proper management practices for IPM and pesticide application are employed. These practices lead to improved plant health and crop yield, and reduce negative impacts on human and wildlife health and the environment.

**What has been done**

Workshops were held for: Turf and Ornamentals; Industrial, Structural and Health related Pest Control; and Commercial and Private - Agricultural Plants. Also, a NPDN training workshop for insect plant pests and invasive species identification and procedures was conducted.

**Results**

Eighty-three percent of participants passed EPA licensing tests, gaining the ability to identify insects and related pests. Also, eighty-nine percent of participants passed the NPDN training workshop for plant insect pests and invasive species identification and procedures resulting in certification as First Detectors. First Detectors are on an emergency notification list when new invasive pests are discovered on Guam.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems
216	Integrated Pest Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants

**Outcome #2****1. Outcome Measures**

% of participants gaining skills in identification of plant diseases

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	85	88

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, teachers, students, government agencies and the general public. Plant disease identification of biotic and abiotic caused diseases are essential to insure that proper management practices for IPM and pesticide application are employed. These practices lead to improved plant health and crop yield, and reduce negative impacts on human and wildlife health and the environment.

**What has been done**

Workshops were held for: Turf and Ornamentals; Industrial, Structural and Health related Pest Control; and Commercial and Private - Agricultural Plants. Also, a NPDN training workshop for insect plant pests and invasive species identification and procedures was conducted.

**Results**

Eighty-eight percent of participants passed EPA licensing tests, gaining the ability to identify plant diseases. In addition, participants passed the NPDN training workshop for plant disease pests and invasive species which cause plant disease. These participants received certification as First Detectors and are on an emergency notification list when new invasive pests are discovered on Guam.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
216	Integrated Pest Management Systems
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants

**Outcome #3**

**1. Outcome Measures**

% of participants gaining skills in identification of weeds

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	85	82

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, teachers, students, government agencies and the general public. Identification of specific weeds is essential to insure that proper management practices for IPM and pesticide application are employed. These practices lead to improved plant health and crop yield, and reduce negative impacts on human and wildlife health and the environment.

**What has been done**

Workshops were held for: Turf and Ornamentals; Right of Way; and Commercial and Private - Agricultural Plants. Also, a NPDN training workshop for weed pests and weed invasive species identification and procedures was held.

**Results**

Eighty-two percent of participants passed EPA licensing tests, gaining the ability to identify weeds. Participants passed the NPDN training workshop for weed pests and weed invasive species. These participants received certification as First Detectors and are on an emergency notification list when new invasive weed pests are discovered on Guam.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
---------	----------------

213	Weeds Affecting Plants
216	Integrated Pest Management Systems
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

**Outcome #4**

**1. Outcome Measures**

% of participants gaining knowledge about pesticides and their application

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	85	90

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, teachers, students, government agencies and the general public. Knowledge of pesticides and their application is crucial for the health and safety of the applicator, consumers of produce, the health of humans and wildlife, and the environment.

**What has been done**

The PSEP/PAT Basic Core training workshop was held twice in 2008. Training in pesticides and their application were included in the workshop.

**Results**

Ninety percent of participants gained knowledge about pesticides and their application. These participants passed a test to received EPA Basic Core Training Identification Cards following the PSEP/PAT training workshops.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
205	Plant Management Systems

**Outcome #5**

**1. Outcome Measures**

% of participants reducing indiscriminate use of chemical pesticides

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	60	90

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, teachers, students, government agencies and the general public. Correct application in this area leads to improved plant health and crop yield, savings on pesticide purchases, and reduces negative impacts on human and wildlife health and the environment.

**What has been done**

PSEP/PAT Basic Core training workshop was held twice in 2008. Training in the indiscriminate use of chemical pesticides was included in the training workshop.

**Results**

Ninety-percent of participants undergoing recertification for the PSEP/PAT Basic Core training reported they employed practices that reduced the indiscriminate use of chemical pesticides since the previous training.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
205	Plant Management Systems
213	Weeds Affecting Plants
212	Pathogens and Nematodes Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems
215	Biological Control of Pests Affecting Plants

**Outcome #6**

**1. Outcome Measures**

% of participants adopting some established IPM practices

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	60	90

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, teachers, students, government agencies and the general public. Correct application of IPM practices leads to improved plant health and crop yield, and reduces negative impacts on human and wildlife health and the environment.

**What has been done**

The PSEP/PAT Basic Core training workshops was held twice in 2008. Training in IPM practices was included in the workshop.

**Results**

Ninety percent of participants undergoing recertification for the PSEP/PAT Basic Core training workshop reported that they had employed some IPM practices since the previous workshop.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Competing Public priorities

**Brief Explanation**

{No Data Entered}

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- Before-After (before and after program)
- Comparisons between program participants (individuals, group, organizations) and non-participants

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

**Program #9**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

Tropical Food Processing and Safety

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	20%		20%	
502	New and Improved Food Products	15%		15%	
503	Quality Maintenance in Storing and Marketing Food Products	10%		10%	
604	Marketing and Distribution Practices	5%		5%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	40%		40%	
806	Youth Development	10%		10%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.8	0.0	0.5	0.0
<b>Actual</b>	1.6	0.0	0.5	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
70985	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
32866	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
12849	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

To achieve goals of increasing locally processed food products and assuring safe foods in the community on Guam, the activities have been done as the following:

Local tropical fruits such as mango and calamansi were successfully used to process marmalade, jams and jellies. Workshops were provided in processing fruits to make jams, jellies, and marmalades in the community. One-on-one interventions to individuals were provided information and educational materials in the area of canning, dehydration, and beef jerky processing as well as noni processing. The biological properties, such as anti-cancer activity, of selected tropical plants and fruits to explore potential values of tropical crops in the Pacific islands were studied.

A food safety education program of kelaguen, an ethnic food on Guam, for the community was developed. Educational materials "Safe Kelaguen Preparation" was developed and disseminated to consumers in the community. Workshops of "Safe Kelaguen Preparation" were provided to senior citizens in 12 senior centers on Guam. In addition, a 15 minute video "Safe Kelaguen Preparation" for consumers was developed and disseminated in the community to educate. In the food kelaguen research, the survival and growth of *Escherichia coli* O157:H7 and *Salmonella enteritidis* during marinating with lemon juice and in kelaguen was studied. Other food safety educational materials, such as virus food poisoning, key food handling behaviors, food safety during and after a Typhoon, and sanitation were disseminated through food safety displays, conferences, and other activities in the community. An article titled, "Handle Easter eggs safely, avoid illness" was published in Pacific Daily News to educate consumers on the safe handling of eggs, especially during Easter. Food safety education was also provided to the children in the 4-H program at Guam Cooperative Extension Service at the University of Guam.

**2. Brief description of the target audience**

The target audiences in this program include general consumers, children, youth, local farmers, food entrepreneurs, food safety educators, and employees in food establishments

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	150	500	150	500
2008	600	500	50	500

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	1	1	
2008	1	1	2

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- # of Research Paper

Year	Target	Actual
2008	1	1

**Output #2**

**Output Measure**

- # of Research Citations

Year	Target	Actual
2008	0	5

**Output #3**

**Output Measure**

- # of extension fact sheets or articles

Year	Target	Actual
2008	1	1

**Output #4**

**Output Measure**

- # of workshops

Year	Target	Actual
2008	5	12

**Output #5**

**Output Measure**

- # of brochures

Year	Target	Actual
2008	1	1

**Output #6**

**Output Measure**

- # of dissemination of information

Year	Target	Actual
2008	300	1377

**Output #7**

**Output Measure**

- # of one to one intervention

Year	Target	Actual
2008	2	4

**Output #8**

**Output Measure**

- # of work with media

Year	Target	Actual
2008	1	1

**V(G). State Defined Outcomes****V. State Defined Outcomes Table of Content**

<b>O No.</b>	<b>OUTCOME NAME</b>
1	% of participants gaining knowledge and skills
2	% of participants adopting food processing techniques
3	% of participants adopting proper food handling practice
4	# of new value food products on the markets
5	% decrease in foodborne illness

**Outcome #1****1. Outcome Measures**

% of participants gaining knowledge and skills

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	60	60

**3c. Qualitative Outcome or Impact Statement****Issue (Who cares and Why)**

The estimated number of foodborne illness occurred on Guam each year is between 13,000 and 152,000, and the estimated economic cost is from \$5.0 to 40.0 million per year. The high frequency of foodborne illness on Guam was attributed to the lack of food safety knowledge and poor food handling practice.

**What has been done**

Workshops of 'Safe Kelaguen Preparation' were provided to senior citizens in 12 senior centers on Guam. Food safety and processing educational materials were disseminated and provided to consumers in the community through food safety displays, conferences, and other activities.

**Results**

Sixty participants in food safety workshops increased knowledge in proper food handling practices. Participants in safe kelaguen workshop aware of foodborne illness associated with ethnic food 'kelaugen', comprehended the fundamentals in controlling pathogens in kelaguen preparation, and learned the skills to prepare safe kelaguen.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #2****1. Outcome Measures**

% of participants adopting food processing techniques

*Not reporting on this Outcome for this Annual Report*

**Outcome #3****1. Outcome Measures**

% of participants adopting proper food handling practice

*Not reporting on this Outcome for this Annual Report*

**Outcome #4****1. Outcome Measures**

# of new value food products on the markets

*Not reporting on this Outcome for this Annual Report*

**Outcome #5**

**1. Outcome Measures**

% decrease in foodborne illness

*Not reporting on this Outcome for this Annual Report*

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (insular area; community support)

**Brief Explanation**

Outcomes were amended for this reporting year to reflect higher levels in of change in adoption of practices. Teaching and extension activities in many workshops and educational sessions increased knowledge and awareness of food safety practices, handling, and food processing. Assessments on behavior changes were not conducted. However, we think that some of consumers in the community changed their behaviors to handle food properly after they attended our workshops or received our food safety educational materials.

Guam is an isolated place considered as an international area. It is very inconvenient to obtain basic food processing equipment and supplies from companies in the U.S. mainland. Many U.S. companies do not ship equipment, supplies, and chemicals to Guam. Obstacles for the US companies to ship equipment and supplies affects outcomes of food processing activities in this program.

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- Before-After (before and after program)
- During (during program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

**Program #10**

**V(A). Planned Program (Summary)**

**1. Name of the Planned Program**

The New Farmer: Agriculture for the Next Generation

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%			
104	Protect Soil from Harmful Effects of Natural Elements	10%			
125	Agroforestry	10%			
205	Plant Management Systems	10%			
307	Animal Management Systems	10%			
403	Waste Disposal, Recycling, and Reuse	10%			
601	Economics of Agricultural Production and Farm Management	20%			
608	Community Resource Planning and Development	10%			
806	Youth Development	10%			
<b>Total</b>		100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	3.5	0.0	0.0	0.0
<b>Actual</b>	2.0	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
93147	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
31781	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
14849	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

There has been much progress made this past year for this program. Notable activities this past year include established partnerships with various government of Guam agencies resulting in a \$98,000.00 memorandum of agreement funded by the Chamorro Land Trust Commission (CLTC) to develop and train a Cooperative Compliance Team in uniform monitoring techniques and compliance assessment for all land lease holder which includes assessing the use of appropriate/inappropriate soil and water conservation practices and to develop, pilot and improve programs to address identified educational needs of the CLTC agricultural leases. Additionally, through this partnership financial support was committed to provide, using curriculum developed under this program, educational and demonstration activities to agricultural lease holders who are either underutilizing or not using the land for agricultural purposes.

In order to increase the skills of the islands agricultural professionals train the trainer workshops and meetings were held on the New Farmer curriculum prior to holding several workshops at the demonstration farms. The joint agency generation of outreach publications on the demonstrated conservation and production practices was drafted this includes two publications on dry litter hog waste management, an updated chicken tractor publication, publications on mulching, composting, fruit trees as windbreaks, soursop, breadfruit, calamansi, mango, avocado and measuring contour lines with an A-frame.

Planning meetings meeting between the cooperating agencies were held to identify priorities in order to jointly apply for grant funding to address priorities. Several joint grants for agency capacity building through training, collaborative planning and outreach efforts were submitted.

Best management conservation and sustainable agricultural practices weredemonstrated on two multi-agency demonstration farms, these included fruit tree windbreaks, using breadfruit, soursop, calamansi, mango, avocado, surinam cherry, guava, saba banana, coconuts; two different form of dry litter hog waste management using green waste, shredded papergrass cuttings and wood chips and yard debris combined with composting the litter; and two alternative methods of in-ground water catchment sealing. A farmer mini-grant program was implemented and fruit tree windbreaks and deep litter farmer demonstrations were funded.

**2. Brief description of the target audience**

The primary target audience is the one thousand plus agricultural lease holders of the Chamorro Land Trust Commission (CLTC) agricultural lands programs and the more than 100 existing full and part time commercial and subsistence agricultural producers on Guam. In addition, a secondary target population is the island youth interested in entrepreneurial agricultural activities. Additionally clients of mayors' offices interested in small scale and community agricultural activities are also targeted.

The secondary target audience is the agricultural professional community on Guam. This program is a collaborative effort to build the capacity and enhance the performance of the agricultural professionals in Guam Cooperative Extension, and partner agencies so these agricultural professionals can better identify issues and mobilize resources to assist the agriculture community on Guam.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	100	50	15	0
2008	212	2000	32	0

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	0	
2008	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- number of popular articles in newsletters, magazines and newspapers

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	3

**Output #2**

**Output Measure**

- number of workshops

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	4	4

**Output #3**

**Output Measure**

- number of extension fact sheets/brochures/pamphlets

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	3	8

**Output #4**

**Output Measure**

- number of one to one intervention

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	5	12

**Output #5**

**Output Measure**

- workshop curriculum developed and piloted with agricultural professionals

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	4	6

**Output #6**

**Output Measure**

- number of multi-agency agriculture best management practiced demonstrations conducted

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	2	2

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	# of Chamorro Land Trust Commission lease holders participating in workshops and field day activities
2	# of agricultural professionals completing New Farmer training workshop modules
3	# of MOUs and MOAs for collaborative program grants
4	# of farmers adopting recommended demonstrated practices
5	# of farmers awarded and implementing mini grants per year
6	# of participants in Demonstration Farm workshops and field days
7	Local and regional multi-level multi-state needs assessments conducted on issues affecting the long term viability of island agriculture, and strategic planning conducted around these issues.

**Outcome #1**

**1. Outcome Measures**

# of Chamorro Land Trust Commission lease holders participating in workshops and field day activities

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	20	38

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The need for outreach programs on traditional and innovative conservation and production practices is highlighted by the number of new farms on Guam spurred by the Chamorro Land Trust agricultural lease program. These new farmers have limited farming experience.

**What has been done**

Based on farmer input programs are being developed to address these issues. The Northern Soil and Water Conservation and the Guam Farmers Cooperative Association have both held follow up meetings with Extension advisors to develop strategic action plans to address targeted issues.

**Results**

Thirty-Eight agricultural land lease holders have increased their knowledge and awareness on conservation and production practices and have implemented these practices on their agricultural endeavors.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
125	Agroforestry
403	Waste Disposal, Recycling, and Reuse
307	Animal Management Systems
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships
601	Economics of Agricultural Production and Farm Management
104	Protect Soil from Harmful Effects of Natural Elements

**Outcome #2**

**1. Outcome Measures**

# of agricultural professionals completing New Farmer training workshop modules

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	4	24

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Agricultural professionals are front line workers in educating farmers on new sustainable agriculture practices and technologies. Training them and providing curriculum materials that they can use in their outreach activities are very effective methods of leveraging UOG CES's outreach efforts. Agriculture support agencies on Guam are small and lack the breadth of expertise that would 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. Consequently, farmers have difficulty accessing information they need, or finding the expertise to explain key concepts to them when they seek advice

**What has been done**

Agricultural professionals have been trained in Sloping Hog Dry litter waste management, deep litter waste management, composting, mulching, fruit trees as windbreaks, recirculating aquaculture, direct marketing and farmer chef linkages.

**Results**

Twenty-four agricultural professionals have been trained in conservation and production practices. Twelve are utilizing knowledge and curriculum materials developed under this plan of work to impact local farmers practices.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
806	Youth Development
608	Community Resource Planning and Development
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management
104	Protect Soil from Harmful Effects of Natural Elements
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems
403	Waste Disposal, Recycling, and Reuse
125	Agroforestry

**Outcome #3**

**1. Outcome Measures**

# of MOUs and MOAs for collaborative program grants

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Memorandum's of Understanding or Agreement set the formal partnerships in place to leverage resources and focus multiple groups to work together. They serve as the basis of action and reporting. New MOUs and MOAs will often be follow by new or more effective direct field outcomes to benefit the organizations target clients.

**What has been done**

Partnerships were established between the University of Guam Cooperative Extension Service (UOG CES), Guam Farmers' Cooperative Association, Guam Hotel and Restaurant Association (GHRA) Food and Beverage Group, and the Guam Department of Agriculture to focus efforts to increase consumption and use of local grown produce.

**Results**

One memorandum of understanding, with a five-year time period, was established between UOG CES, Guam Farmer's Cooperative Association, Guam Hotel and Restaurant Association Food and Beverage and the Guam Department of Agriculture to identify activities and collaborations that promote partnerships between farmers and chefs in an effort to increase use of locally grown produce.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
307	Animal Management Systems
205	Plant Management Systems
608	Community Resource Planning and Development
125	Agroforestry

**Outcome #4**

**1. Outcome Measures**

# of farmers adopting recommended demonstrated practices

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	6	12

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The absence of sites demonstrating conservation best management practices, awareness of financing options along with limited farmer to farmer discussions on the 'nuts and bolts' and benefits of implementing conservation best management practices limits farmer ability to capitalize on new and innovative ways to farm. Because Guam is a small island our land area for farming and limited water supply is threatened by harmful farming practices. Producers, consumers and the whole island community will be affected when water supplies decrease or become contaminated by chemicals and other substances. It is crucial to educate farmers and producers on conservation practices as well as source and access funding for them to employ and adopt the best management practices that conserve natural resources while still yielding an economic benefit.

**What has been done**

Demonstration on hog dry litter waste management systems informed farmers on how waste products banned from the local landfill can be utilized in place of water to reduce odor and groundwater contamination while producing a secondary product soil building compost. A retired horticulturist is demonstrating and fine tuning an aquaculture/aquaponics system to produce tilapia and leafy greens (highest value product requested by local chefs), who is also committed to demonstrating this system to the public. Peer to peer discussions were held and is generating farmer interest in these technologies.

**Results**

Two hog farmers have adopted deep litter waste management for a portion of their operation. One farmer is seeking assistance in adapting his whole operation to this method. Three farmers have planted fruit tree windbreaks and 4 others are requesting assistance in the next reporting period's rainy season. One farmer has adopted a recirculating aquaculture (tilapia) system utilizing aquaponics (leafy greens) as the chemical and biological filter. Six farmers are working with Extension in adopting practices for direct marketing to Chefs.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
601	Economics of Agricultural Production and Farm Management
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse

205	Plant Management Systems
125	Agroforestry
102	Soil, Plant, Water, Nutrient Relationships
608	Community Resource Planning and Development

**Outcome #5**

**1. Outcome Measures**

# of farmers awarded and implementing mini grants per year

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	4	5

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Producers adopting practices are low due to expenses related to making improvements in the farm. To test new conservation practices and alternatives to improve practices farmers need financial assistance to mitigate costs. Farmers, producers and consumers as well as the whole Guam community are affected.

**What has been done**

Workshops and one-to-one guidance were provided to interested farmers and producers.

**Results**

Two hog producers were awarded mini grants to demonstrate portable deep litter hog waste management systems. Three producers were awarded mini grants to establish fruit tree windbreaks. These demonstrations serve as peer-to-peer promotion of recommended practices.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
125	Agroforestry
307	Animal Management Systems
104	Protect Soil from Harmful Effects of Natural Elements
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management

**Outcome #6**

**1. Outcome Measures**

# of participants in Demonstration Farm workshops and field days

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	60	112

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

These are primary venues for outreach to the public and often events where initial change in knowledge occurs. From these one on one farmer requests for information follow that lead to actual change in practice.

**What has been done**

Three demonstration workshops and open house field days were held for the general public, on a variety of topics: Dry litter hog and chicken waste management, chicken tractors, fruit tree windbreaks, plant propagation, composting, mulching and other related practices.

**Results**

We have received numerous calls for followup information and publications, several news articles on the practices as well as radio and tv interviews.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
806	Youth Development
307	Animal Management Systems
608	Community Resource Planning and Development
125	Agroforestry
104	Protect Soil from Harmful Effects of Natural Elements
403	Waste Disposal, Recycling, and Reuse
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #7**

**1. Outcome Measures**

Local and regional multi-level multi-state needs assessments conducted on issues affecting the long term viability of island agriculture, and strategic planning conducted around these issues.

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	{No Data Entered}	1

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Our islands are small with limited technical expertise. When joint strategic planning occurs it results in projects and programs that leverage our limited expertise resources. When common needs are identified it is easier to obtain resources to address these need through multi state grants.

**What has been done**

Pre-conference individual island needs assessments were conducted followed by a 3 day conference held on Guam. Regional needs were reviewed and summarized to guide sustainable agriculture development for the next decade. The regional conference had broad island representation to maximize participation in all the sessions. Evaluations indicated a huge success. Preliminary compilation of recommendations has been completed. The conference had a tremendous impact on Guam and the other pacific islands.

**Results**

From the conference Guam alone submitted 6 grants to WSARE: One Professional Development Program; three Professional Producers; and, two Farmer Rancher grants addressing regionally identified needs. The Farmers' Cooperative Association used the conference results to develop their strategic plan that led to the farmer chef alliance. The Northern Soil and Water Conservation District also used the conference results in developing their strategic plan. Several multi-island projects are being planned in response as result of this conference.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development
307	Animal Management Systems
102	Soil, Plant, Water, Nutrient Relationships
403	Waste Disposal, Recycling, and Reuse
205	Plant Management Systems
125	Agroforestry
601	Economics of Agricultural Production and Farm Management
104	Protect Soil from Harmful Effects of Natural Elements
806	Youth Development

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Public Policy changes
- Other (change in gov't. admin.)

**Brief Explanation**

None activities and outcomes proceeded as planned and actually in most cases went beyond plan expectations.

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- After Only (post program)

**Evaluation Results**

For workshops very positive want more of the same.

Want more extension publications on the workshop topics.

Want some workshops on week nights not all on weekends.

**Key Items of Evaluation**