2007 University of Guam Extension Annual Report

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I. Report Overview

1. Executive Summary

As the only four-year institution of higher education in Guam and Micronesia, the University of Guam Cooperative Extension Service (UOG-CES) has impacted the socio-economic well-being of the people of Guam for over 34 years.Committed to providing innovative community outreach education programs, we extend research-based knowledge to the people of Guam to engage them in positive change towards a healthy, well educated, socially and environmentally responsible people. UOG-CES has educated thousands of students, helped hundreds of businesses, facilitated informed decision-making by government and community leaders, and enhanced the lives of so many of Guam's people and communities.

Through its extension outreach programs, UOG-CES faculty and staff have effectively served a broad range of stakeholders.A multi-disciplinary approach to address complex issues facing the People of Guam have allowed us to leverage expertise and resources to design and conduct educational program that meet societal, environmental and economic needs of the people of Guam.UOG-CES delivers programs through its centrally located offices on the campus of the University of Guam, employing over 23 extension professional and para-professional, staff, and administrators. Through our nine planned programs our work 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.

While many of our programs are conducted locally, we also use current communication technologies including computer networking, computer based courseware, phone, web and interactive video conferencing to deliver programs broadly. As part of the national land-grant university system, we also access the knowledge and expertise of other state land-grant universities throughout the United States through direct relationships, web pages and most recently, via eXtension.

There are many social and economic challenges facing Guam and the region.The projected population growth associated with the U.S. military expansion in Guam continues to influence our program activities and plans. Pressure from residents for government entities and the University to properly plan for the impact caused by the transfer of over 8,000 U.S. Marines from Okinawa, Japan to Guam has increased. As of 2000, Guam's population is 154,805 (Guam 2000 Census) with residents in 19 villages.Over 40% of the population is under 20 years old, 22% of the population lives in poverty, and is ethnically composed of 37% Chamorro, 27% Filipino, 7% Caucasian and 29% others. Guam's poverty level is at 24% and is expected to increase. Population growth associated with the transfer of U.S. Marines is projected to swell beyond recent projections of 180,692 by 2010.Indeed, the increase will be unlike anything Guam has seen in modern times. According to information from the new consumer price index, the cost of consumables has significantly increased while wages have lagged over the last seven years, affecting the ability of individuals and families to pay for the most basic needs.

The demand for UOG-CES to identify emerging community needs to address complex and compounded issues has become ever more urgent.UOG-CES engages and prioritizes its plans of work and program activities as we meet these ever demanding challenges.We continue to assess the outcomes and results of our programs so that we can better manage our limited resources to strengthen current relationships and to create new partnerships in our efforts to increase the quality of life of individuals, families and communities.While we have met over 95% of our program outcomes, more work needs to be done to improve our outcomes from knowledge and awareness to higher levels of change in behavior and condition.We anticipate our merit review process, to be conducted in 2009, to provide guidance in achieving this goal.

Program accomplishments this reporting year continues to respond to high priority needs identified through stakeholder input in 2006.Progress in the invasive species work effort reported a comprehensive web-based pest survey list for Guam was established and has been continuously updated. As well, a plant health clinic was established that took a lead role in diagnosing plant problems and provided outreach by providing space, equipment, and expertise for publications, courses and workshops. In 2007, the "Coconut Rhinoceros Beetle" was identified through an insect sample.This Beetle has had a devastating affect on coconut trees throughout the region, sometimes resulting in the death of over 50% of the coconut trees and severe damage to the remaining trees. Student and community volunteers learned to identify the Beetle and helped to cull infected trees for incineration.A $250,000 grant from APHIS was secured for the control and eradication of this new invasive species.

Our work to promote natural resource development along conservation and sustainability awareness and practices is a

highlight this reporting year.Agriculture and Natural Resources (ANR) through strategic planning meetings with representatives of farmer groups and cooperating agencies in agriculture and natural resource management developed shared priorities for program development, resource leveraging and joint efforts for grants to support programs. Input and data from these sessions was used to apply for a grant to conduct needs assessments across American Affiliated Pacific Island. Through this collaborative effort, a $50,000 grant from Western Region Sustainable Agriculture Research and Education (WSARE) Program was secured. Assessments were conducted on the islands during this reporting period; results from this and a WSARE sub-regional conference will be reported in 2008.

Programs focused on at-risk youth received a boost this year with the awarding of a CYFAR Sustainable Community Project grant totaling $1.5 million over five years.The grant covers five-site areas: Guam, American Samoa, Republic of Palau, the Marshall Islands and Kosrae.UOG-CES serves as the state coordinator assisting sites in program reporting, evaluation and fiscal management.The program will use the 4-H Be the E! entrepreneurial curriculum to teach at-risk teens ways to earn money while developing and mastering life-skills.Outside of the grant funding, UOG-CES has committed personnel to deliver the program as well as administrative and staff support.

Through a one-year $67,000 grant secured from CSREES Rural Health, our nutrition education has been extended to Guam's older adults who are at-risk for one or more chronic diseases. Through a partnership with the Guam Public Health, Division of Senior Citizens, 60 older adults, using the services of the center, will learn the benefits of healthy aging through nutrition and fitness.Results will be reported in 2008.

UOG-CES efforts to provide and assist in collecting and analyzing socio-economic data for community resource development continues to have a high demand from local government agencies and NGO's.The creation of a government data work group to establish data policy, data standards and integrated data systems for social and economic planning demonstrates movement by policymakers to institute data requirements across government agencies for sound decision-making.A memorandum of agreement between UOG-CES and the Guam Department of Public Health was effectuated to conduct CDC's Risk Factor Behavior Surveillance Survey.This is significant since the last survey was conducted in 2003.Through this partnership, Guam now has timely and relevant data on the risk behavior of our population.The information will assist planners to focus programs and resources where it may have the most impact.To meet our capacity building goal, the Guam Department of Public Health staff will be trained in collecting and analyzing their data to enable the Department staff to produce timely results of this important survey on their own.

The University's land grant mission provides the leveraging point for building valued partnership with public and private sector stakeholders and remains one channel for improving economic, environmental, and social conditions for the people of Guam and the Western Pacific.While the challenges are great and the resources few, UOG-CES aggressively continues to seek new opportunities, emerging trends and best practices to provide creative, integrated research and education through extension outreach programs for the people we serve.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	17.1	0.0	0.0	0.0
Actual	22.1	0.0	0.0	0.0

II. Merit Review Process

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

- Internal University Panel
- External University Panel
- External Non-University Panel
- Combined External and Internal University External Non-University Panel

2. Brief Explanation

This is the first year of reporting for the 2007 Plan of Work.Merit review for all planned programs will be conducted in 2009 to assess if planned program continue to be relevant to the community.

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
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals

Brief Explanation

The University of Guam Cooperative Extension Service held two stakeholder input sessions this reporting year. The first stakeholder session was conducted by 4-H to gather information on areas that affect youth, volunteers of youth programs and youth professionals. Targeted invitations to traditional stakeholder groups and individuals were employed to encourage participation. Over 50 participants from different areas of the youth community shared their ideas and concerns during one hour sessions to identify and prioritize areas to improve youth volunteerism on Guam.

The second stakeholder activity, conducted by Agriculture and Natural Resources (ANR), was a series of strategic planning meetings with representatives of farmer groups and cooperating agencies in agriculture and natural resource management. Shared priorities for program development, resource leveraging and joint efforts for grants to support programs were discussed. Input and data from these sessions was used to apply for a grant to conduct needs assessments across American Affiliated Pacific Island. Through this collaborative effort, a $50,000 grant from Western Region Sustainable Agriculture Research and Education (WSARE) Program was secured. Assessments were conducted on the islands during this reporting period. A WSARE sub-regional conference was recently held in 2008 and will be reported accordingly. Targeted invitations to traditional stakeholder groups and individuals, selected individuals from the general public and surveys of traditional stakeholder groups and individuals were employed. As well, the use of media and public meetings were employed to announce activities.

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 Advisory Committees
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments

Brief Explanation

For the agriculture focus groups, an advisory committee on sustainable agriculture recognized the need for a broader needs assessment and collaboration with other Pacific Island partners. They supported CES in seeking a grant to facilitate regional needs assessment and strategic planning. A WSARE grant was secured and regional needs assessment focus groups were conducted.In the next reporting period a conference bringing representatives from across the pacific islands who conducted simultaneous focus groups guided by the same procedures will be reported. In addition to island representatives, the conference will be open to the public with representatives from the WSARE administration and administrative council and other Western State Representatives to serve as table top discussion with moderators and recorders. This will serve as a focused directed listening session in the first day and a strategic planning and collaborative partnership building effort in the second day. The needs assessments conducted during this period are key to the organization and structure of the conference.

4-H employed an advisory committee and an external focus group to gather data on increasing volunteerism in youth development programs. Individuals and groups participating in the session included 4-H volunteers, 4-H advisors , youth, teachers and collaborators (NGO's, private business, military).

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
- Other (Focus groups rather than surveys)

Brief Explanation

Two focus groups consisting of farm leaders/innovators and agriculture professionals were conducted on each island.Participants included farm leaders/innovations and agriculture professions from Guam, Commonwealth of Northern Marianas Islands, American Samoa, Republic of Palau, Federated States of Micronesia and the Marshall Islands.These focus groups were all conducted with 5 structured questions proposed to both groups. Questions were devised to gather responses on strengthening local food systems, productions trends and supply, production areas for improvement, research, education and development for economically sustained farming and environments,and projects or areas of emphasis needed. The comments from each group were recorded and collated and subsequently combined and categorized into thematic groups and summarized.This summarized information was taken to a third group of farmers (a combination of those in the focus group and a few others) and presented to them to see if the summary was valid.On Guam the results of the farmer and agricultural professionals focus groups were collated and common themes were summarized and grouped into a series of priorities for agriculture and natural resource management.Results from a second focus group of the farm leaders was collated and these results were presented to ensure their validity. A list of the results was enthusiastically supported by farmers and was subsequently presented at the WSARE Sub regional Conference. These results will provide guidance to CES and their partners in their efforts over the coming years in collaborative grant writing.

The 4-H focus groups consisted of one hour sessions involving 50 people from different areas in the community. The group included 4-H volunteers, 4-H advisors, youth, teachers and collaborators from non government organizations and private businesses. All the participants were randomly separated into five groups of 10 participants. A trained focus group facilitator and a co-facilitator, who documented the responses of the group, facilitated each group. The facilitator controlled the flow of dialog and participants were limited to a one minute uninterrupted response to one of the six questions. Responses solicited information surrounding issues such as strengthening volunteer programs, benefits of volunteering, CES support role, issues facing youth, and awareness of available youth programs.

3. A statement of how the input was considered

- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- To Set Priorities
- Other (To seek funding)

Brief Explanation

Input from agriculture strategic planning sessions is guiding the development and redirection ofthe New Farmer and the Environment and Urban Landscapes programs. Results are used to guide the building of regional collaborative multi-state partnerships that are developing programs and seeking grant support. Results from the youth development volunteer focus group will be used to develop a plan for strengthening youth volunteerism on Guam. In addition, results will be used to develop a plan for curriculum delivery which targets concerns raised during the sessions.

Brief Explanation of what you learned from your Stakeholders

From these activities a wealth of information was gathered. A list of questions and what we learned are listed below:

1. What will be needed to create stronger local food systems that are less reliant on imports from elsewhere?

Response to this question focused heavily on efforts to develop marketing efforts, marketing data plans, local product branding and development of food associations or co-ops. Other responses included issues on invasive species, plant disease and pest management as well as eradication programs. For local government involvement results showed that public entities need to focus on providing timely data such as an agriculture census, an agriculture master plan, and import and production data.

2. What are the local food production trends on your island? Do you think your island's farmers can produce enough food for its people 5-10 years from now? What areas of production need improvement?

A majority of responses reflected the need for new farmers to receive technical support, a need for a local new farmer program and a coordinated effort with Chamorro Land Trust Commission to capture new farmers.

3. The SARE Program was commissioned, by Congress, to get its research results to the farmer and rancher. Has this been a success in your area of influence? Why or why not?

Most respondents indicated that the dissemination of research results needs to be expanded beyond traditional clients and that continuing to disseminate information after the life of a grant has been a challenge. Additional responses included leveraging the resources of the soil and water conservation districts to disseminate information and creating a weekly farmer column in newspapers as well as establishing a Guam agriculture website to communicate information.

4. What type of research, education and development is going to be necessary over the next 10 years to help economically sustain farming and the environment?

Responses were varied across respondents. Responses ranged from promoting local inputs to reduce imports to the development and use of local renewable energy resources. Organic farming, conservation practices, network building and a value added incubator/community kitchen and more farmer participatory and applied research over big research were other responses.

5. If Western SARE received (from Congress) an additional $1 million per region, what types of projects should be targeted or emphasized? Most responses focused on increased grant writing support for local farmers and groups, using funds for technical support, continuing farm demonstrations to carry technology outreach beyond grant/project life and a well developed plan for dissemination of research results that target both established farmers as well as new and potential farmers.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
919935	0	0	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	893827	0	0	0
Actual Matching	540699	0	0	0
Actual All Other	195282	0	0	0
Total Actual Expended	1629808	0	0	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	390900	0	0	0

V. Planned Program Table of Content

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

Program #1

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%			
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%			
901	Program and Project Design, and Statistics	10%			
902	Administration of Projects and Programs	10%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	2.0	0.0	0.0	0.0
Actual	6.1	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**
187087	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
81141	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
55511	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Capacity building and technical assistance workshop sessions were conducted on strategic planning, quantitative and qualitative computer software training and logic model trainings. Focus groups were conducted using a variety of qualitative assessments such as Appreciative Inquiry. Personal finance workshops were conducted through the "Guam Saves" program. Telephone, face-to-face and online surveys were conducted. One (1) formative and summative evaluation was conducted on workforce development. One (1) coalition was established for placed based economic development (community-based entrepreneurship). Seven (7) partnerships and/or collaborative memoranda of agreements were established with government agencies and NGOs.

2. Brief description of the target audience

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	50	75	0	0
2007	500	500	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- (1) # of research papers

Year	Target	Actual
2007	0	0

Output #2

Output Measure

- (2) # of research citations

Year	Target	Actual
2007	0	0

Output #3

Output Measure

- (3) # of extension articles

Year	Target	Actual
2007	1	0

Output #4

Output Measure

- (4) # of workshops

Year	Target	Actual
2007	5	23

Output #5

Output Measure

- (5) # of brochures

Year	Target	Actual
2007	1	7

Output #6

Output Measure

- (6) # of dissemination of research results and new technology and information

Year	Target	Actual
2007	0	1

Output #7

Output Measure

- (7) # of surveys

Year	Target	Actual
2007	1	7

Output #8

Output Measure

- (8) # of focus group

Year	Target	Actual
2007	5	8

Output #9

Output Measure

- (9) # of work with media

Year	Target	Actual
2007	2	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	# of participants and entities gaining increased knowledge and understanding in community development practices
2	# of participants and entities increasing knowledge, understanding and awareness of data set models
3	# of data supported legislation enacted
4	# of entities adopting of data models for decision-making
5	# of place-based enterprises and entrepreneurs identified
6	# of place-based enterprises and entrepreneurs established
7	# of participants and entities developing strategic plans

Outcome #1

1. Outcome Measures

# of participants and 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
2007	10	40

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

Technical support, training and decision-making tools sessions were provided to 13 government agencies and 3 NGOs. Training in needs assessment, logic model, asset mapping and Appreciative Inquiry were conducted. CES has been instrumental in promoting the plan of work model throughout cooperator circles. Program cards were created to provide information and to promote CES projects. Staff participated in various technical planning teams and have contributed to reports and data analysis. CES has been instrumental in facilitating community access to faculty and paraprofessional expertise.

Results

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
901	Program and Project Design, and Statistics

Outcome #2

1. Outcome Measures

# of participants and 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

Year	Quantitative Target	Actual
2007	3	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Local and regional leaders, planners, agency directors and administrators. Current and reliable data is needed on Guam so that entities around the island can make sound decisions. However, having current and reliable data solves only part of the problem. There is a need for entities to build the capacities to successfully collect and disseminate data.

What has been done

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

Results

Three government agencies are now using these skills to collect data in areas of labor, economics and health. One NGO is now using the skills learned to assist in the collection of homeless data. In addition, the Guam Department of Public Health is now able to produce analysis of the Behavioral Risk Factor Surveillance Survey not conducted since 2003.

4. Associated Knowledge Areas

KA Code	Knowledge Area
901	Program and Project Design, and Statistics
609	Economic Theory and Methods

Outcome #3

1. Outcome Measures
# of data supported legislation enacted

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
610	Domestic Policy Analysis

Outcome #4

1. Outcome Measures

# of entities adopting of data models for decision-making

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Local and regional leaders, planners, agency directors and administrators. Guam is in need of data that reflects the economic health of the island. This is important to the island in two ways. First, Guam has not updated its Gross Domestic Product since 2001 which is a valuable indicator of economic growth needed policy makers and investors to make sound decisions. Second, the increase of military personnel on island will put a strain on government and non-government services provided to the community, without proper datasets these entities will not be able focus services to those who are most in need.

What has been done

To address this situation CES has collaborated with the Guam Department of Labor, Guam Bureau of Statistics and Plans, Guam Public Health, and the Salvation Army to provide these organizations with the knowledge of community data and its methodology. CES provided trainings and technical assistance to these agencies in the areas of data collections, data management, data dissemination and data analysis.

Results

Five agencies have adopted data set models associated with the management of datasets. The lead government agency of data policy (the Bureau of Statistics and Plans)is now in the process of establishing a government-wide data plan. These agencies have adopted these skills to collect data in areas of labor, economics and health. One NGO is now using the skills learned to assist in the collection of homeless data. In addition, the Guam Department of Public Health is now able to produce analysis of the Behavioral Risk Factor Surveillance Survey last conducted in 2003.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
901	Program and Project Design, and Statistics
609	Economic Theory and Methods

Outcome #5

1. Outcome Measures

# of place-based enterprises and entrepreneurs identified

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	7	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

CES has helped to establish and organize producer marketing co-ops, providing technical support and guidance in co-op organization. Continuing work to help develop value-added resource guide based on farmer/stakeholder input to sourcing value-added grants and programs.

Results

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
604	Marketing and Distribution Practices
901	Program and Project Design, and Statistics

Outcome #6

1. Outcome Measures
# of place-based enterprises and entrepreneurs established

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
604	Marketing and Distribution Practices
901	Program and Project Design, and Statistics

Outcome #7

1. Outcome Measures

# of participants and 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
2007	3	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Government and NGO planners, agency directors, administrators, local and regional leaders, and boards recognize the importance of programming collaboration to leverage resources. To adequately respond to collaborator needs and issues, a variety of methods were used to engage collaborators toward positive change. Strategic planning provides organizations with a tool to help them understand problems, to identify opportunities and to plan for renewal and/or growth. Strategic planning formalizes goals and actions to achieve their missions in efficient and effective ways.

What has been done

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

Results

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

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

Unmet outcomes #3 and 7:Challenges with government budget crisis continues to impact planning time with core policy workgroups. However work continues with the present administration to develop draft legislation for a government-wide data work plan. Place based entrepreneurship is dependent on connections to the Mayor's Council. This effort has yet to be achieved due to program challenges and staffing shortages among collaborators. Funding and staffing limitations have also prevented a community asset mapping from being conducted. Asset mapping is necessary in the creation of place based entrepreneurship.

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

Key Items of Evaluation

Program #2

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	25%			
502	New and Improved Food Products	25%			
503	Quality Maintenance in Storing and Marketing Food Products	10%			
604	Marketing and Distribution Practices	5%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	30%			
806	Youth Development	5%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	0.7	0.0	0.3	0.0
Actual	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**
70985	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
51933	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
10849	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 (reducing foodborne illnesses) on Guam, the following activities were conducted: Identification of pickles of mango, papaya and cucumber and sausage as initial products for home processing education in community. Selection of the medicine plant, noni (Morinda citrifolia), as a value-added product of dietary supplement for home processing. Additional activities included: one-on-one intervention to entrepreneurs and individuals, providing clients with information and materials on canning, dehydration, and tomato and jerk beef processing as well as noni processing; studied changes of the radical scavenging activity and antioxidants of noni juice prepared by enzyme liquefaction technology; developed a product of purple sweet potato chips, activities were reported by local newspaper and TV programs in community; developed food safety curriculum for general consumers, school children, and youth.

Food safety workshops for general consumers and children were provided to community. To ensure safe kelaguen (an ethnic food on Guam) preparation and storage, a minimum pH amount of lemon required was determined for safe storage which can served at parties and fiestas in tropical environment without temperature control for safety. Workshops of "Safe Kelaguen Preparation" were provided to general consumers, food workers, and food safety educators in community. Two fact sheets, "Key Food Handling Behaviors" and "Egg Safety in Easter" were disseminated in the community. A course in "Food Safety and Sanitation" was also provided to students at the University of Guam.

2. Brief description of the target audience

The outreached target audiences in this program included 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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	150	500	150	500
2007	300	600	400	500

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	1	1	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- # of Research Paper

Year	Target	Actual
2007	1	1

Output #2

Output Measure

- # of Research Citations

Year	Target	Actual
2007	0	0

Output #3

Output Measure

- # of extension fact sheets or articles

Year	Target	Actual
2007	2	2

Output #4

Output Measure

- # of workshops

Year	Target	Actual
2007	6	8

Output #5

Output Measure

- # of brochures

Year	Target	Actual
2007	1	1

Output #6

Output Measure

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

Year	Target	Actual
2007	500	500

Output #7

Output Measure

- # of one to one intervention

Year	Target	Actual
2007	1	2

Output #8

Output Measure

- # of work with media

Year	Target	Actual
2007	1	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	% of participants gaining food processing knowledge and skills
2	% of participants gaining food safety knowledge
3	% of participants adopting food processing techniques
4	% of participants adopting proper food handling practice
5	# of new value food products on the markets
6	% decrease in foodborne illness

Outcome #1

1. Outcome Measures

% of participants gaining food processing knowledge and skills

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	60	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are an increasing need for use of local produces to process value-added food products on Guam. The high cost of fuel for transporting imported produce has adversely impacted families and consumers.

What has been done

Information and materials about canning and dehydration technology as well as technology of processing functional food such as 'noni juice' were provided to individual entrepreneurs.

Results

Sixty individuals increased knowledge in home food processing and technology.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
604	Marketing and Distribution Practices
501	New and Improved Food Processing Technologies
502	New and Improved Food Products

Outcome #2

1. Outcome Measures

% of participants gaining food safety knowledge

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	60	70

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Every year several outbreaks and about 150 cases of foodborne illnesses are reported by the Guam Department of Public Health and Social Services. The estimated number of foodborne illness occurring on Guam each year are between 13,000 and 152,000. The estimated economic cost is from $5.0 to 40.0 million per year. One identified food vehicle causing foodborne illness is kelaguen, an ethnic meat dish, which is prepared by mixing raw meat with lemon, onions, hot peppers and grated coconuts. 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

Food safety education curricula was developed for adults and school children. Food safety workshops were provided to the community and schools. Key food safety handling practices are disseminated to general consumers. Pathogen survival in kelaguen preparation was studied and a safe kelaguen preparation curriculum was developed and desseminated in workshops. A 'Safe Kelaguen Preparation' guide was provided to consumers, food workers, and food safety educators in community.

Results

Eighty participants in workshops increased knowledge in proper food handling practices. Participants in safe kelaguen workshop increased knowledge of the principles of pathogen control in kelaguen preparation and service and mastered 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
806	Youth Development

Outcome #3

1. Outcome Measures

% of participants adopting food processing techniques

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Needs for processing local value added food products.

What has been done

Food processing information and materials related to canning and dehydration technology as well as functional noni products was provided individual entrepreneurs.

Results

Twenty individuals applied the knowledge in processing their food products.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
604	Marketing and Distribution Practices
503	Quality Maintenance in Storing and Marketing Food Products

Outcome #4

1. Outcome Measures

% of participants adopting proper food handling practice

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

# of new value food products on the markets

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Needs for processing local value-added food products is important to both consumers and producers. Consumers will have increased choices for local products and producers increase the varieties of products that are locally made.

What has been done

Food processing information and materials related to canning and dehydration technology as well as functional noni products were provided to individual entrepreneurs.

Results

One entrepreneur used a canning technology to make hot pepper sauce, another entrepreneur produce a noni leaf tea made for tourists.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
501	New and Improved Food Processing Technologies

Outcome #6

1. Outcome Measures

% decrease in foodborne illness

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities
- Competing Programmatic Challenges
- Other (Community Support)

Brief Explanation

Unmet outcomes #4 and #6.The planned activity of providing home food processing workshops in community was not done because competing program and research projects in food safety and functional food research projects took the priority within our limited resources. People increased intentness to change or improve the key food handling behaviors in food preparation.However, the behavior changes have not been evaluated. Decrease in foodborne illnesses has not yet been evaluated

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

Key Items of Evaluation

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 indvidual	10%			
806	Youth Development	50%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual	3.4	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
115829	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
86819	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
32547	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The following activities were conducted and implemented: 3 clubs chartered and supported annually; 15 4-H school enrichment programs established; 15 special enrichment programs conducted; 10 school-Aged Child Care Education Programs offered; 5 technology workshops; 2 planned workshops for 4-H individual study/mentoring/family learning activities implemented. Six thousand nine hundred thirty youth have been reached through 423 workshops and life skills presentations.Enrollment in workshops and presentations has increased by 30%.Two hundred ninety-three workshops with 5674 participants reinforced life skills within the Guam public schools and throughout the military installations.

2. Brief description of the target audience

Primary target audience included: children, youth, and families in the community, schools,military youth and their families, educators, and organizations that requested our services.

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	15	50	5000	7000
2007	1000	500	6930	8000

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- (1) # of club members

Year	Target	Actual
2007	50	200

Output #2

Output Measure

- (2) # of volunteer leaders

Year	Target	Actual
2007	5	35

Output #3

Output Measure

- (3) # of workshops

Year	Target	Actual
2007	12	140

Output #4

Output Measure

- (4) # of brochures

Year	Target	Actual
2007	3	5

Output #5

Output Measure

- (5) # of surveys

Year	Target	Actual
2007	2	1

Output #6

Output Measure

- (6) # of media articles and promotions

Year	Target	Actual
2007	3	25

Output #7

Output Measure

- (7) # of focus group

Year	Target	Actual
2007	2	1

Output #8

Output Measure

- (8) # of volunteers trained

Year	Target	Actual
2007	7	20

Output #9

Output Measure

- (9) # of extension staff trained

Year	Target	Actual
2007	5	5

Output #10

Output Measure

- (10)# of collaboration established

Year	Target	Actual
2007	4	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
2007	1000	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. Research shows that youth become at-risk due to lack of life skill knowledge. According to the Guam 2005 Youth Risk Behavior Survey youth risk behaviors are increasing at an alarming rate. Results from 1,038 students surveyed from 8 public middle schools in Guam showed that 33.5 percent drank alcohol, 14.9 percent used marijuana and 14.8 percent smoked cigarettes during the past 30 days. The risk behaviors increase in the high school- with 1,265 students surveyed in 5 public high schools in Guam 30.8 percent smoked cigarettes during the past 30 days, 27.3 used marijuana during the past 30 days and 36.2 drank alcohol during the past 30 days.

An additional critical issue facing Guam's youth is the high levels of military deployment, particularly dependents of the Guam Army National Guard & Reserves. Children with parents in the military face many challenges as their parents move frequently and are deployed for long periods of time. Other non-military children and adults often do not understand military culture and the impact of deployment, separation, or reunions on these youth and their families. This sudden change in family structure leads to stress and youth at-risk behaviors.

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. Youth need opportunities to discover and expand their assets and capacities, and to practice and demonstrate their value to the community.

What has been done

One hundred seven life skill workshops were conducted within the Guam public schools 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 life skills in targeted life skill curricula.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	

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
2007	1000	6237

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A focus session conducted this reporting year by the Guam 4-H Youth Development Program indicated that one of the major issues Guam youth face are 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 nation's youth become at-risk due to lack of life skill knowledge, which is no different for our youth in Guam. Research also shows 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. Youth need opportunities to discover and expand the range of their assets and capacities, and to practice and demonstrate their value to the community.

What has been done

In response to these issues, Guam 4-H conducted a total of 423 in-school and out-of -school life skill workshops which included: animal husbandry, arts and crafts, horticulture, entomology, fisheries, food & nutrition, drug and alcohol prevention, leadership, sports, youth finance, computer, photography, entrepreneurship and rocketry. 4-H also conducted Christmas and summer camps which offered fifteen workshops to the public in response to the of lack of youth activities. These workshops engaged youth, in partnership with adults, in quality learning opportunities that enable them to shape and reach their full potential as active citizens in a global community. The workshop stimulated youth to learn in subject areas they are interested in, engaged youth in addressing community and youth-related issues, and encouraged youth to reach their full potential in an ever-changing, diverse world.

Results

Participants pre and post results indicated that 6,237 participants, mastered life skills in targeted life skills curricula such as appreciation for Pacific and Western handcrafts, animal care, creativity and imagination, basic computer skills, learned the importance of different areas of insect habitats, appreciation for the environment, learned the importance of staying fit and living a healthy active lifestyle, and the importance of substance abuse prevention.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	

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
2007	5	35

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Volunteers are a critical resource to the success of youth development programs. Successful engagement of youth volunteers is a basic feature in youth development programs and has been fundamental to Cooperative Extension Service since its inception. (Seevers, Graham, Gamon, and Conklin, 1997). 4-H youth and adult volunteers play an important role to youth development program by extending partnerships through community involvement, building collaborators, and extending our programs to address client needs in the community. Guam youth development volunteers numbers are lower when compared to other 4-H extension programs. This is an issue as it affects the level of success in both our programs and the youth we serve.

What has been done

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

Results

Forty 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. Thirty-five have committed and remained active in the various roles describe above. The numbers reported shows a 2% increase from the previous year. Moreover, adult and youth volunteerism provided unpaid services, specialties and skills to 4-H program is estimated to be over $52,000.00 this year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	

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
2007	1440	3430

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to data from the local Guam Police Department there has been an increase in family violence that continues to have devastating effects on the island of Guam and its residents. Families no longer feel safe within their homes, neighborhoods and communities. The high school drop out continues to increase at an alarming rate. With the increased drop out rate, teen pregnancy is notable and reported to be reaching middle school. Teenage suicide in Guam is amongst the highest in the nation and teenage alcohol and drug abuse is increasing. Sexual activities are reported to have been increasing among teenager exposing the youth, families and communities to sexually transmitted diseases. In addition, Guam is experiencing a spur in population growth as residents of the Freely Associated States of Micronesia migrate with their families to Guam to seek better quality of life. As a result, social and welfare systems are burdened and the education system must shift its programs to meet the needs of language other then English students. School infrastructure is also impacted as double sessions are implemented to accommodate the increase in student populations. These situations affect not only the youth on Guam but the community as well.

What has been done

Four hundred twenty workshops and life skills presentations were conducted in 2007, reaching 6930 youth. Three thousand four hundred thirty school aged children participated in essential life skills. In addition three new 4-H clubs were organized and supported; 10 4-H enrichment programs were established and pending charter; 15 special interest/short-term day camps and 15 overnight camps were held; 10 School Aged Program were oriented in 4-H curricula.

Results

Pre and post test results show that 3430 youth increased knowledge and skills in essential life skills. Participating youth have changed attitudes and increased awareness in areas such as: horticulture (Basic Science and Math), youth finance (Basic Math), nutrition and fitness (Basic science and Health). Through environment camps and workshops youth have developed a sense of belonging, and independence needed to make positive life choices, they have become civically engaged to act responsibly to be a positive influence in their communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (Direct Instruction Program in GPSS)

Brief Explanation

One of the major factors that effected our outcomes is the direct instruction program in Guam Public School System. The program limited our accesswith elementary and middle students.

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- Other (Observations)

Evaluation Results

Key Items of Evaluation

Program #4

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 Fucntion of Nutrients and Other Food	20%			
703	Nutrition Educations 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 Institution, Health, and Social Services	5%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.5	0.0	0.0	0.0
Actual	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
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
10849	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 age children (elementary through high school), families receiving public assistance, families with young children, general consumers, military families, health educators, school teachers, local farmers and 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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	1000	2000	3000	1000
2007	457	625	4340	590

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- (1) # of research papers

Year	Target	Actual
2007	1	0

Output #2

Output Measure

- (2) # of research citations

Year	Target	Actual
2007	0	0

Output #3

Output Measure

- (3) # of extension articles

Year	Target	Actual
2007	2	0

Output #4

Output Measure

- (4) # of workshops

Year	Target	Actual
2007	50	102

Output #5

Output Measure

- (5) # of brochures

Year	Target	Actual
2007	1	0

Output #6

Output Measure

- (6) # of dissemination of research results and new technology and information

Year	Target	Actual
2007	200	719

Output #7

Output Measure

- (7) # of one to one intervention

Year	Target	Actual
2007	10	79

Output #8

Output Measure

- (8) # of surveys

Year	Target	Actual
2007	200	0

Output #9

Output Measure

- (9) # of focus group

Year	Target	Actual
2007	1	0

Output #10

Output Measure

- (10) # of work with media

Year	Target	Actual
2007	1	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1

1. Outcome Measures

(8) # of participants in the community who have been expose to nutrition education

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	200	6095

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 continues to indicate that high numbers of chronic and preventable diseases such as diabetes, cardiovascular disease and certain types of cancer are the primary causes of death on Guam. 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 is still an important factor in reducing these chronic illnesses. A recent needs assessment identified the need to expand the delivery of 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 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

Six thousand ninety-five contacts were made through the exposure of nutrition education under our programs. Pre and post tests were given for most workshops which showed improvements for both groups.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA7	
KA8	

Outcome #2

1. Outcome Measures

(9) % increase of nutrition skills

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	83

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The continuous rise in obesity 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 are better informed of the many health benefits of proper nutritional intake of foods and the importance of regular exercise as it relates to good health. Another issue is 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 83% participants increased nutrition skills in one or more lessons.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA7	
KA8	

Outcome #3

1. Outcome Measures
(10) % 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
2007	5	83

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Poor food choices and the lack of physical activity are linked to the increased number of Guam residents who suffer from chronic and preventable diseases such as diabetes, cardiovascular diseases, cancer and obesity. Guam statistics indicates there is a great 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 83% 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
KA7	
KA8	

Outcome #4

1. Outcome Measures

(11) % 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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	5	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 coupled with a decrease in public assistance funding. Because of this, there is a need to provide knowledge and understanding of how to be a 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 receiving public assistance and families who may not receive public assistance but fall into the 'low income' category were conducted. In addition, monthly (in-store) food demonstrations were conducted during on the first Friday of the every month to capture food stamp program recipients shopping for food. During these food demonstrations, healthy food recipes were distributed and food samples were provided. The activity was sponsored by one of Guam's largest supermarket chains. The lessons provided information on menu planning, shopping tips, and budgeting, enabling clients to a gain knowledge and understanding on how to be more cost efficient while shopping for healthy food.

Results

Pre and post test showed improvement for both groups. Seventy-six participants increased knowledge and understanding of how to be a more cost efficient community while shopping for healthy foods.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	
KA7	

Outcome #5

1. Outcome Measures

(1) # 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
2007	200	555

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, lessons must ensure and 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; 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

Five hundred fifty-five participants, through pre and post tests, gained increased knowledge and understanding of nutrition and exercise during more than one nutrition education lesson.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	
KA7	

Outcome #6

1. Outcome Measures

(2) # 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
2007	200	2291

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

Distributed 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, and monthly (in-store) food demonstrations.

Results

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA7	
KA8	

Outcome #7

1. Outcome Measures

(3) # 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
2007	200	548

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A major part of providing proper nutrition education is educating the community on the many different types of nutrients that are important for good health. Educating the community to read and understand food labels is an important part in helping people make healthier food choices. Healthy food choices will increase intake of some nutrients (like dietary fiber, calcium, and iron) and decrease intake of other nutrients (like sodium, fat and saturated fat). Having people understand the components of food labels will help them adopt changes which lead to proper nutrient intake 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. Five hundred forty-eight participants identified knowledge and understanding for reading food labels during more than one nutrition education lesson.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA7	

Outcome #8

1. Outcome Measures

(4) # 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
2007	200	59

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Menu planning and smart shopping is an integral part of living a healthy and fit life. The goal of this outcome is to ensure that knowledge of good nutrition choices and practice can be applied during the course of everyday life. In order to reach the goals of improving the abilities to manage resources that relate to food purchase and preparation of foods educating participants on menu planning and smart shopping habits is required to lead healthy lives.

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-nine participants gained an understanding for menu planning and smart shopping by attending more than one nutrition education class.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA7	
KA8	

Outcome #9

1. Outcome Measures

(5) # 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

Year	Quantitative Target	Actual
2007	200	571

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

Static displays were exhibited during health fairs, monthly (in-store) food demonstrations were conducted and Nutrition Education materials which all provide education/information on food safety was distributed.

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

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	
KA7	

Outcome #10

1. Outcome Measures

(6) # 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
2007	200	60

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 great 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; 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 healthy nutrition habits.

Results

Pre and post tests were given for most workshops which showed that 60 participants adopted at least one new nutrition habit.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	

KA7

Outcome #11

1. Outcome Measures

(7) # 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
2007	200	56

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 to most workshops which showed improvements among adult participants. Fifty six participants gained increased knowledge and understanding for physical activity, food labels, smart shopping and menu planning.

4. Associated Knowledge Areas

KA Code	Knowledge Area
KA8	
KA7	

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.)
- Other (No nutrionist for this reporting year.)

Brief Explanation

As of January 1, 2008, CES has hired a nutrition specialist at .30 FTE.This commitment is expected to greatly increase impacts for 2008.

Please note, there was an error in the number of surveys (output) anticipated to be conducted. This number is corrected for the 2009 plan of work.

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

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #5

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	15%			
111	Conservation and Efficient Use of Water	28%			
133	Pollution Prevention and Mitigation	5%			
301	Reproductive Performance of Animals	20%			
307	Animal Management Systems	20%			
403	Waste Disposal, Recycling, and Reuse	10%			
604	Marketing and Distribution Practices	2%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.5	0.0	0.0	0.0
Actual	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
81278	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
56395	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
10849	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

An article for the Center for Tropical and Subtropical Aquaculture (CTSA) regional newsletter was published on the activities of this planned program for maintaining breeding lines of tilapia for fry production for local and regional farmers.The information increased awareness of all regional aquaculture professionals of Guam's ability to supply tilapia fry. A multi-agency sponsored demonstration system was initiated integrating rooftop rain catchments, with the storage tank being used to produce tilapia,and the water being filtered through disk filters used to irrigate fruit tree windbreaks at the Guam Department of Agriculture Livestock Breeding Station in the village of Dededo.Two workshops held at the site on other topics generated numerous inquiries on the system.Workshops on this system are planned for future reporting periods.Through the Cooperative Extension Service Aquaculture Park at the UOG campus, recirculating aquaculture systems and aquaponic systems were maintained to demonstrate this appropriate technology. Many school field trips visited this site.Tilapia hatchery production protocols were developed. Training sessions were held to transfer this technology to three hatchery technicians at the Guam Aquaculture Development and Training Center responsible for commercial production of tilapia seed stock for the tilapia producers in Guam. Training will be provided to regional interests in the future when requested. Existing recirculating aquaculture systems at the CES Aquaculture Park were upgraded to demonstrate more efficient and appropriate technology.One example is an irrigation sub-system was added that consists of a settling tank with pump, pressure regulators, disk filters and drip irrigation operating over agrowing cycle of a bed of eggplants.The technology demonstrated the potential of tilapia tank based production systems to act as irrigation water holding tanks for high value fruit and vegetable production.

2. Brief description of the target audience

The target audience is varied, depending on the system. Ornamental systems audiences consist of farmers, aquaculturists,hobbyists, youth, and homeowners. Recirculating systems and aquaponics audiences include farmers, aquaculturists, homeowners (backyard production systems) and youth groups. Broodstock shrimp systems would appeal tolarge commercial shrimp farmers and investors interested in specialty niche export markets.

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	300	30	100
2007	28	80	74	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- number of popular articles in newsletters, magazines and newspapers

Year	Target	Actual
2007	2	1

Output #2

Output Measure

- number of extension articles

Year	Target	Actual
2007	4	1

Output #3

Output Measure

- number of workshops

Year	Target	Actual
2007	2	2

Output #4

Output Measure

- number of extension brochures/pamphlets

Year	Target	Actual
2007	2	1

Output #5

Output Measure

- number of requests for research and new technology information

Year	Target	Actual
2007	2	2

Output #6

Output Measure

- number of one to one intervention

Year	Target	Actual
2007	5	6

Output #7

Output Measure

- number of multi-agency demonstration sites initiated and/or operated

Year	Target	Actual
2007	{No Data Entered}	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	18

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many individuals involved in various aspects of agriculture do not realize the potential for tilapia production in tank based systems. This is an enterprise that has potential for diversifying farm income on Guam and for subsistence producers providing a significant amount of fish for the family diet.

What has been done

Cooperating with the Guam Department of Agriculture, a demonstration system was established appropriate for small and backyard producers at a very visible accessible public site.

Results

A visible and accessible site now provide residents who might never had considered tilapia production an opportunity to learn how they can grow tilapia right where they live. Eighteen participants have increased their knowledge on aquaculture technology.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse
102	Soil, Plant, Water, Nutrient Relationships
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
2007	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

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
2007	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Number of individuals adopting new aquaculture technology

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The water from aquaculture tanks is rich in nutrients. If it is possible to use it with drip irrigation without clogging the lines this holds potential of providing nutrients to plants as a by product of aquaculture production providing innovative use of current resources for a variety of fruit and vegetable production.

What has been done

A demonstration system was established in the village of Dededo showing how using a settlement tank and disk filtered water from tilapia tank systems can be used to irrigate crops.

Results

One aquaculture producer has adopted new aquaculture technology from information and assistance provided by CES. The system is being run to demonstrate it's long term feasibility for interested producers.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures
Increased number of producers in aquaculture

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

307	Animal Management Systems
301	Reproductive Performance of Animals

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
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
604	Marketing and Distribution Practices

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Programmatic Challenges
- Other (The aquaculture specialist that represented the core FTE on this program retired during the period.)

Brief Explanation

The retirement of our only Extension Aquaculturistin this program has had a tremendous affected our ability tomeet outcomes for this reporting year. The loss of faculty expertise, established networks with contractors and experience has resulted in a great reduction in activities for this planned program. The program is now being reassessed; changes will be reflected in plan of work updates and annual reports. In the early portion of 2007/2008 reporting period a new aquculture specialist will be hired, until then other faculty are addressing client information needs.

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)

Evaluation Results

Key Items of Evaluation

Program #6

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%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	3.5	0.0	0.0	0.0
Actual	1.9	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
100147	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
48644	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
10849	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Farmers with agricultural land leases that are not utilizing or are under-utilizing the land for agricultural purposes were targeted for recruitment into the education and demonstration activities. Activities are targeted to address this issue.A farmer mini-grant program was implemented to demonstrate innovative agricultural practices; two mini grants were awarded to farmers to plant fruit tree windbreaks. A workshop was held on fruit trees as a windbreak planting material that was very well attended.This workshop was held at the programs Organic Demonstration farm at Guam Department of Agriculture (DoAG) in Mangilao.At this workshop a session was held on government incentive programs and funding opportunities for farmers, and a farm tour was conducted to visit two farmers successfully participating in these programs. Workshops and open houses were also conducted at the Dededo breeding station on the demonstration farm activities.These included session on composting, mulching, chicken tractors.

In order to increase the skills of the islands agricultural professionals a series of train the trainer workshops were held on "Organic and Sustainable Agriculture" for the Guam Department of Agriculture Development staff and the Department's AmeriCorps volunteers, prior to holding public workshops at the demonstration farms. Workshops included: composting, chicken tractors, measuring contour lines, nitrogen fixing hedgerows, soil testing, windbreaks, and fruit trees as windbreaks.To promote access and adoption of these workshop curriculum materials a website has been established and maintained.

A number of joint agency (UOG CES, Guam Department of Agriculture, and Sanctuary, Inc (a home for at-risk youth) efforts generated local extension outreach publicationson the demonstrated conservation and production practices.These included: windbreaks, composting, marking contour lines, fruit tree as windbreak materials, and the use of chicken tractors.

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

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

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 land programs and the more than 100 existing full and part time commercial and subsistence agricultural producers on Guam. A secondary target is youth interested in entrepreneurial agricultural activities.Additionally, clients of Mayors' offices interested in small scale and community agricultural activities are targeted. Another target 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 Cooperative Extension Service, 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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	100	50	15	0
2007	180	1000	174	225

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	4	0	4

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- # of articles in newsletters, newspapers and magazines

Year	Target	Actual
2007	{No Data Entered}	4

Output #2

Output Measure

- # of workshops

Year	Target	Actual
2007	{No Data Entered}	3

Output #3

Output Measure

- # of train the trainer workshops

Year	Target	Actual
2007	{No Data Entered}	2

Output #4

Output Measure

- # of extension fact sheets developed

Year	Target	Actual
2007	{No Data Entered}	5

Output #5

Output Measure

- # of one-to-one direct interventions

Year	Target	Actual
2007	{No Data Entered}	4

Output #6

Output Measure

- # of workshop curriculum developed and piloted

Year	Target	Actual
2007	{No Data Entered}	7

Output #7

Output Measure

- # of multi-agency demonstrations conducted

Year	Target	Actual
2007	{No Data Entered}	14

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

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	20	13

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

A 'Fruit Tree Windbreak Workshop', Guam Department of Agriculture's Dededo breeding station open house, and a chicken tractor workshop was held.

Results

Thirteen agriculture land lease holders have increased knowledge, understanding and skills of conservation and production practices.

4. Associated Knowledge Areas

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

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
2007	4	14

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

Five 12-hour training modules on sustainable and organic agriculture were developed, used initially for youth then for adults. Train the trainer workshops were held with agriculture professionals at the Guam Department of Agriculture. These curriculum have into seven 4-hour workshops for adults.

Results

Fourteen agricultural professionals completed 'New Farmer' training workshops increasing skills and knowledge of conservation and environmental practices. Training workshop modules are now being delivered to AmeriCorps volunteers, Sanctuary,Inc. (a home for at-risk youth) by Guam Department of Agriculture staff. The Guam Department of Corrections is also using this curriculum to teach clients new opportunities to earn money when they are released.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

# of MOUs and MOAs for collaborative program grants

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Sustainable conservation innovation and education through inter-agency collaborations aims to pioneer innovative solutions using new conservation practices that are unique to the island community. Collaboration with agencies such as Guam Department of Agriculture, NRCS, Chamorro Land Trust Commission and the Soil and Water Conservation Districts have been established to leverage expertise and other resources such as field outreach staff and field demonstrations among government and non-government entities in an effort to improve outreach and education of stakeholders.

What has been done

A memorandum of understanding was effectuated with Sanctuary Inc. to develop 60 hours of curriculum on organic farming for youth. A working relationship between the Guam Department of Agriculture and the Cooperative Extension Service Agriculture and Natural Resources is in place, eight members of Department of Agriculture and Agriculture Development Station have signed the MOU committing a percentage of their full-time equivalency (FTE) to this program.

Results

One agency has committed one FTE to this program. A model to leverage personnel and fiscal resources among collaborating agencies can now be replicated to other projects requiring shared expertise and resources. There was increased number of stakeholders gaining knowledge and understanding of conservation practices because of the partners ability to increase workshops and outreach.

4. Associated Knowledge Areas

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

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
2007	4	5

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

Workshops and field days were held on three demonstration sites which included bus tours to other farms. Extension publications were developed and interagency sharing of technical expertise between the Guam Department of Agriculture, Cooperative Extension Service and NRCS has been extremely effective.

Results

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

104	Protect Soil from Harmful Effects of Natural Elements
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships
125	Agroforestry
601	Economics of Agricultural Production and Farm Management
403	Waste Disposal, Recycling, and Reuse
806	Youth 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
2007	4	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

To test new conservation practices and alternatives to improve practices. Farmers, producers and consumers as well as the whole Guam community are affected.

What has been done

Mini grants have been advertised at each workshop that was held. It was also advertised at the Northern and Southern Soil and Water Conservation Districts meetings.

Results

Four farmers were awarded fruit tree windbreaks mini-grants this year. Funding from these grants have allowed farmers to adopt this conservation practice on their farm. The plants have established and continue to do well.

4. Associated Knowledge Areas

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

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
2007	60	180

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Demonstration farms are an important tool in educating our stakeholders in conservation programs and practices. A lack of farm community exposure to conservation programs and practices due in part to the absence of demonstration sites that farmers can easily visit has limited our efforts.

What has been done

Workshops at two farm demonstration sites were held this reporting year. Bus tours were offered to two established farmers who are currently under the EQIP program

Results

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

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Other (Change in government administration)

Brief Explanation

After the gubernatorial elections in 2006, a major planned partner of the program, the Chamorro Land Trust Commission did not have a permanent director appointed until June 2007. Land Trust Commissioners who make final programming decisions were not appointed until after this reporting period.Lack of a director and commissioners in place affected the agency's commitment to the program.This has limited our involvement with the Chamorro Land Trust Commission for this year. Programmatically all resources were refocused on working with the second active partner, the Guam Department of Agriculture with very successful results.

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 #7

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%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	2.5	0.0	0.0
Actual	4.4	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
150301	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
102247	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
46108	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. One-to-one consulting on IPM was provided to individuals who have problems with crops, weeds and/or pests. Aplant health clinic was established that took a lead role in diagnosing plant problems andprovided outreach by providing space, equipment, and expertise for publications, courses and workshops. Through the Pesticide Safety Educator Program (PSEP)/Pesticide Applicator Training (PAT), program applicators were instructed on plant pests and the safe handling of pesticides and were administered Environmental Protection Agency (EPA) approved licenses. National Plant Diagnostic Network (NPDN) invasive pest identification and procedures training was held and "First Detector" certifications issued.

The Plant Health Clinic identified an invasive plant disease (Black rot of orchid caused by the fungus Phytophthora palmivora)on a orchid sample imported from Thailand by a Guam nursery in January of 2007. After informing the Plant Inspection Station (USDA/APHIS), the nursery was quarantined and approximately 1000 plants destroyed. This disease would have been devastating to the orchid industry and homeowners on Guam. No reports of the disease have been reported and it is believed the disease has been eradicated on Guam.

In September of 2007, the "Coconut Rhinoceros Beetle" was identified through an insect sample.This Beetle has had a devastating affect on coconut trees throughout the region, sometimes resulting in the death of over 50% of the coconut trees and severe damage to the remaining trees. Student and community volunteers learned to identify the Beetle and helped to cull infected trees for incineration.A $250,000 grant from APHIS was secured for the control and eradication of this new invasive species. It is still too early to tell if eradication efforts have been successful.

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, students, government agencies, 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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	300	400	100	400
2007	7776	61894	2355	6650

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	1	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- # of research papers

Year	Target	Actual
2007	1	4

Output #2

Output Measure

- # of research citations

Year	Target	Actual
2007	0	2

Output #3

Output Measure

- # of extension fact sheets or articles

Year	Target	Actual
2007	3	8

Output #4

Output Measure

- # of workshops/trainings/classes

Year	Target	Actual
2007	9	28

Output #5

Output Measure

- # of brochures

Year	Target	Actual
2007	3	8

Output #6

Output Measure

- # of research or new technology reports

Year	Target	Actual
2007	2	2

Output #7

Output Measure

- # of one-on-one interventions

Year	Target	Actual
2007	160	2470

Output #8

Output Measure

- # of surveys

Year	Target	Actual
2007	2	6

Output #9

Output Measure

- # of focus groups

Year	Target	Actual
2007	0	5

Output #10

Output Measure

- # of news media activities (TV and radio)

Year	Target	Actual
2007	1	19

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
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
2007	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, students, teachers, government agencies and the general public. Identification is essential in determining the difference between beneficial insects and insect pests 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

PSEP/PAT training workshops were held for: Turf and Ornamentals (#4); Industrial, Structural and Health related Pest Control (#5); and Commercial and Private - Agricultural Plants (8a). Also, a NPDN training workshop for insect plant pests and invasive species identification and procedures was held.

Results

Eighty-eight percent of participants passed EPA licensing tests The passing of this test indicates increased ability to identify insects and related pests, following PSEP/PAT training workshops for: Turf and Ornamentals (#4); Industrial, Structural and Health related Pest Control (#5); and Commercial and Private - Agricultural Plants (8a). Also, 86% of participants passed the NPDN training workshop for plant insect pests and invasive species identification and procedures. 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
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
215	Biological Control of Pests Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems
205	Plant Management Systems

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
2007	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

PSEP/PAT training workshops were held for: Turf and Ornamentals (#4); Industrial, Structural and Health related Pest Control (#5); and Commercial and Private - Agricultural Plants (8a). Also, a NPDN training workshop for plant diseases and invasive species identification and procedures was held.

Results

Eighty-eight percent of participants passed EPA licensing tests, which required the ability to identify plant diseases, following PSEP/PAT training workshops for: Turf and Ornamentals (#4); Industrial, Structural and Health related Pest Control (#5); and Commercial and Private - Agricultural Plants (8a). Also, 86% of 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
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
212	Pathogens and Nematodes Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

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
2007	85	95

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

PSEP/PAT training workshops were held for: Turf and Ornamentals (#4); and Right of Way (#6). Also, a NPDN training workshop for weed pests and weed invasive species identification and procedures was held.

Results

Ninety-five percent of participants passed EPA licensing tests, which required the ability to identify weeds, following PSEP/PAT workshop trainings for: Turf and Ornamentals (#4); Industrial, Structural and Health related Pest Control (#5); and Commercial and Private - Agricultural Plants (8a). Also, 86% of participants passed the Western Plant Diagnostics Network (WPDN) training workshop for weed pests and weed invasive species. These participants received a 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
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems
215	Biological Control of Pests Affecting Plants
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
2007	85	87

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

Two PSEP/PAT Basic Core training workshop was held this reporting year. Training in pesticides and their application were included in the workshop.

Results

Eighty-seven percent of participants passed a test and received EPA Basic Training Identification Cards following the PSEP/PAT training workshops.

4. Associated Knowledge Areas

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

213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

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
2007	60	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. 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

Two PSEP/PAT Basic Core training workshop were held this reporting year. Training in the indiscriminate use of chemical pesticides was included in the training workshop.

Results

Eighty-eight percent of participants undergoing recertification for the PSEP/PAT Basic Core training workshop reported that they had 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
215	Biological Control of Pests Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems

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
2007	60	85

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

Two PSEP/PAT Basic Core training workshops were held this reporting year. Training in IPM practices was included in the workshop.

Results

Eighty-five percent of participants undergoing recertification for the PSEP/PAT Basic Core training workshop reported that they had adopted IPM practices since the previous workshop.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
102	Soil, Plant, Water, Nutrient Relationships
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests 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 #8

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 Sourc	10%			
806	Youth Development	15%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.4	0.0	0.0	0.0
Actual	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
79120	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
54237	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
10849	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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 has been established.Other activities for this year included workshops to train local and regional producers at the facility, applied research, field experiments, participatory demonstrations at the facility and on farmers' farms, field tours for students, 4-H club members and military dependents (youth).Animal displays and exhibits were held during school fairs.

2. Brief description of the target audience

Primary local clients included 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 possessed limited resources and were in desperate need of education and technical support programs.

Second target groups were the island's youth particularly the public schools children, youth at risk and military kids. Life skills program by 4-H that relates to animal care and management were conducted at the demonstration site and animals were displayed at various schools during celebration of "Chamorro Month" and fairs. The 4-H military Kids program utilized the demonstration farm for hands-on learning on animal care and integration with gardening.

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

A fourth audience was University agricultural students. The demonstration farm was 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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	75	200	200	500
2007	70	150	150	600

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

Patent Applications Submitted

Year	Target
Plan:	8
2007 :	0

Patents listed

Please note: There was an inadvertent error in the target number for patents in 2007 and 2008. Correct number for this standard extension output is 0.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- # of workshops

Year	Target	Actual
2007	3	3

Output #2

Output Measure

- # of extension publications

Year	Target	Actual
2007	1	3

Output #3

Output Measure

- # of field trips

Year	Target	Actual
2007	4	4

Output #4

Output Measure

- # of applied research conducted in demonstration site

Year	Target	Actual
2007	2	1

Output #5

Output Measure

- # of visitors

Year	Target	Actual
2007	100	120

Output #6

Output Measure

- # of one to one contacts

Year	Target	Actual
2007	100	130

Output #7

Output Measure

- # of request for animal displays

Year	Target	Actual
2007	4	3

Output #8

Output Measure

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

Year	Target	Actual
2007	3	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
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
2007	40	50

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 extension publications were distributed to visitors.

Results

Through demonstration surveys, fifty 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
307	Animal Management Systems
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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	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.

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.

Results

Two farmers have adopted innovative practices from our demonstrations. One farmer has used a junked van instead of using the container van (from demonstration site)for poultry housing to raise his layers. Another farmer used bamboo instead of wood to build his chicken tractor. Five farmers applied for the mini-grants.

4. Associated Knowledge Areas

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

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	25	20

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 has been 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

Twenty 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.

4. Associated Knowledge Areas

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

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	30	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

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
2007	4	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Unmet outcome #4. Imported commercial feeds are costly and shipments to Guam are irregular. A particular animal ration can be out of stocks at the feed stores for 2-3 weeks. Production in the farm is greatly affected.The construction of a deep-litter pig facility was delayed. There was no demonstration of feeding local feedstuff.

Unmet outcome #5. Small-scale swine and poultry farms constitute the major portion of the island's agriculture industry. Their basic farm resources are very limited especially in the areas of replacement stocks and husbandry knowledge and skills. A demonstration facility for producers to observe different techniques of production was established. Workshops are being conducted on site. Limited volume of day-old chicks has been produced for replacements.This outcome is in the initial phase of this program; the outcome will be determined in the later stages of this plan.

Please note: An erroneous target number for patents was entered in the 2007 plan of work.No patents are anticipated during the life of this planned program.

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 #9

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	5%			
216	Integrated Pest Management Systems	5%			
403	Waste Disposal, Recycling, and Reuse	15%			
605	Natural Resource and Environmental Economics	15%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	0.0	0.0
Actual	1.0	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
55248	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
24503	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
6871	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Efforts were initiated to develop an appropriate curriculum for elementary, middle and high school age groups. These materials were piloted in both youth and adult contexts through training Americorps volunteers and trainers of one NGO (Sanctuary Inc, a home for at-risk youth).Seven Sanctuary, Inc. trainerscompeted a 60- hour sequence training in Organic and Sustainable agriculture with a heavy focus on soil and water conservation in an urban gardening context.These trainings increased capacity in this area.The Sanctuary Inc. programconducted 2 cycles of this 60 hour youth curriculum with approximately 18 youth in each cycle.Additionally, quarterly workshops were held for the general public using some of these materials in conjunction with two other planned programs.A series of outreach publications on the demonstrated conservation and other environment saving practices was developed.A mini grant was awarded to an NGO (Guma Mami a home for the elderly) to demonstrate fruit trees planted as windbreaks, CES facilitated this activity through the 4H program.More than 10 planning meetings were held with the Guam Department of Agriculture and Sanctuary, Inc (a home for at-risk youth) to identify priorities for curriculum content, sequence and for future funding plans.Funded grants are a planned output of this planned program.

2. Brief description of the target audience

School aged children in all grades are the target of this program.In 2007 the primary youth work focused on teens and young adults through an organic and sustainable agriculture component. Three different elementary and middle school groups visited our demonstrations.A second major target audience was the trainers of youth, seven Sanctuary Inc. youth workers gained expertise to leverage this effort in future years by using these materials to train 3-4 cycles of youth and young adults each year, with minimum future support from Extension.The local 4H staff regularly uses portions of this curriculum in their middle school agriculture and gardening workshops.Others will receive information through major island fairs or events or through newsletters.

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
2007	150	1000	14	900

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	3	0	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of extension articles

Year	Target	Actual
2007	4	3

Output #2

Output Measure

- Number of workshops

Year	Target	Actual
2007	2	26

Output #3

Output Measure

- Number of brochures

Year	Target	Actual
2007	2	1

Output #4

Output Measure

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

Year	Target	Actual
2007	2	19

Output #5

Output Measure

- Number of one to one intervention

Year	Target	Actual
2007	5	6

Output #6

Output Measure

- Number of popular articles

Year	Target	Actual
2007	1	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
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
2007	50	53

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Soil and water conservation, organic agriculture and sustainable agriculture all impact Guam's limited soil and water resources. Soils are shallow and low in organic matter any erosion from human activities can have long term impacts on fertility. Guam's water lens is the sole source of drinking water, pollution from pesticides and loss of water through runoff will have detrimental and long-term implications to the health and safety of our residents.

What has been done

Demonstration sites were establish show conservation practices. Five 12-hour training modules on sustainable and organic agriculture was developed, used initially for youth then for adults. Train the trainer workshops were held with agriculture professionals at the Guam Department of Agriculture. Curriculum has been modified into seven 4-hour workshops for adults.

Results

Fifty three participants increased awareness and knowledge of environmental issues and best soil and water conservation practices. Two agencies have replicated the conservation training models and are now delivering trainings to their clients.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
133	Pollution Prevention and Mitigation

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
2007	10	5

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 conservation practices. Training their Agriculture Development staff and supporting their development of demonstrations provides a body of knowledgeable human resources, teachers and the public can draw on, as well, the demonstrations they offer solid examples using sites they can visit.

What has been done

Guam Department of Agriculture ADS staff have actively worked with the Sanctuary, Inc. 'Youth Organic Agriculture' training program and provided a demonstration site (Mangilao Organic Demonstration farm) for youth to work on.

Results

Thirty six at-risk teens and young adults were able to work side by side with 5 local government agriculture professionals in an organic demonstration farm using a common curriculum.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
111	Conservation and Efficient Use of Water
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
216	Integrated Pest Management Systems
605	Natural Resource and Environmental Economics

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Conserving soil and water are critical to our island's closed ecosystem. Practices adopted by youth to address this issues will have lifelong impact. Research has shown that through environment camps and workshops youth develop a sense of belonging and independence, become civically engaged to act as a responsible positive influence in their communities.

What has been done

Educational curriculum was developed. 4-H field agents piloted modules and facilitated school tree projects for windbreaks at Guam schools.

Results

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
216	Integrated Pest Management Systems
133	Pollution Prevention and Mitigation
104	Protect Soil from Harmful Effects of Natural Elements

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife
104	Protect Soil from Harmful Effects of Natural Elements
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
- Appropriations changes
- Competing Public priorities
- Other (Faculty retirement - loss of expertise)

Brief Explanation

Unmet outcomes #3 and #5. The retirement of one key faculty in this program has had a tremendous impact. The loss of faculty expertise, established networks with contractors and experience in working with youth at Guam's schools has resulted in a great reduction in activities which affected our ability to meet two outcomes. This program is now being reassessed; changes will be reflected in plan of work updates and annual reports.

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)

Evaluation Results

Key Items of Evaluation