TABLE OF COTENTS

PUERTO RICO ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS FY 2004-2005

OVERVIEW

This accomplishment report covers the period from October 1, 2004 to September 30, 2005. During this fiscal year the Agricultural Extension Service (PRAES) used a total of 205.34 FTE's.

PRAES signed multiple agreements and/or made collaborative efforts throughout the island during FY 2004-2005. Public entities, non-profit organizations, public and private universities in and outside of Puerto Rico, local state and federal organizations, community organizations, radio and television stations, and the press participated with PRAES to achieve various different goals ranging from agriculture to family and community concerns.

Goal 1, "An agricultural system that is highly competitive in the global economy", accounted for 54.09 FTE's (26.34%).

During FY 2004-2005 the dairy sector continued holding the first position by income of all agricultural activities. Three hundred and sixty-four (364) farms operated in Puerto Rico during this year. The continued technical support provided by Extension personal contributed to maintaining the Grade A classification for milk. Two hundred and thirty (230) farmers were trained on agricultural production systems and 88 received orientation on the agricultural public policy for this sector.

The forage sector continued increasing due to dairy activities, as dairy producers are using more hay and silage to reduce production costs and dependency on concentrated feed. Sixty-seven forage farmers adopted added-value production practices and 106 (46%) adopted the recommended forage production practices. Eighty-six (86) (98%) farmers implemented the agricultural policies for forage production.

Of 193 coffee producers oriented in value-added techniques, 123 (64%) adopted the recommended practices. Three hundred and fifty-six (356) (76%) coffee producers increased their production and 108 (83%) implemented the agricultural public policies of this sector. As a result of the ATBECOL project (Ecological Coffee Processing Plant), 26 new coffee processing plants were established. This kind of equipment reduces environmental contamination.

One hundred and twenty (120) (57%) fruit producers increased the value-added to their corps, 432 (27%) farmers adopted the recommended production and post-harvesting practices and 115 (95%) farmers implemented the agricultural public policies.

Of all vegetable farmers oriented, 177 (48%) adopted the recommended added-value practices and 1,052 (41%) adopted the recommended production practices. Three hundred and four (304) (32%) farmers implemented the agricultural public policies for vegetables.

A total of 24 poultry producers adopted the recommended added-value practices, seven adopted the recommended production practices and three implemented the agricultural public policies.

Fifty-six (56) (90%) swine producers adopted the added-value practices, 170 (73%) increased their production and 101 (90%) implemented the agricultural public policy for swine production.

Eighty-nine (89) (74%) beef producers adopted the added-value practices. One hundred and sixty-nine (169) (35%) farmers increased their production and 141 (87%) implemented the agricultural public polices for beef production.

A total of 42 (76%) livestock producers (goats, sheep, honeybees, rabbits, and horses) adopted the added-value production practices. Forty-three (43) (68%) farmers increased their production as a result of the recommended production practices and 29 (81%) implemented the agricultural public polices for livestock.

Goal 2, "A safe and secure food and fiber system", accounted for a total of 11.58 FTE's (5.64%).

PRAES continued developing an ongoing food safety program at different levels with a from-the-farm-to-the-table approach during FY 2004-2005. Coordination with state and federal agencies continued through the Partnership for Food Safety Education to develop and support food safety education for consumers, including the "Fight Bac!" campaign, which focused on safe foods for infants and children. Trainings were offered to agronomists and farmers on "Good Agricultural Practices" (GAP) guidelines to help them comply with the new regulations.

One thousand six hundred and forty-one (1,641) participants of food establishments prepared a food safety risk management plan and use thermometer to monitor PHF temperatures and the food safety recommendations. Of 1,805 consumers who completed the lessons of the "Fight Bac!" course through the Puerto Rico Partnerships for Safety Education, 1,758 demonstrated the adoption of the following recommended practices: improved hand washing practices, increased sanitation of surfaces, reduced cross-contamination of foods, cooking at proper temperatures, and maintaining an adequate refrigerator temperature.

Three hundred and sixty-four (364) dairy farmers maintained consistent bacteria counts below 100,000 colonies per milliliter and Grade A standards for milk.

GAP trainings in fruit and vegetables were offered by the specialists in charge of these commodities. Six trainings on GAP were offered to farmers, wholesalers and retailers of the starchy crops, fruit, and vegetable commodities working in food safety. One hundred and twenty-five (125) persons attended the trainings. Nine radio programs about safety practices and products management were broadcasted.

Two hundred and five (205) children and youth completed the 5-lesson course designed to help them understand the importance of assuring the food supply in Puerto Rico. Of these, 138 children and youth became aware of the need for food security.

Of 1,513 participants of the Family and Consumer Sciences program who completed a short course to improve and use supermarket strategies, 765 planned to adopt one or more practices. They reported a change in behavior in the use of supermarket strategies and resources to obtain food, as follow: 651 followed the plan they developed to improve meals and snacks, 566

selected more economical food alternatives of the same nutritional value, 1,042 used food harvested in Puerto Rico, 630 compare prices before buying, and 472 have sufficient food to last the whole month.

Eight hundred and forty-three (843) samples affected by arthropods or diseases were received ad analyzed in the Plant Diagnostic Clinic. The early and correct diagnosis of pests saved farmers about $200,000.

Goal 3 “A healthy well-nourished population”, accounted for a total of 23.63 FTE’s (11.51%) (This does no include EFNEP, as it is a 3(d) funded program).

Work was continued in partnership with different health and environmental agencies in order to create innovative educational programs or promote a healthy and well-nourished population.

Of 3,303 children and youth and 1,228 adults who completed non-formal health and education and promotion programs, a total of 2,402 children and youth adopted one or more recommended practices and 947 adults reported having reduced their risk levels upon the adoption of one or more recommended practices after completing the programs.

In the area of indoor air quality (IAQ), 339 youth learned about the different air contaminants and methods for their mitigation and elimination. Seven hundred and seventeen (717) youth learned about indoor contamination through short courses, seminars and home assessment; of these, 346 adopted one or more recommended practices after completing the program.

Through the accidents prevention education programs 208 children and youth acquired knowledge in the prevention of traffic accidents and the relationship between traffic accidents and drugs; of these, 150 began to use their seat belts, 93 take safety measures for pedestrians and cyclists, and 200 can mention types of drugs and their effects on health.

Of 1,865 persons who completed non-formal education programs designed to improve the nutritional quality of their diets, 1,626 improved their nutrition in one or more recommended areas.

One thousand four hundred and forty-eight (1,448) persons completed short courses to improve their dietary habits in order to reduce the risk factor of chronic diseases (obesity, hypertension, blood cholesterol and blood sugar); of these, 500 completed or surpassed the goals established to reduce their risk levels.

Ten thousand one hundred and two (10,102) individuals were oriented in Puerto Rico EFNEP and 4,551 families were enrolled in the program. Of the families enrolled, 4,096 graduated, 3,550 received food checks, and 1,092 participated of the WIC program. Fifty-five (55) pregnant EFNEP mothers were oriented on the importance of breastfeeding and adequate prenatal care in order to have healthier babies and, as a result, no babies died during their first month of life and 12 mothers breastfed their babies.

After receiving EFNEP orientation, 2,046 persons reported that they are now eating a variety of food and 2,867 are making good use of their allowance to obtain nutritional food. Eight hundred and thirty (830) volunteers helped in some stage of the program. Of these, 139 worked with youth and 691 with adults. One thousand three hundred and ninety (1,390) volunteer hours were dedicated to youth and 16,584 were dedicated to families. This represents an economic impact of $104,249 of money saved by using volunteers, at $5.80/hr.

Goal 4, "To achieve greater harmony (balance) between agriculture and the environment", accounted for 19.30 (9.40%).

During FY 2004-2005 PRAES continued emphasizing the educational program targeting farm waste management and offering assistance to farmers on environmental regulations for animals in confinement, as well as for processing plants. Homeowners, low-income communities and the general public were also oriented on management practices to maintain water quality.

An agricultural agent was detailed at the Land Use office of the Planning Board to assist in a study to delineate the agricultural zones and a plan was prepared through interagency collaboration (SDRNE, SDA, the Environmental Quality Board, the Panning Board, and the College of Agricultural Sciences of the UPR), validated by a group of Extension specialists and other government agency representatives. It will be used as a reference guide to the government's economic development for the next 10 years. The next step is geared towards the dissemination of the information on land classification as included in the plan for the presentation in public hearings during 2006.

Waste management systems and the use of by-products from coffee processing plants have improved in around 65% through the Ecological Coffee Processing Technology (ATBECOL).

Seventeen (17) new projects for the conversion of by-products were established using coffee pulp as an organic fertilizer after its transformation using vermiculture. The results should show a reduction in the risk of water source contamination and in the use of chemical fertilizers.

Of 2,145 farmers who completed a course on water quality, 246 established waste management systems on their farms and 394 adopted the recommended practices for waste management on their farms. Two hundred and seventy-five (275) farmers reduced the use of chemicals on their farms.

Five hundred and ninety-eight (598) persons completed a course on sustainable agriculture. One hundred and seventy two (172) persons established sustainable practices and 46 established projects in sustainable agriculture.

Five hundred and eighty-six (586) farmers adopted soil conservation practices. Five hundred and seventy-eight (578) farmers adopted the recommended practices for soil erosion and 675 persons adopted natural resource conservation and ecosystem protection practices.

One thousand and three (1,003) persons approved the exam to be certified as private applicators; 563 the exam to be certified as commercial applicators, 388 the exam for commercial categories, and 291 a 30-hour short course for Category 8-A.

Two hundred and thirty-six (236) persons prepared and presented arguments in a hearing on farm environmental issues and ecosystems.

Three hundred and eighty (380) farmers applied IPM practices. Thirty-five (35) samples of trees and woody ornamentals were processed in the Plant Diagnostic Clinic with a direct impact of at least $20,000 saved because of the correct diagnosis of the pest. Twenty six (26) reports were generated after diagnosing the disease or arthropod and offering IPM recommendations.

Goal 5, "To enhance opportunities and the quality of life among families and communities", accounted for a total of 96.74 FTE's (47.11%).

PRAES continued its efforts with state and federal governments to educate families in family relations, parenting skills, child development, consumer education, family budget, community development, family resources management, value of household work, and youth development life skills. Efforts were also aimed at assisting low-income families, promoting healthy behaviors and improving lifestyles individuals, families, and communities.

Extension agents trained child-care providers and families in child-care development and family relations and related areas. As a result, 1,612 people adopted practices and skills in child development and family values. Nine hundred and ninety-eight (998) children were benefited from the project "Raising with Values"; thirteen family projects were developed in this area.

Of a total of 1,232 people that completed courses in family resources management and consumer education; 405 individuals adopted practices and skills on wise decision-making in money management, 358 families prepared a family budget and 234 adopted practices related to savings accounts. Ninety-two (92) people were certified as artisans after receiving training from Extension agents. One hundred and forty-three (143) new jobs were created and 214 new home-based businesses were established.

A total of 829 farmers adopted farm safety practices and skills, 402 developed an emergency plan in case of natural disasters, and 692 changed attitudes and improved their knowledge on farm safety.

In order to strengthen the capacity of families at risk, PRAES developed non-formal educational parenting programs. Three thousand and eighty-one (3,081) parents were trained through the project and non-formal educational programs, which focused on parenting skills, family strengths, positive discipline, communication skills, raising with values, and other related areas. One thousand nine hundred and fifty-seven (1,957) parents adopted one or more parenting principles, behaviors and/or practices after completing one or more of these programs. Other people were benefited from radio programs and campaigns, and other educational activities.

Base Programs

The Four-H Youth Development base program continued focusing on youth at risk with an increase in activities, contests, projects, competitions, trainings, workshops, and volunteer recruitment. During this period, the Four-H Youth Program impacted 9,933 members and 18,464 other children and youth. The projects developed were: "Learning to be Healthy", HIV/AID prevention "Toward a Drug Free Year 2000 for Children" *"Posponiendo la Actividad Sexual – PAS"* ("Postponing Sexual Activity"), "*Resaltando tu Apariencia Personal – RAP*" ("Enhancing your Personal Appearance"), and "Protect the Air you Breathe – Indoor Air Quality Project", "Longlife to Coral Reefs", 4H'S Vicom ("Villalbeños Compostando") and *"Caminando por el Este Hacia una Cultura de Paz"* (4-H Walking across the East for a Culture of Peace). Twelve thousand and one hundred seventy seven (12,177) youth engaged in projects related to technology and sciences, 4,370 youth participate in citizenship activities, and 10,384 participated in healthy life styles projects.

During this fiscal year, 1,309 volunteers obtained knowledge in leadership skills, and participate and organized youth activities to promote citizenship and life skills.

Coalitions with the private sector were implemented in order to get sponsorship for the 4-H Program. Special recognition was give to "Molinos de Puerto Rico" and the Cooperative of Employees of Agricultural Agencies, which sponsored a 4-H contest and made it possible for eight 4-H members to travel to the National 4-H Congress.

The Agency for Toxic Substance and Disease Registry (ATSDR), jointly with the Oakridge Association of Universities, sponsored the 4-H environmental summer program in the Island of Vieques. One hundred and twenty (120) 4-H members participated.

The Community Resource Development Program (CRD) accounted for 9.87 FTE's.

CRD´s work focused work on rural, urban, and suburban areas that are in continuous development. The problems and needs of the communities in these areas are still many and variable. These range from better facilities and resources, effective and efficient trade systems, to prevention of school desertion, among others.

Through educational efforts of CRD 163 communities were organized. Six hundred and two (602) individuals received benefits from economic projects and 228 community leaders were oriented on the "Economic Development of the Community".

PRAES participated in various festivals, including the Seventh Home Garden Festival, celebrated around the island offering conferences, exhibitions, and distribution of educational material related to the four program areas.

Through the participatory action research approach, three communities have been actively involved in solving their critical community issues. Two of these have also integrated the development of a community vegetable garden with the ultimate goal of improving their economic development.

A. PLANNED PROGRAMS

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

OVERVIEW

During FY 2004-2005 the Puerto Rico Agricultural Extension Service (PRAES) continued working to increase production, consumption and competitiveness of the agricultural products. Orientation was offered on how to increase the value-added commodities and the availability of local products. Collaboration with USDA agencies in order to implement the 2002 Farm Bill was continued, as well as with the State Department of Agriculture to promote the agricultural reform.

According to preliminary statistics of the Puerto Rico Department of Agriculture, the agricultural gross income increased to $803.1 millions during FY 2004-2005.

There are 17,659 farmers with an average farm size of 40.3 acres (39.1 cuerdas), and they are average of 58 years old. The agricultural sector employs about 93,000 people: 31,000 directly and 62,000 indirectly (about 3% of the total work force and 1% of the National Gross Income, according to the 2000 USDA Census). These farmers have been facing problems with environmental requirements, land use competition, high labor costs, and a scarcity of farm workers to harvest the production, especially in the coffee and tomatoes commodities.

The PR Department of Agriculture has been working in the agricultural reform during the past five years. This reform has gone through several transformations in order to improve the productivity, quality, and marketing of products. More changes are under way and will be implemented according to demand.

Farm facilities are monitored to ensure they have the latest technology to continuously increase efficiency and productivity. PRAES offered farmers several educational activities such as trainings workshops, demonstrations, on-site farm visits, publications, and mass media. Good agricultural practices have been used with a positive impact on production; among these are an increase in product quality, profits, and participation in local markets.

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I. Key Theme – Agricultural Competitiveness

A. The agricultural sector includes crops and livestock. The crops reported are coffee, vegetables, starchy vegetables, fruit, grains and legumes. Intensive trainings were offered to coffee farmers to develop new products and make them more competitive and capture new markets niche. One hundred and ninety-three (193) coffee farmers were trained in value-added processes, while 467 were trained on agricultural production systems. Also, 130 coffee farmers took courses on agricultural public policies. All of these activities were geared to help farmers increase product quality and decision-making.

The starchy crops sector decreased production due to the Black Sigatoka (*Mycosphaerella fijiensis*), a pest introduced recently from Dominican Republic, which caused a decrease in plantain and banana production. Resistant varieties of plantains and bananas are now available. Better management techniques during plant growth were used to ensure a quality product during harvesting and post harvesting. These techniques added value to the product and increased its competitiveness.

Nine hundred and nine (909) starchy crop farmers were trained on value-added practices, 1,565 farmers were trained on agricultural production systems, and 428 farmers were trained on agricultural public policies. These activities improved production, value, and public policy efficiency.

The fruit sector is the most diversified. The demand for fruit by consumers continues increasing and farmers are demonstrating a growing interest in this sector. The biggest efforts were aimed at the farm level where recommended production practices where emphasized. A total of 212 farmers were trained on value-added processes and 1,594 were trained on agricultural production systems. One hundred and twenty-one (121) farmers had the opportunity of receiving education on agricultural public policies.

The use of land formerly dedicated to sugarcane resulted in an increase in vegetable production. This sector has a group of farmers producing vegetable in hydroponics systems. A total of 370 farmers were trained on value-added processes and 2,573 were trained on agricultural production systems. Three hundred sixty-nine (369) farmers were trained on agricultural public policies.

The production of grains and legumes has continued growing in the northern and southern parts of the island. The farmers grow fresh, corn, and green beans. Twenty-five (25) farmers were trained on value-added processes and 30 on agricultural production systems. Five (5) farmers were trained regarding agricultural public policy in this area.

Our livestock sector includes poultry, swine, beef, forage, and dairy. Local poultry producers supply 30% of the broiler consumption and 39% of the shell eggs market. A total of 25 farmers were trained on value-added processes and 118 on agricultural production systems. Four (4) farmers were trained on agricultural public policies.

The swine operations for small businesses decreased due to environmental issues, while the operations for big businesses increased their production. The swine operations were updated with more animals raised in each operation making them more efficient and profitable. Sixty-two (62) swine farmers were oriented on value-added processes, while 234 received orientation on agricultural production systems. Regarding agricultural public policies, 112 farmers were oriented on this topic.

The beef sector is still facing continuous competition from imports. The local market participation has stabilized. Land previously used for sugarcane production in the

western and southwestern part of the island is being dedicated to beef grazing. One hundred and twenty-one (121) farmers were trained on value-added processes and a total of 486 beef farmers were trained on agricultural production systems. One hundred and sixty-two (162) farmers were oriented in agricultural public policy for this sector.

The dairy sector continues holding the first position by income of all agricultural activities. Three hundred and sixty-four (364) dairy farms operated in Puerto Rico during FY 2004-2005. The continued technical support provided by Extension personnel contributed to maintaining the Grade A classification for milk. Two hundred and six (206) farmers were trained on value-added processes and 727 persons were oriented on agricultural production systems. In addition, 430 persons were trained on agricultural public policy.

The forage sector has continued increasing due to dairy activities. Dairy producers are using more hay and silage to reduce production costs and dependency on concentrated feed. A total of 70 farmers were oriented on value-added processes. Two hundred and thirty (230) farmers were trained on agricultural production systems and 88 received orientation on agricultural public policy.

Extension personnel are working with small farmers, producers of goats, sheep honeybees, rabbits, and horses to make them more profitable. This sector is unique; it is characterized by micro operations around the island. A total of 55 farmers were trained on value-added processes and another 63 were trained on agricultural production systems. Furthermore, 36 farmers were oriented on agricultural public policy.

B. Impact – Of 193 coffee producers oriented in value-added techniques, 123 (64%) adopted the recommended practices. Three hundred and fifty-six (356) (76%) coffee producers increased their production and 108 (83%) implemented the agricultural public policies. As a result of the ATEBCOL project (Ecological Coffee Processing Plant), 26 new coffee processing plants were established. This kind of equipment uses less water and reduces environmental contamination.

Six hundred and fifty (650) (72%) farmers adopted the recommended value-added practices in starchy crops. A total of 1,090 (70%) farmers increased their production and 367 (86%) implemented the agricultural public policies.

One hundred and twenty-one (121) (57%) fruit producers increased the value-added to their crops. A total of 432 (27%) farmers adopted the recommended production and post-harvesting practices. One hundred and fifteen (115) farmers (95%) implemented the agricultural public practices.

Of all vegetable farmers oriented, 177 (48%) adopted the recommended added-value practices and 1,052 (41%) adopted the recommended production practices. Three hundred and four (304) (82%) farmers implemented the agricultural public policies.

Twenty (20) (80%) producers of grains and legumes adopted the recommended added-value techniques, 23 (77%) increased their production, and four (80%) implemented the agricultural public policies.

A total of 25 (96%) poultry producers adopted the recommended added-value practices and seven (6%) adopted the recommended production practices. Three (75%) farmers implemented the agricultural public policies.

Fifty-six (56) (90%) swine producers adopted the added-value practices, 170 (73%) increased their production, and 101 (90%) implemented the agricultural public policies.

Eighty-nine (89) (74%) beef producers adopted the added-value practices. One hundred sixty-nine (169) (35%) farmers increased their production and 141 (87%) implemented the agricultural public policies.

A total of 67 (96%) forage farmers adopted the added-value production practices. One hundred and six (106) (46%) farmers adopted the recommended forage production practices and 86 (98%) farmers implemented the agricultural public policies.

One hundred sixty-seven (167) (81%) dairy producers adopted the added-value production practices. Three hundred and ninety-seven (397) (55%) farmers gained new knowledge concerning production practices and 407 (95%) were trained in agricultural public policies.

A total of 42 (76%) livestock producers (goats, sheep, honeybees, rabbits, and horses) adopted the added-value production practices. Forty-three (43) (68%) farmers increased their production as a result of the recommended production practices and 29 (81%) implemented the agricultural public policies.

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

D. Scope of Impact – State specific

E. Success Stories

(1) "Agriculture as a Supplementary Source of Income"

In 1991, after an early retirement due to disability, Mr. Fret Reina rented a small farm located between the municipalities of Vega Alta and Vega Baja. His objective was to establish an agricultural business to supplement his pension income. With his personal income as initial investment Mr. Reina established seven planting benches 210' long x 5' wide.

During 2003 Mr. Reina received orientation from the local Extension agent on the commercial production of spiny coriander and on the preparation of a proposal for the construction of eight

additional planting benches 212' x 5' and the installation of an irrigation system. The proposal was approved with a cost of $84,500.

The expansion of the project has greatly improved production and the quality of the product, generating new jobs and an additional income for Mr. Reina to supplement his pension. The business currently employs five farm workers and has an annual income of $25,823. The knowledge and experience gained by this farmer has also benefited other farmers with similar projects.

(2) "Dairy Farm Reopens Operations in Cabo Rojo"

Maintaining and developing farming production in Cabo Rojo, in spite of risks of local urban development, is one of the main objectives of Extension's local agricultural agent as part of the effort to preserve the municipality's agricultural lands. This effort is also promoted through PRAES' agricultural program environmental conservation and natural resources in coordination with the SCRN and the Puerto Rico Department of Agriculture.

As part of this initiative the agricultural agent, through individualized training, was able to help reopen the operations of a dairy farm which had been closed for two years. The farm, located in the Parcelas Pedernales, consists of 140 "cuerdas", which had been considered for urban development due to its location and economic value. This farming operation contributes 328,500 quarts, with a value of $169,177.50, to the Island's dairy production; and generates six direct permanent jobs. It also ensures the permanence of these agricultural lands. As Mr. Kevin Cruz, dairy farmer in charge of the farm, is negotiating with the original owner the purchase of the farm.

(3) "The Agriculture Extension Service in Action in Naranjito"

Mr. Pedro Cruz García, is a community leader and member of the CRD program. Due to a disability in one of his knees, Mr. Cruz had to have a restoration procedure and prothesis. This kept him away from farming and fulfilling his economic obligations with the FSA. As he was disabled, Mr. Cruz qualified for the vocational rehabilitation programs and the local Extension agent for Naranjito, Agro. José E. Carro, helped him prepare a proposal to restore a greenhouse with a cost of $10,000. Mr. Cruz also received orientation on the production of coriander. The production of coriander in planting benches is generating $2,200. This will allow Mr. Cruz to fulfill his obligations with the credit agencies and restore two additional greenhouses. Among his future projections are the hiring of several employs and the improvement of the production and quality of the product.

(4) "Agricultural Project a New Daybreak"

The "Agricultural Project New Daybreak" (*Proyecto Agrícola Nuevo Amanecer-PANA*) was established at the Social Treatment Center at Humacao (*Centro de Tratamiento Social*), a maximum security (Category 5) institution for young people. The purpose of PANA is to offer training in the areas of agriculture and home economics to the inmates of the institution; as well as to provide the necessary tools to develop vocational skills that would allow them to find jobs or establish their own business and generate their own income when they are reincorporated into society. Seventeen (17) young people participated in the project. They were trained on landscape gardening and production of ornamentals and poinsettias, maintenance of green areas and production of vegetables. As part of the project they established a nursery 20' x 30' with a drainage system and prepared an ornamental garden. They also established a vegetable garden

and worked on the maintenance of the institutions' green areas. In the area of home economics they were oriented about nutrition and the handling of food to avoid cross contamination, employment, and job interviews. Five (5) young people were motivated to continue their studies; two are studying at an agricultural vocational school, two graduated from high school and one is in a career institute. A cooperative for the sale of the crops and ornamentals was established, generating some $500 a month. The money is distributed among the inmates when they leave the institution. However, the biggest accomplishment of PANA was the improvement of the conduct of the young people. According to psychological tests applied before and after their participation in the project, they demonstrated a very negative and highly antisocial conduct, which was greatly improved after participating in the project and continued after leaving the institution.

II. Key Theme – Aquaculture

A. The aquaculture sector is organized according to the agriculture public policy of commodity groups. During the past years the demand for aquaculture products has continued increasing. The new trend of this sector is to use the latest production techniques, where fish production is incorporated with vegetable production. This aquaponic technique has been accepted by the farmers. Aquacultre was promoted through educational activities and printed material. A total of twenty-nine (29) farmers were oriented in value-added processes, 56 farmers were trained on agricultural production systems and 52 received training on agricultural public policy.

B. Impact – A total of 28 (97%) farmers implemented the processes and techniques learned in the value-added course. Thirty-three (33) (59%) farmers implemented the concepts of agricultural production systems, while 49 (94%) successfully integrated in their operations what they learned regarding agricultural public policy.

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

D. Scope of Impact – State Specific

III. Key Theme – Ornamental/green agriculture

A. The ornamentals sector is growing constantly, demand being greater than the supply. Constant competition between producers and a lack of organization has caused a disruption in the market and overstock. A total of 466 producers were trained in value-added processes, while 1,032 were trained on agricultural production systems. On the other hand, 277 producers received training on agricultural public policies.

B. Impact – A total of 235 (50%) ornamental producers implemented the processes and techniques taught at the value-added course. Five hundred and forty-four (544) (53%) ornamental producers successfully implemented agricultural production systems, while 165 (60%) implemented agricultural public policy.

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

D. Scope of Impact – State Specific

KEY PROGRAM COMPONENT(S)

To deal with challenges related to production, marketing, and safety PRAES developed and offered several activities to the public. One of the methods was trainings to agronomists, farmers, farm laborers and crop producers on the use of safety equipment, personal protective equipment and proper use of pesticides, health and occupational safety laws, and safe use of agricultural machinery. To reach a broader audience different mass media methods were used: radio, newspapers, brochures, and electronic mail. Demonstration farms and field tests were also conducted.

The College of Agricultural Sciences coordinates and develops research activities and is responsible of implementing the program and outreach research results. For marketing purposes, product classification and packaging techniques were established.

Several ideas were developed to ensure and enhance the quality of products. One these entail the use of genetically improved plants to increase yields and make them resistant to pests and diseases. A weed control program was established, along with efforts to emphasize soil and environment protection. Also, 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

Internal
Personnel of the Faculty of the College of Agricultural Sciences, the PR Agricultural Extension Service, the Agricultural Experiment Station, and the Sea Grant Program participated in trainings, research, and information sharing.

External
The Puerto Rico Department of Agriculture offers incentive programs, the Natural Resources and Conservation Service and the Department of Natural Resources and Environment help in the implementation of practices to save the natural resources and the environment.

The Farm Service Agency collaborates with the Small Farmer Outreach Training and Technical Assistance Program to educate small farmers on farm management.

The private sector also contributes as part of this educational effort. Among these are various associations (Beef and Dairy Cattle, Pineapple, Citrus, Plantains, Vegetable, Coffee producers, and Farmers Bureau), food importers and distributors; as well as food processors and farmers. The Agriculture Research Service contributes its technical knowledge and research information.

Several proposals were submitted to SARE on livestock management disposal, to the Rangeland Research Grant Program, and to McIntere 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), the National Science Foundation, The National

Agriculture Statistics Service (Census), the Farm Service Agency (Puerto Rico Farm Management Project), and the Natural Resources Conservation Services (ATBECOL-Ecological Coffee Processing Plant).

TARGET AUDIENCES

The target audiences are farmers, and farm workers, agricultural entrepreneurs, packers, 4-H members, members of agricultural and professional associations, people from the private sector, and personnel from other agricultural agencies.

OBJECTIVES, PERFORMANCE GOAL(S) AND OUTPUT AND OUTCOME 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

The total number of persons completing non-formal education programs on production of new and value-added commodities and products and the 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.

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2005	1400	2901*	300	2182*
2006	1450	0	315	0

*Increased output and outcome due to more farmers oriented because more regulations were promoted to the commodities groups

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

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

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2005	22145	13397 *	13166	11349
2006	22516	0	14753	0

*Reduction in output due to reduction in external funds and pest problems.

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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
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 and the number of those persons who make use of such knowledge within six months of completing one or more of these programs.

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2005	900	2422 *	342	2095 *
2006	800	0	304	0

*Increase in output and outcomes due to changes in regulations and new policies.

PROGRAM DURATION

First report of 2-year Plan of Work Update FY 2005 and 2006 to 5-year program cycle 2000-2004 (Long-term)

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2005		$1.611.828.53		$1.611.828.53
2006				

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	54.09					
2006						

EDUCATION AND OUTREACH PROGRAMS

PRAES developed the agricultural program area in the crop and livestock commodities, as follow: 1) crops which includes coffee, vegetables (starchy and leafy), 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. Mass media communications, farm demonstrations, leaflets, brochures, and short courses to disseminate the information to the public are used.

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GOAL 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM

OVERVIEW

Affordability
A 10-lesson course dealt directly with food affordability issues, including menu planning, food selection and purchasing practices, as well as the use of locally grown foods. The home economists chose those lessons they felt were most appropriate to their audiences.

Food Safety: Integrated Pest Management – Integrated Pest Management (IPM) was used as a sustainable approach to manage pests through the use of biological, cultural, physical, and chemical tools to minimize economic losses and health and environmental risks. Producers were induced to innovate and adopt new, more environmentally compatible technologies. The Plant Diagnostic Clinic played an important role in disseminating and fomenting adequate IPM practices. After diseased plant samples were processed and diagnosed, written reports were prepared with the recommended IPM practices needed to establish and maintain adequate pest control. The Plant Diagnostic Clinic processed a total of 843 samples affected by arthropods or diseases. Sixty-six percent (66%) of the samples processed were of plantains and bananas due to the detection of Black Sigatoka (BS) (a new disease in Puerto Rico). This was a joint effort between PRAES and the Puerto Rico Department of Agriculture (PRDA) to determine the municipalities that were positive for the presence of BS.

Food Safety: Mastitis Prevention Program – Three hundred and sixty-four (364) first class dairy farmers were in operation at the end of the FY 2004-2005. The sanitary inspections (2,180) and re-evaluations made by the FDA and the PR Department of Health revealed that all dairy farmers and the milk industry of Puerto Rico comply with all Federal and State sanitary standards. As a result, their Grade A standard for milk of excellence was maintained and the milk produced in Puerto Rico was accepted in the National Conference on Interstate Milk Shippers.

Food Safety: Consumers – During FY 2004-2005 a new lesson "Separate: avoid cross contamination" was prepared and added to the "Fight BAC" campaign curriculum. The Partnership for Food Safety Education continued joint efforts to develop and support food safety education for consumers, especially during September "The National Food Safety Month".

Food Safety: Persons in charge of Food Establishments – PRAES offered the "Food Safety Certification Course"—based on HACCP principles—to persons in charge of food establishments. The course includes 12 lessons and orientation on how to implement risk management procedures and standard operational procedures to prevent foodborne illnesses. The PRAES personnel offering this course included two food specialists and 19 home economists with the support of the Environmental Health Personnel.

I. Key Theme – Food Security: Security of Supplies

A. Two hundred and five (205) children and youth completed the 5-lesson course designed to help them understand the importance of assuring the food supply in Puerto Rico.

B. Impact – Of the youth involved in the course, 138 became aware of the need of food security. In some cases, the intervention did not consist of the five lessons; thus, it was reported that 350 youth tried a new food that they had previously not accepted, 30 became aware of the impact of urban expansion on agriculture, 18 planted one or more vegetables or herbs, four were successful in their plantings, and 187 expressed their concerns about security of the food supply for the island.

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

D. Scope of Impact – State Specific

II. Key Theme – Food Security: Affordability

A. One thousand five hundred and thirteen (1,513) participants of the FCS program completed a short course to improve and use supermarket strategies.

B. Impact – Of the 1513 persons that completed the course, 765 planned to change one or more practices. The number of participants who reported a change in behavior in the use of supermarket strategies and the use of resources for obtaining foods were as follow: 651 followed the plan they developed to improve meals and snacks, 566 selected alternatives that are more economical and of the same nutritional value, 1,042 used food harvested in Puerto Rico, 630 compare prices before they buy, and 472 now have sufficient food to last the whole month.

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

D. Scope of Impact – State Specific

III. Key Theme – Food Safety: Farmers, Wholesalers, and Retailers

A. Six (6) trainings on "Good Agricultural Practices" (GAP) were offered to clientele working in food safety: farmers, wholesalers, and retailers. The participants were farmers growing starchy crop, fruits and vegetables. Nine (9) radio programs on safety practices and products management were broadcasted.

B. Impact – One hundred and twenty-five (125) persons attended the trainings.

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

D. Scope of Impact – State Specific

IV. Key Theme – Food Safety: Integrated Pest Management

A. Eight hundred and forty-three (843) samples affected by arthropods or diseases were received. Five hundred and sixty-two (66%) of the samples processed were from plantain and banana as a result of the detection of Black Sigatoka (BS), a new disease

introduced to Puerto Rico from the Dominican Republic. Eighty-two (82) written reports with recommended IPM practices in plantain and banana were made to farmers.

B. Impact – The early and correct diagnosis of pests in the Plant Diagnostic Clinic saved farmers about $200,000. Of the 3,000 farmers that used one or more IPM practices: 375 farmers used IPM practices in coffee; 175 in fruits; 380 in starchy crops, banana and plantain; and 150 in vegetables. The recommended IPM practices were based on visits and monitoring of pests in the farms.

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

D. Scope of Impact – State Specific

V. Key Theme – Food Safety: Foodborne Pathogen Protection Mastitis Prevention Program

A. Puerto Rico has 364 dairy farms which were visited and evaluated by PRAES agronomists in six or more occasions during the FY 2005.

B. Impact – Three hundred and sixty-four (364) dairy farms maintained consistent bacteria counts below 100,000 units colony per milliliter and Grade A standards for milk. The average of bacteria counts were 36,935 units col/ml and the average of somatic cells was 449,243 cells per milliliter. However, the Milk Quality Program discards all the milk (197,912 quarts) that did not comply with the Federal standards for: temperature, somatic cells over 750,000 cell/ml., cryoscopy, antibiotics, adulterants, odor, color, and flavor.

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

D. Scope of Impact – State Specific

VI. Key Theme - Food Safety: Consumers

A. One thousand eight and hundred five (1,805) consumers completed the lessons of the "Fight Bac" course.

B. Impact – One thousand seven hundred and fifty-eight (1,758) consumers demonstrated the adoption of the following recommended practices: improved hand washing practices; increased sanitation of surfaces; reduced cross contamination of foods; cook at the proper temperature; and maintains an adequate temperature in the refrigerator.

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

D. Scope of Impact – State Specific

VII. Key Theme – Food Safety: Future Chefs Competition

A. Twenty-six (26) children and youth participated in the competition "Future Chefs" held in San Juan.

B. Impact – Twenty six (26) children and youth demonstrated good food handling practices during transportation, separating ready to eat food from raw foods to avoid cross contamination, and maintaining perishable foods refrigerated.

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

D. Scope of Impact – State Specific

VIII. Key Theme – Food Safety Certification Course

A. Nineteen (19) home economists and three (3) specialists (FTEs = 5.7) graduated 3,491 participants in 87 Food Safety Certification Courses.

B. Impact – One thousand six hundred and forty-one (1,641) participants of food establishments prepared a food safety risk management plan and are using a thermometer to monitor PHF temperatures. According to data of 653 participant's evaluations, the adoption of practices increased as follows:

Table I

Food handling practice evaluated in the Food Establishments	*Before %*	*After %*
1. Check with thermometer & refuses perishable foods over 45°F during receiving	25	65
2. Employees washing their hands often.	78	86
3. Facility has separate cutting table and utensils for meat and for vegetable and fruit preparation.	55	79
4. Ingredients to prepare sandwiches and salads were maintained to 41°F or less.	44	68
5. Utilized correct method to defrost.	54	64
6. Used one or both of the following methods to maintain hot food to 140°F or more:		
Use thermometer and/or	20	47
Use time	47	39
7. Used measures to cool hot foods quickly to lower their temperature from 135°F to 41°F in six or less hours.	61	68
8. Used gloves and utensils while preparing and serving ready to eat food.	55	79
9. Reheated cooked foods in the stove or oven at the internal temperature of 165°F or more.	46	67
10. The establishment has a three compartment sink	65	73
11. Washed utensils with hot water and soap, rinsed, and in the third compartment used a solution of chlorine, iodine or quaternary.	59	81
12. Utilized a certified exterminator to keep pest management program.	84	87
13. Excluded or restricted food employees who had symptoms related to the foodborne disease as established in the FDA Food Code.	49	60
14. Used appropriate method to maintain hot foods 135°F or more.	75	84

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

D. Scope of Impact – State Specific

E. Success Story **– "Preventing Foodborne Illnesses"**

Persons in charge (PIC) of food establishments (FE) have to prevent foodborne illnesses through the adoption of the recommended practices of the *Food Code - Food & Drug Administration*. One hundred and eighty-five (185) employees of 64 FE were evaluated out of 437 PICFE that approved the Food Safety Certification Course in the Mayagüez region. According to the evaluation: 63.2% used a correct hair cover; 52.4% had a clean apron; 77.8% had clean nails without enamel; 70% utilized one cutting board for meats and another for vegetables and did not interchange them; 89% defrosted meats in the refrigerator; 92% washed the utensils with warm water and detergent and used a sanitized solution. Also, two potentially hazardous ready to eat foods (PHF) were selected from the 64 FE to analyze their microbiologic quality. Unsatisfactory quality for total aerobic count, total coliforms and *Escherichia coli* was observed in 5.1%, 2.6% and 0%, respectively. Forty-five percent (45%) comply with the critical temperature limits of $\leq$41°F or $\geq$135°F. No outbreaks were reported, nor were any food establishments closed. The time the PHF had been at dangerous temperatures were not evaluated.

The Food Safety Certification Course support PIC to improve the management of risks associated with foodborne illnesses. AES should continue uniting efforts to increase the number of food establishments meeting the PHF temperature standards.

IX. Key Theme – Food Safety: PRAES and Personnel from Other Agencies

A. Nine hundred and twenty-one (921) professionals attended the following trainings: (1) "Sanitary Procedures in Food Processors Plants": 16 PRAES and 10 EHI. (2) "Hazard Analysis and Critical Control Point": 16 PRAES and 10 EHI, 42 Pesticide Association members. (3) "Application of the Food Code and HACCP in the Bread Industry": 312 bakeries. (4) "Role of the directors of Head Start in Food Safety", 40. (5) Two food safety certification courses (FSCC) review, 36 PRAES and 32 EHI; 8 home economists were re-certificate by. (6) "Protect your Baby", 303 PRAES home economists and WIC nutritionists. (7) "Food Recipes Competition", 64 PRAES home economists.

B. Impact – PRAES and EHI personnel increased their knowledge about HACCP and SSOP for the benefit of the food industry. The directors of bakeries and Head Start increased their knowledge about food safety and sent most of their persons in charge to take the FSCC. Nineteen (19) home economists and EHI offered the FSCC to persons in charge of food establishments. Two hundred and thirty-nine (239) WIC nutritionists used the "Protect Your Baby" curriculum to instruct mothers as part of their day-to-day work. Food safety lessons were added to all PRAES food preparation curriculum.

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

D. Scope of Impact – State Specific

KEY PROGRAM COMPONENT (S)

A 10-lesson course, dealt directly with food affordability issues including menu planning, food selection and purchasing practices, as well as the use of locally grown foods. The home economists chose those lessons they felt were most appropriate to their audiences.

Affordability – A short course with follow-up two to six months later to assess impact over time was used. The course consists of 10 lessons, from which the home economists can pick and choose depending on the specific needs of the group. The course includes sessions to assess the current situation in terms of menu planning, food selection and purchasing practices, as well as the use of locally grown foods.

Food Safety: Integrated Pest Management (IPM) – Extension agents and agronomists were trained in pest identification and alternative control measures 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. Educational materials and slide sets were prepared for this purpose. Close interagency coordination was maintained with law enforcement agencies like the Puerto Rico Departments of Health and Agriculture and the Dairy Industry.

PRAES specialists at state level developed curriculums and program strategies for specific target clientele. They offered formal education or train-the-trainer courses to field personnel on the use of the teaching materials developed. The specialists also taught students of the College of Agricultural Sciences and trained the personnel of other agencies, industry, and the private sector. The agronomists and home economists offered non-formal teaching on food related matters to specific target clientele: farming, small business processors, food establishments, and consumers. Volunteer community leaders, an integral part of PRAES programs, were used to reach low-scholastic and low-income clientele.

Food Safety: Consumers – Food safety program for consumers contained eight lessons (transparencies or power point presentations, brochures, posters, and others educational materials). Home Economists selected at least four lessons to offer a course as part of their PRAES programs' plan of work: Regular, EFNEP, and 4H. The Fight BAC lessons were also distributed to health educators, and nutritionist-dietitians through their respective representative in the Puerto Rico Partnership for Food Safety Education. The partnership organized the activity for the Food Safety Month proclamation and carried out mass media activities. Home economists continued partnership committees at local level to offer food safety lessons and educational activities through all PRAES programs addressed to consumers: EFNEP, 4H, and the Consumer and

Family Sciences Regular Program. Volunteers, an integral part of PRAES programs, are used as community leaders as links to reach low-scholarity and low-income clientele.

Food Safety: Children and Youth – The "Future Chef's" (a 5-lesson course, one of which is "Fight BAC!") and final competitions. PRAES home economists in San Juan only recruited the youth and offered the course. Participants learned safe food handling procedures while learning about nutrition and practicing food preparation.

Food Safety: Persons in Charge (certification course) – The PRAES and the Food Hygiene Division, Puerto Rico Department of Health, have been working together during 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.

PRAES home economists received trainings on the contents of the lessons and the administrative procedures.

Food Safety: Institutional Personnel – the Food Specialists train AES personnel and others agencies personnel with the objective to increase their knowledge and improve understanding on food safety and be able to train and to advise food handling employees. PRAES home economists' plans at municipal level included offering the Food Safety Certification Course to Person in Charge and food employees working with groups vulnerable to foodborne diseases.

INTERNAL AND EXTERNAL LINKAGES

Internal

UPR-Mayagüez Campus, Professional Resources - Evaluation Specialist, editors in charge of educational media and support personnel from the Educational Media and Information Office, the Radio and TV Specialist, Press Specialist, Graphic Arts personnel, 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 Safety-Farmers, Wholesalers, Retailer - PRAES personnel: aquaculture specialist, entomology specialists (2), poultry and eggs specialist, dairy herd Specialist, meat specialists (3), fruit specialist, starchy vegetables specialist, agronomists; personnel of the Mayagüez Campus-University of Puerto Rico: seafood products specialist and 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 and Sciences (Microbiology and Marine Sciences).

Food Safety: Integrated Pest Management (IPM) – Extension IPM Coordinator, entomology Specialists, agronomists and home economists/nutritionists, Crop Protection Department, and the Agricultural Experiment Station.

Food Safety: Mastitis Prevention Program – Extension dairy specialist, agronomists, and Extension dairy agents.

Food Safety: Consumers, and Food Establishments – PRAES personnel: food and nutrition and food technology specialists, nutritionist, home economists, regional supervisors, the Family and Consumer Education Program personnel, and from Mayagüez Campus-University of Puerto Rico: Food Science and Technology Department and SEA GRANT program.

External

Food Security of Supplies and Food Security affordability –Nutrition Committee of Puerto Rico, and the Food and Nutrition Commission of Puerto Rico.

Food Safety: Farmers, Wholesalers, Retailer - FDA, USDA-FSIS, the Puerto Rico Department of Agriculture, the Department of Health, Environmental Health Secretary personnel, food processors, and retailers.

Food Safety: Integrated Pest Management (IPM) – Cooperation will continue and efforts will be strengthened with homemakers, the home economist's 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, US and State Department of Agriculture, and the US Food and Drug Administration.

Food Safety: Consumers and institutional personnel – Puerto Rico Partnership for Food Safety Education, external personnel are: Director of Food Hygiene Division, Puerto Rico Department of Health, Federal Food and Drug Administration, State Epidemiologist, Epidemiological Division for Transmittable Disease Prevention and Control, Executive Director, Supplementary Nutrition Special Program (WIC), USDA, Representatives, Department of the Family's Child and Family Administration and Head Start, Director of Food and Nutrition Services, State Agency, Department of Education, and the Family Ecology School of the UPR-Río Piedras Campus.

Partnerships at local level (organized by PRAES Home Economists) – Puerto Rico Department of Health, Environmental Health Inspectors, Family and Consumer 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 day care services for infants, children, elderly, sick persons, etc., "CREA" (an educational rehabilitation center for drug addicts and alcoholics) and other homes for drug addicts in the rehabilitation process, the radio, and the press.

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 in the 4-H program. Secondary audiences: other low-income children and their families.

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: other low-income children and their families.

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

IPM – Health food inspectors, persons in charge of food service establishments and homemakers.

Mastitis Prevention Program – Dairy farmers and dairy managers.

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

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 IA (Output)		Indicator IB (Outcome)	
	Target	Actual	Target	Actual
2005	1000	1,513	500	765
2006	1000	0	500	0

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)
B. 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 IA (Output)		Indicator IB (Outcome)	
	Target	Actual	Target	Actual
2005*	100	205	50	138
2006	100	0	50	0

*Change due to loss of funding and the concentration on other priorities such as obesity prevention.

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, foodborne 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 IA (Output)		Indicator IB (Outcome)	
	Target	Actual	Target	Actual
2005	1000	1,805	1000	1,758
2006	1000	0	1000	0

*The Fight BAC campaign and the curriculums and educational materials prepared for consumers, and youth had created an excellent involvement of all PRAES personnel and increased the participation of clientele.

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
2005	2000	3,491*
2006	2000	

* The demand for the PRAES Food Safety Certification Course has increased during the past years. Food Safety Course from an accredited provider is mandatory in order the owners of food establishment could renew the Sanitary License to operate a food establishment.

Data Collection Method – examination.

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
2005	100	1,641*
2006	100	

*HACCP plan and temperature documentations were accomplished as a voluntary action. Based on the collected records 1,641 participants used thermometer to monitor temperature and 1,361 used the time to meet Food Code regulations. Others risks were evaluated. See table I in section VIII Key Theme – Food Safety Certification Course.

Data Collection Method - practice adoptions records

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 400,000 or less somatic cell.	
	Target	Actual	Target	Actual
2005	350	364	335	334
2006	340		335	

PROGRAM DURATION

First report for the 2-year Plan of Work Update FY 2005 and 2006 of the 5-year program cycle 2000-2004 reporting cycle (Long-term)

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2005	$345,072.55			$345,072.55
2006				

FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2005	11.58					
2006						

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GOAL 3: A HEALTHY, WELL-NOURISHED POPULATION

OVERVIEW

During FY 2004-2005 PRAES continued training personnel to prepare them to promote good nutrition and health among its clientele and conducting health education projects. Emphasis was put on promoting healthy lifestyles with prominence on the importance of incorporating physical activities to their lifestyles. In the area of nutrition education the short courses based on six of 10 possible lessons were continued. A section of indicators was added aimed at fomenting creativity in the kitchen by fostering the development of recipes using food and cooking techniques recommended in MyPyramid and the new dietary guidelines. Groups with special needs, such as diabetes, hypertension, high blood cholesterol, and obesity were also addressed. The special project based on Participatory Action Research terminated in FY 2005. This project was based on establishing communal gardens in low-income communities as a means of uniting the efforts of community members and increasing the consumption of fruits and vegetables.

The PRAES health specialist, Dr. Mildred Feliciano, continued working in partnership with the Puerto Rico Department of Health to develop the CDC program "Diabetes: The Community in Action". The purpose of this program is to offer community members social support and education, and facilitate access to care and communities a stimulus for action. Also, Health professionals and community leaders were trained and received support in this area.

PRAES continued working in partnership with the PR Health Fraud Prevention Commission and developed a fraud prevention program. We also widened the Commission's scope to prevent/attend fraud in other chronic diseases, in addition to HIV/AIDS.

The PRAES Food and Nutrition Specialist and the Coordinator of the EFNEP program worked actively in developing and adapting the new USDA food guide (MyPyramid) to Puerto Rico. Dr. Ann Macpherson is in charge of the scientific basis of the food guide, while Dr. Ada Laureano is co-chair of the overall effort. The new guide will be published in March of 2006.

A curricula guide on injury prevention was developed based on feedback from PRAES agents and leaders. The curriculum was targeted to the adult population. Its goal is to prepare participants to take the correct steps in case of an emergency and to encourage them to incorporate safety habits in their daily lives.

I. Key Theme – Human Health

A. PRAES personnel implemented health projects directed to children and youth. To meet the goals of these projects, they used different curricula developed by the specialist, such as: "Learning to be Healthy" (HIV/AIDS prevention) and "Toward a Drug Free Year 2000". For adolescents, they used the curricula of the PAS project (Postponing Sexual Activity), "Enhancing Your Personal Appearance", "Human Sexuality", "HIV/AIDS Prevention", and "Protect the Air You Breathe-Indoor Air Quality Project". For adults, they used "Promoting Healthy Lifestyles" and "Human

Sexuality". They also participated in the "Healthy Indoor Air for America's Homes" program, emphasizing on second-hand smoke and asthma prevention.

B. Impact – Of 3,303 children and youth who completed non-formal health education and promotion programs, 2,402 adopted one or more recommended practices after completing one or more of the programs. The practices adopted were as follow: 187 youth reported having acquired skills using assertive response to peer pressure, 899 acquired skills and practices related with personal hygiene, and 633 developed a personal hygiene program. In the area of drug prevention, 162 reported they acquired skills to deal with negative peer pressure.

In the area of indoor air quality (IAQ), 339 youth learned about the different air contaminants and methods for their mitigation and elimination; 250 limited and used more wisely the products with volatile organic compounds (VOCs); stopped exposing their family to environmental tobacco smoke, 561 detected and removed mold, mildew and biological hazards; and 162 youth participated in the 4-H IAQ competitions.

Of a total of 1,228 adults who completed non-formal education programs on topics related to health promotion and health education, 947 reported that they reduced their risk levels upon the completion of one or more recommended practices after completing the programs. The improvement areas are as follow: 513 began to do 30 to 60 minutes of physical exercise daily, 436 incorporated physical activities in their lifestyles, 358 have maintained and kept under control their blood sugar and blood cholesterol levels, and 302 check their blood pressure levels and maintain them to normal.

In the area of indoor air quality (IAQ), 717 adults learned about indoor air contamination through short courses, seminars, and home assessment. Of these, 346 improved/corrected moisture levels in the home, 436 detected and controlled indoor air contaminants in their homes, 190 took steps to check/maintain/correct combustion appliance, 253 detected and removed mold, mildew and biological hazards, and 82 took steps to maintain the air conditioning equipment in optimum conditions.

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

D. Scope of Impact – State specific

II. Key Theme – Home Safety

A. Children, youth and adults were oriented on risk reduction and safety. Children and youth were oriented through the curricula guide "Prevention of Accidents" and "Rejecting Drugs and Alcohol" (PAnDA); adults were oriented through short courses.

B. Impact – Through accidents prevention education programs 208 children and youth reported having acquired knowledge in the prevention of traffic accidents and the

relationship between traffic accidents and drugs. Of these, 150 began to use their seat belts, 93 take pedestrian and cyclist safety measures, and 200 can mention three types of drugs and their effects on health.

Of 124 adults were oriented in risk reduction and safety, 93 acquired skills and modified attitudes and practices related to injury prevention, 70 adopted practices to prevent poisoning, 39 prepared a first aid kit, and 93 demonstrated the steps to make a call to the emergency services (911).

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

D. Scope of Impact – State specific

III. Key Theme – Human Nutrition

A. Nutrition has been divided into three basic areas of teaching: nutrition for the prevention of chronic diseases and for the general population based on the dietary guidelines and the food guide pyramid; nutrition to help people who have already developed a chronic disease such as hypertension, diabetes, obesity or high cholesterol; and food preparation based on the invention of new recipes. The 7-session short course that was designed for MeNu (the program that was offered with Family Department-FNS funds) was modified so that the number of sessions was limited to six, with 10 themes to choose from. The home economists were instructed to choose the themes that best fit the needs of their audiences.

B. Impact – During FY 2004-2005, 1,865 persons completed non-formal education programs (short courses) designed to improve the nutritional quality of their diets (output), as recommended in the dietary guidelines and the food guidance system. Of these, 1,626 improved their nutrition in one or more recommended areas. The improvement in specific areas was as follows: 917 improved their consumption of fruits and vegetables; 384 are now using whole grain products rather than refined; 439 improved their consumption of legumes, seeds, nuts, or fish; 593 reduced their use of beverages that are basically water and sugar; 600 reduced their use of saturated fats, trans fats, fried foods or salt; 670 now consume a breakfast that includes fruit, milk, and cereal; 696 consume snacks that are based on the food guidance system; and 379 prepare 1-dish meals (cereal or starchy vegetables: with vegetables and a little meat). In addition to the above, 1,547 people completed a short course related to food preparation. Of these, 312 people prepared the recipes that were invented in the short courses; 601 adopted recommended food preparation practices; 402 selected agricultural products from Puerto Rico from two or more food groups for their recipes; 290 limited the amount of salt in their recipes to ¼ teaspoon or less; 291 used a maximum of 1 teaspoon of fat or ½ teaspoon of sugar in their recipes; 569 used adequate temperatures for cooking, cooling, reheating and maintaining their foods before eating; and 507 prepared a recipe that had good flavor and appearance.

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

D. Scope of Impact: State specific

IV. Key Theme – Dietary Habits

A. One thousand four hundred and forty-eight (1,448) persons completed non-formal short courses to improve their dietary habits in order to reduce the risk factors of chronic diseases: obesity, hypertension, blood cholesterol, and blood sugar.

B. Impact (outcome) – Five hundred (500 persons) completed or surpassed the goals that were established to reducer their risk level. As part of the overall improvement based on dietary change and increased activity levels, 576 people reduced their blood pressure levels, 338 reduced their BMI, 259 reduced their cholesterol levels, and 597 controlled their blood sugar levels.

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 education and promotion projects to all PRAES agents and volunteers. Extension continued to work in partnership with different health education and federal and state agencies to develop the health projects. The educational program was carried out through different strategies such as short courses, exhibits, health clinics, and mass media, among others. The health projects to help children and adolescents to develop skills to change behaviors were as follow: for children – "Learning to be Healthy" (HIV/AIDS prevention) and "Toward a Drug Free Year 2000" and for adolescents – the curricula of the PAS Project (Postponing Sexual Activity), "Human Sexuality", "HIV/AIDS Prevention", and "Personal Care" project. For adults, different curricula such as "Promoting Healthy Lifestyles", "Preventing Health Fraud", "HIV/AIDS Prevention and "Human Sexuality" and "Healthy Indoor Air America's Homes" were used. These groups were also oriented on risk reduction and safety. The projects evaluated the knowledge and the attitude of the participants using a pre- and post-test.

A short 10-lesson course, from which 4 to 6 lessons were selected for specific groups, is the basic component of the program. Individual interventions occurred when deemed necessary. This course is designed to be adapted to groups that need orientation regarding good nutrition, or groups that have specific dietary problems related to chronic disease. Increasing physical activity is one of the components of this course.

INTERNAL AND EXTERNAL LINKAGES

Internal

Health, food and nutrition specialists, CRD specialist, agricultural specialists in horticulture and related areas, 4-H specialists, agronomists, home economists, the Faculty of the Department of Agricultural Economics and Rural Sociology of the College of Agricultural Sciences, the Sociology Department of the College of Arts and Sciences, and regional supervisors of the Family and Consumer Education program (5), and PRAES volunteers.

External

The Food and Drug Administration, the Department of Education, the Administration of Socio-economic Development of the Puerto Rico Department of the Family, the Nutrition Committee of Puerto Rico, the Food and Nutrition Commission of Puerto Rico, the Puerto Rican Heart Association, the Department of Health, the American Cancer Society, the Medical Sciences Campus of the University of Puerto Rico, the Environmental Protection Agency, the Puerto Rican Lung Association, the Department of Labor and the Health Educators´ Association.

TARGET AUDIENCES

Children from low-income areas – (Learning to be Healthy), ATOD, HIV/AIDS prevention education programs and personal hygiene project need to be implemented at an early age.

School age children – (The Menu Evaluation Competition and Chefs of the Future) to teach them about menu planning.

Adolescents – Postponing Sexual Activity) using peer education strategy to promote sexual education among this age group. The "Youth, protect the air that you breathe) project prepares youth with skills that may help them identify interior air contaminants, their sources, their effects in human health and their mitigation.

Individuals with an interest in preventing or treatment of chronic diseases – (Short course) and indoor air education (Healthy Indoor Air America's Homes) to help people use knowledge and skills to improve their personal health behaviors.

Families and individuals that live in "Special Communities" – Those identified by the governor's office as being particularly vulnerable to social and economic problems.

Extension and other Professionals – (Train -to-trainer, in-service training)

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 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	200	1,448*	100	500*
2006	200	0	100	0

*There is a trade-off between the numbers for reducing risk factors and the numbers for increasing awareness, understanding, and information about dietary guidelines. There is a 34.5% increase improved practices compared to last year which was 340.

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	Indicator 1A (Output)		Indicator 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	1200	3,412	600	1,626
2006	1200	0	600	0

*The high numbers reach compared with plan is a result of the introduction of MyPyramid in the need to include this in the community teaching.

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 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	1200	4,531*	780	3,349*
2006	1200	0	780	0

*Increase is probably due to the educational needs of the population served and the refocusing of the work of the agents to work in projects spending more time in contact with participants.

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 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	500	332	300	293
2006	500	0	300	0

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
2005	2000	9,609*
2006	2000	0

*The increase in numbers compared with the target is due to the amount of variety of community-wide health events celebrated.

PROGRAM DURATION

First report of 2-year Plan of Work Update FY 2005 and 2006 to the 5-year program cycle 2000-2004 (Long-term)

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2005		$704,150.64		$704,150.64
2006				

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	23.63					
2006						

EDUCATION AND OUTREACH PROGRAMS

PRAES will continue focusing in health and nutrition programs. Research from the Agricultural Experiment Station and the Campus of Medical Sciences 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

Despite the fact that 2005 hurricane season was overwhelmingly active, we were very fortunate. There were some instances of flooding in the coastal plains and mud slides in the central mountain area which also has geological faults. Often, people and developers build houses in these areas without considering this fact. As a result, in the case of extraordinary rain events these formations are activated causing extensive and expensive damages to structures (buildings and roads).

The Brush Fires educational campaign continued throughout 2005. Activities were developed by the Extension local offices in collaboration with other government agencies to create awareness of the environmental and health hazards from grass fires. The materials were presented to the State Department of Natural Resources and Environment (SDNRE) which adopted the campaign for 2006. The results of these efforts will be seen long-term.

The proposal "Culture and Landscapes: A Political Ecology of Communities and Co-Management of Urban and Rural Forests in Puerto Rico" was approved for $20,000, with a one year duration (starting on January 2006). The aim of this project is to conduct an in-depth ethnographic study to assess the effectiveness of co-management as a strategy to manage natural forest resources in two different community settings, one urban and one rural. Both have co-management agreements between communities (each represented by a local grassroots community organization) and the SDNRE. This project will also assess the social effectiveness of reforestation programs in these communities.

In September 2005, a proposal for the amount of $118,700 was approved to train the trainer on water quality in the Rio La Plata watershed. The area covers the municipalities of Cayey, Cidra, Aguas Buenas, and Aibonito. The first step, to develop educational materials to train seven (7) agricultural agents and home economists so that they can train 150 persons in the community including children, is on the way. This is a joint venture with NRCS, SDNRE, State Water and Sewage Authority, and Extension Service.

A Memorandum of Understanding with the State Department of Agriculture (SDA), NRCS, the Soil Conservation Districts, and PRAES was signed in December 2004. It conveys a collaborative effort with the Soil Conservation Districts toward the conservation of natural resources. Extension had a prominent role in the promotion and organization of the Soil Conservation Districts elections. Extension personnel participated in the State Technical Committee and in the State Conservation Committee, composed by the SDA Secretary, farmers, representatives of the College of Agriculture and NRCS to work on the natural resources conservation policy.

An agricultural agent has been detailed at the Land Use Office of the Planning Board to assist in a study to delineate the agricultural zones, which will be used as a reference guide to the government's economic development for the next 10 years. The plan was prepared through an interagency collaboration (SDRNE; SDA, the Environmental Quality Board, the Planning Board, and the College of Agricultural Sciences) and validated by a group of Extension specialists and

other government agency representatives. The next step is geared towards the dissemination of the information on land classification, as included in the plan for presentations in public hearings during 2006.

The State Department of Agriculture is encouraging the contour planting and permanent shade for coffee plantations. Coffee is best produced in the mountain, central region where temperatures, precipitation, and altitude are ideal for quality coffee. But the row planting, previously used for coffee plantations increase soil erosion. Around 45% of the coffee farmers have adopted contour planting and 15% make use of the shade. USDA programs now offer incentives to farmers on recommended practices, such as individual terrace, contour planting, use of vegetative barriers, use of permanent shades, and others. All of the above mentioned have resulted in the reduction of soil erosion, improved water quality, and less water pollution from the coffee producing regions' watersheds that supply the drinkable water for Puerto Rico.

Waste management systems and the use of by-products from the coffee processing plants have been improved in around 65% through the Ecological Coffee Processing Technology (ATBECOL) project. Seventeen (17) new projects for the conversion of by-products were established, using coffee pulp as an organic fertilizer, after its transformation using vermiculture. The results will show a reduction in the risk of water source contamination and in the use of chemical fertilizers.

A 2-day seminar for 25 participants each day was planned for 2006, on the Animal Waste Management Outreach special project (a $56,777.00 approved proposal). It is aimed at developing educational materials and workshops on solid waste management for farms with animals in confinement. The educational materials will cover the new regulations and conventional and non-conventional alternatives for these systems. Another special project developed by the Agriculture Engineering Unit was the Adapting a Computer-Assisted Non-Point Source Program for Puerto Rico (LEAPE); which conveys adapting to Puerto Rico an educational model for non-point source pollution and water quality improvement. This model was developed by Cornell University and adapted to Puerto Rico and tested in a community in the Municipality of Patillas. A 1-day train-the-trainer workshop to show how to use and apply the computer program was offered in Patillas, with the participation of 20 environmental permits professionals. A technical presentation was conducted and participated as a poster presentation at the US Virgin Islands Non-Point Source Pollution Conference. Twenty (20) professionals participated in a demonstration of the program at San Juan to generate interest for its use as a tool and to create awareness of it usefulness. This particular project was completed in December, 2005, and adopted as part of the regular Extension work. Several municipalities have demonstrated interest in the model.

The Medtronics Villalba Compost (ViCom 4-H) project was completed in December 2005. The educational lessons prepared included the following topics:

1. Conservation of Puerto Rico´s Natural Resources
2. What is compost?
3. Types of compost
4. The decomposers

5. Compost preparation
6. Compost management
7. Materials and equipment for compost
8. Benefits and uses of compost

There is also a coloring book to be used by volunteers and Extension personnel in the municipality of Villalba. All the above materials are in Spanish. A theatrical presentation on compost and its benefits entitled "The Happy Worm", was created and presented to 150 4-H'ers, 17 volunteer leaders, 55 parents, and 28 special guests (government representatives, private industry, and community leaders). It was later presented in participating schools.

I. Key Theme – Water Quality

A. Two thousand one hundred and forty-five (2,145) persons completed a course on water quality.

B. Impact – Two hundred and forty-six (246) farmers established waste management systems; 306 farmers improved their waste management system on their farms, and 394 farmers adopted the recommended practices for waste management on their farms.

Two hundred and seventy-five (275) farmers reduced the use of chemicals in their farms.

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

D. Scope of Impact – State Specific

E. Success Stories

(1) "Adoption of recommended practices"

Mr. Luis Meléndez from Vega Baja has been participating in the educational program Agriculture, Marketing and Natural Resources since 2000. He received orientation on laws and regulations regarding farming environmental policies concerning swine production. Initially, he made very rustic corrals made of cement block, wood, and zinc without any design. He had 10 to 12 gestating sows. The swine were fed with food leftovers and were of poor genetic pools. The solid waste was disposed of in a filtering tank with poor management practices, without regulatory permits, with a two-acreage size and located near the karts and sinkholes.

A farm development plan was prepared geared to expand and diversify the business. First, it had to comply with the Environmental Quality Board regulations, ARPE, and the Department of Health. Mr. Meléndez was then referred to the USDA-NRCS and in 2002, he obtained the operation permits. He applied for assistance to applied sustainable practices both at State and Federal level. In 2003 Mr. Meléndez bought 8.5 acres through Farm Service Agency. He participated in EQIP and Conservation Security Program (CSP). Through the participation in these programs he designed new access roads, pasture, fences, run-off water trenches and the

use of vetiver grass for soil erosion control. For waste management he built an underground tank for liquid storage, a solid waste separator and compost that are later spread in 7 acres of pasture. Once a month, the liquid is sprayed in the field and the composted solids are distributed in an alternate form. This has provided savings of $3,024 a year.

As a result of these improvements Mr. Meléndez has been able to expand operations while complying with regulations. At present he is in EQIP level 2. Leave and soil analysis are regularly conducted. The farm is used for demonstrations by the Department of Agriculture and trainings. Mr. Meléndez was recently approved an additional $17,000 for infrastructure for the production of 560 hogs of the farm at present.

(2) "**Vetivel in the Swine Farm"**

Mr. Toledo has been a vegetable farmer in the municipality of Gurabo for some 20 years. He manages a 45 acre farm that, besides vegetables, has a big area reserved for pasture and beef cattle. In 2000, with the assistance of the local agricultural agent, he prepared and submitted a waste management plan to the Environmental Quality Board to start a swine farm. The waste management plan included a separator, compost and infiltration trench with vetivel in the top of the trench. This recommendation was very successful in run-off control due to the steep slope of the terrain. It also improved the effectiveness of the trench.

At present, Mr. Toledo he has 567 hogs on his farm. The manure from the animals resulted in 5,110 pounds of organic fertilizer that is spread in the pasture area and used for the vegetable production. This has resulted in savings of $2,146 in chemical fertilizer.

By following the recommended practices, this farm has been able to increase its income while complying with water quality regulations. Also, farmers often visit the farm to observe the use of vetivel and receive orientation on soil erosion control practices. Often visitors get vetivel root division of slits to start using it in their own farms. The farm is also used for demonstration of recommended farm practices. It was visited by EPA personnel to learn the environmental practices implemented.

(3) "Dramatic Improvement in Farming Practices"

A long time small farmer in Naguabo produced plantains, yams, cassava, beans, and swine. The swine were located in a soil floor pen with no waste management system. Close to the farm, there are several housing developments and the neighbors complained to the Environmental Quality Board (EQB). By mid 2004, the EQB referred the case to the local Agricultural Extension office to assist in the design of a waste management system.

Despite the fact that the farmer faced no other choice but to adopt the recommended practices to maintain his farm operation, he remained skeptical. He had been farming in the same way for over 30 years. Several visits to the farm were required to inform the farmer about the regulations and its benefits. Finally, he built a proper (cement) structure for the animals with a waste management system that consists of a separator and a-three chamber compost. The liquid goes to an infiltration trench and solids remain in the compost for 60 days before they are applied to crops as organic fertilizer.

Once he established the waste system, the farmer was able to comply with EQB regulations and was able to remain as a small scale swine producer with an average of 154 animals per

year. He is now saving $850 per year by using the organic fertilizer in his 2.5 acres and can continue providing income for his family.

II. Key Theme – Sustainable Agriculture

A. Seven hundred and seventy-two (772) persons completed the compost course. Five hundred and ninety-eight (598) persons completed a course on sustainable agriculture.

B. Impact – One hundred seventy two (172) persons established sustainable practices, and 46 persons established projects in sustainable agriculture.

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

D. Scope of Impact – State Specific

III. Key Theme – Natural Resources Conservation

A. Soil Conservation - Nine hundred and seventy-seven (977) farmers completed a course on soil conservation.

Natural Resources and Forestry - One thousand and eighty-eight (1088) persons completed a course on natural resources conservation and ecosystem protection.

Pesticide Safety Education Program - The PSEP course covers endangered species and workers' protection standards, as well as pesticides use and regulations for their use.

One thousand and sixty-seven (1,067) persons participated in the pesticide course for applicators and 1,009 persons participated in the renewal course for private and general applicators; 656 persons participated in the course for basic commercial pesticide applicators, while 417 participated in the commercial categories, 225 persons participated in the renewal course, and 401 participated in the 30-hour short course for Category 8-A (for pest control in buildings).

Public Policy - Seven hundred and forty-five (745) persons completed a course on public policy.

B. Impact:

Soil Conservation – Five hundred and eighty-six (586) farmers adopted soil conservation practices. Five hundred and seventy-eight (578) farmers adopted the recommended practices for soil erosion control.

Natural Resources and Forestry – Seven hundred and sixty-five (765) persons adopted natural resource conservation and ecosystem protection practices.

Pesticide Safety Education Program – One thousand and three (1,003) persons approved the exam to be certified as private pesticide applicators; 563 persons, the exam to be certified as commercial applicators; 388 persons, the exam for the commercial category; and 291 persons, the 30-hour short course for Category 8-A.

Public Policy – Two hundred and thirty-six (236) persons prepared and presented arguments in a hearing on farm environmental issues and ecosystems.

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

D. Scope of Impact – State Specific

E. Success Story - **"Environmentally Conscious Dairy Farm"**

Dairy production in Puerto Rico is the first agricultural enterprise with a net revenue in 2004 of $189 million for a total agricultural production of $775 million. The "Ceiba del Mar" dairy farm (of 200 cuerdas) in the municipality of Hatillo started its production in 2003. It has 700 milking cows that generate 60,000 pounds of solid and liquid waste daily. Such waste is a source of nitrogen, phosphorus, and potassium, essential elements used as fertilizers for grass. With the amount of waste generated daily it could produce 23,632 pounds of nitrogen, 10,220 pounds of phosphorus, and 15,330 pounds of potassium per year. The conversion to commercial fertilizers is close to 1,500 hundred per weight.

As a result of Extension visits and orientation and the Department of Agriculture for Environmental Protection of Soil and Water the farmer decided to use of waste to irrigate 75 acres dedicated to grass production. The area is irrigated once a month. The grass from this plot has shown a marked increase in nutritional value, in higher levels of protein, which in turn have resulted in higher milk production per cow.

A lagoon was constructed with underground pipes that carry the waste to travelers with nozzles to spray the product after 30 days in the lagoon. Presently, soil samples are taken for lab analysis.

The implementation of such practice has resulted in around $22,000 savings in chemical fertilizers. In January 2005 a group of 80 Canadian veterinarians visited the farm, which is often also visited by farmers and used as a demonstrative farm to conduct educational activities.

IV. Key Theme – Integrated Pest Management

A. One (1) publication was developed under the Forest Health Project, *"Manejo Integrado de Enfermedades en Viveros de Arboles en Puerto Rico"* (Integrated Management of Diseases in Tree Nurseries in Puerto Rico) to be distributed to Extension agents, SDNRE personnel, and other personnel related to forest management.

One (1) proposal was extended: "Forest Health and Integrated Pest Management in Puerto Rico" to September 2006 to continue expanding and updating the forest health

management web page with IPM information in tree nurseries and IPM in urban landscapes (http://seam.uprm.edu/Forest/index.htm) and seminars to increase IPM knowledge among personnel related to forest management. Also, a proposal about Identification and Management of Diseases of Trees and Ornamentals in the Urban Landscape was written and will be submitted in February 2006 to the Forest Service. Its objectives are to create a manual with a presentation on management of diseases in trees and ornamentals in the urban landscape and which will also be posted in the Forest Health Management web page.

Nine hundred and thirty-nine (939) farmers completed the IPM course. Fifteen (15) Extension agents, forty five (45) landscapers, eight (8) farmers, fourteen (14) home owners, and fifteen (15) nursery managers received educational materials related to management of urban forests and landscapes and IPM in nurseries.

B. Impact – Three hundred and eighty (380) farmers applied IPM practices. Thirty-five (35) samples of trees and woody ornamentals were processed in the Plant Diagnostic Clinic with a direct impact of at least $20,000 saved because of the correct diagnosis of the pest. Twenty-six (26) reports were generated after diagnosing the disease or arthropod and offering IPM recommendations.

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

D. Scope of Impact – State Specific

KEY PROGRAM COMPONENTS

The educational program efforts in Puerto Rico are directed toward the adoption of recommended practices, mainly through promoting the increase of efficient farming production and complying with environmental regulations. Such programs also cover aspects on farm management to keep the farm business profitable. This is achieved by the implementation of courses, training meetings, demonstration methods, workshops, seminars, use of new or recommended equipment or machinery that is environmentally friendly, participatory research, follow-up visits, special projects and written communications, both through mass media and to agricultural professionals, the general public and other agency personnel, often as a train-the-trainer manner. We strongly rely on collaborative agreements with state and federal agencies, as well as networking with other higher education institutions.

INTERNAL AND EXTERNAL LINKAGES

Internal

College of Agricultural Sciences (CAS) personnel and the Agricultural Experimental Stations (AES) collaborated in training, research and in project implementation, besides information sharing.

External

A special project effort on compost education was completed with the Metronics Industries and the USDA-Forest Service. The collaboration with the Solid Waste Authorities (SWA) will continue for compost education in schools. The educational campaign on brush fires education will continue under the State Department of Natural Resources and Environment, with the collaboration of the PRAES. Also, Extension will continue to participate in the Constituent Forum for the Comprehensive Plan for the Development of the Watershed for the Mayagüez Bay, currently under the sponsorship of the PR Water Resources and Environmental Research Institute, University of Puerto Rico-Mayagüez Campus. Other agency collaborations such as the Environmental Quality Board, the Planning Board, Department of Health, the State Department of Agriculture, the Fish and Wildlife, the USDA-NRCS, School of Public Health, Sea Grant, Mayagüez Space Grant Consortium, the EPA, the State Water and Sewage Authority and the Soil Conservation Districts has traditionally work closely with the PRAES in different issues. As well as the collaborative efforts achieved with Cornell University, Rutgers and the University of Virgin Islands.

TARGET AUDIENCE

The program and educational efforts are targeted to farmers, youth, farm workers, rural communities' leaders, and the general public. The elderly, handicapped, woman farmers and veterans constituted the under-served population and had been identified as target audience too.

OBJECTIVES, PERFORMANCE GOAL(S), 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
2005	978	3233*	875	1986*
2006	986	0	880	0

*People are becoming aware and, hence conscious about the conservation of our natural resources. Besides regulatory agencies, both state and federal, are becoming more vigorous on behalf of compliance. More people are seeking assistance to keep their businesses.

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
2005	3400	5920*	2050	3846*
2006	3415	0	2052	0

*Water continues to be a priority issue, both for residential as for farming purposes.

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
2005	2645	977*	1953	1164*
2006	2550	0	1968	0

*Several conservation practices were presented per training session on soil conservation. As a result, of Extension educational efforts the farmers adopted them individually. When the agricultural agents visit the farm, they record the adoption of each soil conservation recommended practice separately. This resulted in almost double de adoption rate as compared with the number of educational activities.

DATA COLLECTION METHODOLOGY

Follow-up on farmers and farm visits to corroborate that the implementation of the practice 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
2005	345	745	295	236
2006	348	0	296	0

*High request on environmental regulations.

DATA COLLECTION METHODOLOGY

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

PROGRAM DURATION

First report for 2-year Plan of Work Update FY 2005 and 2006 of 5-year program cycle 2000-2004 (Long-term)

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2005		$575,120.92		$575,120.92
2006				

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	19.30					
2006						

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

OVERVIEW

During FY-2004-2005 PRAES' goals were to develop educational projects in an effort to enhance economic opportunities and improve the quality of life and well-being of families and communities. The 3,950 million people that comprise the population of Puerto Rico make it one of the most densely populated islands in the world, with 1,000 people per square mile (2000 Census of Population). Of these, 22.4 % are children between the ages 0-14 years, 35.4 % people 15-64 years old, and 12.2 % are people 65 years old and over. The life expectancy at birth of the total population is 78.3 years, and the average family size is 3.5 people; with one third of the population of the island living in the urban area and 29 % in the rural area.

The family structure has important implications for children. The number of single-parent families has continued rising over the past three decades, causing considerable concern among policy makers and the public. Children growing up in single-parent households are at an economic disadvantage relative to children growing up in households with both parents present. During 2000, more than half of the total children, 58 % (1,092,101), under the age of 18 lived in households with incomes below the poverty line. Of these, about 44% were of married couple families, while 71 % were of female-headed household families. About 27 % of the total families with children have a female as head of household.

Puerto Rico's shift from a small-scale agricultural production to an industrial and service-oriented economy during the past 50 years, has led to a growing demand for educated workers with high school, college, and postgraduate degrees. According to the 2000 Census, about 14% of 16 to 19 year olds were high school dropouts.

Puerto Rico has a relatively large informal or underground economy, consisting mainly of self-employed workers, especially women. This informal sector includes many domestic services (cooking, cleaning, sewing), as well as more formal services, such as catering and child-care. Forty per cent (40 %) of children under the age of 6 live in families where all parents were in the labor force,

Another situation of great concern is grandparents providing child-care while the parents are working, and in many households, the grandparents as the primary caregivers for young children. There were 133, 881 grandparents who lived with their grandchildren during 2000, and about 53 % reported that they were responsible for most of the basic needs of one or more of their co-resident grandchildren. This shows the importance of extended family members, particularly grandparents, and the importance of developing effective non-formal education programs on parenting skills, behavior, and practices aimed at this audience(grandparents raising grandchildren).

There are 425,137 elderly people (65 old years and over) and this number is expected to continue increasing (2000 Census of Population). Of the total elderly population 27.7% have some type of physical and /or mental illness. Each year one out of three elders 65 years and older fall and

some are hospitalized for fall related injuries. Of these, 20-30% suffer moderate to severe injuries that reduce mobility and independence, and increase the risk of a premature death. It is important to develop, implement, and promote fall prevention resources, campaigns, and empower elderly relatives and caregivers.

According to the Police Department, there has been an increase in domestic violence. In 2004, 22,242 (4.5%) incidents of family violence were reported. Other factors affecting the well-being of our families are child abuse or mal treatment, 30%, and an increased divorce rate, 14,578 (4.9%) (2002 Vital Statistics, Puerto Rico Department of Health). Therefore, our need to educate the people on healthy couple relationships, parenting skills and child development, communication, and other related areas.

PRAES´ goal is to develop effective educational programs to promote these issues; also, the development of effective community leaders, collaborations and partnerships with private and government agencies to increase the impact of educational/prevention programs through the intervention of the Extension Specialists/Educators.

References:

www.aarp.org
www.aecf.org/kidscount/children in Puerto Rico(2000). La niñez en Puerto Rico-Resultados del Censo 2000
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I. Key Theme - Child Care/Dependent Care

A. Extension agents trained child-care providers and families in child-care development and family relations and related areas. These educational efforts consisted of character traits and values education, communication skills, emotional and physical development, childcare and family strengths. Two thousand one hundred and thirty-seven (2,137) parents and child care providers completed and participate in non formal educational program.

B. Impact – As result, 1,612 people adopted practices and skills in child development and family values. Nine hundred ninety-eight (998) children were benefit from the project “Raising with Values”. Thirteen (13) family projects were developed in this area.

One hundred and fifty-eight (158) dependent elderly-care providers were oriented and train in elderly aspects, in which 92 participants adopted one or more practices and principles in elderly aspects. Seven hundred and seventy-five (775) elderly people gained knowledge on aging and 463 elders changed attitudes toward the process of aging.

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

D. Scope of Impact – State Specific

II. Key Theme – Children, Youth, and Families at Risk

A. The 4-H Youth Development Program continued focusing on children and youth at risk. The Extension agents and volunteers of the 4-H program promoted the adoption of life skills to help youth to make adequate decisions. During the FY 2004-2005, 18,464 Four-H members were impacted and other children and youth were reached. Also, 1,057 adult volunteers and 252 youth volunteers were recruited.

B. Impact – Nineteen thousand one hundred and eighty-five (19,185) participants of youth development programs adopted one or more youth development principles, behaviors or practices after completing non-formal education programs. One thousand and ninety-two (1,092) 4-H members and other youth developed projects in one of the eight 4-H curriculum areas and 1,045 developed leadership skills; 1,135 children and youth participating in the RAP project and gained knowledge and skills.

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

D. Scope of Impact – State Specific

III. Key Theme - Family Resources Management

A. There was an increase in consumerism among Puerto Rican families, so Extension agents continue working and developing programs through non-formal educational efforts. These efforts are focused on training people and families on money management, family budget, and financial skills to help families and individuals to manage adequately their resources. A total of 1,232 people completed courses in family resources management and consumerism education.

B. Impact – Four hundred and five (405) individuals adopted practices and skills on wise decision making toward money management, 358 families prepared a family budget, and 234 families adopted practices on savings accounts.

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

D. Scope of Impact – State Specific

E. Success Story - **"Volunteer Leaders in Action"**

The volunteer leaders are part of the history of the Agricultural Extension Service in Vega Baja through their excellent, active participation and involvement in special projects and services that have contributed to the divulging of information in different communities. As part of this commitment to continue divulging information to train and empower these leaders, the Home Economist developed the following trainings: "Health and Nutrition", "Self-employment", and "Family Relations"; areas in which 14 leaders participated and became peer-to-peer educators.

As a result, of 17 courses and workshops offered during FY 2004-2005: eight new home-based jobs were developed, four families applied the "Family Strengths" model, and 28 people applied safety skills in food management. These achievements were multiplied in benefits to our society reducing economic dependence on the government and improving family health and family relations.

IV. Key Theme - Home Based Business Education

A. PRAES continue developing non-formal educational home-based programs to help families use their own resources and start home –based businesses to help them increase their family income. This suggests many ways in which families and individuals can turn skills, abilities, and ideas into a way to earn money. Four hundred and eighty-seven (487) people were trained and advised on self-employment and home-based businesses.

B. Impact – During FY 2004-2005, 92 people were certified as artisans after they were trained by Extension agents. One hundred and forty-three (143) new jobs were created and 214 new home-based businesses were established.

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

D. Scope of Impact- State Specific

E. Success Story - **"Family Sciences and Consumer Program"**

One of the objectives of the Family Sciences and Consumer Program is to motivate and encourage families and/or individuals to develop their abilities and self-effort. This is the case of "doña Susa" who always wished to develop her abilities, to fulfill her self, and to be able to work; but needed that her 25 year old son Randy, who has a severe mental handicap, be accepted. Due to Randy's handicap doña Susa couldn't work and was living in extreme poverty with no economic means of support for herself and her son, except for the Social Security she received for her son.

During FY 2000-2001, doña Susa joined the PRAES nutrition program. Through the orientation received, she was able to enroll in the Food Checks program and to receive other government assistance she was entitled to due to her low-income level and her son's disability. In 2002, she was invited to be part of the FCS program leaders and would come to the local Extension office in Toa Alta with her son Randy who was well liked by everyone. There she was able to develop her leadership skills and learn about food safety, nutrition, health, and family relations, among others.

In 2003-2004 Susa qualified for a job in charge of food in an educational institution where her son Randy was also enrolled. There she was able to put in practice her knowledge in nutrition and food safety and, due to her efficient work, was soon promoted to an administrative position in the same institution. Now that she had a steady income, Susa was able to support herself and her son without depending on the government aids and provide her son with better medical care.

Not content with her past accomplishments, Susa continued participating in Extension courses where she developed her handcraft and knitting skills, enabling her to be certified as artisan together with two of her pupils. This has served not only as a therapy for Susa, but has allowed her an extra income. Her future plans include establishing a project with young girls.

Doña Susa is grateful for the opportunity Extension gave her to develop her skills and potential.

V. Key Theme – Farm Safety

A. During the fiscal year 2004-2005, 1,121 farmers completed non-formal educational program on farm safety.

B. Impact – Eight hundred and twenty-nine (829) farmers adopted practices and skills on farm safety, 402 developed an emergency plan in case of natural disasters, and 692 changed attitudes and improved their knowledge on farm safety.

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

D. Scope of Impact- State Specific

VI. Key Theme – Job/Employment

A. One of the factors that affect the stability of families and communities is income. To increase citizen's awareness of income trends through the Community Resources and Economic Development program, Extension developed projects to help people, youth, families, and communities at risk to improve their quality of life and wellbeing. Extension Agents and community leaders provided a knowledge base to community development efforts to increase their economic progress. Seven hundred and fifteen (715) people completed a non-formal education program on economic/enterprise development.

B. Impact – One hundred and sixty-one (161) participants adopted one or more recommended practices to attract new businesses, 163 communities were organized, of which 27 developed an action plan. As a result of the economic development programs, 214 new businesses were started and 143 jobs were created.

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

D. Scope of Impact- State Specific

VII. Key Theme – Parenting

A. To strengthen the capacity of families at risk PRAES developed non-formal educational parenting programs. The Extension Specialist developed curriculums conducted to the development and implementation of family projects at state level to train and empower parents to become responsible, successful, and also to prevent

family violence and child abuse. Through the PREPAS project and non- formal educational programs focusing on parenting skills, family strengths, positive discipline, communication skills, raising with values, and other related areas; 3,081 parents were trained.

B. Impact – One thousand nine hundred and fifty-seven (1,957) parents adopted one or more parenting principles, behaviors and /or practices after completing one or more of these programs. Thousands of people were also benefited from radio programs and campaigns, and other educational activities.

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

D. Scope of Impact- State Specific

KEY PROGRAM COMPONENT(s)

The PRAES will continue working with different partnerships and Extension Specialists to encourage and develop families and people to assure their resources, strengthen the capacity of families and communities, empower families to nurture, support and guide their members throughout their lives. Other strategies are direct educational efforts to train children and youth toward life skills, leadership, development of self-esteem, safety, health, environment, sex education, and others.

Each Extension Agent will prepare an action plan to accomplish state goals based on their needs. Efforts will emphasize an increase in interagency and organization collaboration at state, federal and local levels to improve outreach to audience. In order to develop programs that help families, children, youth and elderly people, the Family Life Specialist facilitates strategic planning workshops, curriculum, and trainings. The following special family projects will be continued to develop skills to change behaviors and adopt practices to strengthen family relations and values: "Raising with Values", Family Strengths, and Successful Parenting.

Extension Specialists/Educators prepare publications, curriculum, articles, radio and TV programs, forums, workshops, courses, and trainings to reach state goals.

INTERNAL AND EXTERNAL LINKAGES

Internal

Extension 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), and extension specialists.

External

Department of the Family, the Department of Agriculture, the Department of Education, Department of Labor, the Puerto Rico Planning Board, the Head Start Program, The Department of Consumer Affairs, volunteer leaders, farmers, and producers. The collaboration in coalitions/partnerships and the coordination with different agencies help increase the impact of the educational programs.

TARGET AUDIENCES

Families with children (0-5 years old) and child care providers: To provide support and education on child growth/development, early childhood education, and care to develop healthy children to become successful in school and personal life.

Married couples and teenagers: To strengthen the family base and the relationship between both sexes.

Parents: Education on how to rear and discipline their children.

School age children and teenagers: To develop life skills in order to be better citizens and to learn how to handle their problems.

Elderly persons: To orient them how to face their situations and have a better quality of life.

Families and youth at high risk: educate and train them to improve and develop family relations skills.

Volunteer leaders: an important element to expand the educational message to other clientele.

Farmers: research results and other scientific practices in agriculture.

Low-income families and other families: to help them improve their socioeconomic environment and orient them on how to manage their resources and to be wise consumers.

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 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	504	715	214	161
2006	508	0	253	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
2005	41	214*
2006	42	0

*This increase to the targeted is due to the need of the people to identify alternate sources of income

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
2005	22	143*
2006	24	0

*The increase in relation to the target is due to new business created.

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 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	4350	1,232*	3408	997
2006	4355	0	3420	0

*We don't have a specialist in this area to train and promote special projects/programs.

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 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	6595	3644	3464	3213
2006	6711	0	3636	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 2A (Output)		Indicator 2B (Outcome)	
	Target	Actual	Target	Actual
2005	2154	2137	706	1612*
2006	2495	0	741	0

*Increased educational emphasis in this program area resulted in higher outcome than planned.

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 1 B (Outcome)	
	Target	Actual	Target	Actual
2005	3004	3081	2226	1957
2006	3413	0	2276	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 2A (Output)		Indicator 12B (Outcome)	
	Target	Actual	Target	Actual
2005	17200	18,464	13900	9,185
2006	18100	0	14857	0

PROGRAM DURATION

First report to 2-year Plan of Wok Update FY 2005 and 2006 to the 5-year program cycle 2000-2004.

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2005		$2,882,756.36		$2,882,756.36
2006				

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	96.74					
2006						

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B. STAKEHOLDER INPUT PROCESS

Last year we began a process for restructuring the Local Advisory Committees (LAC, in Spanish CASEA). We have made great progress, as most of the LACs are fully organized. The committees are composed of at least two beneficiaries from each of the base programs (Agriculture, Marketing and Natural Resources; Family and Consumer Sciences; Four-H and Youth; and Community Resource Development) in addition to two representatives of local agencies working with similar audiences. The members of these committees have been selected by the agents from among their target audience, based on their experience and participation in Extension programs and have been invited to join the committee. The process to collect the stakeholder input takes place through meetings. The committees meet periodically during the year to discuss critical issues locally, as well as to identify emerging issues that could be addressed by Extension. Through their meetings each local committee has to identify five priority issues in each of the four base programs. A written report is prepared and sent to the state level to generate statewide data in order to determine priorities at the state level. In addition, issues identified that respond to specific topics and localities are addressed by the specialist in that area.

At the state level, five focus groups were conducted to identify emerging needs and issues within each of the five GPRA goals. Stakeholders invited to these focus groups included Extension clientele such as farmers, homemakers, and young parents, as well as representatives from state agencies that work with similar audiences including the Department of Education, Department of the Family, Department of Agriculture, Department of Health, Program of the Elderly, Food and Drug Administration, Puerto Rican Lung Association, Department of Natural Resources, USDA-NRCS. In addition, two focus groups were conducted with community leaders that have participated in Extension programs. They were invited by the agents according to their experience with the program. An additional focus group was conducted with Extension agents. Findings of these focus groups were discussed with different staff members including program leaders and specialists. The collected input helped program leaders identify areas for continued emphasis, as well as emerging issues for new directions.

This year again, we also collected input at the state level from young stakeholders, members of the 4-H clubs. As stated in our previous report, we recognize the importance of collecting input from our young participants as this audience is one that is affected by many complex physical, emotional, and social issues. The Stakeholder Input Process is becoming part of the agenda for the Annual 4-H Conference celebrated each year. The young members of the organizing committee were informed about the importance of this process and of our interest in listening to their concerns. They were very receptive to include the process in their agenda. A brief questionnaire was administered to the total population attending the conference which consisted of 74 young people between the 13 to 18 years old, from different municipalities of the Island. The purpose of the questionnaire was to gather input about their interests according to the issues that affect them as young people. It presented 23 categories of topics of interest for young people based on the findings of last years' focus groups; it provided for "Others" to include other topics of interest. The collected input was presented and discussed with the 4-H program leader and other administrators at the state level. Different actions have been taken to address these issues, as well as to improve the program to meet their needs.

C. PROGRAM REVIEW PROCESS

There were no significant changes in the review process as submitted in the 2005-2006 Plan of Work Update. As described, there are four committees representing each of the four program areas (Agriculture, Marketing and Natural Resources; Family and Consumer Sciences; Four-H and Youth; and Community Resource Development) composed of internal as well as external members to Extension. Each committee meets three times a year. Recommendations from the committees are evaluated and applied according to the needs of our programs.

D. EVALUATION OF THE SUCCESS OF MULTI AND JOINT ACTIVITIES

1) Did the planned programs address the critical issues of strategic importance, including those identified by stakeholders?

Critical issues and needs are identified by the stakeholders through the Stakeholder Input Process. Issues are also identified by staff members at the state and local levels and through joint activities between PRAES and PRARS that are conducted for different commodities. Issues of strategic importance have also been identified through collaborative and multidisciplinary efforts between the internal and the external linkages. These formed the basis for the revision and design of planned programs.

Two major critical issues for our stakeholders addressed by the planned programs with great emphasis during this year were sustainable agriculture and obesity.

2) Did the planned programs address the needs of under-served and under-represented populations of the State?

PRAES planned programs are mainly designed to address the needs of under-represented populations, particularly low-income families and small farmers. Educational activities in base programs, as well as special projects have been designed to target the needs of under-represented populations, particularly: low income women, children, youth and families; small farmers as well as families at risk and homeless people. We continued to focus various educational efforts to attend their particular needs of the increasing population of adolescent mothers with projects in the areas of family, health and resource management. PRAES has also placed special attention to the needs of the elderly population. Collaborative efforts with other state agencies have facilitated our strategies to reach these under-represented populations as they refer to us some of this audience because of their high priority needs.

PRAES has continued to develop educational activities to address the needs of people with disabilities including those mentally challenged, through projects focused on agricultural skills. Also, vegetable community gardens have been implemented through the active participation of the community at several low income communities.

A particular under-served and under-represented population that PRAES is also being targeted is the prison population that will soon be out in the free community. A special

project was designed to address their particular needs with the objective to help them develop the necessary skills for the job market or to establish their own business. They received education on agricultural skills and some are already designing their own projects.

3) Did the planned programs describe the expected outcome and impacts?

Planned programs describe the expected outcomes and impacts under the objectives for each goal.

4) Did the planned programs results in improved program effectiveness and/or efficiency?

Planned programs are designed to address the needs of our populations. Educational techniques are constantly evaluated to adapt to the skill levels of the participants and their educational needs, therefore, resulting in increased program effectiveness. However, we have identified two areas that need increased efforts including the revision of some educational materials and the establishment of effective inter-agency collaborations on environmental issues.