ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

OVERVIEW

This report covers the period from October 1, 1999 to September 30, 2000. During this period the Puerto Rico Agricultural Extension Service (PRAES) used a total of 233.43 FTE's.

During FY 1999-2000 multiple agreements and/or collaborative efforts were made throughout the island. Public entities, non-profit organizations, public and private universities in and outside Puerto Rico, local, state, and federal organizations, community organizations, radio and television stations, and newspapers participated with PRAES to achieve many different goals ranging from agriculture to family and community concerns.

PRAES joined efforts with the local governments of 78 municipalities of Puerto Rico.

Goal 1. An agricultural system that is highly competitive in the global economy, accounted for a total of 79.99 FTE's.

Although great efforts have been made to increase production and efficiency in crop and livestock management, some commodities were severely affected by Hurricane Georges (1998), which devastated large part of the island.

The milk industry prevails as the most important agricultural commodity in our island. During FY 1999-2000, the milk industry contributed 28% of the total gross income from agriculture.

The PRAES' educational efforts contributed to the milk industry mainly through two major programs: the Herd Health Program and the Dairy Herd Improvement Program (DHIP). One hundred and seventy-eight herds remained enrolled the DHIP with a total of 40,500 cows. Three hundred and ninety-eight (398) farms received direct orientation on recommended feed and milk and dry cow management practices.

The amount of farmers adopting recommended forage production practices was 642, and of 181 farmers oriented in water and soil conservation practices using cover crops, 88 adopted the recommended practices. Two thousand six hundred and seventy-three (2,673) acres were planted with forage. One hundred and three (103) farmers produced hay and silage products.

The coffee industry, which is our second agricultural commodity had little increase during FY 1999-2000 in comparison to past years due to the damaging effects of Hurricane Georges (1998) on the plantations, coffee processing facilities, and, consequently, production. The total number of acres planted of coffee was increased to 1,400 to replace damaged plants. Only 150 producers increased yields by acres in comparison to FY 1997-98 with 189 producers. As a result in the decrease in production, only 78 farmers were reported to have improved their coffee quality and 49 their income.

Starchy food crops, which are among the most important agricultural commodities reported 810 farmers adopting recommended production practices, 537 increasing production, and 133 increasing their income. Seven thousand eight hundred and seventy-six (7,876) acres were planted of starchy crops, plantains and bananas were the most impacted with 5,773 acres.

Goal 2. A safe secure food and fiber system, accounted a total of 4.27 FTE's.

PRAES developed ongoing food safety programs at different levels, with a from-the-farm-to-the-table approach. There was multi-agency cooperation and PRAES personnel cooperating a disseminating research results to clientele. The seafood and meat HACCP regulations and Board of Agricultural Practices guidelines are recent examples of where agencies have identified the need for Extension outreach efforts.

A total of 1,850 participants completed the 12-lesson certification course for employees of food establishments. Ninety eight per cent (98%) of the participants filled out an auto-evaluation and adopted the majority of the food handling practices related to HACCP as staged in the 1999 Food Code. A total of 10 home economists worked in this project.

During FY 1999-2000, 370 dairy farms achieved an average bacterial count of 33,200 cells/ml, complying with the federal requirement of 100,000 cells/ml or less. These dairy farms also surpassed USDA milk parameters and somatic cell and crioscopic levels. A significant effort was made to provide training to farmers in the areas of mastitis control, recordkeeping, agricultural credit, parasites, and pests. All of these efforts resulted in maintaining the Grade A classification for milk.

The PRAES dairy specialist and 16 agricultural agents worked together to achieve the work planned in this commodity.

In Puerto Rico there is a backup food supply of 12 days. This could cause the food security of the island to be affected in case of emergency like war, natural disasters, and problem with imports, among others. As a first step, PRAES specialists prepared a 6-lesson course "An assured Food Supply" directed to 4-H youth to promote the use of foods grown on the island. This program is also designed to augment the school curriculum. The home economists were trained regarding the use of these educational material, most of which were used in summer camps offered during the year 2000.

Goal 3. A healthy, well-nourished population, accounted a total of 28.26 FTE's (this does not include EFNEP as it is a 3(d) funded program).

During FY 1999-2000 PRAES continued training personnel to prepare them to conduct nutrition and health promotion and education projects. Emphasis was put on health fraud: the targeted audience were individuals infected and/or affected by HIV/AIDS, adults, and elderly people, and eating according to the Food Guide Pyramid: the main target audience were people who prepare meals for their families. A curriculum promoting health lifestyles was prepared to empower individuals to adopt healthy behaviors and lifestyles. A total of 3,824 adults completed non-formal education programs on topics related to health promotion and education, of which 1,126 reported reducing their risk levels. Approximately 200 individuals benefited from trainings related to health fraud prevention.

The 2,849 persons participated in a course prepared for Nutrition Assistance Program (NAP) participants in coordination with the Program to Improve Nutrition in Puerto Rico (PIN/MeNu). Of these, 1,998 completed the course and 1,625 planned to change one or more practices, and 648 reported they managed to change one or more practices six months later.

A Food and Nutrition Specialist was appointed by the Governor to serve in the Commission on Foods and Nutrition, which establishes public policy for Puerto Rico in these areas.
Two thousand five hundred and seventy-seven (2,577) persons completed non-formal education programs to improve their dietary habits in order to reduce risk factors of chronic diseases. Five hundred and eighty-five (585) persons adopted one or more recommended dietary habits six months after completing the course.

There are 5,018 families enrolled in EFNEP in Puerto Rico. Of the total of families enrolled in the program, 4,252 were graduated, 2,973 received food checks, and 1,840 participated in the WIC program.

Two hundred forty-two (242) pregnant EFNEP mothers were oriented on the importance of breastfeeding and on adequate prenatal care for healthier babies. During the reporting period, 53 babies were born to EFNEP mothers and only one died during the first month of life. Of the mothers enrolled in the EFNEP, 93 were breastfeeding.

Six thousand one hundred and eighty-seven) EFNEP youth are enrolled in the program. As a result of the nutrition educational experiences, 5,975 persons reported they are eating a variety of food and are making good use of their allowance to obtain nutritious food.

Eight hundred forty (840) volunteers helped in some stages of the program. Of these, 491 work with youth and 349 work with adults.

Goal 4. To achieve greater harmony (balance) between agriculture and the environment, accounted 31.48 FTE's.

Puerto Rico faces a diversity of environmental problems, possibly due to its geographical location in the hurricane path, its tropical climate, and dense population. Water, which has become a big concern as a matter of quantity and quality, is also affecting the island's economic development, agricultural production, as well as human consumption. The PRAES Water Quality (WQ) program provides informal education and information to the communities to create awareness of the maintenance needed to operate rural aqueducts ad to ensure the safety of the water. Communities receive assistance on how to get organized and connected with the appropriate agencies that can help them besides evaluating their actual situation. This program also covers waste management.

A proposal approved by the Sustainable Agriculture Research and Education (SARE) program allowed for the organization of educational activities to train agricultural personnel and farmers. Such efforts will be continued for their vital importance in the conservation and improvement of the economy and the environment.

The agreement between the Forest Service and the College of Agriculture was broadened to cover the Virgin Islands (Caribbean Urban Forest Agreement). In 2001, a strong effort will be devoted to managing emergencies. The Forest Health Management Project was implemented for the identification and management of weeds, insects, nematodes, and diseases that commonly affect trees and shrubs in forests and urban environments. Three publications were prepared for this purpose. A new venture through a memorandum of understanding with the Puerto Rico Space Grant Consortium was agreed to prepare educational material and to train PRAES personnel on marine resources conservation and on space topics for youth.

Goal 5. To enhance opportunities and the quality of life among families and communities, accounted for a total of 89.41 FTE's.

One of the objectives of PRAES is to increase the capacity of communities and families to enhance their own quality of life. To increase the incidence of strong families resulting from non-formal education programs in which CSREES partners and collaborators plan an active role. One thousand three hundred and twenty-two (1,322) childcare providers were trained in childcare principles and practices by home economists and volunteers. Of these, 634 adopted one or more of the practices in parenting skills and child development non-formal education programs. Twenty-two employees of different public agencies were trained in these areas.

PRAES developed educational home-based programs to help families use their own resources and start home based businesses, therefore helping themselves increase family income. These educational programs suggest many ways in which families can turn skills, hobbies, and ideas into money. The creation of home-based businesses is a growing trend in our economy. One of the areas in which individuals and families develop their home-based business is clothing, a field particularly targeted by our educational efforts.

During FY 1999-2000 three home-based business projects were developed and established. One thousand four hundred and seventy (1,470) persons learned different aspects of family management. Five hundred and thirty-eight (538) families were trained on money management, 32% (172) of the families adopted budget planning skills.

Base Programs

The Four-H Youth Development base program continued focusing on youth at risk with an increase in activities, competitiveness, and projects. Fiscal Year 1999-2000 accounted for 58.21 FTE's in this area.

The staff and volunteers of the 4-H program promoted the adoption of healthy lifestyles and skills that allow youth to make adequate decisions. A total of 50,624 youth were contacted: 29,563, through 4-H clubs; 6,187,through EFNEP youth; and 5,995, through special projects.

Four-H competitions continue to be effective methods to reach youth enrolled in the program. Twenty-seven (27) competitions were celebrated at regional and state level.

PRAES is developing the project National Youth No Smoking Prevention Program (NYNSPP) through a "Free for Life Curriculum" with a budget of $40,000. The project has an excellent coalition. To strengthen the coalition, the Department of Recreation of the Municipality of Carolina, Department of Education of Puerto Rico, the Americorps Program, and the Carolina Municipal Government were included. On November 1999, 11 teen leaders were recruited and trained. The leaders represent the 4-H program, RCSC, Department of Recreation, and Americorps and work with children 10 to 14 years old. They offered the first pilot camp On December, 1999. Twenty-seven (27) children participated.

The "Free for Life Curriculum" was offered in five different communities of the Carolina Municipality from february to May 2000: Inés Mendoza Elementary School, Luis Muñoz Marín Elementary School, Roberto Clemente Sports City, J. F. Saldaña Community, and Calvin Schoool (private college). The 11 leaders trained 10 children from each community.

About 2,622, 4-H youth gained knowledge in civic education. To complement this area of emphasis, a Legislative Day was implemented in the Senate of Puerto Rico. Fourty-Two (42) youth participated of the activity.

The Career Education Curriculum impacted 2,854, 4-H members who gained knowledge and developed skills on the subject matter. Health Education impacted 14,506 youth and children, with emphasis on drugs, alchohol, and tobacco.

The College Coastal Conservation Project, sponsored by Americorps and PRAES, impacted 23,000 persons. The project emphasized on environment conservation.

Fifteen thousand three hundred and sixty-six (15,366) youth gained knowledge and skills on agricultural education. One hundred eighty (180) 4-H youth participated in state camps on the conservation of natural resources, ecological education, horticulture, and animal husbandry.

Coalitions with the private sector were implemented to sponsor 4-H Program efforts. Special recognition was given to "Molinos de Puerto Rico" and the Cooperative of Employees of Agricultural Agencies who sponsored 4-H contests and made it possible for 11 winners to travel to the National 4-H Congress.

The Community Resource Development Program (CRD) accounted 12.92 FTE's during FY 1999-2000.

Rural and urban areas in Puerto Rico are in continuous development and evolution. The problems and needs of the communities in these areas are many and variable, ranging from better facilities and resources, effective and efficient trade systems and prevention of school desertion to salubrity, among others.

There are 1,597 volunteer leaders registered in the CRD committees in 63 local communities. The Board of Directors celebrated 8 meetings during FY 1999-2000.

Six hundred (600) volunteer leaders were trained in leadership, the preparation of proposals, how to react safely in case of a hurricane, and parliamentary laws and procedures.

The Second Home Garden Festival was celebrated at the Municipality of Gurabo. Educational conferences, exhibitions, and awards to volunteer leaders were offered.

A reforestation and ornamentation project of public areas was developed in the Municipality of Vega Baja, and a project related with the development of environmental conscience was successfully developed in the Municipality of Yauco. The Sixth Poster Contest with the theme on the environment was also celebrated. Youngsters from all over the island participated.

The Community Resource Development Committee celebrated its annual meeting with the participation of 277 volunteer leaders.

The area of Information Technologies was involved in several education activities directed towards promoting distance education within the University of Puerto Rico and other agencies. During this fiscal year, 10 training meetings were offered using the facilities of Teaching and Learning at the Distance (TELEDIS) and two new localities were added to TELEDIS: one at the Ponce Campus--University of Puerto Rico, and the other at Humacao Campus—University of Puerto Rico. At present we cover the whole island with five TELEDIS centers.

GOAL 1: AN AGRICULTURAL SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY.

OVERVIEW

Puerto Rico's dense population (3,808,610 persons--about 1,106 persons per square mile: Census 2000) has caused a continuous demand for housing, roads, schools, health services, and entertainment facilities. Builders prefer plain land or land with low slopes to lower construction costs reducing the amount of land available for agricultural purposes. The Government Land Conservation Policy hasn't dealt effectively with the land use. New measures were established to preserve land for agricultural purposes.

Other factors that affect agriculture and food production are: the environmental impact due to man activities, sudden water precipitation or water shortage, sudden temperature changes, and hurricanes, all of which have changed production methods.

During the past ten years, Puerto Rico has suffered the forces of several hurricanes. The most damaging, Georges (1998) caused great damage to agriculture: especially to structures, trees, shrubs, and crops. Poultry houses and greenhouses were among the most affected. The production of these two sectors was devastated.

Among crops, the most affected sector was fruit. Plantations with tall trees reported heavy losses, as some growers did not follow the recommended pruning practices, which make the harvesting season easier and reduce damages by hurricane winds. Some damaged trees had to be reconditioned to make them productive again, while others had to be replaced.

Coffee production has also been affected by hurricanes damaging coffee shrubs and lowering production; on the other hand, starchy vegetables have been affected mainly by pests introduced from nearby islands.

The sugarcane sector was privatized to improve efficiency. The sugar processing factories were transferred to farmers who are now in charge of the various processes from planting to harvesting and milling. The sugar refineries were also transferred to sugarcane farmers.

The government has developed an incentive program to create the necessary agricultural infrastructure in an effort to accelerate the agricultural activity. The 5-year program, covers mainly farmers who suffered severe damages by Hurricane Georges and could not afford to cover the severe losses. Some farmers were forced to step down from their businesses because it would take them more than five years to recover from the damages, and there is still a high probability that the hurricane activity will continue to increase in the Caribbean region.

Projects are now better planned. In order to construct new facilities, new requirements have been established. This will allow the agricultural sector to recover faster after a hurricane.

I. KEY THEME: AGRICULTURAL COMPETITIVENESS

A. The crop sector includes coffee, sugarcane, vegetables, starchy vegetables, fruit, and grains and legumes. Intensive training in recommended sustainable coffee propagation, production, and post harvest practices was developed. One thousand

nine hundred and sixty-two (1,962) coffee farmers were trained enabling them to restore new coffee plantations, protect the environment, and increase production.

To maintain agricultural competitiveness, the Puerto Rico PRAES specialists developed a comprehensive set of measures for crops and livestock to ensure their continuous growth.

The government privatized the sugarcane sector and offered incentives to make the operation more efficient and self-sufficient. The producers were oriented on the recommended sugarcane production and farm management practices to embrace production and obtain higher income. Eighty-one (81) producers were oriented in field management practices. Twenty-two (22) farmers received orientation in farm records and 40 about credit sources.

The use of new pest resistant starchy crop varieties was promoted to increase production. In addition to the improvement of harvesting and post-harvesting, better techniques were applied to improve crop quality. A total of 2,113 farmers were trained in recommended starchy crops practices.

The fruit sector, which was the most adversely affected by Hurricane Georges, has taken years to recover, mainly due to the large amount of damaged trees that needed reconditioning and the replacement of permanently damaged ones. PRAES personnel promoted pruning practices to reduce wind resistance during hurricanes and post-harvesting practices to improve fruit quality at time of marketing. A total of 3,441 fruit producers were trained in recommended fruit production practices. Three hundred and two (302) acres were planted and 103 farmers were trained regarding value added.

The vegetable sector has a great potential for expansion. To promote production, intensive orientation and trainings were offered. These activities were organized and promoted jointly with the private sector. Great emphasis was placed on the use of hydroponics, mainly for commercial purposes. To promote the consumption of fresh vegetables, consumers were oriented on how to produce vegetables in their own back yard. A total of 1,878 vegetable producers were oriented in recommended vegetable production practices and 773 persons were trained in hydroponics systems. A total 14,904 persons were trained in home vegetable gardens.

The production of grains and legumes has increased due to the use of new varieties and machinery for harvesting. To achieve better product quality, a package of recommendations was offered to producers through farm visits and trainings. Packers were also visited to orient them on post harvesting practices to guarantee a quality product to consumers.

The livestock sector includes poultry, swine, beef, forage, and dairy. Four (4) familiar enterprises are joined under other livestock: honeybees, sheep and goats, horses, and rabbits.

The poultry sector is slowly recovering from Hurricane George, while the broiler sector has fully recovered. The layers sector received a great transformation in infrastructure, management practices, and egg handling. Egg producers were oriented about new trends in production and marketing of future poultry products. A

total of 65 poultry producers were oriented in the recommended poultry production practices.

On the other hand, the swine sector has been mostly affected by uncontrolled imports. To deal with this situation, PRAES personnel have emphasized the use of recommended production and marketing practices to improve production and carcass yield.

The beef sector is being organized to make it more competitive to imports from Central America and the United States, which decrease the market participation of local producers. A program was developed for the classification of meat cuts in cooperation with the PR Department of Agriculture and the private industry. A total of 375 beef producers were trained in recommended beef production practices.

The use of forage is cheaper and reduces production costs. Forage production is promoted by increasing land use to produce more and to reduce dependency on concentrated feed. A total of 823 forage producers were trained in recommended forage production practices.

Other livestock like honeybees, sheep and goats, horses, and rabbits are enterprises that generate a supplementary income among small farmers. PRAES personnel oriented producers in these areas to develop this sector and make it more profitable. The four enterprises reported a total of 496 persons trained in the recommended management practices.

The PRAES dairy specialist and 16 agricultural agents worked together to improve milk production and quality. All dairy farmers in Puerto Rico are part of the milk quality and health program (PSHL). Other aspects of the business are nutrition, reproduction, and production records. The technical education offered by PRAES personnel was a key factor in achieving and maintaining the grade A classification through continuous technical support. A total of 398 dairy farmers were trained in the recommended dairy quality practices.

B. Impact – A total of 1,400 acres were planted of coffee, 150 producers increased yields by acres. One hundred seventy-two (172) farmers acquired knowledge in business administration. Seventy-eight (78) farmers improved their coffee quality and 49 farmers increased their income.

Sixty-nine (69) farmers adopted recommended sugar production practices, and 21 farmers increased their yield per acre. Twenty (20) farmers adopted farm records in their business.

As a result of training received by 2,113 farmers, 7,876 acres were planted to starchy crops: 5,773 of plantains and bananas and 2,103 of starchy root crops. Eight hundred and ten (810) farmers adopted the recommended starchy crop practices, 537 increased agricultural production, and 133 increased their income. Sixty-one farmers increased their value added of agricultural products.

One hundred and forty-six (146) fruit producers increased production per acre, and 104 producers adopted post-harvesting practices. Two hundred and twenty (220) farmers adopted pest and disease control practices.

Four hundred and twelve (412) persons established home vegetable gardens. Four hundred and thirty-four (434) farmers increased their knowledge regarding value added of agricultural products.

Two hundred and thirty-one (231) farmers were trained in recommended grains and legumes production practices, 33 farmers were trained in the concept of managing change in agriculture, and seven farmers received orientation in the concept of value added. As a result, 122 farmers adopted efficient production practices for grains and legumes and seven farmers increased the agricultural value added.

Twenty-seven (27) poultry producers improved poultry housing facilities and 47 adopted the recommended poultry production practices. Thirty-one (31) poultry producers improved their waste management systems.

As a result of orientation received from PRAES personnel, 114 swine producers increased their production and 53 increased their net income.

One hundred and fifty-three (153) livestock farmers adopted the recommended beef production practices, and 152 plan to establish and/or improve their production facilities.

Six hundred and forty-two (642) farmers adopted the recommended practices for forage production. Eighty-eight (88) farmers, of 181 oriented, adopted water and soil conservation practices using cover crops. Seventy-six (76) farmers planted 2,673 acres with forage, and 103 farmers produced hay and silage products.

Two hundred and eighty-four (284) persons adopted the management practices in other livestock enterprises.

Three hundred and sixty-six (366) dairy farmers adopted the recommended dairy quality practices.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State specific

I. KEY THEMES: AQUACULTURE

A. Fish and shrimp are focused as policulture by small farmers as an extra source of income. This sector has a great potential for growing and is considered a profitable enterprise, as there is a market to grow and reduce the external dependency. This sector was promoted through educational activities and the distribution of promotional material to farmers and the general public. To improve this sector, 288 farmers were oriented in educational activities, management, and business financing.

B. Impact- Seventy-one (71) farmers improved their facilities to improve their projects.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

II. KEY THEMES: ORNAMENTAL/GREEN AGRICULTURE

A. The ornamental sector is a combination of urban forestry and landscaping to create an urban environment. This extension initiative has been supported in conjunction with the Department of Natural Resources. The intention is to use this model project to foment the protection of the urban environment. A total of 704 ornamental producers were oriented in production techniques and 465 were oriented in production of trees techniques.

B. Impact - One hundred and eighty-four (184) persons were oriented in ornamental nurseries, 82 established their own nurseries. Sixty- three (63) persons increase their income; 604 adopted production techniques in ornamentals, and 36 adopted production techniques in production of trees.

C. Source of Federal Funds – Smith Lever 3(b), 3 (c) Funds

D. Scope of Impact – State Specific

KEY PROGRAM COMPONENT(S)

The agricultural sector faces a series of challenges related to production, marketing, and safety. To deal with these several activities were developed and offered to the public. One of the methods to provide information in an organized way is through training on several topics, such as the use of safety equipment, personal protective equipment, proper use of pesticides, health and occupational safety laws, and safe use of agricultural machinery. These trainings are offered to agronomists, farmers, and crop producers. Different means of communication used are radio, newspapers, brochures, and electronic mail. In addition, demonstration farms and field tests are also established.

Another strategy to help face agricultural challenges is to develop technical guides in management and marketing practices. The College of Agricultural Sciences coordinates and develops research activities, and is responsible to implement the program and divulge research results. For marketing purposes, product classification and packaging techniques were established.

Several ideas were developed to ensure the quality of products is enhanced. One of them entails the utilization of genetically improved plants to increase yields and make them resistant to pests and diseases. A weed control program was also established, along with an effort to emphasize soil and environment protection. Furthermore, superior breeders are being imported to introduce superior traits. New structural designs for breeding farms are being used to improve efficiency and management. Seminars are offered to improve product quality, involving both government and private sectors.

INTERNAL AND EXTERNAL LINKAGES

<u>Internal</u>

Personnel of the College of Agricultural Sciences, the PR Agricultural Extension Service, the Agricultural Experiment Stations, and the Sea Grant Program help with trainings, research, and information sharing.

External

The Puerto Rico Department of Agriculture helps with technical assistance and incentive programs, the Natural Resources and Conservation Service helps in the implementation of practices to save the natural resources and the environment, and the Department of Labor is a key contributor in divulging information regarding labor laws and the importance of safety at the work place.

The private sector also contributes as part of this educational effort, among these are various associations, food importers and distributors, as well as food processors and farmers. The United States Department of Agriculture is also part of this challenge by contributing its technical knowledge and research information.

Several proposals were submitted to the Southern Agriculture Research and Education (SARE), on livestock management disposal, to Rangeland Research Grant Program, and to McInter Stains for germplasm storage and production. Other external collaborators are the Department of Animal Industry of the University of Florida, the Caribbean Basin Administrative Group (CBAG), and the National Science Foundation.

TARGET AUDIENCES

The target audiences are farmers, and farm personnel, agricultural entrepreneurs, packers, 4-H members, members of agricultural and professional associations, people from the private sector, and personnel from agencies such as the Department of Agriculture, the Natural Resources and Conservation Service, and the College of Agricultural Sciences.

EVALUATION

Question 1: What were the reactions of participants toward the training?

Question 2: What is the level of attitude, skills and aspirations of participants regarding the adoption of adequate agricultural practices?

Question 3: What is the level of adoption of agricultural practices among participants of non-formal education training?

Evaluation Source: Published Data of Extension Annual Achievement (1999-2000).

Starchy Crops

Question 1: A total of 2,113 farmers were trained, and 7,876 acres of Starchy crop were established.

Question 3: A total of 537 farmers increased their agricultural production. According to the State Extension Annual Report (1999-2000), 810 farmers adopted recommended farming

practices and 133 persons increased their income as a result of adopting agricultural management practices. Sixty-one (61) persons increased their value added of agricultural products.

Fruit

Question 1: A total of 3,441 farmers were trained. Three hundred and two (302) new acres were established. One hundred and three (103) farmers were trained regarding value added.

Question 3: One hundred and forty-six (146) farmers increased their agricultural production per acre. One hundred and four (104) farmers adopted post-crop practices in fruits. Two hundred and twenty (220) farmers adopted pest and disease control practices.

Vegetables

Question 1: A total of 1,878 farmers received orientation in recommended vegetables production practices. Seven hundred and seventy-three (773) persons received training in hydroponics. A total of 14,904 people were trained in home gardens. One thousand four hundred and fifty-eight (1,458) persons were trained in the concept of managing change in agriculture.

Question 2: Four hundred and thirty-four (434) persons increased their knowledge regarding value added of agricultural products.

Question 3: A total of 101 persons adopted practices for managing risk in horticultural production.

Grains and Legume

Question 1: A total of 231 farmers were trained in recommended practices of grain and legumes production. Thirty-three (33) persons were trained in the concept of managing change in agriculture. Seven people received orientation in the concept of value added in agriculture. Seventeen persons (17) received training in risk administration.

Question 3: One hundred and twenty-two (122) farmers out of 231, adopted recommended grains and legume production practices, which represents a 52.81% rate of adoption. Six farmers (6) increased the agricultural value added of their products.

Coffee

Question 1: A total of 1,962 farmers were trained.

Question 2: One hundred and seventy-two (172) farmers acquired knowledge in business administration.

Question 3: One hundred and fifty (150) farmers increased their coffee production per acre. The average coffee yield in 591 acres increased from 9.0 to 10.5 qq/acre. Seventy-eight (78) farmers improved their coffee quality and 49 increased their income.

Sugarcane

Question 1: A total of 81 farmers received training in sugarcane practices. Twenty-two (22) farmers received orientation in farm records. Forty (40) farmers received training in agricultural finance.

Question 3: Sixty-nine (69) farmers adopted recommended management practices. Twenty-one (21) farmers increased their yield per acre. Twenty (20) farmers adopted farm records in their business. Six (6) farmers identified changes and established new goals in their agricultural enterprises.

Aquaculture

Question 1. A total of 288 farmers were trained, and 9,680 persons received orientation and training.

Question 3: Seventy-one (71) farmers established or improved their facilities. A total of 7,159 persons adopted conservation and reforestation practices.

Poultry Production

Question 1: Thirty-six (36) farmers were trained in recommended management practices to improve meat production. Twenty-nine (29) persons were trained in management practices to improve egg production. Eleven (11) persons received training in poultry structures for meat production. Sixteen (16) persons received training in laying hen structures.

Question 3: Seventeen (17) farmers improved their waste management systems for meat production. Fourteen (14) farmers improved their waste management systems for egg production. Twenty-three (23) farmers adopted recommended management practices for egg production. Twenty-four (24) farmers adopted recommended management practices for meat production.

Swine Production

Question 3: One hundred and fourteen (114) farmers increased their production. Fifty-three (53) farmers increased their net income and improved their marketing systems. Fifty-seven (57) farmers established new modern production structures or improved existent ones. Forty-eight (48) swine producers improved their waste disposal management systems.

Other Livestock (Goats, Sheep, Honey Bees, Rabbits and Horses)

Question 1: A total of 496 persons were trained in the recommended management practices for the four enterprises

Question 3: Two hundred and eighty-four (284) persons adopted the recommended management practices for the four enterprises. Thus, the adoption rate was 57%

Beef Production

Question 1: A total of 375 beef producers were trained in recommended beef production practices.

Question 2: A total of 152 farmers planned to adopt (aspirations) the recommended beef production practices.

Question 3: One hundred and fifty-three (153) farmers adopted the recommended practices, for an adoption rate of 41%

Forage

Question 1: A total of 823 forage producers were trained in recommended forage production practices.

Question 3: Two thousand six hundred and seventy-three (2,673) acres were planted to forage. A total of 642 farmers adopted the recommended forage practices, for an adoption rate of 78%.

Ornamental/Green Agriculture

Question 1: A total of 704 ornamental producers and 465 individuals received training in tree production techniques. One hundred and eighty-four (184) persons were oriented in ornamental nurseries.

Question 3: A total of 82 persons established their own nurseries, for a success rate of 45%. A total of 63 people increased their income. Six hundred and four (604) individuals adopted production techniques in ornamental, for an adoption rate of 86%. Thirty-six persons adopted production techniques in tree production, for an adoption rate of 8%

Dairy Production

Question 1: A total of 398 dairy farmers were trained in the recommended dairy quality practices.

Question 3: Three hundred and sixty-six (366) farmers adopted the recommended dairy quality practices, for an adoption rate of 92%

OBJECTIVES, PERFORMANCE GOALS AND OUT PUT AND INPUT INDICATORS

OBJECTIVE 1
To produce new and value-added agricultural products and commodities.

PERFORMANCE GOAL 2
To annually increase agricultural producer awareness, understanding, and information regarding the production of new and value-added commodities and products in U.S. agriculture in which CSREES partners and cooperators play and active research, education, or extension role.

INDICATOR 1
A. The total number of persons completing non-formal education programs on production of new and value-added commodities and products. (output)

B. The total number of these persons who actually adopt one or more recommended practices or technologies within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	1286	1080	235	134[1]
2001	1316	0	243	0

2002	1343	0	252	0
2003	1372	0	257	0
2004	1374	0	261	0

[1]The low amount of people adopting the recommended practices is due to market changes and imports of the products.

OBJECTIVE 2

To increase the global competitiveness of the U.S. agricultural production system.

PERFORMANCE GOAL 2

To increase agricultural producer awareness, understanding, and information on improving the productivity and global competitiveness of the U.S. agricultural production system in which CSREES partners and cooperators play and active research, education, or extension role.

INDICATOR 1

A. The total number of persons completing non-formal education programs to improve the productivity and global competitiveness of the U.S. agricultural production system. (output)

B. The total number of these persons who actually adopt one or more new production techniques or strategies within six months of completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	20066	22747	11216	9873
2001	20461	0	11517	0
2002	20828	0	11955	0
2003	21106	0	12264	0
2004	21403	0	12621	0

OBJECTIVE 4

To improve decision-making on public policies related to the productivity and global competitiveness of the U.S. agricultural production system.

PERFORMANCE GOAL 2

To annually increase the effectiveness of constituent and citizen participation on public policy issues affecting the productivity and global competitiveness of the U.S. agricultural production system.

INDICATOR 1

A. The total number of persons annually completing non-formal education programs on topics related to public policy issues affecting the productivity and global competitiveness of the U.S. agricultural production system. (output)

A. The total number of those persons who make use of such knowledge within six months of completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	986	762	400	149[1]
2001	978	0	406	0
2002	1007	0	418	0
2003	1000	0	423	0
2004	1015	0	424	0

[1]The adoption of new practices are more difficult to implement due to factors like new environmental laws, climate, economical impact in farmers, families and global economy competition.

PROGRAM DURATION

Long Term (5 years)

ALLOCATED RESOURCES

	Resources			
Fiscal Year	State	Federal	Others Federal	Total
2000		$2,1916,388.17	$75,070.00	$2,271.458.17
2001				
2002				
2003				
2004				

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	79.99					
2001						
2002						
2003						
2004						

EDUCATION AND OUTREACH PROGRAMS

PRAES has developed two agricultural programs in the crop and livestock area. These programs are composed by two major commodities: 1) crops which include coffee, sugarcane,

starchy vegetables, fruit, grains and legumes, and ornamental plants; and 2) livestock which includes honey bees, aquaculture, poultry, goats and sheep, horses, swine, rabbits, beef, dairy cattle, and forage.

Extension county agents, through the educational and outreach programs transfer new technology developed by the Agricultural Experiment Station to farmers and the general public. They use mass media communications, farms, demonstrations, leaflets, brochures, and short courses to disseminate the information to the public.

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GOAL 2 - A SAFE AND SECURE FOOD AND FIBER SYSTEM.

OVERVIEW

According to the Economic Report to the Governor for 1996, agriculture represents only 0.67% of the internal gross product. In 2000 there were an approximate of 1,158,288 acres of agricultural land in Puerto Rico. The island is 3,435 square miles of land with 3.9 million persons (2000). The agricultural crisis in Puerto Rico has forced the island to import 70% of the food from the United States.

Normally the island has a backup supply of 12 days of food. The food security in Puerto Rico could be affected by an emergency (war, mayor disaster, change in public politic, etc.) involving the United States and the subsequent reduction of the food exported to Puerto Rico. If that happened, hunger would occur. As food supplies in stores are adequate, consumers are virtually unaware of the problem. The government and the people are not prepared to affront this crisis.

This situation indicates that it is indispensable that local food production be increased in a competitive manner. This includes government planning to preserve agricultural land. It is necessary to create awareness within the government at state and local levels as wee as with public and private entities of the urgent need of increasing agricultural production for the stability and development of Puerto Rico. It is especially important to get this message across to children who in the future will be the most affected if our agriculture continues diminishing.

Puerto Rico as a territory of the United States, benefits from USDA federal food and nutrition assistance programs (Food Checks, Child Nutrition Programs, School Lunch and Breakfast Programs, the Supplemental Nutrition Program (WIC), and others) to assure children and low-income families access to a healthy diet. According to Socioeconomic Indicators by Municipality of the Puerto Rico Planning Board (1993), more than 45% of the population (490,813 families and 1,413,539 individuals) received government checks from the Nutritional Assistance Program (NAP) to enable them to buy food. Thus, it becomes imperative for families to receive adequate education regarding the use of affordable and nutritionally appropriate foods by using the Puerto Rico Food Pyramid as a basis for their selection. This education should increase skills already acquired by the participants.

According to the PR Department of Family, the money available to low-income families is minimal to provide an adequate diet. In October of 1998, PRAES initiated a project as a new area with a food security affordability component to help low income families become more conscious of food security by improving their use of available funds. These people attend a short course dealing directly with the issues of food affordability including menu planning, food selection and buying practices, as well as the use of gardening and locally buying directly from farmers.

Puerto Rico Agricultural Extension Service (PRAES) developed ongoing food safety programs at different levels, from the farm to the table approach. There are multi-county cooperation and Extension personnel cooperating and disseminating research results to clientele. The seafood and meat HACCP regulations and the Good Agricultural Practices guidelines are recent examples where the agencies have identified the need for extensive outreach affords.

Puerto Ricans and tourists prefer fresh fish caught in Puerto Rico to imported interstate frozen fish. However, these native fish are prone to a number of safety problems. The Center for Disease Control reported that 49% of all seafood-related illnesses came from four territories headed by Puerto Rico. Ciguatera, histamine, hard metals, and bacteria are the most important hazards from fish caught by fishermen, but the main risks come from the inappropriate

temperature holding over 41°F. The environment in which fish are stored on board is unsanitary, this situation is further aggravated because the fish is landed in the ground.

Integrated Pest Management (IPM) systems can help restore the environment and provide alternatives on more effective pest control to improve yield, quality and safety of food and fiber. IPM strategies emphasize areas of impact such as safe pesticide use in the farm and control of pests in homes and food service establishments. According to FDA evaluation on food safety standards, 80% of the establishments have poor compliance of pest management strategies. Therefore, IPM emphasizes areas of impact such as household, food service establishments and others.

Although the milk industry in Puerto Rico is in full compliance with FDA/IMS Sanitary Standards, mastitis (an inflammation of the cow's mammary gland) is still a concern at the farm level where management, and climatic elements sometimes play an important role in the development of the disease. Statistics from the Puerto Rico DHIA (Dairy Herd Improvement Association) and Puerto Rico Dairy Health Project show that Somatic Cell Counts (a milk quality parameter) in Puerto Rico still average above 400,000 cells/ml. This suggests, according to research, that about 40% of our milking cows may have some form of mastitis, requiring treatment with intra-mammary infusions either during lactation or the dry period.

New lifestyles compel consumers to eat one or more meals a day away from home or buy prepared meals for consumption at home. According to the U.S. Center for Disease Control, about 80% of the outbreaks were associated with meals served in food establishments. Puerto Rican food establishments had a great food employee's turn over without food safety training. The conditions of foodservice establishments in Puerto Rico have placed the consumers at high risk to get food borne illnesses. The food employees and consumers need to know that foods can be contaminated during any step of the food chain: producers, processors, retail sales, and the home. Although zero risk of food contamination is not possible, over 90% of the cases could be avoided if people handled foods according to recommended practices. Foodborne illnesses also result from inadequate food handling by consumers at home. PRAES and the PR Partnership for Food Safety education developed food safety curriculums for children, youth and adults.

I. KEY THEME - FOOD SECURITY OF SUPPLIES

A. As a first step to promoting the use of foods grown on the island, staff specialists prepared a 6-lesson course "An Assured Food Supply" (Abastos Asegurados) directed to youth of the 4-H program. This program is also designed to augment the school curriculum. The home economists were trained regarding how to use these materials in February 2000. Most of the home economists that used these materials in FY 2000 adapted it for use in summer camps.

B. Impact: One hundred and fifty (150) youth were oriented about "An Assured Food Supply".

C. Source of Federal Funds: Smith Lever 3(b), 3(c) Funds

D. Scope of Impact: State Specific

II. KEY THEME - FOOD SECURITY: AFFORDABILITY

E. Ten thousand eight hundred and seventy-six (10,876) consumers were contacted through community activities and 1,933 completed non-formal consumer education programs. About 131 volunteers were recruited, and of these 59 dedicated 622 hours to teaching clientele.

F. Impact: One thousand eight hundred and eighty-seven (1,887) persons that completed non-formal education and evaluations, adopted practices as follow:
-Select lower cost alternative foods of the same or increased nutritional value;
-Plan their meals;
-Compare similar items before purchasing;
-Make a shopping list;
-Make use of food specials;
-Use foods harvested in Puerto Rico or from home gardens.

G. Source of Federal Funds: Smith Lever 3(b), 3(c) Funds

H. Scope of Impact: State Specific

II. KEY THEME - FOOD SAFETY: INTEGRATED PEST MANAGEMENT (IPM)

A. Two hundred (200) farmers adopted IPM practices on starchy food crops, vegetables, plantains, and tropical fruit. The recommended IPM practices were based on visits to farms and monitoring of pests. Diseased samples were processed and diagnosed in the Plant Diagnostic Clinic and a written report made to farmers with the IPM practices they have to establish to maintain adequate pest control.

B. Three hundred and seventy-nine (379) persons completed non/formal education courses on pest control practices in structures.

The early and correct diagnosis of diseases in the Plant Diagnostic Clinic saved farmers approximately $200,000 due to the reduction of losses by pests and decreased use of pesticides. Of 379 persons that completed non/formal education on pest control practices in structures, 319 were examined and 253 approved the course. Of these, 175 adopted one or more practices.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – Specific

III. KEY THEME - FOOD SAFETY- MASTITIS PREVENTION PROGRAM

A. Three hundred and seventy-five (375) dairy workers were taught how to reduce antibiotic residues in milk.

B. Impact – Three hundred and sixty (360) dairy workers actually adopted a practice.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

IV. KEY THEME - FOOD SAFETY: CONSUMERS (FIGHT BAC CAMPAIGN)

A. Four thousand and forty-four (4,444) persons attended educational activities, 1,173 consumers completed short courses in non-formal consumer education. Consumers were benefited through radio and TV programs, press articles, and exhibitions.

B. Impact – Six hundred and eight (608) consumers that completed a course and fulfilled auto-evaluations demonstrated the adoption of recommended practices of the Fight BAC Campaign.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

V. KEY THEME - FOOD SAFETY: CHILDREN AND YOUTH

A. A total of 553 children completed the Fight Bac lesson.

B. Impact – One hundred and eighty one (181) participated in the competition at regional level.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds and State

D. Scope of Impact – State Specific

VI. KEY THEME - FOOD SAFETY: FOOD EMPLOYEES (12-LESSON CERTIFICATION COURSE)

A. A total of 1,850 participants completed the course. A ten home economists worked in this project (FTE=3.5).

B. Impact – Ninety-eight (98%) of participants auto-evaluated themselves and all adopted the majority of the food handling practices related to HACCP as staged in the 1999 Food Code. The main practices adopted by participants were:

-Refuses perishable foods over 45°F during receiving.
-Facility has equipped hand-washing station available to employees.
-Employees washing their hands often.
-Disinfecting of work surface in contact with foods before food preparation and service.
-Facility has separate cutting table and utensils for meat and for vegetable and fruit.
-Compliance with cross contamination avoidance.
-Food Service facilities HACCP records. Demonstration of food temperature monitoring makes corrective action when deviations occur and keep records.
-Maintain hot food to 140°F or more.
-Used measure to cool hot foods quickly to lower from 140°F to 70°F in two hours and to 41°F in four hours.
-Keep pest management program.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

VII. KEY THEME - FOOD SAFETY: INSTITUTIONAL PERSONNEL

A. A total of 2,050 institutional personnel (serving to high-risk clientele) attended trainings on Food Safety and HACCP (196 Environmental Health Inspectors on foodborne illnesses, 484 of them were trained by the PR Partnership for Food Safety Education, and 1,370 by home economists.

B. Impact – The institutional personnel evaluated for outcome were:

Of 265 persons in charge of school food establishments that completed a 4-lesson course titled "Safety decisions in food handling", 208 comply with HACCP risk control standards.

Seventy-four (74) professionals from other agencies trained their employees.

Childcare at state level, Diurnal Home Care of Department of the Family, and hospitals of the Medical Center prepared HACCP plans and initiated their implementation.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

KEY PROGRAM COMPONENT (S)

Food Security:

Security of supplies - Develop a 5-session course designed for children and youth to help them understand the importance of agriculture in Puerto Rico.

Agronomists will establish or support farmer's markets, organized group or cooperatives, to expand access to affordable nutritious local food supplies.

PRAES professionals will offer short courses the public, teachers, and school children about the importance of agriculture in general and local agriculture in particular.

Affordability - The Program to Improve Nutrition in Puerto Rico (PIN) is known in Spanish as the "Programa para Mejorar la Nutrición en Puerto Rico" (MeNu). This program has three basic components: individualized group teaching, social marketing and the formation and fortification of coalitions at the local level.

Individualized group teaching consists of a short 6-lesson course with follow-up two to six months later to assess impact over time. Social marketing is planned by the coalitions that write mini-proposals for their communities to improve a specifically identified food access problem.

Implement the healthy diet information project MeNu directed to individuals and needy families to raise awareness and to promote the better use of food checks and other food programs.

Use a short course based on Belenky et al, and behavior modification techniques. In addition to the short courses, social marketing will be carried out through talks to community groups, newsletters, bulletins, exhibits, radio, TV, bulletin boards, and other mass marketing activities. Coalitions will be strengthened at the community level.

Food Safety

PRAES specialists at state level developed curriculums and program strategies for specific target clientele. They offer formal education or train-the-trainer to field personnel in the use of the teaching materials developed. Specialists also teach students of the College of Agricultural Sciences, and train the personnel of other agencies, industry, and the private sector. The agronomists and home economists are the field personnel that offer the non-formal teaching on food related matters to specific target clientele: farming, small business processors, food establishments, and consumers. Use of volunteers as community leaders has been an integral part of PRAES programs because they are the link to reach low-scholastic and low-income clientele.

Food Safety- Farmer, Wholesaler, Retailer - PRAES trains the staff personnel and agronomists in specific farm areas such as beef cattle, poultry, eggs, fruit, and vegetables, to qualify them to prepare programs to educate farmers, wholesalers, and retailers about food management skills leading to less contaminated and better quality foods. The University of Puerto Rico, the Food and Drug Administration (FDA), and the Food and Safety Inspection Service (FSIS) established a 5-year cooperative training and research program in the product areas subject to their regulation. As part of this partnership FDA specialized personnel train agronomists in farm food safety concerns related to emerging new pathogens or new vectors for pathogens, toxicity of novel products, and differing needs and applications for pesticide controls in tropical climates.

The agronomists might develop short courses to inform meat, poultry, and egg producers, processors, wholesalers, and retailers about food safety and their responsibilities related to the products with which they work.

Food Safety - Integrated Pest Management - Train-the-trainers agronomists and home economists were trained to use the knowledge of pest identification and alternative control measures offered so they can orient the clientele. Among the methods used to achieve and transfer pest control information are: training meetings, short courses, seminars, Extension publications, educational materials, radio and TV programs, and an IPM database program. The IPM program reaches audiences through meetings and contacts with other agencies, mass media, circular letters, and articles to journals, and the press. The office of the IPM Coordinator prepares checklists and surveys with the help of specialists and the Extension Evaluator to evaluate the adoption of IPM strategies in selected program areas.

Food Safety- Mastitis Prevention Program - Farm visits to train dairy farmers on mastitis management and quality milk production and to create awareness of the importance of proper antibiotic use, temperature control, and sanitation to prevent contamination of raw milk. Materials and slide sets have been prepared for this purpose. A close interagency coordination is maintained with law enforcement agencies like the Puerto Rico Departments of Health and Agriculture.

Food Safety – Consumers - To inform this clientele the PR Partnership for Food Safety Education (PRPFSE), established since 1998, has been organizing the Food Safety Month activities and translating the Fight BAC Campaign into Spanish. The partnership organized the proclamation activity and carries out mass media activities. They prepare posters, brochures and other educational material. PRAES prepares the Fight BAC lessons for children and adults. Home economists establish partnership committees at community level to offer food safety lessons to consumers.

Puerto Rico is in a high-risk area for Hurricanes, especially between the months of July and November. PRAES developed educational material named “Fight BAC! after floods and

electrical blackouts". PRAES personnel at local level offered this education to food employees and consumers through short courses and mass media community resources during the emergency.

Food Safety- Children and Youth - Home Economists recruit youth and prepare them to compete in the local, regional, and state "The Future Chefs" competitions. The trainings consist of a 5-lesson course (one lesson is "Fight BAC!").

Food Safety- Food Employees (12 lessons certification course) - The PRAES and the PR Food Hygiene Division, and the Department of Environmental Health have been working together in the past years to train home economists and Environmental Health Inspectors to offer the Food Safety Certification Course to personnel in charge of food establishments and employees. The 1997 Food Code and the course, were originally prepared in Spanish as part of the USDA-CRSEES Project No. 97-EFSQ-1-0096. The project director prepared and revises every year the contents and art of the 12-lesson course based on the Food Code, 1999 (FDA) and Managing Food Safety: A HACCP Principles Guide for Food Establishments, APRIL 1998. PRAES or the Food Hygiene Division, and the Department of Environmental Health update the Food Code every two years as FDA publishes the latest revision.

PRAES home economists and inspectors of the Department of Environmental Health in ten municipalities receive every year 3-day a training about the contents of the twelve lessons and administrative procedures. In the past years the home economists have participated in the Food Code trainings offered by National FDA resources.

PRAES home economists make initial visits to facilities to recruit persons in charge and to make a pre-evaluation of the facilities. They offer the courses in their respective municipalities. Three food specialists cover other petitions around the island.

Food Safety- Institutional Personnel – (high-risk clientele services) - PRAES home economists' plans at municipal level include offering food safety courses to food employees working with vulnerable groups to foodborne diseases. The curriculum was developed as part of the USDA-CSREES Project No. 96-EFSQ-1-4171. The course titled "Decisiones seguras en el manejo de alimento" (Safe decisions in food management) consists of the following four lessons: micro world, personal hygiene, food receiving and storage, and food preparation and service. At the completion of the course, the home economists evaluate if the HACCP standards were followed to control risk of foodborne diseases.

At state level the PR Partnership for Food Safety Education developed plans of action to train institutional personnel in charge of educating high-risk clientele and/or supervising food services.

INTERNAL AND EXTERNAL LINKAGES

Internal

UPR, Mayagüez Campus, Professional Resources - All PRAES Programs were assisted by the following professionals or offices: Evaluation Specialist, Editors in Charge of Educational Media and support personnel from the Educational Media and Information Office, Radio & TV Specialist, Press Specialist, Graphic Arts Specialist, External Resources Office, and the Planning and Evaluation Office

Food Security of supplies - Food and Nutrition Specialists, Agricultural Specialists in Horticulture and related areas, 4-H Specialists, Agronomists and Home Economists, Faculty of

the Agricultural Economics and Rural Sociology departments of the College of Agriculture, and the Sociology Department of the College of Arts and Sciences.

Food Security: Affordability - Food and Nutrition Specialists, Agricultural Specialists in Horticulture and related areas, 4-H Specialists, Agronomists and Home Economists, Faculty of the Agricultural Economics and Rural Sociology Departments of the College of Agricultural Sciences, and the Sociology Department of the College of Arts and Sciences.

Food Safety-Farmers, Wholesalers, Retailer - PRAES Personnel: Aquaculture Specialist, Entomology Specialists (3), Poultry and Eggs Specialist, Dairy Herd Specialists (3), Meat Specialists (3), Fruit Specialist, Starchy Vegetables Specialist, Vegetables Specialist, Agronomists (100); Personnel of the Mayagüez Campus-University of Puerto Rico: Seafood Products Specialist & Extension Agent, SEA GRANT, Professors in Marine Sciences, Professors in Food Microbiology, Professors in Food Science and Technology Program, and Professors in College of Art & Sciences (Microbiology and Marine Sciences).

Food Safety-Integrated pest management (IPM) - Extension IPM Coordinator, Entomology Specialists (3), Agronomists and Home Economists/Nutritionists, Crop Protection Department, and the Agricultural Experiment Station.

Food Safety- Mastitis Prevention Program - Extension Dairy Specialists (3), Agronomists, and Extension Dairy Agents (16).

Food Safety-Consumers, and Employees of Food Establishments - PRAES Personnel: Food and Nutrition Specialist, RD, Food Technology Specialist, Consumer Affairs Specialist, Nutritionist, LND, Home Economists, Regional Supervisors, Family and Consumer Education Program (5), Personnel from Mayagüez Campus-University of Puerto Rico: Professors of Food Science and Technology Department.

External

Food Security of Supplies and Food Security affordability - The Administration of Socio Economic Development of the Family Department of Puerto Rico, Nutrition Committee of Puerto Rico, and the Food and Nutrition Commission of Puerto Rico.

Food Safety-Farmers, Wholesalers, Retailer – Department of Agriculture of Puerto Rico, Department of Health, and Environmental Health Secretariat Inspectors.

Food Safety-Integrated pest management (IPM) - Cooperation will continue and efforts will be strengthened with home makers, Home Economists Association, the food service industry, and other government agencies such as the State Department of Health.

Food Safety-Mastitis Prevention Program - US and State Department of Health, the US and State Department of Agriculture, and US Food and Drug Administration.

Food Safety-Consumers and institutional personnel - PR Partnership for Food Safety Education, external personnel are: Director of Food Hygiene Division, PR Department of Health, Public Affair Specialist, Federal Food and Drug Administration (2), Director of Nutrition Service, Governor's Office for the Elderly Affair, State Epidemiologist, Epidemiological Division for Transmissible Disease Prevention and Control, Executive Director, Supplementary Nutrition Special Program (WIC), Agricultural Department, HACCP Assistant, Secretary for Special Services,

Representatives, Department of the Family's Child and Family Administration & Head Start, Director of Food and Nutrition Services, State Agency, Department of Education, and Public Affairs Pueblo Supermarket.

Partnerships at local level (organized by PRAES Home Economists) - Puerto Rico Department of Health, Environmental Health Secretariat Inspectors, Family and Consumers Education Association, Communities, cooperatives and non-profit organization consumers groups, Puerto Rico Department of Education, School Food Authority, Puerto Rico Department of the Family, Government day care services for infants, children, elderly, sick persons, etc., churches with diurnal care services for infants, children, elderly, sick persons, etc., "CREA" (an educational rehabilitation center for drug addicts and alcoholics) and other home for drug addicts in the rehabilitation process, Supermarkets (Econo, Grande, Amigo, Pueblo, etc.), and radio and newspapers.

Civic and professional organizations and other collaborators - Puerto Rico Association for Health Education, Puerto Rico College of Nutritionists and Dietitians, Agronomists' Association, Puerto Rico Hotel Schools, Volunteers of the Family and Community Education Association, and other farm associations, food industry marketers and distributors.

TARGET AUDIENCES

People susceptible to foodborne diseases such as handicapped, veterans, children, youth, pregnant women and elderly are under PRAES served population in all programs. Other specific target clientele by programs are:

Food Security: Primary audience: children and youth of low-income families. Secondary audiences: People eligible to receive money for food from the Department of the Family, Employees of the Department of the Family, and employees of other social programs.

Food affordability: Primary audience: People and families who receive food checks or electronic transfer of funds provided by the Department of the Family. Secondary audiences: People eligible to receive money for food from the Department of the Family, Employees of the Department of the Family, employees of other social programs.

Food Safety-Farmers, Wholesalers, Retailer: Farmers, food processors, wholesalers, retailers, fishermen and aquaculturists.

Food Safety-Integrated pest management (IPM): Health Food Inspectors, persons in charge of food service establishments and home makers.

Food Safety- Mastitis Prevention Program - Dairy farmers and Dairy Managers.

Food Safety-Consumers & Food Employees – Consumers, 4H Program children and youth, persons in charge of food establishments and employees, and personnel that serve high-risk clientele.

EVALUATION FRAMEWORK

Food Security Affordability

Formative evaluation: informal reports by the Home Economists.

Summative evaluation: Self-reported impact of the short courses done by the Home Economists.

Evaluation Design: not specified

Evaluation summary: At this time for this program we are depending on self-reported information from the Home Economists.

Food Affordability

Formative evaluation: focus groups of Home Economists and participants. Evaluation visits by state Specialists to Home Economists selected randomly.

Summative evaluation: The Home Economists are asked to record changes that the participants in the classes of individualized group teaching report that they are doing. They also do a group evaluation two to six months after the last class session.

Evaluation design: multiple techniques are used to assure that the information is as accurate as possible. The formative evaluation is three fold: by the Home Economist each time she teaches a class, by focus groups of randomly selected Home Economists and a participant they select to participate, and visits by state staff to randomly selected Home Economists to evaluate teaching sessions. The summative evaluation is done by having the Home Economists report on the number of people who have made specified changes in shopping and food procurement behaviors.

Evaluation summary:

-Visits to one third of the Home Economists randomly selected.

-Home Economists reports of adoption of practices.

-Focus groups of Home Economists and participants as to outcome and adequacy of processes and outcomes.

Food Safety

Formative Evaluation - Participants receive the Food Safety certification after approving the following requirements: –Attendance

–Utilizes a food temperature / time control method (HACCP)

–Obtains a minimal score of 70% in tests.

Summative Evaluation: Mechanism to evaluate adoption of practice:

–Pre-post behavior auto evaluation of the participant.

–Temperature / time control methods available for the employees monitoring process.

–Evidence of using a certificated person to apply pest control products.

Evaluation Design - questionnaires

Question 1: What were the reactions of participants toward the training?

Question 2: What is the level of attitude, skills and aspirations of participants regarding the adoption of adequate agricultural practices?

Question 3: What is the level of adoption of agricultural practices among participants of non-formal education training?

Evaluation Source: Published Data of Extension Annual Achievement (1999-2000).

Health

Question 1: About 3,824 individuals were trained. Around 1,126 persons were trained in safety and accident prevention. One thousand six hundred and eighty-nine(1,689) persons attended clinics of preventive health. Approximately 255 parents received orientation in immunization. Eighty-five (85) faculty extension personnel and 91 volunteer leaders were trained. Around 81 professionals from other agencies were trained, 501 individuals were trained in health prevention practices.

Question 2: One thousand two hundred and twenty-six (1,126) persons improved their skills and changed attitudes in practices related to improve their lifestyles. Approximately 89 persons improved skills and changed attitudes in practices related to prevention of accident.

Food Safety

Question 1: About 4,444 persons attended the educational activities of food safety. Approximately 1,270 professionals from different agencies were trained by home economists and 74 professionals from other agencies trained their employees. Two hundred and eight (208) institutions satisfied risk control requirements through a HACCP plan. Six hundred and eighty (680) professionals were trained by the food safety specialist. Two hundred and sixty-five (265) food employees completed the course "Safe Decisions in Food management".

Question 2: One thousand and eight (1,008) consumers increased their knowledge upon completion of the course in food safety. Six hundred and eight (608) consumers planned to adopt food safety practices at the end of the course (aspirations). About 1,850 people completed a 12-lesson certification course and showed knowledge gain. One hundred fifty nine (159) agricultural business prepared a HACCP plan.

Question 3: One thousand eight hundred and thirteen (1,813) food employees adopted safe practices of food safety.

OBJECTIVES, PERFORMANCE GOAL (S) AND OUTPUT AND OUTCOME INDICATORS

OBJECTIVE 1
The assurance of an adequate food supply.

PERFORMANCE GOAL 1
To annually increase consumer awareness, understanding, and information on food accessibility and affordability in which CSREES partners and cooperators plan an active research, education, or extension role.

INDICATOR 1
A. The total number of persons completing non-formal consumer education programs on food access and affordability. (Output)

B. The total number of these persons who actually adopt one or more recommended practices within six months after completing one or more of these programs. (Outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	1884	150[1]	855	53
2001	1946	0	911	0
2002	1990	0	974	0
2003	2041	0	1120	0
2004	2045	0	1023	0

[1]Considering the date in which the training meetings were held, and the fact that the home economists already had their plans made for the spring semester, we think this is a significant beginning for this program.

PERFORMANCE GOAL 2

To increase the effectiveness of constituent and citizen participation on public policy issues affecting food security (i.e., food access, affordability, and recovery).

INDICATOR 1

A. The total number of persons completing non-formal education programs on public policy issues affecting food security (i.e., food access, affordability, and recovery). (Output)

A. The total number of these persons who actually become actively involved on such issues within six months after completing one or more of these programs. (Outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target		Actual	
2000	482	1933	274	1887
2001	472	0	291	0
2002	538	0	272	0
2003	527	0	286	0
2004	541	0	295	0

OBJECTIVE 2

To improve food safety by controlling or eliminating food-borne risks

PERFORMANCE GOAL 2

To annually increase the consumer (included children, youth, and adult) awareness, understanding, and information on food safety, food-borne risks and illnesses in which CSREES partners and cooperators plan an active research, education, or extension role.

INDICATOR 1

A. The total number of person completing non-formal, consumer education programs on food safety and/or food borne risks and illnesses. (Output)

B. The total number of these persons who actually adopt one or more recommended food safety behaviors or practices within six months after completing one or more of these programs. (Outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target l	Actual
2000	843	1173[2]	515	685
2001	831	0	466	0
2002	796	0	418	0
2003	745	0	403	0
2004	771	0	392	0

[2]Refers to Consumers only, but another 8,672.

Additional 4,444 persons attend non-formal education activities of Fight BAC Campaign.

INDICATOR 2

The total number of individual completing food handler certification programs conducted by CSREES partners and cooperators on an annual basis (Outcome)

Year	# of persons completing programs	
	Target	Actual
2000	551	1,850[3]
2001	1500	0
2002	1500	0
2003	1500	0
2004	1500	0

[3]This year the number of participants increased because since March, 2000, regulation specified that all persons in charge of food establishments should complete a food safety certification course. PRAES is the only provider offering this course free of charge. Another three private providers also offer this course.

INDICATOR 3

The total number of facilities meeting HACCP standards for food handling and management of risks associated with food borne illnesses. (Outcome)

Year	# of facilities meeting HACCP standards	
	Target	Actual
2000	196	159[4]
2001	300	0
2002	300	0
2003	300	0
2004	300	0

[4]Almost all participants (1850) meet HACCP standards, one or more participant of each facility approved the Food Safety and HACCP certification course. HACCP plan is voluntary for food establishments.

INDICATOR 4

The total number of milk production facilities meeting management of risks (bacteria's and somatic cell) associated with food borne illnesses. (Outcome)

Year	# Of facilities meeting 100,000 or less colonies of bacteria's.		# Of facilities meeting 750,000 or less somatic cell.	
	Target	Actual	Target	Actual
2000	373	370	365	360
2001	378	0	370	0
2002	377	0	376	0
2003	378	0	378	0
2004	388	0	380	0

[5]Approximately 400 dairy farms provide 100% of Puerto Rico's needs. This year the Milk Industry initiated the implementation of HACCP. The control effectiveness were evaluated by using the parameters indicated in the table. The excessive numbers represent the total number analysis.

PROGRAM DURATION

5-Year Program Cycle

ALLOCATED RESOURCES

	Resources			
Fiscal Year	State	Federal	Others Federal	Total
2000		$117,285.97		$117,285.97
2001				
2002				
2003				
2004				

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	4.27					
2001						
2002						
2003						
2004						

EDUCATION AND OUTREACH PORGRAMS

PRAES will continue developing ongoing food safety programs at different levels in a from-the-farm-to-the-table approach. Multi-county cooperation will continue and PRAES personnel will cooperate in the dissemination of research results.

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GOAL 3. A HEALTHY, WELL-NOURISHED POPULATION.

OVERVIEW

Extension agents and volunteers play an active role to improve individual and family nutrition and health through non-formal nutrition or health education programs. During FY 1999-2000 training to PRAES personnel to prepare them to conduct nutrition and health promotion and education projects was continued. In health, emphasis was put on health fraud. The target audience was individuals infected and/or affected by HIV/AIDS, adults, and elderly people. In the area of nutrition, emphasis was placed on eating according to the Food Guide Pyramid. The main target audience was people who prepare meals for their families.

In accordance to the national health initiative Healthy People…Healthy Communities, during FY 1999-2000 the health specialist developed a curriculum for the health project promoting healthy lifestyles. Its goal is similar to the initiative's goal: to educate and empower individuals to adopt healthy behaviors and lifestyles. PRAES continues to work in partnership with different health education and human services agencies to create innovative solutions to improve the well-being of individuals and communities. At state level, PRAES belongs to the following partnerships: Puerto Rico HIV/AIDS and Health Fraud Prevention Commission, Pro Homeless Veterans Association, Medical Science Campus/P.R. Training AIDS Education and Training Center, Indoor Air Quality Coalition, and the Tobacco Prevention Coalition.

The PRAES health specialist, as part of the Puerto Rico HIV/AIDS and Health Fraud Prevention Commission, conducted training seminars targeted to health professionals. Approximately 200 individuals benefited from these trainings. A trainer kit was developed which includes presentations, visual aids, brochures, posters, and different references about the topic. The kits were distributed among the participants at the seminars.

The PRAES health specialist collaborated in the publication of the Journal of the Health Educators Association, Perspectives of Health Education in Puerto Rico as editor of the Journal and by publishing two articles. The main topic of the 2000 Journal was Indoor Air Quality (IAQ). Five hundred (500) copies of the Journal were published and distributed among the health professionals and copies of the Journal were distributed to PRAES local offices. This specialist was also appointed by the Governor to serve as member of the Puerto Rico Health educator's Examination Board.

In the area of IAQ an exhibit was developed emphasizing on the side effects of environmental tobacco smoke on children. This project was in part sponsored by the project XX-EIAP-O-3900.

We have no recent data on dietary habits of Puerto Rican families. However, observations of food available in supermarkets and the proliferation of fastfood establishments suggest that many Puerto Ricans have abandoned the traditional diet, which is rich in starchy vegetables, legumes, and native fruits, and adopted a diet in which foods of animal origin, processed, and fastfoods predominate. This new form of eating is high in fats, saturated fat, cholesterol, protein, sugar, salt/sodium, and alcohol, and is low in complex carbohydrates, dietary fiber, phytochemicals, vitamins, and minerals. These changes in our diet are related to our main causes of disease and death: cardiovascular diseases, diabetes, cancer, stroke, hypertension, hepatic diseases, renal diseases, and others.

The Program to Improve Nutrition in PR (PIN/MeNu), which works with the Nutrition Assistance Program of the Department of the Family, continues to teach good food habits to

improve normal nutrition. In addition short courses, designed to help people who have established nutritional problems, were included as a separate entity.

The Commission on Foods and Nutrition was legislated in 1999. This Commission, which includes representatives of cabinet level officials of the Puerto Rican government, establishes public policy in these areas. One of the Food and Nutrition Specialists was appointed by the Governor to serve as member of this Commission.

I. KEY THEME – HUMAN HEALTH

A. PRAES personnel implemented health projects directed to children and youth using different curriculums developed by the specialist (for children: Learning to be Healthy (HIV/AIDS prevention), Toward a Drug Free Year 2000; for adolescents: the curriculums of PAS Project (Postponing Sexual Activity), Human Sexuality, HIV/AIDS prevention and Personal Care Project. Also, Puerto Rico was an implementation and demonstration site for the National Youth No Smoking Prevention Program (NYNSPP): Free For Life and received $40,000 for its implementation. For adults, different curricula were used such as promoting Healthy Lifestyles, Preventing Health Fraud, HIV/AIDS Prevention, and Human Sexuality. Both groups were oriented on the aspects of risk reduction and safety.

B. Impact - Approximately 685 children and youth completed non-formal health education and promotion programs, 217 of them adopted one or more recommended practices after completing one or more of these programs. Also, around 345 youth and children participated in the Free for Life (NYNSPP). Of these, a total of 120 reported adopting one or more recommended practices after completing the programs.

A total of 3,824 adults completed non-formal education programs on topics related to health promotion and health education. Of these, 1,126 adults reported reducing their risk levels upon completion of one or more health education/promotion programs. The results between targeted and actual performance indicate a difference in more persons completing programs and accomplishing goals.

Around 279 persons participated in a non-formal educational program on the topic of risk reduction and safety; of these, 170 adopted recommended practices to reduce the level of home and traffic risks.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State specific

II. KEY THEME- HUMAN NUTRITION

A. In 1998 a 6-session short course was developed to improve nutritional practices among participants in the Nutrition Assistance Program (NAP) of the Puerto Rico Department of the Family. The course includes sessions to assess the current situation in terms of eating behaviors with emphasis on what they are doing right, meal planning, shopping behaviors, and food preparation.

B. Impact - In FY 2000, 2,489 people participated in these courses. Of these, 1,887 completed the course, 1,625 planned to change one or more practices, and 648 reported that they had managed to change one or more practices six months later. In addition, 18,194 persons participated in social marketing activities designed to help them change dietary habits. Newspaper articles, radio, and television reached an additional 17,812 persons.

C. Source of Federal Funds: Smith Lever 3(b), 3(c) Funds

D. Scope of Impact: State specific

III. KEY THEME- DIETARY HABITS

A. A total of 2,577 persons completed non-formal nutrition education programs to improve their dietary habits in order to reduce the risk factors of chronic diseases: obesity, hypertension, blood cholesterol, blood sugar, low consumption of vegetables, fruit and whole grain products, and others.

B. Impact – Five hundred and eighty-five (585) persons adopted one or more recommended dietary habits six months after completing the short course.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State specific

KEY PROGRAM COMPONENTS

The PRAES offered orientation and promoted the development of the health promotion and prevention projects to all PRAES home economists and volunteers. Extension continues to work in different partnerships with health, education and human services agencies, as well as university training programs in order to develop the health projects. Extension agents developed the educational program using different strategies such as short courses, exhibits, health fairs, mass media, and others. The following health projects were used to help children and adolescents to develop skills to change behavior: postponing sexual activity (peer education), learning to be healthy (HIV/AIDS prevention for children), toward a drug free year 2000 and ATOD and sexual abuse prevention using the puppet theater. These projects evaluated the knowledge and the attitude of the participants using pre and post-tests.

A curriculum, in power point presentation, was developed to educate and empower individuals to adopt healthy behavior. This project promoted healthy lifestyles to educate and empower individuals to adopt healthy behaviors and lifestyles using ten (10) lessons.

Dietary habits to prevent nutrition related chronic disease: Lessons for short courses were prepared in power point and transparencies. These courses recommend healthy balanced diets and physical exercise practices related to: weight management, reduce dietary total fats, reduce dietary sodium /salt, controlling high blood pressure and diabetes, and preventing chronic diseases through the increase of consumption of vegetables, legumes, fruit, and whole grain cereal products.

Pre- post knowledge tests and pre-post habit questionnaires were prepared for auto evaluations of the participants.

The Food and Nutrition Specialists trained home economists, professionals from others agencies, and community leaders. The home economists trained volunteers and both participated in the development of educational activities to target audiences.

The Program to Improve Nutrition in Puerto Rico (PIN) is known in Spanish as "Programa para Mejorar la Nutrición en Puerto Rico" (MeNu). Its three basic components are: individualized group teaching, social marketing, and the formation and fortification of coalitions at the local level. Individualized group teaching consists of a 6-lesson short course with follow-up two to six months later to assess impact over time. Social marketing is planned by the municipal coalitions, which write mini-proposals for their communities to improve a specifically identified nutrition or food access problem.

INTERNAL AND EXTERNAL LINKAGES

Internal

Health, Food and Nutrition Specialists, Agricultural Specialists in Horticulture and related areas, 4-H Specialists, Agronomists Home Economists, Faculty of the Agricultural Economics and Rural Sociology departments of the College of Agricultural Sciences, the Sociology Department of the College of Arts and Sciences, Regional Supervisors of the Family and Consumer Sciences education program (5), and PRAES volunteers.

External

The Administration of Socio Economic Development of the Puerto Rico Department of the Family, Nutrition Committee of Puerto Rico, the Food and Nutrition Commission of Puerto Rico, Puerto Rican Heart Association, Department of Health, Food and Drug Administration, American Cancer Society, Medical Science Campus-University of Puerto Rico, Environmental Protection Agency, Puerto Rican Lung Association, Department of Labor, and Health Educator's Association.

EVALUATION SUMMARY

The basic impact information is collected from monthly and, in the case of PIN/MeNu at end of course, reports submitted by the Home Economists. Below a more complete description of the evaluation methodology of the Human Nutrition and Dietary Habits programs.

Human Nutrition PIN/MeNu (Adequate Normal Nutrition)

Formative evaluation: Focus groups of home economists and participants. Evaluation visits by state Specialists to home economists selected randomly.

Summative evaluation: The home economists are asked to record changes that the participants in the classes of individualized group teaching report they are doing. They also do a group evaluation two to six months after the last class session. The indicators used to asses impact are: 1) Number of people who increased consumption of fruits, vegetables, whole grain cereals, water or milk and milk products; 2) The number of people who decreased consumption of milk and milk products, meat, fish or poultry, liquids that are basically water and sugar, other sources of sugar, salt, fat; 3) The number of people who prepare meals instead of nibbling; 4) Those who prepare adequate snacks; 5) Those who eat adequate breakfasts, 5) Those who learned to prepare one-dish meals; and 6) Those who have tried new recipes as a result of the program.

Evaluation design: Multiple techniques are used to assure that the information is as accurate as possible. The formative evaluation is three- fold: by the home economist each time she teaches a class, by focus groups of randomly selected home economists and a participant they select to participate, and visits by state staff to randomly selected home economists to evaluate teaching sessions. The summative evaluation is done by having the home economists report on the number of people who have made specified changes in shopping and food procurement behaviors.

Evaluation Source: Visits to one third of the home economists randomly selected, home economists reports of adoption of practices, focus groups of home economists and participants as to adequacy of processes and outcomes, 24 hour recalls of selected groups of participants and comparison groups of non-participants to assess the impact of the 5-course session on participants compared with changes that might have occurred in the general population without intervention.

Dietary Habits

The methods used to collect data to determine adoption of recommended nutrition practices or recommended Dietary Guidelines are questionnaire of pre- post habits for each of the courses/programs. The questionnaires include about 15-20 different indicators of practices or guidelines.

Program participants completed questionnaire and data were compared to determine outcomes. There is difficulty in evaluating participants six-months after completion of course. Only 41% of participants were evaluated but almost all adopted at least five or more recommended practices.

Evaluation Source: Pre-test and post-test dietary habits, and the Annual Report of Achievement of the Agricultural Extension Service (1999-2000).

Question 1: What were the reactions of participants toward the training?

Question 2: What is the level of attitude, skills and aspirations of participants regarding the adoption of adequate agricultural practices?

Question 3: What is the level of adoption of agricultural practices among participants of non-formal education training?

Question 1: The participants in the focus groups for PIN/MeNu are enthusiastic about the program. They find the bulletins that were written for the program are very helpful. They recognize that they were spending large amounts of money on foods of low nutritional value. One reported that he had learned to cook and now would like to teach others what he learned. He cannot understand why others do not adopt practices that are so important. Others reported that they do not fry foods as frequently as before and they are much more conscious of the importance of good food selection.

Question 2: Attitudes of participants have not been measured. According to evaluation research the methodology used for measuring attitudes does not produce results that relate to actual adoption of dietary habits.

Four hundred sixty eight (468) recipes were presented to the participants of PIN/MeNu. Seven hundred forty-one (741) persons have tried one or more new recipes as a result of

participation in this program. One-dish meals are encouraged to increase vegetable consumption and have recipes that can be used in case of emergencies. The home economists informed that 502 people have learned to prepare such meals.

Of the 2,489 participants in PIN/MeNu, 1,625 reported that they planned to change one or more dietary practices.

Question 3: As a result of the short courses offered in PIN/MeNu, 603 people increased fruit consumption, 546 increased vegetable consumption, 390 increased consumption of whole grain cereals and breads, and 665 increased consumption of water. In order to enable them to increase consumption of the previously mentioned areas people have to decrease consumption in other areas. The home economists informed that 266 people decreased their consumption of meat, poultry and fish, 565 decreased consumption of liquids that are basically water and sugar, 466 decreased consumption of other sources of sugar, 508 decreased consumption of salt, and 523 decreased the use of added fat.

While the majority, especially those who do not drink coffee, would probably benefit from increased use of milk and milk products, a minority over-consumes these foods. According to the information received at the state level, 447 people increased consumption of milk and milk products, and 166 informed decreased consumption of milk and milk products.

Improved practices related to eating patterns resulted in 596 who now eat meals instead of nibbling, 733 who now eat an adequate breakfast, and 584 who prepare adequate snacks.

Thirty-two (32) people of 57 reported that they attended classes related to weight reduction, carried out recommended nutrition practices, and exercised in order to lose 3-8 pounds per month. Twenty-three (23) participants were evaluated and had maintained the lost weight six months after completing the course or orientation. Of the 51 people who attended classes related to diabetes, all made some improvements that would help them control their disease. Ten (10) managed to maintain fasting blood glucose levels between 70 and 160 mg/dl six months after the intervention. Of the 75 who participated in classes directed to control of hypertension, 30 decreased their sodium consumption (they were evaluated six months after completing the program).

National Youth Smoking Prevention Program (NYSPP)

Question 1: Four hundred and ninety-four (492) children and youth were oriented in smoking prevention. Two hundred and twelve (212) children and youth participated in a pilot project and camp.

Question 2: Four hundred and sixty-five (465) children and youth increased their knowledge in smoking prevention.

Question 3. Four hundred and sixty-five (465) children and youth adopted recommended practices in smoking prevention.

OBJECTIVES PERFORMANCE GOAL(S) AND OUTPUT AND OUTCOME INDICATORS

OBJECTIVE 1

To optimize the health of consumers by improving the quality of diets, the quality of food, and the number of food choices.

PERFORMANCE GOAL 2

To annually reduce the health risk factors through non-formal educational programs to improve dietary habits and physical exercise practices in which CSREES partners and cooperators play an active research, education, or extension role.

INDICATOR 1

A. The total number of persons completing non-formal nutrition education programs on better management of health risk factors (e.g., obesity, hypertension, etc.). (output)

B. The total number of participants meeting or exceeding some established goal or standard to reduce the level of risk upon completion of one or more recommended nutrition practices within six months of completing one or more of these programs. (outcome)

Year	INDICATOR 1A Output)		INDICATOR 1B (Outcome)	
	Target	Actual	Target	Actual
2000	2254	2,577	1309	585[1]
2001	2325	0	1400	0
2002	2414	0	1402	0
2003	2389	0	1381	0
2004	2546	0	1492	0

[1]The output number is a best "guesstimate" of what happened due to underreporting of the number who enrolled in short courses and presumed repetitions over two or more months of people who "planned to adopt practices". The number who adopted practices is low due to the difficulty of finding participants six months later.

PERFORMANCE GOAL 3

To annually increase consumer awareness, understanding, and information on dietary guidance and appropriate nutrition practices in which CSREES partners and cooperators play an active research, education, or extension role.

INDICATOR 1

A. The total number of persons completing non-formal nutrition education programs that provide dietary guidance to consumers. (output)

B. The total number of these persons who actually adopt one or more recommended Dietary Guidelines within six months after completing one or more of these programs. (outcome)

Year	INDICADOR 1A (Output)		INDICADOR 1B (outcome)	
	Target	Actual	Target	Actual
2000	9217	2,489[1]	6411	741[1]
2001	2,000	0	800	0
2002	2,000	0	800	0
2003	2,000	0	800	0
2004	2,000	0	800	0

[1]These numbers are based on the results of the short courses of PIN/MeNu. Apparently there was confusion in the original numbers between those reached by short courses and those reached by other methods. In PIN/MeNu each home economist of the regular PRAES Program is expected to teach at least 20 participants in the Nutrition Assistance Program (NAP) in short courses, and the two home economists that worked full-time in FY 2000 were expected to reach a minimum of 100 participants for a combined

expected total of 1,600. The number reported in the charts is higher than this expectation due to inclusion of non NAP participants in the short courses, and the fact that some home economists reached more people than the minimum required. The expected target for output must be revised to 1,600 for FY 2000, 2,000 for FY 2001 and later, and for outcome to 800 for FY 2001 and later. The numbers who adopt practices is low due to difficulty in finding participants six months after the end of the short course.

OBJECTIVE 2

To promote health, safety, and access to quality health care.

PERFORMANCE GOAL 2

To annually improve individual and family health status through non-formal health education/risk reduction and promotion programs in which CSREES partners and cooperators play an active research, education, or extension role.

INDICATOR 1

A. The total number of persons completing non-formal education programs on topics directly related to health education/risk reduction and health promotion. (output)

B. The total number of participants meeting or exceeding some established goal or standard to reduce the level of risk upon completion of one or more health education/risk reduction and health promotion programs. (outcome)

Year	INDICATOR 1A (Output)		INDICATOR 1B (Outcome)	
	Target	Actual	Target	Actual
2000	1585	4,786[2]	660	2,508[2]
2001	1736	0	853	0
2002	1816	0	883	0
2003	1886	0	951	0
2004	1979	0	997	0

[2]These numbers suggest that the educational needs of the population served were more related to health promotion and the personnel made more efforts in this area and we achieved more than the projected.

PERFORMANCE GOAL 3

To annually increase the level of individual and family safety (or reduce risk levels) from accidents in the homes, schools, workplaces, and communities.

INDICATOR 1

A. The total number of persons completing non-formal education programs on topics related to home and workplace risk reduction and safety. (output)

B. The total number of participants meeting or exceeding some established goal or standard to reduce the level of home and workplace risk upon completion of one or more risk reduction programs. (outcome)

Year	INDICATOR 1A (Output)		INDICATOR 1B (Outcome)	
	Target	Actual	Target	Actual
2000	618	279[1]	372	170[1]
2001	677	0	407	0
2002	690	0	400	0
2003	614	0	401	0

2004	647	0	417	0

[1]These numbers were lower than the projected because the educational needs of the population served were more related to other areas and the personnel refocused their objectives.

PERFORMANCE GOAL 5

To annually increase the availability of health education programs to communities in which CSREES partners and cooperators play an active research,
education, or extension role.

INDICATOR 2

The total number participants in community-wide health events. (outcome)

Year	# of participants community-wide health events	
	Target	Actual
2000	2427	2,094[2]
2001	2571	0
2002	2506	0
2003	2711	0
2004	2716	0

[1]This year the personnel made more efforts in small education groups in order to achieve their educative goals and limited their participation in health fairs.

PROGRAM DURATION

5-year Planning Cycle.

ALLOCATED RESOURCES

	Resources			
Fiscal Year	State	Federal	Others Federal	Total
2000		$776,138.34	$1,352,330.00	$2,128,468.34
2001				
2002				
2003				
2004				

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
200	28.26					

0						
2001						
2002						
2003						
2004						

EDUCATION AND OUTREACH PROGRAMS

PRAES will continue focusing on health and nutrition programs. Research from the Agricultural Experiment Station and the Medical Sciences Campus of the University of Puerto Rico will be disseminated through the island by county Extension personnel.

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GOAL 4 TO ACHIEVE GREATER HARMONY (BALANCE) BETWEEN AGRICULTURE AND THE ENVIRONMENT.

OVERVIEW

Puerto Rico faces a diversity of environmental problems possibly due to its geographical location in the hurricane path, its tropical climate and dense population. Water has become a big concern both as a matter of quantity and quality, also affecting the island's economic development, agricultural production, as well as human consumption. The Puerto Rico Agricultural Extension Service (PRAES) provides information regarding public policies on agriculture, forestation, sustainable agriculture, recycling, land use, and soil conservation for the protection of the environment and vital natural resources.

The PRAES Water Quality (WQ) program provides informal education and information to the communities to create awareness of the maintenance needed to operate rural aqueducts and to ensure the safety of the water. A multi-agency committee (composed by EPA, Dept. of Health, National Rural Water Assoc., Rural Housing and PRAES) met once a month to analyze and discuss ways to handle problems related to drinking water in rural isolated areas. Often, the rural communities are not organized and lack the resources to implement the necessary infrastructure to comply with safety requirements. Therefore, in this long-term process, besides evaluating the actual situation and providing information, assistance is offered to communities on how to get organized and connected with the appropriate agencies that can help them. The PRAES WQ program also covers waste management as well as other related topics. Work in waste management was directed toward the planning and implementation of environmental control systems (best management practices – BMP) in farms with animals in confinement, often in spread small farming units. Many of these farms have implemented their waste management systems but lack efficient operation and management. Some have never been completed or submitted for approval by the regulatory agencies.

Assistance was provided to coffee processing plants to up-grade their facilities. Coffee is cultivated and processed in the central mountain region characterized by steep slopes. Solids and liquid wastes resulting from coffee processing have to be properly handled to protect water resources. This work is conducted in cooperation with the Environmental Quality Board (EQB).

The Alzamora Laboratory Farm at the Mayagüez Campus of the University of Puerto Rico reserved an acre of land for the deposit of grass clippings and dry leaves to prepare compost. At first, it began with the daily collection of material from the maintenance of green areas on the Campus. Now it also receives material from the maintenance of roadsides from Mayagüez Regional Department of Transportation. The resulting compost material is sold in plastic bags and is in great demand by the public for pot soil for house plants.

Educational efforts on sustainable agriculture have been implemented in Puerto Rico for several years. A proposal approved by the Sustainable Agriculture Research and Education (SARE) allowed for the planning and coordination of educational activities to train agricultural personnel and farmers. Such efforts will be continued for their vital importance in the conservation and improvement of the economy and the environment.

The state government established an ambitious reforestation program where the Department of Natural Resources and Environment must annually prepare the seedlings, mostly of native trees, to be planted around the island. The program is called "Sembrando por Puerto

Rico" (Planting for Puerto Rico), and the PRAES plays a major role in the education; planting, and general care for the establishment of these new trees. During 1999-2000, 750,000 were planted of a goal of one million trees.

The agreement between the Forest Service and the College of Agriculture was broadened to cover the Virgin Islands (Caribbean Urban Forest Agreement). In 2001, a strong effort on education will be devoted to managing emergencies, where Extension personnel from the Virgin Islands will cover the English speaking Caribbean Islands while Puerto Rico will do the Spanish. As a result of collaboration between the EQB, the Dept. of Natural Resources and Environment, the Planning Board, and the PRAES, a videoconference was offered to agricultural agents in August 2000 on the existing regulations in Puerto Rico for the Management of Urban Trees.

According to federal and state regulations, it is required that any person interested in the use or supervision of the application of pesticides must receive training and be certified to do so. PRAES is the agency in charge of providing the required training and the Department of Agriculture in Puerto Rico certifies the use for commercial and private purposes. The Integrated Pest Management program incorporates the applicators training and the combined use of pesticides and other control methods to reduce the risks of contamination, crop disease reinfestation and cost reduction for the farmer. The Environmental Protection Agency (EPA) can cancel the registration of pesticides that are harmful to the environment or to human health. Through the National Agricultural Pesticide Impact Assessment Program (NAPIAP) each state or territory individually evaluates the economical consequences of the cancellation or restriction of the use of a pesticide. The Forest Health Management Project was implemented for the identification and management of weeds, insects, nematodes and diseases that commonly affect trees and shrubs on forests and urban environments.

In addition to the above mentioned, a Memorandum of Understanding was signed between the PRAES and the PR Space Grant Consortium to prepare educational material and to train PRAES personnel on marine resource conservation and on space topics ("Encuentro con el Mar and NASA: Un Encuentro con el Espacio" –Encounter with the Sea and NASA: An Encounter with Space), targeted to youth. The lessons for "Encuentro con el Mar" are almost ready to print and plans are to start training March 2001.

I. KEY THEME – WATER QUALITY

A. The PRAES WQ program provides informal education and information to the communities to make them aware of the maintenance needed to operate a rural aqueduct and to ensure the safety of the water. A total of 14 meetings of the multi-agency committee were conducted, often with community residents. Other related topics to ensure the quality and quantity of water are covered.

B. Impact - One thousand six hundred eighty-eight (1,688) persons received information from presentations, community follow-up visits, talks, and two radio programs. Eight (8) rural aqueducts were evaluated and personnel received orientation on how to comply with safety regulations. Two communities improved their aqueducts where 400 people benefited. Two publications were prepared in Spanish.

One hundred and twenty (120) farms received assistance for their new or existing farm waste management systems, 34 systems were completed, 22 coffee farmers improved their processing facilities and 30 established or improved their waste management of coffee subproducts.

Seven thousand two hundred and twenty-six (7,226) persons received information on recycling, 2,740 persons adopted or improved their recycling practices, 2,357 were trained on the preparation of compost, and 333 of them prepared compost.

Three thousand three and hundred seventeen (3,317) persons received information on the conservation of natural resources and protection of the ecosystem, 1,778 adopted or improved natural resources practices.

One thousand one hundred and nine (1,109) persons were assisted on soil conservation practices, 279 adopted recommended practices.

Sixty-two (62) decision-making personnel, government agency personnel and other citizens were informed about the risks and cost of poor water quality and about ways to improve it.

Fifty (50) persons were informed about water quality regulations, sources of data available, scientific studies, and of federal, state and other regulatory documents. Twenty-one (21) persons were involved in the decision-making on environmental public policy issues.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of impact – State Specific

II. KEY THEME -SUSTAINABLE AGRICULTURE

A. A participatory research effort was conducted where two high yielding bean varieties were given to farmers to be used in field trials to diversify farm production and obtain an additional income. Research was also aimed at finding out bean production costs directly from the farmers in traditionally bean producing areas. A survey form was prepared for each farmer to fill out for this purpose. The local agricultural agent offered monthly follow-up visits.

B. Impact – There are preliminary results from this effort. A publication based on the findings of the study will be published at the conclusion of the study.

On September 1999, two farmers, one researcher, one faculty member, and two Extension personnel attended a 4-day course at North Carolina on "Sustainable Management of Soils". The participants offered (March 2000) a 2-day "learning-by-doing" activity to 25 agricultural professionals at the Adjuntas Agricultural Experiment Station (AES). The course was adapted to the soil conditions of the PR central mountain area. The educational materials were translated to Spanish and a guide was prepared for use by the agricultural agents.

A quarterly publication "¡Sustenta!, Un Nuevo Horizonte Agricola" (Sustain!, A New Agricultural Horizon) was produced and (700 copies) distributed regularly to farmers and agricultural professionals. The publication has become a source of educational information where to share knowledge and experiences on sustainable agriculture and has motivated 116 persons to establish projects.

Two thousand five hundred and four (2,504) persons were trained on sustainable agriculture and 339 farmers adopted recommended sustainable farm practices.

On March 2000 two professors from the University of Chipango, Mexico, offered a workshop on Sustainable Coffee Production to 30 agricultural agents based on the "train the trainer" concept. Both "Sustainable Management of Soils" and "Sustainable Coffee Production" trainings were evaluated on-site by the participants based on the quality of information received, its applicability, and the educational materials distributed. On August, another training was offered on the Preparation of Proposals for Sustainable Agriculture to 15 agricultural agents and other agricultural professionals.

C. Source of Federal Founding – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

III. KEY THEME - FOREST RESOURCE MANAGEMENT

A. The Caribbean Urban Forestry Agreement was broadened to cover the Virgin Islands. A conference was held at St. Croix in May 2000 a, -"Lessons from the Past, Vision for the Future", 150 persons from the Caribbean Islands participated. An evaluation form was distributed to the participants that resulted on devoting educational efforts for 2001 on managing emergencies.

A videoconference was offered in August 2000 to agricultural agents on Management of Urban Trees Regulations in Puerto Rico, as a result of collaboration between the Environmental Quality Board, Dept. of Natural Resources, the Planning Board and the PRAES. There was a round discussion after each presentation in the videoconference.

B. Impact - The evaluation responses by the participants were very positive and showed the effectiveness of the techniques used. The agricultural agents reported to have been applied immediately the information received. One agent was able to assist the Planning Board in the development of a rural community.

A workshop was offered on February 2000 on "Tree Inventory and Management Plans" for Natural Resources personnel from the Dominican Republic and Puerto Rico with the support of the USDA-Forest Service and organized by PRAES.

Five thousand sixty-seven (5,067) persons received information and were trained on urban forestry. One thousand one hundred and twenty five (1,125) persons adopted urban forestry practices. Forty-two (42) urban forest projects were established.

C. Sources of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

IV. KEY THEME – INTEGRATED PEST MANAGEMENT

A. The PRAES Pest Management program covers a broad area of related topics. Besides the training for pesticide applicators certification, it also encourages the use of alternative pest control methods to reduce the use of pesticides and, most recently, incorporated efforts on forest pest identification.

B. Impact – According to data reported for September 2000, 1,274 private and 850 commercial applicators were certified, and 931 private and 262 commercial applicators renewed their license. Two hundred and fifty nine (259) trainings were offered on pesticides where 4,009 users were educated on endangered species, water quality, and farm worker protection.

Twenty-five (25) pesticide labels were translated and 125 labels were reviewed for various crops. A demonstration was conducted on chemical and biological control for certain diseases and pests that affect oranges. Four (4) new pesticides were registered with a cost benefit of $250,000. Twelve (12) leaders were trained on safe pesticide application. Ten (10) agricultural agents were trained on the new registered pesticides and four were trained on the pesticide database.

Two thousand three hundred and fifty five (2,355) farmers adopted the use of integrated pest management in starchy crops, vegetables, plantain, coffee, fruits, and pineapple.

Ten (10) scouts were trained to monitor pest control two in identification and control of coffee pests, two in fruits, three in vegetables and three in plantain and bananas. Five (5) private consultants were trained in production crops.

Three publications were prepared for the Forest Health Management Project on the identification and management of weeds, insects, nematodes, and diseases that commonly affect trees and shrubs of forests and urban environments.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

KEY PROGRAM COMPONENT(S)

The PRAES directs its educational efforts toward the adoption of recommended farm management practices in accordance with regulations to minimize effects to the environment and for the conservation of natural resources. This goal is attained through farm follow-up visits, videoconferences, conferences, presentations, trainings, workshops, participatory research, periodical publications and other sources of communication to agricultural professionals, rural communities, leaders, its own personnel in a train-the-trainer approach, and other agencies personnel.

INTERNAL AND EXTERNAL LINKAGES

Internal

Collaboration was obtained with the Space Grant Consortium for the preparation of educational materials and training of PRAES personnel on marine resources and space aimed mainly to youth audiences. Personnel of the College of Agricultural Sciences and the

Agricultural Experiment Station assisted in trainings, research, and information sharing. This cooperation is most evident in WQ projects in coffee (processing plants).

External

A multi-agency committee (EPA, Dept. of Health, National Rural Water Assoc., Rural Housing Improvement) met once a month to discuss ways to improve drinking water sources in rural areas. Collaboration was broadened with Forest Service to convey Virgin Islands to expand educational efforts throughout the Caribbean. Also, strong linkages were kept with the State Department of Agriculture, the State Department of Natural Resources and Environment, the USDA-Natural Resource Conservation Service especially through its RC&D program, the Environmental Quality Board, the Planning Board and the Soil Conservation Districts around the island.

TARGET AUDIENCES

The target audiences are rural community leaders, farmers, youth, farm worker, and general public. Handicapped and veterans are under-served population to be targeted.

EVALUATION FRAMEWORK

Formative Evaluation:

All training offered is evaluated on-site after each session by the participants on the quality of the information received, the applicability, and the educational material received. Often, the participants provide comments on the usefulness of the activities and ways they could implement or use the information received.

Evaluation questions planned were:

Question 1: What were the reactions of participants toward the training?

Question 2: What is the level of attitude, skills and aspirations of participants regarding the adoption of adequate agricultural practices?

Question 3: What is the level of adoption of agricultural practices among participants of non-formal education training?

Evaluation Source: Published Data of Extension Annual Achievement (1999-2000).

Rural Aqueducts

Question 1: Fourteen (14) interagency meetings were held in order to protect and improve water quality in rural aqueducts. A total of 10,688 persons were trained on how to protect and improve water quality in the wells or domestic aqueducts.

Question 3: The use of toxic chemicals was reduced in 182 homes. Management of liquid waste was improved in 122 homes.

Air Quality in Interiors

Question 1: Around 1,371 individuals were trained regarding air quality in interiors.

Question 2: About 163 persons improved their knowledge in maintenance of air conditioners and air purifiers.

Question 3: Approximately, nine individuals adopted recommended practices of home humidity control. Seventy-five (75) persons adopted practices for maintaining the air conditioning or air purifying equipment. About 148 people decreased air contaminants in their homes.

Recycling

Question 1: About 7,226 persons were trained on the subject.

Question 2: Around 3,429 individuals improved their knowledge on recycling. Approximately 3,648 individuals planned to adopt recycling practices.

Question 3: Two thousand seven hundred and forty (2,740) persons adopted or improved recycling practices. Two thousand two hundred and fifty four (2,254) persons established recycling projects.

Composting

Question 1: About 4,357 persons were trained in compost preparation. Around 4,986 received educational materials.

Question 2: Two thousand two hundred and sixty-eight (2,268) persons planned to adopt practices of compost preparation.

Question 3: Three hundred and forty-three (343) persons adopted recommended compost practices. One hundred and eighty-nine (189) persons established compost projects. One hundred and fifty-nine (159) persons prepared compost using farm products or garden wastes.

Reforestation

Question 1: About 30,317 persons were oriented in the protection of natural resources and the conservation of ecosystem. About 5,067 persons were trained in urban reforestation. Two thousand and twenty-five (2,025) individuals were trained in rural reforestation.

Question 2: One thousand six hundred and seventy-one (1,671) persons planned to adopt recommended practices of natural resources conservation. Four hundred and two (402) persons planned to adopt soil conservation practices.

Question 3: Four thousand seven hundred and seventy-eight (4,778) persons adopted recommended natural resources practices. One thousand one hundred and twenty-five (1,125) individuals adopted practices of urban reforestation. Nine hundred and seventy-seven (977) persons adopted rural reforestation practices. Two hundred and seventy-nine (279) persons adopted soil conservation practices.

Land Use

Question 1: Three hundred and seventy-nine (379) persons were trained on the proper use of land. Sixty-two (62) individuals in managerial positions were informed regarding the risk

and cost of the poor water quality and the alternatives to improve the situation. Fifty (50) people in key positions, government agencies personnel, and private citizens received orientation on the information sources for water quality, natural resources, scientific studies, and local and federal regulations.

Question 2: One hundred and ninety-seven (197) people increased their knowledge regarding the proper use of land. Sixty-two (62) people planned to get involved in one or more issues related to public policy in water quality and natural resources conservation.

Question 3: Two hundred and fifty (250) persons made proper use of land as a result of the educational activities developed by extensionists. Twenty-one (21) persons were involved in decision-making related to issues of environmental public policy.

Sustainable Agriculture

Question 1: A total of 2,504 individuals were trained in aspects related to agricultural sustainability.

Question 3: Out of 2,504 farmers trained, 339 adopted recommended practices of agricultural sustainability. The rate of adoption was 13.53%.

Certification of Pesticide Users

Question 1: A total of 1,274 private users were trained and certified. Nine hundred and thirty- one (931) private and 850 commercial pesticide users were trained and certified, and 262 were re-certified. Two thousand five hundred (2500) persons received information regarding pesticide use in structures.

Question 3: A total of 3,808 pesticide users adopted recommended practices to protect human health and the environment.

Integrated Pest Management

Question 1: A total of 10 scouts were trained in pest identification and control in the following crops: two in coffee, three in vegetables, two in fruits and three in plantains and bananas. Ten (10) agricultural agents and five (5) private consultants were trained in pest identification and management (one in vegetables, one in citric, one in coffee and two in ornamentals).

Question 2: Five hundred and twenty-five (525) persons learned to identify pests.

Question 3: Two thousand three hundred and fifty-five (2,355) farmers adopted the use of integrated pest management practices in various crops. Five hundred (500) persons utilized biological pesticides in ornamentals, fruits and vegetables. Six hundred and fifty (650) persons incorporated soil granular pesticides in: coffee, plantain, and fruit. One hundred and thirty (130) individuals adopted the use of pesticide sample techniques.

Environment Conservation Education (AMERICORPS).

Question 1: One thousand eight hundred and forty (1,840) families received orientation in environmental issues. A total of 141 services were offered to families by the 18

AMERICORPS members. Eight thousand and nine hundred (8,900) students took advantage of the project by participating in conferences and activities.

Question 2: About 80% of the participants increased knowledge in environmental issues. That knowledge change was determined by the change in scores from the pre-test to the post-test. Ninety (90) % of the surveyed beach users expressed their disposition of adopting environmental protection practices after they received orientation.

OBVJETIVES, PERFORMANCE GOAL(S), AND OUTPUT AND OUTCOME INDICATORS

OBJECTIVE 1

To develop, transfer, and promote the adoption of efficient and sustainable agricultural, forestry, and other resource conservation policies, programs, technologies, and practices that ensure ecosystems achieve a sustainable balance of agricultural activities and biodiversity.

PERFORMANCE GOAL 2

To annually increase agricultural producer awareness, understanding, and information regarding the adoption of agricultural production practices that sustain and/or protect ecosystem integrity and biodiversity in which CSREES partners and cooperators play an active research, education, and extension role.

INDICATOR 1

A. The total number of persons completing non-formal education program on sustaining and protecting ecosystem biodiversity while improving the productivity of the U.S. agricultural production system. (output)

B. The total number of these persons who actually adopt one or more recommended practices within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	527	2565[1]	380	1580[1]
2001	729	0	416	0
2002	920	0	590	0
2003	945	0	745	0
2004	956	0	844	0

[1]The state government established a reforestation program where the Department of Natural Resources and Environment must annually prepare the seedlings, mostly of native trees, to be planted around the island. The program is called “Sembrando por Puerto Rico”.

DATA COLLECTION METHODOLOGY

Farmers Interview and observation of recommended practices implementation in farm visits.

OBJECTIVE 2

To develop, transfer, and promote adoption of efficient and sustainable agricultural, forestry, and other resource policies, programs, technologies, and practices that protect, sustain, and enhance water, soil and air resources.

PERFORMANCE GOAL 1

To annually increase producer adoption of agricultural production practices that conserve and/or protect surface and groundwater supplies on or adjacent to agricultural production sites or land uses.

INDICATOR 1

A. The total number of persons completing non-formal education programs on sustaining and/or protecting the quantity and quality of surface water and ground water supplies. (output)

B. The total number of these persons who actually adopt one or more water management practices within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	2462	2494	1559	429
2001	2693	0	1784	0
2002	2900	0	1815	0
2003	3008	0	1969	0
2004	3388	0	2029	0

PERFORMANCE GOAL 2

To annually increase producer adoption of agricultural production "best practices" that conserve, protect, and/or enhance the soil resources on or adjacent to agricultural production sites or land uses.

INDICATOR 1

A. The total number of persons completing non-formal education programs on conserving, sustaining, and/or protecting soil resources. (output)

B. Total number of these persons who actually adopt one or more soil conservation practices within six months of completing one or more non-formal education programs. (outcome)

Year	Indicator 1A (OUTPUT)		Indicator 1B (OUTCOME)	
	Target	Actual	Target	Actual
2000	2561	1109[1]	1433	279[1]
2001	2542	0	1776	0
2002	2607	0	1889	0
2003	2619	0	1908	0
2004	2627	0	1945	0

[1]The Environmental Quality Incentive Program coordinated by the USDA-NCRS, was not implemented during 1999-2000. Two trainings were offered on soil erosion and sedimentation control (Jan 98, Aug 98), sponsored by a local RC&D Council, but none were organized nor offered during 1999-2000, since in October 1999 Puerto Rico was the host of the Southeastern RC&D Development Council Association's Annual Training Meeting. ***

DATA COLLECTION METHODOLOGY

Follow-up on farmers and farm visits to corroborate the practice implementation and that is properly applied.

OBJECTIVE 3

To improve decision-making on public policies related to agriculture and the environment.

PERFORMANCE GOAL 2

To annually increase the effectiveness of constituent and citizen participation on public policy issues affecting agricultural production, the environment, and ecosystem integrity and biodiversity.

INDICATOR 1

A. The total number of persons completing non-formal education programs on public policy issues affecting agricultural production and ecosystem integrity and biodiversity. (output)

B. The total number of these persons who actually become actively involved in one or more public policy issues within six months after completing one or more of these programs. (outcome)

Year	Indicator 1a (Output)		Indicator 1b (Outcome)	
	Target	Actual	Target	Actual
2000	205	112	150	21
2001	290	0	241	0
2002	295	0	246	0
2003	307	0	275	0
2004	341	0	292	0

PROGRAM DURATION

5-Year Planning Cycle (2000-2005)

ALLOCATED RESOURCES

	Resources			
Fiscal Year	State	Federal	Others Federal	Total
2000		$864,583.50		$864,583.50
2001				
2002				
2003				
2004				

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	31.48					
2001						
2002						

2003						
2004						

EDUCATION AND OUTREACH PROGRAMS

Some ongoing environmental projects will continue during the next years. Coordination with all related agencies/organization will be continued and research will be disseminated.

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GOAL 5 - TO ENHANCE ECONOMIC OPPORTUNITIES AND THE QUALITY OF LIFE AMONG FAMILIES AND COMMUNITIES

OVERVIEW

Puerto Rico has an accelerated population growth and is one of the most densely populated countries (about 1,106 persons per square mile) in the world. The rapid economic and social transformations undergone by the Island have changed it dramatically from an agricultural to an industrial based society. As a result, social and economic changes have also had an impact upon the family system, family lifestyles, and communities. Efforts were made to educate family members on financial management, family budget, consumer education, community development, family resource management, home based business education, parenting skills, allocation of community resources, value of household work, and energy conservation. The efforts of PRAES and local government were combined to assist limited income families and rural communities to develop in order to increase family income and to promote the capacity of the individuals, families, and communities to have healthy behaviors and better lifestyles being "Healthy People … Healthy Communities".

According to the 2000 census, the total population of Puerto Rico was 3,808,610: 51.2%, women and 48.8%, men. Seventy one percent (71%) was urban and 29% rural. Nearly eight percent (8%) children between the ages of 0 to 5 years old (307,000) and approximately 24.6% were children and adolescents between 6 to 18 years old. The number of births recorded by the Puerto Rico Department of Health in 1995 was 65,242; of these, 12,820 births were from adolescent mothers. These adolescent mothers are in disadvantage because they are not prepared to face the emotional, social, and economic factors affecting them. We must educate parents and young families in parental skills, if we want to contribute to the development of stable and happy children that can be successful in school and life and become responsible citizens. A state family project was established to promote an education in formal program on parenting skills and child development in which 3,262 persons adopted one or more parenting principles, behavior, and practices. The Extension Specialist facilitated strategic planning workshops for families at risk, curriculums, community organizations, and local and state government collaborations. Educational efforts are also directed toward clarifying on a personal and community wide basis what are ethical values associated to the concept of quality of life.

The PRAES developed educational home-based programs to help families use their own resources and start home-based businesses, therefore helping themselves to increase family income. These educational programs suggest many ways in which families can turn skills, hobbies and ideas into money. The creation of home-based businesses is a growing trend in our economy. One of the areas in which individuals and families commonly choose to develop their home-based business is in the clothing and crafts specialty, a field particularly targeted by our educational efforts.

In Puerto Rico, rural and urban communities are in continuous development. The problems and needs of these communities are many: better facilities and resources, effective and efficient trade systems, prevention of school desertion, salubrity, and others. PRAES as part of the College of Agricultural Sciences--University of Puerto Rico, serves as a link between the university and the community. The goal is to increase the quality of life of the communities at risk with special emphasis on the rural and suburban areas. Among the most significant achievements of the Community Resources Development Program are: 1,597 volunteer leaders registered in the CRD committees at state level; 600 volunteer leaders were trained in leadership,

proposal preparation, community development, and others. A reforestation and ornamentation project was developed in one municipality. A recruiting and training campaign was held and 150 volunteer leaders were recruited.

According to the 4-H and Youth Program, the total of number of youth that completed non-formal education was 29,209. The educational programs included life skills, money management, family strengths, consumer education, communication, interpersonal relations, youth at risk factors, self-esteem, civic education, and leadership. About 2,622 4-H youth gained knowledge in civic education, 15,366 youth developed skills and knowledge in agricultural education, and 188 4-H youth participated in state camps. The methods to reach these youngsters were trainings, conferences, workshops, family days, campaigns, club meetings, field trips, contests, competitions, and other educational activities.

One of the PRAES goals is to develop effective leaders among the families, youth, and communities with which we work. It is important that family members acquire leadership skills, in order to cope with the different situations they can face in the future. A program to develop leadership characteristics among our community collaborators can vitalize and strengthen the foundation of the democratic system, and prepare citizens to participate more effectively in the issues and problems they are likely to face and how to solve them in a positive way.

V. KEY THEME - CHILD CARE / DEPENDENT CARE

A. Extension Agents trained parents, families and childcare providers in parental skills and child development at childcare centers. These educational non-formal programs consisted of ten lessons (Plight of Our Children Curriculum) on childcare, nutrition, communication skills, emotional and physical development, time management, and areas related to childcare development. Each session was conducted with examples, visual aids, role-playing, and other educational methods.

B. Impact – Six hundred and ninety nine (699) persons attended this non-formal education program. Two hundred and thirty four (234) parents adopted child development skills and 321 parents changed attitudes toward positive discipline and responsible parenting. Also, 389 families learned and adopted skills about child abuse prevention. A non-violence TV campaign was held at state level. Twenty-two (22) persons from other agencies were trained.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

VI. KEY THEME - CHILDREN YOUTH, AND FAMILIES AT RISK

A. The 4-H Youth Development base program continued focusing on youth at risk with an increase in activities, competitions and projects. The staff and volunteers of the 4-H Program promoted the adoption of healthy lifestyles and skills that allow youth to make adequate decisions. “Free for Life Curriculum” was implemented and developed. The curriculum was offered in five different communities: Inés Mendoza Elementary School, Luis Muñoz Marín Elementary School, Roberto Clemente Sport City, J. F. Saldaña Community, and Calvin School (private college) of Carolina Municipality.

Other curriculums developed were "Career Education" which consisted of skills development on the subject matter and the "College Coastal Conservation Project" sponsored by AmeriCorps and PRAES. This project emphasizes on environment conservation.

B. Impact - A total of 50,624 youth were reached. The "Free for Life Curriculum" worked with children 10 to 14 years old. Twenty-seven (27) children participated in the first pilot camp, which was offered by teen leaders. Three thousand six hundred and twenty-six (3,626) youth at risk participated in the 4-H "School Enrichment Program". The "Career Education Curriculum" impacted 2,854 youth who gained knowledge and developed skills in career education, and the "College Coastal Conservation Project" impacted 23,000 persons learning and adopting practices on environment conservation. Fifteen thousand three hundred and sixty-six (15, 366) youth gained knowledge and skills in agricultural education. A total of 120 children participated in the CLASE project, of these, 45 improved their academic skills. The curriculum was oriented toward strengthening social values and interpersonal relations. Coalitions with the private sector were implemented to sponsor the 4-H Program and Youth at Risk efforts.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

VII. KEY THEME - HOME BASED BUSINESS EDUCATION

A. PRAES developed educational home-based programs to help families use their own resources and start home-based businesses; therefore, helping themselves to increase family income. This educational program suggests many ways in which families can turn skills, hobbies, and ideas into money. One of the areas that individuals and families commonly choose to develop their home-based business is the clothing specialty, a field particularly targeted by our educational efforts.

B. Impact – During FY 1999-2000, three home-based business projects were developed and established. One thousand four hundred seventy (1,470) persons learned about different aspects toward family resources management. Five hundred thirty eight (538) families were trained on money management, 32% (172) families adopted budget planning skills.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

VIII. KEY THEME – PARENTING

A. The Agricultural Extension Service will develop an educational program to strengthen the capacity of families to nurture, support and guide family members throughout their lives. Extension Specialists developed a family project and a curriculum at state level to educate and train parents in family relations and child development. One of the goals is to promote family strengths through the development of parenting skills and knowledge in family relations to prevent child abuse and neglect.

B. Impact - Three thousand one hundred and eighty-nine (3,189) families learned and adopted practices in family relations and child development. One thousand one hundred and eighty-two (1,182) families changed attitudes in effective parenting and positive discipline, helping them to prevent child abuse and neglect. Thirty-two (32) radio programs were made and 142,645 people were reached. One hundred (100) PRAES employees and personnel of other agencies were trained in family strengths and child development. The proposal "Empower Parents to Raise Successful Kids" was approved in two municipalities (Loíza and Río Grande). Three communities and families at risk were attend by two home economists and support by the Family Specialist and Program Director. Fifty (50) low-income families were trained and educated in parenting skills and childcare.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

IX. KEY THEME - JOBS / EMPLOYMENT

A. Another aspect that influences family stability is income. An average unemployment rate reported by the Department of Labor was 16.8%. The Community Resource and Economic Development Program, developed projects in agricultural communities with social-economic disadvantage. This program helps people, youth, families and communities to improve their quality of life and well-being. PRAES agents and community leaders aim to provide knowledge base to community development efforts geared toward increasing employment opportunities, including self-employment.

B. Impact - One hundred and seventy-five (175) persons changed their economic situation as a result of PRAES' non-formal education program. Forty-three 43) people left the dependence on government economic assistance.

Six hundred and fifty-nine (659) leaders were trained in leadership and development of community projects, and 145 community projects were developed and established.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact – State Specific

X. KEY THEMES – FARM SAFETY

A. The farm safety program is oriented to maintain a safe work place and free of accidents. PRAES personnel were involved in the promotion of farm safety laws, regulations, and occupational health. Attention was focused on youth, farmers, and households in rural communities. PRAES agricultural agents coordinated trainings and meetings with farmers to share and bring information related to safety issues. A total of 1,313 persons were trained in farm safety practices.

B. Impact - Eight hundred and nine (809) persons change their attitudes and increased their knowledge on farm safety.

C. Source of Federal Funds – Smith Lever 3(b), 3(c) Funds

D. Scope of Impact –State Specific

KEY PROGRAM COMPONENT(S)

PRAES developed an educational program to: (1) strengthen the capacity of families to nurture, support and guide their members throughout their lives, (2) orient the families to assure their resources, (3) strengthen the capacity of families and communities to be partners in building stronger families that could contribute to on going efforts in community development; and (4) manage better the expertise of Extension educators at all levels. Each municipality will prepare a plan of action to accomplish the state goal. At the state level a model program will be prepared. Extension educators will adapt and implement the model program in the communities they serve at local level. Efforts emphasize the increase in interagency and organizational collaboration at federal, state, and municipal levels to improve outreach to families. Other strategies are to train and educate parents, couples, and children in different topics of family relations and child development, development of special projects in child care, adolescents as teen leaders to educate other adolescents in life skills, youth at risk problems, financial aspects, and how to be a better consumer and better leaders and citizens.

Another strategy emphasizes the use of volunteers as sources of support for families at risk and involving families in public policy decisions that affect the well-being of the families and communities. This is done by a more effective use of educational methods such as distance learning strategies that will help to reach more clientele.

The PRAES educators prepare publications, articles, training, curriculums, radio and television programs, forums, and workshop.

The Agricultural Experiment Station – through its publications, seminars and workshops – provides the research basis needed to advance producers and communities' understanding of the changes occurring in their situation, and of the alternatives open to improve their socioeconomic conditions. Apart from farmers, local leaders, and community organizations, research results are shared with PRAES personnel and government officials, particularly with those in the position of making public policy decisions. At least an annual evaluation of the research projects conducted will take place with the participation of the above described audiences, to monitor the research development process and the degree to which the proposed objectives are being met.

INTERNAL AND EXTERNAL LINKAGES

Internal

Home Economists, agricultural agents, professors from the Department of Agricultural Education (College of Agricultural Science, University of Puerto Rico, Mayagüez Campus), professors from the School of Ecology, Family and Nutrition (University of Puerto Rico--Río Piedras Campus), 4-H Youth Specialists, Family and Consumer Sciences Program Specialists, Communications Specialist, Publications Office of the Agricultural Experiment Station, PRAES Mass Media Office, Personnel of the PRAES Planning and Evaluation Office, Investigators of the Agricultural Experiment Station, Technical personnel from different Experiment Stations, and the Department of Sociology and Psychology (University of Puerto Rico--Río Piedras Campus)

External
Department of Agriculture, Department of Education, Department of Labor, Department of the Consumer Matters, Puerto Rico Planning Board, Head Start Program, Volunteer Leaders, Farmers and Producers, and the Department of Family.

TARGET AUDIENCES

Families with children 0-5 years old and child care providers. Both the families with preschool children and the providers need to be oriented and trained on child growth/development, early childhood education and care.

Married couples and teenagers need to strengthen the family base and the relationship between both sexes; families and youth at risk need to develop special projects to improve their quality of life; parents – educate them on how to rear and discipline their children; school age children and teenagers – to develop life skills in order to be better citizens and learn how to handle their problems; elderly persons – to orient them on how to face their problems and have a better quality of life; volunteer leaders – an important ingredient to expand the educational message of technology to other clientele; farmers – they will be oriented in the research results and other scientific practices in agriculture; and low income families and other families – to help them improve their socioeconomic environment and also orient them on how to manage their resources and to be wise consumers.

EVALUATION FRAMEWORK

Common for the five goals were:

Question 1: What were the reactions of participants toward the training?

Question 2: What is the level of attitude, skills and aspirations of participants regarding the adoption of adequate agricultural practices?

Question 3: What is the level of adoption of agricultural practices among participants of non-formal education training?

Evaluation Source: Published Data of Extension Annual Achievement (1999-2000).

Family:

Question 1: Thirty-two (32) radio programs were broadcasted on the topic with an approximate audience of 142,645 persons. About 8,126 people took advantage of the disseminated educational material. Five thousand, four hundred and forty-five (5,445) persons participated in the exhibitions and information centers on the topic.

Question 2: Three thousand one hundred and eighty-nine (3,189) families acquired knowledge and skills in family strengths. One thousand, one hundred and eighty-two (1,182) families acquired knowledge and skills and improved their attitudes in areas of family relations, effective parenthood, and positive discipline. One hundred and fourteen (114) parents and baby sitters learned skills associated with the development of children ages 0-5 years old. Two hundred and thirty-four (234) parents learned and applied new skills in the area of childcare and development.

Gerontology:

Question 1: About 67 training sessions were offered to employees of senior citizen centers. Around 133 educational publications were distributed to senior citizens and their relatives. Approximately 1,887 senior citizens received orientation on issues of aging. Six hundred and sixty-eight (668) aging people completed non-formal educational programs. Three hundred and sixty-five (365) persons participated in exhibitions and information centers regarding the topic.

Question 2: One hundred and fifty nine (159) persons, including youths, 4-H members, and people in care of senior citizens, acquired knowledge in gerontology. Five hundred and thirty (530) persons applied the obtained information. Four hundred and sixty (460) persons changed their attitudes regarding aging persons.

Human Relations:

Question 1: Approximately 181 families participated in the program. Thirty-one (31) Faculty and Non Faculty employees were trained and transmitted what they learned. Twenty-seven (27) persons from different agencies were trained. Nine hundred and ninety-nine (999) persons participated in information centers.

Question 2: Twenty-three (23) families applied skills and modified behaviors that promote a better welfare.

Children, Youth and families at Risk.

Question 1: Twenty-nine (29) persons of child care centers, completed non-formal training. Two hundred and fourteen (214) parents received orientation regarding the negative effect of television on children. One thousand one hundred and seventy four (1,174) persons took advantage of the educational material distributed. Nineteen (19) radio programs were carried out with an estimated audience of about 126,899 persons. Twenty-two (22) persons from different agencies received orientation. A proposal for the amount of $150,000 was approved. A total of 41 circular letters, periodical letters and newspaper articles were prepared and distributed to the clientele. Two projects were promoted.

Question 2: Child Care centers adopted child development practices. Two hundred and thirty-four (234) parents learned and applied skills regarding childcare and development. Two hundred and three (203) parents communicated values to their children. Three hundred and eighty-nine (389) parents acquired skills to avoid child abuse. Three hundred and twenty-one (321) parents changed attitudes regarding the rearing and disciplining of children. One hundred and seventy-nine (179) parents provided orientation to their children in risk factors. Seven hundred and fifty (750) persons acquired knowledge in exhibitions.

OBJECTIVES, PERFORMANCE GOAL(S), AND OUTPUT AND OUTCOME INDICATORS

OBJECTIVE 1
To increase the capacity of communities and families to enhance their own economic well-being.

PERFORMANCE GOAL 2
To annually increase economic opportunities in communities through economic development programs in which CSREES partners and cooperators play an active research, education, and extension role.

INDICATOR 1

A. The total number of public officials and community leaders completing non-formal education programs on economic or enterprise development. (output)

B. The total number of these public officials and community leaders who actually adopt one or more recommended practices to attract new businesses or help expand existing businesses within six month after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	546	559	267	221
2001	536	0	245	0
2002	507	0	219	0
2003	508	0	263	0
2004	530	0	258	0

INDICATOR 2

The number of new businesses started resulting from economic development programs developed in collaboration with CSREES partners and cooperators. (outcome)

Year	# of new businesses started	
	Target	Actual
2000	41	19
2001	43	0
2002	44	0
2003	42	0
2004	44	0

INDICATOR 4

The number of jobs created by the formation of new businesses and expansion of existing businesses resulting from economic development programs developed in collaboration with CSREES partners and cooperators. (outcome)

Year	Indicator	
	Target	Actual
2000	34	277[1]
2001	28	0
2000	25	0
2001	24	0
2004	27	0

[1]Community projects were developed.

PERFORMANCE GOAL 3
To annually improve the financial status of families through financial management education programs implemented in which CSREES partners and cooperators play an active research, education, or extension role.
INDICATOR 1
A. The number of persons completing non-formal financial management education programs. (output)

B. The total number of these persons who actually adopt one or more recommended practices to decrease consumer credit debt or increase savings within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	4354	2008	4,098	*1,922
2001	4629	0	3,827	0
2002	4379	0	3,680	0
2003	4355	0	3,556	0
2004	4355	0	3,458	0

*During FY 199-2000 there was no Specialist in this area to train and promote special projects.

OBJECTIVE 2
To increase the capacity of communities, families, and individuals to improve their own quality of life.

PERFORMANCE GOAL 1
To annually increase the incidence of caring communities resulting from non-formal education programs in which CSREES partners and cooperators, play an active research, education, or extension role.
INDICATOR 1
A. The total number of persons completing non-formal education programs on community decision making and leadership development. (output)

B. The total number of these persons who actually become actively involved in one or more community projects within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	7492	6,110	3784	2,400
2001	7459	0	3887	0
2002	7554	0	3874	0
2003	7595	0	4006	0
2004	7711	0	4037	0

INDICATOR 2
A. The total number of dependent care providers completing non-formal education programs. (output)

B. The total number of these dependent care providers who actually adopt one or more new principles, behaviors, or practices within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	2843	1,322	1200	*634
2001	2654	0	963	0
2002	2840	0	904	0
2003	2695	0	896	0
2004	2958	0	761	0

*Family project was developed at state level.

PERFORMANCE GOAL 2
To annually increase the incidence of strong families resulting from non-formal education programs in which CSREES partners and cooperators play an active research, education, or extension role.

INDICATOR 1
A. The total number of persons completing non-formal education programs on parenting. (output)

B. The total number of these persons who actually adopt one or more parenting principles, behaviors, or practices within six months after completing one or more these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B. (Outcome)	
	Target	Actual	Target	Actual
2000	2752	1,337	2376	1,102
2001	2796	0	2383	0
2002	2713	0	2398	0
2003	3009	0	2424	0
2004	2966	0	2502	0

INDICATOR 2
A. The total number of persons completing non-formal education programs on youth development. (output)

B. The total number of these persons who actually adopt one or more youth development principles, behaviors, or practices within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B. (Outcome)	
	Target	Actual	Target	Actual
2000	10000	50,624	8500	* 29,209
2001	11500	0	9200	0
2002	12100	0	10309	0
2003	14201	0	11140	0
2004	16109	0	12900	0

*Increased percentage to all Extension Agents in Youth Programs.

PROGRAM DURATION

5-year Programming Cycle (2000-2005)

ALLOCATED RESOURCES

	Resources			
Fiscal Year	State	Federal	Others Federal	Total
2000		$2,454,673.68		$2,454,673,68
2001				
2002				
2003				
2004				

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	89.41					
2001						
2002						
2003						
2004						

EDUCATION AND OUTREACH PROGRAMS

Many farmers, youth and community projects will be continued during the next 5 years. Three different programs devote FTE's to this goal (Family and Consumer Sciences, 4-H Youth, and Community Resource Development). These efforts will be carried out through the whole island.

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MERIT REVIEW AND REPORT ON THE STAKEHOLDERS INPUT PROCESS

A comprehensive Extension evaluation was performed by the Puerto Rico Agricultural Extension Service (PRAES) based on the four Extension programs: Agriculture, Marketing, and Natural Resources, Family and Consumer Sciences, Community Resource Development, and 4-H Clubs and Youth. Each program has stakeholder representatives in the steering committee, following the procedures of the "Merit Review" system. The stakeholder group is composed of Extension Staff, representatives of the PRAES clientele, business, community, and PRAES leaders and volunteers.

The Evaluator explained to the purpose of the evaluation to the committee, and the importance of using stakeholder input from the beginning to the end of the process. The implication in evaluation terms is from the design of the study to the interpretation of findings. The reasons for using stakeholder input were: 1) To acquire program ownership; 2) Participants learn and improve their evaluation skills; 3) Promote better interpersonal relations; and 4) Stakeholders appreciate being consulted. The criteria for identifying the stakeholders was: 1) People interested in the study and the utilization of the findings; 2) Persons with power to implement the findings or able to influence those who have the power; 3) People who believe in the importance of evaluation; 4) Individuals interested in the utilization of the findings; and 5) Those who have the commitment to attend the meetings and perform the required work.

The first meeting of the steering committee was used to establish the focus of the study. The group considered alternative evaluation questions, issues, problems, and goals. The main purpose at this point was to establish the focus and direction of the evaluation. Additionally, different methodologies to carry out the evaluation were considered. The evaluator proposed different alternatives for the study. Time-line and resources were considered, in addition to the target population. Finally, a survey, using the Direct Administration method was decided on by consensus as the information could be collected simultaneously in different places at the same time. In addition, participants could have the chance of asking questions related to the study. The focus of the study was Perceptions of the Extension Leaders in Regard to the Agricultural Extension Service. Stakeholders presented evaluation questions. Each of them was considered at first. In the next stage, the duplicated questions and those of limited importance or not related to the purpose of the study were eliminated. The designed the questionnaire study based on the purpose of the study and the formulated evaluation questions.

Aspects of validity and reliability were brought up to the meeting, in addition to the required training for the persons in charge of providing the Direct Administration Survey. The stakeholders decided the target population, the sampling methods and the approximate number of participants. Five (5) counties were taken at random per each Extension Region, and each county had a sample of 10 Extension leaders representing each of the Extension programs. As there are five Extension regions, the total participating sample was about 250 Extension leaders.

The questionnaire was validated in two stages: first, with the Extension program Directors, and second, with stakeholders similar to the participants. Once the survey was refined and validated, a final form was prepared based on the recommendations provided by both stakeholder groups. The study provided for follow-up for those persons who did not have the chance to go to the regional office to participate in the study. Arrangements were made to locate participants in their local communities. Once we arrived to a 70% of the responding sample, with 174 participants out of 250, the data collection process was officially closed. The evaluator performed the data analysis, and the findings were presented to the stakeholders in the next meeting.

In the last meeting the findings of the study were presented to the stakeholders, so they could suggest conclusions, recommendations, and implications. This ensured that they participated in the different stages of the study, and offered input during the whole process, which was the conceptualization of the study, formulating evaluation questions, validating the instrument and formulating recommendations.

The recommendations of the study, based on the findings, were:

1. Extension should use mass media for their promotion strategies more often, including the appointment of a person to carry out public relations for Extension.
2. Extension must rely more on its volunteers. They could carry out the work Extensionists initiated so Extensionists can get involved in new projects.
3. Extension should provide more involvement to its leaders.
4. Extension should improve communication with its leaders.
5. The preferred dissemination methods were: Extension publication, newspapers, and television programs, respectively.
6. The preferred educational methods for the participants were workshops and short courses, respectively.
7. The major community issues were school desertion, use of alcohol, and drug, respectively.
8. More than half of the participants (56%) participated in CRD program. Coordination of the activities was the main contribution.
9. About 71% of the volunteers are from the rural area and 65% are female, this suggests more recruitment efforts in the females and for those in the urban area.