



AREERA POW REPORT

Agriculture Research, Extension and Education Reform Act of 1998

**Annual Report of Accomplishments and Results
FY 2002-2003**

**Northern Marianas College
Cooperative Research, Extension, and Education Service (NMC-CREES)
Commonwealth of the Northern Mariana Islands (CNMI), USA**

Report: FY 2002-2003 AREERA Report for the Northern Mariana Islands. Submitted by the Northern Marianas College Cooperative Research, Extension, and Education Service (NMC-CREES). This report represents the combined Extension and Research programs of Northern Marianas College as presented in the AREERA plan of work submitted in 1999 and subsequently revised in 2000.

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Introduction

The Northern Marianas College-Cooperative Research, Extension and Education Service, (NMC-CREES) provides outreach education and conducts research through its two programs of Agriculture Research & Extension (ARE) and Family & Consumer Sciences (FCS). With continuous interaction, collaboration and a unified direction, both programs are dedicated to helping improve economic well-being, living conditions and overall quality of life within the Commonwealth of the Northern Mariana Islands (CNMI). Our key stakeholders include: farmers, families, youths, individuals, government agencies, and various ethnic communities.

The CNMI is a chain of 14 islands, north of Guam in the Western Pacific. However, Saipan, Tinian and Rota are the main islands in the CNMI. The total land area of the three islands is approximately 118 square miles. The total CNMI population is about 60,000 with an indigenous population of 18,000, consisting of Chamorros and Carolinians. In addition, 86% of the total population speaks a language other than English. The diversity of cultures and languages creates numerous challenges for NMC-CREES. However, our programs are dedicated to serving the needs of our stakeholders

In relation to other land grant institutions, NMC-CREES is small in size, with fewer than forty employees distributed amongst the three major islands. To resolve the shortage of manpower, NMC-CREES relies on key collaborations and partnerships with government agencies, non-profit organizations and other entities throughout the CNMI and the region. Our collaboration enables us to promote our educational programs, extension services and research projects. In exchange, NMC-CREES provides collaborators with the knowledge and expertise to aid their respective organizations or agencies.

Extension services and research projects are the result of the growing needs and challenges that the CNMI community faces. These programs are also in line with the missions of the Cooperative Research, Extension and Education Service and the Northern Marianas College.

PROGRAMS

NMC-CREES programs from Agriculture Research & Extension (ARE) and Family & Consumer Sciences (FCS) include:

Programs under ARE:

- Aquaculture Development
- Crop Improvement
- Plant Protection
- Soil and Water Management
- Communications
- Soil and Water Quality Program

Programs under FCS:

- Food Safety and Quality
- Expanded Food and Nutrition Education Program (EFNEP)
- Nutrition, Diet and Health
- Community Resource Development
- Family Development and Resource Management
 - Parenting program
 - Limited Resource Sewing Program
- 4H Youth Development
 - Leadership and Volunteer Development

RESEARCH & EXTENSION INTEGRATION

NMC-CREES integrated Research and Extension activities to deliver better information and resources that address our stakeholders' needs. Furthermore, integration of both components has encouraged multi-discipline and multi-level of educational backgrounds to cross train thus promoting efficiency and better communication among faculty, scientists, extension agents and support staff. In addition to the integration of research and extension, programs under ARE and FCS have also integrated within each Goal to ensure effective and efficient delivery of programs and activities ensuring compliance with our Plan of Work.

A. FY 2003 ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

Goal 1: Competitive in the Global Economy

OVERVIEW

Enhancing agriculture in the CNMI has always been and remains one of the primary objectives of NMC-CREES. Many localized problems have been identified and need to be solved by ARE to meet this objective. Among them are problems with too much water during the rainy season, low pressure & poor quality irrigation water, typhoons, high trade winds, soil erosion, inconsistent supply of fresh vegetables, saturated markets of specific produce, lack of farming supplies, weeds, pests, diseases and others. Despite these many problems, the outlook for agriculture in the CNMI still remains bright.

NMC-CREES collaborated with other agencies in delivering programs and services to our stakeholders. Also, NMC-CREES continued to develop niche markets and value added agricultural products in which the CNMI has a competitive advantage in competing with the global economy. Furthermore, NMC-CREES, ARE continues to provide technical assistance to ranchers & farmers in the areas of crop production, marketing, plant protection, irrigation and weed control to name a few.

A. ACTIVITIES

Numerous workshops and demonstrations were conducted targeting the needs of commercial farmers, backyard farmers and food processors. All of these activities were in compliance with the NMC-CREES 5 year Plan of Work.

Workshops were conducted throughout the CNMI in food processing & handling. Clients learned how to reduce spoilage and increase the shelf life of their products resulting in higher profits.

Demonstrations included field preparation using a chisel plow, disc, hillers, and an on farm corn varietal trial in which two varieties of corn were found to be rust resistant. Other significant activities included the annual Tilapia Cook Off Festival on Saipan and the introduction of hybrid coffee cultivars (Hibrido de Timor and Limani) on Rota. These coffee cultivars are robusta X Arabica hybrids that produce arabica beans in the lowland, humid tropics.

B. HIGHLIGHTS

About 4,000 individuals were assisted by NMC-CREES through workshops, training sessions, on-farm demonstrations, client visits, and publications. These activities were all successfully accomplished with the collaboration of approximately 20 local agencies and organizations.

C. IMPACT

As a result of NMC-CREES efforts:

- Niche markets with value added products are being processed locally for export to neighboring islands and to the U.S. mainland.
- Development of a coffee industry has begun with the introduction of hybrid coffee varieties that are suitable to the CNMI's climate.
- The Tilapia Cook-Off has generated more aquaculture farms in the CNMI and has increased tourism.
- Innovative farming techniques have been developed which increase and help stabilize the production of vegetables in the CNMI.
- Variety trials were conducted identifying suitable varieties of fruits and vegetables for the CNMI

D. ASSESSMENT

Due to a severe financial crisis at Northern Marianas College experienced during last year, we were unable to hire some of the vacated positions. However, we have begun searching for new faculty and staff to fill vacant positions. Furthermore, between October 2002 and December 2002, two (2) typhoons (Typhoon Chata'an and Super Typhoon Pongsona) destroyed portions of our facilities as well as on-going farming activities, particularly on the islands of Rota and Tinian.

Despite these difficulties, NMC-CREES continued to address the relevant key themes contained in Goal 1 and remained in compliance with the NMC-CREES 5 year plan of work.

E. FUNDING AND FTE

FTE's: 8	PROGRAM COSTS: \$365,378
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Key Theme – Adding Value to New and Old Agricultural Products

- a. The Rota agricultural research and extension staff have been involved in developing and enhancing crop production in traditional crops such as Noni (*Morinda citrifolia*) and Beauty Leaf or Alexandrian Laurel (*Calophyllum inophyllum*). Significant numbers of plants have been propagated in the nursery and distributed to community members.
- b. At least 6 farmers on Rota are presently cultivating these plant species with the intention of processing for both local and offshore niche markets.
- c. Source of Funding: Smith-Lever, Hatch
- d. Scope of Impact: State Specific

Key Theme – Animal Production Improvements

- a. WSARE Research & Education project of University of Guam was able to allot two participants for Tinian. They have used 30% coconuts/papaya/banana 30% pig slops and 30% commercial feeds for the entire project (4 months). The main objective is to minimize feed expenses by replacing natural resources available to farmers. The final results showed that use of local feedstuff when properly given may substitute part of the commercial feeds. Brochures and trainings were done. In-farm discussions were also done to influence the farmers on this project. On-going projects like the USGS/WERI and US EPA on Animal Waste management are usually incorporated with the use of local feedstuff.
- b. With the inclusion of the use of local feedstuff to new and on-going projects, we were bale to dictate and obliged the farmers. They themselves practice this and agreeable that they save money compared before.
- c. Source of Funding: WSARE, Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Innovative Farming Techniques

- a. The NMC-CREES Crop Improvement program has been promoting the use of the environmentally friendly herbicide Roundup (glyphosate) to control weeds and Banana Bunchy Top Virus (BBT). Extension agents conducted workshops and demonstration exercises on proper and effective spraying techniques.
- b. The mayor of Rota has adopted the use of Roundup to control weeds in all public works areas as opposed to using brush cutters. Seven farmers on Rota prepared fields in the Fall of 2003 using conservation tillage techniques which included the use of Roundup. Five farmers on Saipan are using Roundup to help control BBT.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Innovative Farming Techniques

- a. A study on wet season production of tomatoes using screens to protect flowers from tropical rainstorms.
- b. Two farmers have used modified versions of our technique to grow, harvest and sell tomatoes in the wet season. How did you get this result? Did you have workshop? Two out of many farmers?
- c. Source of Funding: Hatch
- d. Scope of Impact: State Specific

Key Theme – Agricultural Competitiveness

- a. Numerous plants and planting materials (e.g. seeds, seedlings) have been produced and distributed to farmers on Rota, Saipan and Tinian in order to increase their agriculture competitiveness. Increasing the agricultural competitiveness of farmers on Rota and the CNMI has been a major focus within the crop improvement program. Variety screening of selected vegetable species continues to be conducted through on-farm trials, which aim to select and recommend the most appropriate and adapted varieties for local production, processing, export, and local consumption. Improved varieties provide quality fruits and vegetables, which are more competitive on both the local and export markets. In 2003 several varieties of Tomato, Bell Pepper and Cucumber were screened from on-farm research. Furthermore, a demonstration conducted by Saipan extension personnel indicates that certain bulbing onions can grow and form bulbs in the CNMI. This justifies further research into this area. Rust resistant varieties of corn have been identified and are part of an on-going variety trial on Saipan and Rota. Two on-farm field trials were conducted on Saipan using two different varieties of Rust resistant corn (Hawaii # 9 & #10). Both were considered favorable to farmers. Collaborated with the Department of Commerce on the development product standards for fruits, vegetables and root crops intended for export.
- b. Five commercial farmers have participated in vegetable variety trials and are presently using those, which performed best under climatic conditions on Rota. Two varieties of corn have been found to resist a Rust problem found in Saipan.
- c. Source of Funding: Smith-Lever, Local
- d. Scope of Impact: State Specific

Key Theme – Agricultural Profitability

- a. In general all horticultural programs in the CNMI are focused toward enhancing agricultural profitability. Specific programs in vegetable, fruit tree, root crop, banana, coffee, and betel nut palm, have crop improvement and profitability in mind and are already in place with a significant client base within the Rota, Tinian and Saipan community.
- b. About 30% of the farmer/clients on Rota, Tinian and Saipan have increased their productivity and profitability through improved IPM and production practices reducing input costs and enhancing production outputs.
- c. Source of Funding: Smith-Lever, Local
- d. Scope of Impact: State Specific

Key Theme – Invasive Species

- a. Literally all of the horticultural pests and diseases in the CNMI are introduced and invasive species. NMC-CREES staffs monitor a number of these species at trap stations throughout Rota, Tinian and Saipan. Initiated investigations into possible means of controlling invasive slug species present on Rota Island. CNMI wide IPM suppression program for both melon fly and sweet potato weevil has been shown much promise. Some farms have indicated crop losses being reduced by as much as 70%.
- b. The general public on Rota is better aware of the threat of the Scarlet Gourd (and other invasive species) to the natural habitat and is more willing to assist in the control and eradication efforts with NMC-CREES and DLNR.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Plant Health

- a. As part of regular service to farmers NMC-CREES Agriculture Research and Extension personnel on all three islands have advised farmers on crop pests and disease status (diagnostics) and provided possible means of control. Provided free disease resistant plants to the public using sterilized media including citrus, coffee, tomato, eggplant, corn, hot peppers and others. NMC NMC-CREES conducted a Private Pesticides Applicators workshop in which 9 out of 39 clients passed and are qualified to purchase restricted use pesticides.
- b. Vegetable growers in the CNMI are better informed on plant pests and diseases through a sound extension effort by NMC-CREES. Furthermore, at least 14 have followed our recommendations to control pest & disease problems and at least 50 clients were given resistant plants mentioned above.
- c. Source of Funding: Smith-Lever, Hatch
- d. Scope of Impact: State Specific

Key Theme – Urban Gardening

- a. Various demonstrations and small workshops on container gardening have been provided to schools and members of the community. Targeted participants have been demonstrated in methods used in the preparation of soil and containers for the appropriate food crops and herbs, and have been illustrated the advantages of container gardening as opposed to traditional field production.

- b. Over 100 students/clients have been trained in methods of container gardening that would be suited for personal usage at their homes.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Goal 2: A Safe and Secure Food and Fiber System

OVERVIEW

During FY 2003, the Department of Public Health reported an increase in the number of foodborne illnesses due to unsanitary food handling practices. Due to the lack of food safety education among consumers, many cases foodborne illnesses go unreported. Aside from home food safety concerns, restaurants and other food establishments continue to practice unsafe food handling. The only training food handlers have access to is conducted by the Bureau of Environmental Health. However, training is limited to basic food handling techniques with no emphasis on the HACCP procedure.

In addition to food safety concerns, the availability of fresh produce continues to be problematic. For a number of years, farmers had difficulty preserving the quality of fresh produce to extend its availability in the off-season. Existing preservation techniques failed to prolong the freshness of produce resulting in significant food wastage. In order to counteract this issue, new food preservation techniques need to be disseminated to farmers.

Moreover, access to fresh fruits and vegetables can be limited in the CNMI. Although local produce is available for consumers, it is more expensive than imported produce. As a result, consumers tend to rely on imported goods for economic reasons. Unfortunately, imported produce may not be available due to the inconsistencies in shipment. Thus, there is a need to promote backyard gardening.

A. ACTIVITIES

In the past year, FCS and Agriculture extension agents continued to conduct series of food processing and food safety workshops to help reduce food borne illness and improve the quality of foods. Participants included various members of the community such as homemakers, school-aged children, farmers, and food and retail establishment employees to name a few.

In an effort to promote food security, extension staff conducted workshops with youth focused on backyard/container gardening. In addition, CREES assisted with the negotiation process between the Rota farmers and with neighboring island vendors/markets

Lastly, with the assistance of internal and external partners (including farmers and other stakeholders), research on methods to prolong shelf life of agricultural produce as well as processing and preserving techniques were conducted.

B. HIGHLIGHTS

Through collaborations with various government agencies such as the Nutrition Assistance Program (NAP), the Public School System, the Department of Public Health, and the Department of Lands and Natural Resources, FCS and Agriculture Research and Extension has reached over 3000 families, individuals and youth throughout the CNMI in the last year. More than 387 individuals were reached during the food processing and

food safety workshops. CREES continued to offer ServSafe® certification to food protection managers to ensure that cases of foodborne illnesses are reduced. CREES extended its services by providing the certification at employee or company worksites.

Researchers continue to focus on processing and preserving excess and/or damaged produce in order to prevent food wastage. Methods being tested include the use of ethylene gas control system, vacuum pack technology, and edible wax.

C. IMPACT

Evaluation results show that NMC-CREES programs are appropriate for their clientele and program needs. Participants who completed NMC-CREES programs were taught skills to provide a safe and secure food system. They have more knowledge in the areas of food safety and quality, pesticide application, and container gardening of high nutrient-density crops.

Eighty five (85%) of participants who attended the Food Safety in the Childcare Facility training sessions obtained NMC certificates indicating that they have the knowledge to prevent foodborne illness in the childcare facility. In addition, the Head Start Program, the largest child care facility in the CNMI, adopted a Standard Operating Procedure for safe food handling.

Furthermore, as a result of the Food Processing workshops, several farmers are now capable of processing their left over and low quality produce to prevent wastage. All participants have increased the shelf-life of processed foods by at least eighty percent (80%) while some farmers improved shelf-life from 30 days to 12 months.

D. ASSESSMENT

All Family and Consumer Science and Agriculture Research and Extension activities are in line with the NMC-CREES Plan of Work. There were some changes that needed to be made to adapt to the changing needs of the community.

E. FUNDING AND FTE

FTE's: 5.25	PROGRAM COSTS: \$373,646
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Key Theme – Food Handling

- a. Conducted a series of workshops in the CNMI focused on post harvest biology, sanitation and personal hygiene, food safety, food-borne illness, food processing and food science. 387 participants attended the workshops consisting of Food Service Monitors, and individuals currently processing foods. About 60% of participants were high school and college students.
- b. Based on post-workshop evaluations, more than 85% have increased their awareness, skills, and knowledge. About 50% of the new participants have

established food processing operations. In addition, the Saipan Food Processing Association was established. Farmers have lessened unnecessary food spoilage and wastage after harvesting by 20%.

- c. Source of Funding: Smith-Lever, USDA National Integrated Food Safety Initiative
- d. Scope of Work: State Specific

Key Theme – Food Quality

- a. Extension agents conducted training on proper food handling to improve food quality for 12 clients from the islands of Rota and Tinian. These individuals were continuously experiencing shortened shelf-life of processed foods.
- b. All clients reported an increase in shelf-life of at least 80% and others reported an increase in shelf-life from 30 days to 12 months.
- c. Source of Funding: Smith-Lever, USDA National Integrated Food Safety Initiative
- d. Scope of Work: State Specific

Key Theme – Food Quality

- a. By focusing on reduction of food wastage and prevention from spoilage workshops, seminars, one-to one client visits, and spot checking were conducted to teach farmers and processors on how to extend the shelf life of fresh commodities using the concepts of preservation technology, and post harvest biology. This is conducted using controlled and modified atmosphere approach.
- b. A pilot research project conducted and able to extend the life of fresh betel nuts to 21 days, cucumber to 8 days, long beans to 11 days and taro and cassava to more than 35 days.
- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Key Theme – Food Security

- a. In relation to food security, the Rota Advisory Council together with community leaders have requested for more efforts on developing and establishing trade relationship with Guam, Tinian, and Saipan.

- b. With direct involvement on market identification, trade negotiation and quality control, it is estimated at roughly 8,000 – 10,000 lbs of agricultural commodities are being traded weekly between Guam and CNMI . Those are green banana, hot pepper paste, papaya, taro, sweet potato, yam and different varieties of vegetables.
- c. Source of Funding: Smith-Lever, Local
- d. Scope of Work: State Specific

Key Theme – Food Safety

- a. With the growing concerns on poor sanitation at food processing facilities, and the high reliance on imported foods, efforts were made to ensure that all food handlers have participated in NMC-CREES workshops on food safety. Workshops, one-to-one practical demonstrations, group discussions and field-visits were conducted to train and correct mistakes that may have lead to food safety disaster. The emphasis was basically focused on the safety of the food for consumption and prevention from pests such as house flies, cockroaches, and rats.
- b. 80% of participants and a great number of adult population have entertained precaution on making sure that foods are safe, clean, fresh, and fit for human consumption. More consumers and processors are now aware of the errors in food handling such as failure to properly cool food, failure to thoroughly heat or cook, poor personal hygiene, cross contamination of cooked foods with raw ones, food allowed to remain at bacteria incubation temperature and more.
- c. Source of Funding: Smith-Lever, USDA National Integrated Food Safety Initiative
- d. Scope of Work: State Specific

Key Theme -- Food Safety

- a. During Food Safety Education Month, extension agents conducted hand washing demonstrations to children ages 4-7 years of age at the Public School. The goal was to show the children the proper way to wash hands in order to reduce food borne illness.
- b. The children were able to demonstrate proper hand washing techniques after the lesson. Furthermore, evaluations showed that most students could identify safe and unsafe handling of foods.
- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Key Theme – Foodborne Illness

- a. Conducted workshops in the CNMI on the risks and danger of food borne illness and the primary causes of these organisms to develop on different kinds of foods. In addition, there were also presentations during school programs, one-on-one hands-on discussions with food handlers and food processors, and a spot checks of the magnitude of the problem on Rota. Additional research conducted on culturing of bacteria from consuming of raw meat and deer liver kelaguen (raw meat chemically cooked in lemon juice).
- b. After culturing of deer liver meat using sterilized media , a colony of bacteria was developed. NMC-CREES does not have the proper facility to conduct bacteria analysis, however, the digital images of the bacteria and mold developed were printed and distributed through out CNMI. It was astonishing to see a large impact in Rota where people have refused to eat any more raw deer liver. A parasitic fluke was also identified but not yet scientifically analyzed.
- c. Source of Funding: Smith-Lever, USDA National Integrated Food Safety Initiative
- d. Scope of Work: State Specific

Key Theme – HACCP

- a. Developed a practical training module including Standard Operating Procedures (SOP) for Rota Food Processing Center, Sinapalo Safeway Processing Center and Rosemary Kitchen emphasizing HACCP principles and the importance of knowing the critical control points during food processing ; Periodic assessment and system auditing have proven that these facilities met the sanitary requirements of CNMI Public Health.
- b. The 3 processing facilities were able to meet sanitation standards and regulatory requirements. Facilities have proven suitable for processing of food products.
- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Key Theme – Food Handling

- a. In recent years, the CNMI has had an increase in food borne illness outbreaks. The only training food handlers have access to is conducted by the Bureau of Environmental Health. Unfortunately, the training offered is limited to basic food handling techniques with now emphasis on the HACCP procedure. Consequently, extension agents offered a train the trainer course to teach employees of the food service industry to conduct certification trainings at their

worksite. The course offered was the ServSafe® Food Protection Manager's Certification.

- b. In 18-hour course was held during the summer and twelve people participated. Since it was the first workshop of its kind, participation was limited. Over half of the participants were from the Department of Public Health. The remaining participants came from the Cooperative Extension Service, the Department of Commerce, and a private educational
- c. Source of Funding: USDA National Integrated Food Safety Initiative
- d. Scope of Work: State Specific

Key Theme – Food Accessibility

- a. CREES focused on teaching 4-H youth the importance of backyard gardening to encourage self-reliance. Basic planting techniques were demonstrated as well as using affordable low cost systems. Furthermore, agents encouraged recycling by using discarded plastic water bottles or aluminum/metal cans as planting containers.
- b. As a result of our efforts, we have noticed a significant increase in families beginning a garden of their own. Participants of the Backyard Garden project are enjoying the accessibility and availability of fresh produce, thus resulting in an increase in fruit and vegetable consumption.
- c. Source of Funding: Hatch, Smith-Lever
- d. Scope of Work: State Specific

Goal 3: A Healthy, Well-Nourished Population

OVERVIEW

The Cooperative Research, Extension and Education Service (NMC-CREES) through its Family and Consumer Science and the Agriculture Research and Extension programs has helped CNMI youth and families with young children improve their health and well being. Our programs deliver research-based information and education in the home, classroom, and community group settings to help participants make positive lifestyle and health decisions. Nurturing families, healthy children, and savings in food and healthcare costs are the results of the educational programs.

Nutrition and Health

One of the leading causes of death among the indigenous population (Chamorro and Carolinian) is diabetes (predominantly Type II) and its complications. Nearly one in four have Type II Diabetes and another one in five is estimated to be unaware that they have Type II Diabetes (*source: Department of Public Health*). Thus, diabetes awareness education is imperative in order to address the increasing rates of Type II Diabetes Mellitus.

The CNMI population has become more obese over the years resulting in a steady increase of chronic disease rates. Evaluations of program participants' 24-hour recall indicate low consumption of fruits, vegetables and whole grain foods. In addition, the Department of Public Health has noticed an increase in young children with Type II Diabetes. Despite the efforts of the Public School System to enforce a strict nutrition policy banning high-fat and high-sugar snacks on campus, one in three children continue to be overweight or obese by BMI. There is a desperate need for nutrition education in the schools as well as training for teachers to integrate nutrition and physical activity in the classroom.

A. ACTIVITIES

In order to address the rise in obesity, especially among young children, extension agents went on a campaign to promote healthy food and lifestyle choices. Parents as well as children were the main audience. Activities focused on encouraging parents and children to take care of their health together. The Farm to Table Project, for instance, used a holistic approach and incorporated gardening, nutrition and family development concepts into one curriculum.

The nutrition and family development program staff collaborated to conduct the Family Enrichment workshops that involved the entire family. The goal was to encourage healthy relationships between parents and children while taking care of their health. These workshops occurred after working hours and held in all head start centers around the island. Many parents and children enjoyed the interactive presentations and cooking demonstrations.

The CNMI also celebrated Nutrition Month in March and with the help of collaborators a Sports Expo and Nutrition Challenge obstacle course were held. The purpose of the

Sports Expo was to showcase the different activities offered by various community groups. The Nutrition Challenge obstacle course tested students' nutrition knowledge as well as physical activity. Kids went through a course filled with nutrition games, races, and a food safety obstacle.

During the summer, nutrition program staff presented basic cooking skills to youth participating in the 4H Summer Day Camp. Youth were able to prepare healthy meals as well as learn to make healthier food choices.

In addition to working with parents and children, program staff conducted a variety of training for teachers. Since teachers spend most of the day with the children, they can promote nutrition and healthy eating throughout the day as part of the curriculum. Teachers were trained the basics of child nutrition and nutrition integration in the classroom.

We also trained the Public School System's food monitors in basic child nutrition. The food monitors ensure that food served to children is the right portion and is safe to eat (especially concerning Head Start children). Trainers educated the monitors the basics nutritional needs of children, appropriate ways of preparing foods for them well as proper portion sizes.

B. HIGHLIGHTS

Our programs, with the help of many internal and external collaborators, have assisted more than 3000 people throughout the CNMI. More than 460 program families were assisted by the Expanded Food Nutrition Education Program (EFNEP) alone. Our internal collaboration with agriculture and family development programs has enabled us to approach our clients holistically by bringing the family together.

The gardening activities have been one of our more successful projects resulting in an increase in vegetable consumption and physical activity. Parents and children tended their gardens together and children helped harvest the vegetables. We taught them to prepare healthy meals and found that children were eager to eat their vegetables.

Participants of our nutrition workshops and gardening activities have put into practice what they have learned. During follow-up client visits many of them are growing a garden and preparing healthy meals using their vegetables. Due to the success of the program, Head Start will be conducting similar workshops but include other agencies to provide more training to parents.

The Head Start program relies heavily on nutrition staff to conduct training for the teachers and aides. The success of previous training has helped establish NMC-CREES as one of the vital professional development resources for Head Start. Teachers and aides incorporate nutrition topics into their everyday curriculum. By the end of the next school year, we will be able to measure how effective the integration has been.

C. IMPACT

One of the most successful impacts has been the result of the Farm to Table Project. One particular participant, prior to the project, was a borderline diabetic. However, upon completion of the 6-week project, she has reduced her sugar intake and increased her physical activity. It has been nearly over a year since we last visited this person, but according to family sources, she is no longer borderline diabetic and continues to walk everyday for 30 minutes.

The nutrition education efforts have impacted our clients as well. Participants enrolled in the Food and Nutrition Education Program have learned to make informed decisions regarding food choices, meal planning, food preparation, and resource management. According to the EFNEP Evaluation/Reporting Software, 55% of participants exited the program demonstrating acceptable nutrition practices.

The success of our outreach would not be possible without the collaboration efforts between FCS and Agriculture Research and Extension and various external partners. Moreover, stakeholders increased their clientele numbers as a result of our collaborative efforts. Evaluation results from stakeholders show that NMC-CREES programs are appropriate for their clientele and program needs. Memorandums of Understanding secure the relationship and the collaborative efforts between NMC-CREES and its stakeholders.

D. ASSESSMENT

All Family and Consumer Science and Agriculture Research and Extension activities are in line with the FCS Plan of Work. There were some changes that needed to be made to adapt to the changing needs of the community. For instance, with the increasing rates of obesity and Type II Diabetes, all programs have redirected their focus to address this alarming concern. Furthermore, various activities in the Plan of Work had to be placed in a different year because of staff turnover.

E. FUNDING AND FTE

FTE's: 4	PROGRAM COSTS: \$440,896
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Key Theme – Human Nutrition

- a. The Farm to Table Project is a collaborative effort between NMC-CREES programs, the Department of Public Health, and the Ayuda Network. The goal is to promote self reliance on locally grown plants and animals, increase physical activity and the consumption of locally grown nutritious foods, and strengthen family relationships. Participants will develop skills that lead to positive change in behavior and attitude for an improved lifestyle.
- b. Prior to the implementation of the project, evaluations showed that participants had very little nutrition and gardening knowledge. They were also very

sedentary. Their diet consisted of mostly processed high fat and high calorie food with very little fruit and vegetable consumption. Upon completion of the project, however, knowledge increased by about 60% and sedentary participants are now exercising at least 3 times a week. Furthermore, exit diet recalls show an increase in fruit and vegetable consumption. Apparently, participants have been eating the vegetables they were taught to grow.

- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Key Theme – Human Nutrition

- a. Various activities emphasizing healthy food choices and the consumption of locally grown high-nutrient dense produce took place in order to promote chronic disease prevention and awareness among children of all ages. Free health and blood glucose screenings and diabetes awareness education presentations were conducted at public schools, PTA meetings, health fairs, and other community events. During Nutrition Month in March, public schools participated in a Nutrition Challenge that focused on nutrition knowledge and physical activity. In addition, school children and their families participated in backyard and/or container gardening activities.
- b. Over 500 young children participated in various activities throughout the year. According to post evaluations, 67% of youth now eat a variety of foods especially local nutrient dense produce. Furthermore, 76% increased their nutrition knowledge.
- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Key Theme – Human Nutrition

- a. The Expanded Food and Nutrition Education Program helps limited resource families with children eat a healthier diet and save money on food at the same time. Skills learned in the program help clients gain confidence in themselves and their abilities. Lessons are taught individually or in group settings.
- b. Evaluation results show that at entry into the program, 31% of clients demonstrated acceptable food resource management practices (such as comparing food prices, does not run out of food, plan meals, etc.) and 13% of clients demonstrated acceptable nutrition practices (such as making healthy food choices, reading the nutrition label, etc.). However, upon completion of the program, 69% demonstrated acceptable food resource management practices and 55% demonstrated acceptable nutrition practices. Note: According to one client, “I

actually learned that I can make my children eat some vegetables during a meal. [EFNEP] showed me so much ways to make cooking fun for both myself and my family. [I] was taught on budgeting and advanced menu preparation. I learned that if I plan ahead, I will be able to save a whole lot of money!”

- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Key Theme – Human Nutrition

- a. The 5-A-Day campaign was targeted to Head Start children and their families in order to promote the consumption of fruits and vegetables in the schools. The campaign focused on educating children and their families through interactive presentations and cooking demonstrations.
- b. A nutrition policy was established as a result of the positive response from parents. Children are only allowed to bring in low-fat and low-sugar snacks to school. Ninety five percent (95%) of children are bringing fruits and vegetables as snacks rather than cookies, chips and candies (which were popular choices prior to the campaign).
- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Key Theme – Medicinal Plants & Nutraceuticals

- a. Research conducted on medicinal properties and the processing method of Noni Fruits (*Morinda Citrifolia*) into Juice and capsules, and DAO’K nuts (*Callophyllum Inophyllum*) into essential oils for cosmetic and pharmaceutical purposes. Based on the research results, we were able to develop a processing method which involves fermentation of the Noni fruits to produce pure juice which is naturally high in Vitamins and minerals and has potency in medicinal properties. Research was also conducted on DAO’K Oil to obtain high quality pure oil that has anti bacterial and anti-inflammatory properties. The focus of the research is on method of cold press extracting of the oil and on what chemical interaction it performs that make the oil very unique especially during oxidation and mixing with the sunlight. The oil is produced in large quantity in Tahiti and Vanuatu. Its market price ranges from US\$18 –US\$38 per ounce. Workshops and client visitation were also conducted on CNMI. Interests expressed for the development of these two medicinal plants were incredible.
- b. Four (4) Noni Companies have been established on all 3 islands; Noni Juice has been properly processed, pasteurized, bottled and commercialized; A recognized lab has properly analyzed Noni Juice for Nutritional and Microbiological values;

trading and marketing of Juice products is on the increase; six (6) farmers on CNMI have grown more than 2000 trees of Callophyllum Inophyllum for commercial purpose. Successfully extracted the oil from the Callophyllum Inophyllum trees, filtered and analyzed; Two (2) businesses have already established and are now processing and selling the oil commercially. The Oil is very effective on treating of skin diseases, wounds, burns, insect bites, scars, and others.

- c. Source of Funding: Smith-Lever
- d. Scope of Work: State Specific

Goal 4: Greater Harmony Between Agriculture and the Environment

OVERVIEW

Protecting the environment has always been a high priority for NMC-CREES as a result of the invasion of harmful insects and weeds, poor animal and plant waste management practices, excessive use of commercial pesticides and fertilizers, and the general depletion of natural resources. Steps have been taken to protect the environment by educating extension agents, partner agencies, farmers, families and the community, about the options and practices that are available to protect and nurture our natural resources while simultaneously encouraging greater sustainable agricultural outputs.

A. ACTIVITIES

Research and extension agents conducted a number of workshops aimed at increasing agricultural production in the CNMI. These workshops were made available to farmers as well as the general public. During each workshop, the instructors demonstrated sustainable agriculture systems to include the use of animal wastes as a supplemental fertilizer and soil amendment, the proper use of pesticides and the proper use of biocides. Integrated pest management techniques were developed and adopted into the teaching regiment for each plant species included in the scope of the workshops.

In an effort to protect the livelihood of farmers in the CNMI, many steps were taken this year to ensure that invasive pest species were controlled. Many collaborative relationships have been initiated or strengthened due to the high level of activity and focus, which was aimed at promoting the use of Integrated Pest Management Systems to control agricultural and environmental pest species.

Due to the climactic and geographic characteristics of the CNMI (such as high rain fall, low Cat-ion exchange rate in the soils, high erosion and a sensitive groundwater system) much of this year's focus was to encourage farmers and community members alike to nurture our soil and water. Training opportunities were provided to encourage no-till or reduced-till farming, animal waste management, soil fertility and mulching/composting.

B. HIGHLIGHTS

The Integrated Pest Management team has been able to make numerous accomplishments this year in the way of suppressing pest species in the CNMI. Agents worked closely with farmers and other agencies to successfully increase sweet potato production/profits on farms using IPM techniques to control the sweet potato weevil species. The same type of success was made within the melon-fly suppression program. NMC-CREES agents along with USDA/APHIS have initiated a program to include the CNMI in an American Pacific Regional Survey of Slugs and Snails.

The Environmental Protection Agency (EPA), United States Geological Survey (USGS) and the Cooperative State Research, Extension and Education Service (CSREES) have joined in to fund a project to demonstrate and promote the use of the Dry Litter Waste

Management System for Hog Production. This highly sustainable system of animal waste management is aimed at reducing the use of water for hog production while utilizing animal waste and on-farm carbon materials to improve soil fertility and composition.

C. IMPACT

There has been a real increase in the number of farmers who are getting involved in NMC-CREES Programs and requesting the assistance of agents. Farmer collaborators and farmer clients have been reporting greater agricultural yields, reduced crop damage and greater profits as a result of their following the advice and guidelines given to them by our extension agents.

In addition, farmers are getting a better understanding of the benefits of applying sustainable agriculture techniques. Greater numbers of persons on the farm and at the home are composting and mulching to improve soil health and plant growth. This has resulted in the reduced use of water, reduced use of fertilizers and pesticides and greater profits.

With the establishment of monitoring stations on the three major islands, research and extension agents have been able to closely monitor pest activity. As a result, agents have been able to advise and assist farmers with the suppression of agricultural pest species.

D. ASSESSMENT

Due to a severe financial crisis at NMC-CREES we have been unable to hire needed research personnel. Furthermore, between October 2002 and December 2002, two (2) typhoons (Typhoon Chata'an and Super Typhoon Pongsona) destroyed our facilities as well as farming activities, particularly on the islands of Rota and Tinian.

Despite these difficulties, NMC-CREES continued to address the relevant key themes contained in Goal 4 and remain in compliance with the NMC-CREES 5 year plan of work. Furthermore, we have begun searching for new faculty and staff to fill vacant positions.

E. FUNDING AND FTE

FTE's: 5.75	PROGRAM COSTS: \$421,790
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Key Theme – Forest Crops

- a. CREES promoted and encouraged the production of Noni and Da'ok, and have conducted workshops on agricultural production and processing of Noni and Da'ok. Also, the Da'ok (*Calophyllum inophyllum L.*) has been recommended as a windbreak tree.
- b. Many farmers have planted and continue to plant an abundant amount of both Noni and Da'ok on their farms and have benefited from selling either the raw or

processed fruit. Farmers have also gone so far as to plant their whole properties with the Da'ok tree.

- c. Source of Federal Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Pesticide Application

- a. The CNMI PSEP conducted the pesticide Safety Private Applicators workshop July 29, 2003 to August 1, 2003. Presenters who facilitated this training were the Northern Marianas College CNMI PSEP team, the University of Guam GPSEP Coordinator, and the CNMI Department of Environmental Quality (DEQ). There were 39 individuals in this training who were interested in obtaining their private pesticide applicators category certification.
- b. From the 39 participants that attended the training, 10 individuals successfully obtained their restricted use pesticides certification.
- c. Source of Federal Funds: Hatch, Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Soil Quality

- a. Soils were sampled from Farms in Saipan, Tinian and Rota in the fall of 2003, and sent to a commercial lab in California. A workshop was given on Tinian to present some of the results from the tests and also to educate farmers on soil fertility and nutrient management. The soil analysis data and information has been shared with each individual landowner and nutrient and crop management recommendations will be made available through the CREES program based on these findings.
- b. Fields from seventy-three farmers and landowners were sampled, and NMC-CREES staff discussed the results with the clients. About two-thirds, nearly fifty farmers, said they were willing to follow the lab's recommendations if the specialty fertilizers could be purchased on island. These farmers understand that standard premixed fertilizer is not the best option to fertilize plants.
- c. Source of Federal Funds: Hatch, Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Yard Waste/Composting

- a. CREES designed and built a prototype green-waste shredding machine made from locally available materials, components and used machine parts.
- b. Building a green-waste shredder will save a farmer more than \$3,000. In the CNMI over 20 waste managers, machinery specialists, environmental agencies, golf courses and farms have learned of the prototype and are eager to acquire or gain access to one.
- c. Source of Funding: Smith-Lever, Hatch
- d. Scope of Impact: State Specific

Key Theme- Integrated Pest Management

- a. NMC-CREES Plant Protection Program continued to monitor the five permanent sites on each of the three islands of Saipan, Tinian and Rota. Each station now is equipped with an available rain gauge, several insect traps, lure and sex pheromone/attractant for several specified species or groups of insect as follows: Aphids (melon, bean and citrus) and whiteflies, Melon fly, Diamond Back moth, Corn/fruit earworm, Sweet potato weevil (*Cylas formicarius*), Oriental fruit fly (*Bactrocera dorsalis*) and Chafer/scarab beetles. Trap captures are monitored on a weekly basis, targeting three main species: Diamond Back Moth, Corn/fruit Earworm and Sweet Potato Weevil.
- b. The CNMI was devastated by Typhoon Chata'an in October 2002 and Super Typhoon Pongsona last December 2002. The Island of Rota was heavily affected and has had to reestablish the five long-term pest-monitoring stations. However, the database developed based on collected data from last year is providing useful information that helps address problems affecting farmer's capability to consistently produce quality crops. With our current program, farmers are able to reduce crop damages due to pest damage by as much as 70%.
- c. Source of Federal Funds: Hatch, Smith-Lever
- d. Scope of Impact: State Specific

Goal 5: Enhanced Economic Opportunity and Quality of Life

OVERVIEW

The CREES-Community Resource Development Program (CRD), Family Financial Management, Sewing Programs for Limited Resources Families, 4-H/Youth Development Programs, Parenting Programs and Farm Safety Programs strived to empower the people and communities in the Commonwealth of the Northern Mariana Islands, through research-based information and education, to address economic and social challenges facing our youth, families and communities. The above programs cater mainly to families and communities with limited resources by conducting workshops, training and series of lives skills lessons in a non-traditional out of the classroom approach. These programs continue to encourage participants to apply newly learned knowledge to improve their overall quality of life and seek economic opportunities.

A. ACTIVITIES

The Community Resource Development Program (CRD) conducted many mini-workshops and developed easy to read handouts on family financial management, youth money management, sewing for beginners and legal considerations facing older adults in the Commonwealth of the Northern Mariana Islands (CNMI). These materials were also distributed during CNMI annual events.

The Saipan Agricultural Fair Association, the Governor's Office of Women Affairs, Energy Program, Public School System, Aging Programs and some non-profit association continue to request for our easy to read handouts. The Ayuda Network, a non-profit organization printed over three hundred (300) copies of our educational materials using their program's funds as a gesture of their appreciation and effective external agency collaborations.

The programs' targeted clients are mainly tenants from the Mariana Islands Housing Program for low-income/zero-income families, the MIHA Section-8 recipients, the Advance Development Institution Program for adult students trying to obtain a high school diploma, the LIHEAP recipients, subsistence farmers and the CNMI youth in general.

B. HIGHLIGHTS

The CREES Program acquired a four bedroom housing unit from the CNMI government. The building is located where majority of the hard to reach low-income clients are residing. Since the building is within walking to majority of low-income clients, the participation and retention has increased dramatically.

Furthermore, before the building was turned over to NMC-CREES Program, the CNMI government did a complete renovation and at no cost to NMC-CREES Program.

Approximately 363 attended the Family Financial Management Mini-Workshop and were taught to develop a family budget plan, the importance of writing a shopping list and understand the many tips on smart shopping.

The Youth Money Management Mini-Workshop which was originally intended for an after school program ended up being conducted also during homeroom period after continued requests from some Jr. High School principals. The Youth Money Management covers practical skills and teaches youth how to save and spend money wisely.

The Sewing Classes for Beginners opens its door for the first time to the general public. This particular program was actually intended to cater to families with limited resources. As many as 116 students completed the required 10 sewing projects and graduated.

Mini-Workshops on Legal Consideration Facing Older Adults in the CNMI were conducted. Although this workshop is mainly intended for senior citizens, it now opened to the general public. The workshop covers Power of Attorney, Living Wills, Wills and Legal Medical Rights of Patients. As many as 300 participants attended the workshop. About 70% of the participants are senior citizens.

The 4-H Youth Development Program and Parenting Program conducted several workshops. The programs also developed lesson plans on effective communication between parents/adults and kids. The parents/adults were educated on how to improve their communications skills with their children through short presentation, role play, group discussions as well as with some positive physical activities. The programs also conducted workshops on self-esteem. Nearly all the youth/adults participants were able to distinguish between high and low self-esteem and what gives them high and low self-esteem.

The 4-H Youth Development and Parenting Programs in collaboration with the EFNEP Program, Agriculture/Horticulture Program, and the Small Business Development Center and co-sponsored a Summer Day Camp for youth ages 8-12. The 6 weeks summer campout offered educational presentations and hands-on activities on nutrition, basic gardening, virtues, physical activities and entrepreneurship and a Fun Day. This Summer Day Camp addresses the needs to keeps the youth off the street and pre-occupied them with not only educational activities, leadership skills, arts and crafts but also to be able to enjoy and have fun during their vacations.

The Saipan 4-H club members active participation and winning of monetary and many other prizes during the 2003 Saipan and Northern Islands Annual Agricultural Fair, captured the undivided attention of the Fairs spectators and as a results, 13 4-H active members were honored by the Saipan and Northern Islands Municipal Councils with a Commemorative Resolution.

The Saipan and Northern Islands Agricultural Fair Association donated \$1,000 from their funds for prizes for the youth division.

C. IMPACT

The Programs' new approach in opening some of the FCS programs to not only those families who are considered low-income but to the general public resulted in a significant increase in participants. Clients developed new skills that improved their quality of life and opened doors to economic opportunities. For example, participants in the Sewing Class for Beginners saved money while learning a new skill.

D. ASSESSMENT

The Parenting Program was operating without a coordinator however faculty and staff have worked together insuring that the program remained active. All FCS and ARE activities under Goal 5 are in line with the NMC-CREES Plan of Work.

E. FUNDING AND FTE

FTE's: 6	PROGRAM COSTS: \$461,900
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Key Theme – Community Development

- a. In an effort to improve accessibility and retention of clients with limited resources, NMC-CREES entered into an agreement with the Marianas Housing Authority to secure a 4 bedroom housing unit to conduct workshops and training.
- b. There are over 250 low-income households in the neighborhood who now have access to our programs. As a result of acquiring the housing unit, we anticipate at least 45% increase in enrollment from walk-in clients. Before the building was turned over to NMC-CREES Program, the CNMI government did a complete renovation at no cost to NMC-CREES Program.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Consumer Management

- a. Developed and distributed easy to read handouts family financial management, budgeting food stamps and youth money management. Developed materials were distributed during NMC-CREES workshops and during the many CNMI annual events.
- b. Three hundred sixty three (363) attended the Family Financial Management mini-workshops. 90% of the participants were food stamp recipients. Based on follow up of participants, 100% of the participants gained knowledge and 85% were able to develop a month long family budget plan. 100% learned the importance of writing a shopping list and understood the tips on Smart Shopping. After six months, a follow up was conducted showing that approximately 80% are continuing to apply the knowledge gained. Of the total food stamp recipients who

participated in the workshop, 90% gained knowledge on how to budget their food stamp to last a whole month. However, 60% are actually budgeting their food stamp to last a whole month.

- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Youth Development/4-H

- a. NMC-CREES conducted mini-workshops covering practical skills on how to save and spend money wisely.
- b. Workshop evaluations revealed that 100% of participants gained knowledge. All the participants were able to make piggy banks from plastic jars, cookie cans etc, and bring them home. Seventy five (75%) percent of the participants were able to save fifty (\$50.00) dollars and twenty five (25%) percent were able to save more than one hundred (\$100.00) dollars. The length of saving time is from four (4) to eight (8) months period before they broke open their piggy banks.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Consumer Management

- a. In the year 2003, the Sewing Classes for Beginners is opened to the general public. A total of one hundred thirty seven (137) students signed up for sewing classes, and only one hundred sixteen (116) students were able to complete the required ten (10) sewing projects.
- b. One hundred (100%) percent of them continue to apply the knowledge and skills that they learned. Furthermore, 80% purchased sewing machines to apply the skills they have learned. Since majority of them are grandparents, most of what they sewed were for their grand children. Although majority of the participants enrolled to learnin new skills, they appreciated the added benefit of saving money. The other twenty (20%) percent consisting of limited resource participants have also continued to apply the knowledge and skills that they have gained. In addition, they also sew for friends and relatives and charge a low fee for their services.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Aging

- a. Conducted mini-workshops at the Saipan aging center and social halls on Saipan. The mini-workshops cover Power of Attorney, Living Wills and Legal Medical Rights of Patients.
- b. Three (300) hundred adults attended a series of two-hour mini-workshops. Seventy (70%) percent were from the Aging Program Center and thirty (30%) percent were adult single parents. All the participants have claimed that the information is very important and they have also gained knowledge. Although all participants have gained knowledge, follow up survey revealed that 10% were applying the knowledge, particularly on power of attorney and living wills. Furthermore, 90% of the participants gained knowledge in medical rights and are more confident to ask for explanations from their doctors regarding drug prescriptions and treatments. 5% of the adult single parents have written wills. As a result of the workshop all adult single parents are exercising their rights in asking their doctors more questions with regards to their health, drug prescriptions and treatment.
- c. Source of Fund: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Parenting

- a. The 4-H Youth Development Program and Parenting Program conducted workshops focusing on communication between parents/adults and children, and self-esteem for young children. Workshops consisted of physical activities, group discussions and hand-out. A total 36 students attended the workshops.
- b. At the end of the workshops, 100% of the participants were more aware of the importance of positive communication and how it improves family ties. All of the students were able to understand and identify between high and low self-esteem.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Youth Development/4-H

- a. In collaboration with the EFNEP program, Agriculture/Horticulture program, Small Business Development Center and Parenting, 4H coordinated a Summer Day Camp for youths ages 8-12. The six-week camp offered educational presentations and hands-on activities on nutrition, basic gardening, virtues, physical activity, entrepreneurship (Mini Society Program), and Fun Day (swimming, field trips, movies, etc.). 36 participants signed up for the camp.

- b. Based on the evaluation, 100% of the students displayed cooperation, teamwork and support for the others. 100% of the participants learned about business management.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Youth Development/4-H

- a. After two years of inactive participation in the Saipan Agricultural Fair, 4-H participated this year. The Saipan Agriculture Fair Association (SAFA) committee welcomed the 4H program and encouraged the participation of the youths in the event. From this, the youth division was created with 13 participants signing up for the competition. SAFA devoted \$1000 from their fund to purchase prizes for the youth division.
- b. All 13 participants won prizes during the competition and were acknowledge by the Saipan and Northern Islands Municipal Council with a Commemorative Resolution. SAFA and 4-H youth program will continue to work together thereby strengthening collaboration.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

Key Theme – Farm Safety

- a. CREES took an aggressive approach in promoting farm safety among youth and farmers. Through collaborative work with 4-H, a series of workshops were conducted as well us other campaigns directed at youth of the CNMI. More than 150 youth participated in the workshops. Other projects include a demonstration site showing proper storage of pesticides and fertilizers as well as distribution of publications throughout the CNMI
- b. Because of the efforts in creating awareness in farm safety, farm accidents have decreased dramatically from 12 accidents two years ago to only 2 accidents last year.
- c. Source of Funding: Smith-Lever
- d. Scope of Impact: State Specific

B. STAKEHOLDER INPUT PROCESS

NMC-CREES continues to utilize periodic meetings with stakeholders to solicit advice and discuss ARE and FCS needs and priorities. Periodic meetings attended by NMC-CREES staff include: the monthly Tinian Soil and Water Conservation District; Saipan and Northern Islands Soil and Water Conservation; Luta (Rota) Soil and Water Conservation District; the CNMI Interagency Watershed Committee; the Head Start Health Advisory Council; the Rota Agricultural Advisory Council; Parent-Teacher Association and other school-based organizations; and the Women's Affairs Group. Other less regularly held meetings attended, which provide inputs from stakeholders on research and extension needs, include the General Farmers' Meetings, the Farmers' Association Meetings, the Sabalu Market Association and the Saipan Agriculture Fair Association quarterly meeting.

In addition to the meetings attended by CREES faculty and staff, CREES assisted in the establishment of an advisory council on Saipan and Tinian. Advisory council members include stakeholders within agriculture and family and consumer components.

C. PROGRAM REVIEW PROCESS

NMC-CREES continues to hold formal Merit/Peer reviews of each federally funded research and extension project proposal, prior to submission. All professional level staff members from NMC-CREES are encouraged to participate in Merit or Peer reviews. Stakeholders are encouraged to also participate in the reviews.

The review process is carried out in three steps: First, a draft of the proposal is e-mailed to all of the NMC-CREES staff and other participants for review, suggestions and comments, well before the peer review meeting. Secondly, the draft of the proposal is revised, based on the comments and suggestions received. Lastly, the revised proposal is submitted to the Director for final review before submittal.

During the review we assess:

- 1) The priority or importance of the proposed project
- 2) The review of literature
- 3) The completeness of the proposal
- 4) The relevance of the proposal
- 5) The quality and scientific value of the proposed research or extension activities and
- 6) The opportunities for cooperation with others.

The proposals are revised to incorporate the suggestions given and agreed upon during the merit/peer review meeting. The Director assures that the agreed upon suggestions are made. The proposal is then submitted to the President of the Northern Marianas College for concurrence. After the concurrence of the President is received, the proposal is then submitted to the appropriate funding agency.

CREES has scheduled for a formal Program Review that will be conducted by USDA some time in July 2004. This will ensure that our programs remain aligned with goals and objectives of USDA CSREES.