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OVERVIEW

This accomplishment report covers the period from October 1, 2005 to September 30, 2006. It is the last report of the Plan of Work Update 2005-2006. During this fiscal year, the Puerto Rico Agricultural Extension Service (PRAES) used a total of 202.15 FTE's.

Goal 1 "An agricultural system that is highly competitive in the global economy", accounted for 48.55 FTE's (26.34%).

During FY 2005-2006, the Puerto Rico Agricultural Extension Service (PRAES) continued working to increase production, consumption and competitiveness of the agricultural products. We continued offering Orientation on how to increase the value-added commodities and the availability of local products. We also continued collaboration with USDA agencies to implement the 2002 Farm Bill and 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 $805.6 millions during FY 2005-2006. The change in production from one fiscal year to another was 5.77% higher.

Farmers have been facing problems with environmental requirements, land usage competition, high labor costs, and a scarcity of farm workers to harvest the production, especially in the coffee and tomatoes commodities.

The agricultural reform (Puerto Rico Department of Agriculture), which has gone through several transformations during the past five years in order to improve the productivity, quality, and marketing of products, expects more changes that 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.

The dairy sector continues holding the first position by income of all agricultural activities. Three hundred and fifty-four (354) dairy farms operated in Puerto Rico during FY 2005-2006 and maintained the Grade A classification for milk. They also maintained consistent bacteria counts below 100,000 unit's colony per milliliter. The average of bacteria counts were 36,935 unit's col/ml and the average of somatic cells was 449,243 cells per milliliter. The Milk Quality Program discarded 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. One hundred and fourteen (114) dairy farmers were trained on value-added processes and 979 persons were oriented on agricultural production systems. In addition, 213 persons were trained on agricultural public policy.

The forage sector has continued increasing due to dairy activities. More hay and silage are being used by dairy farmers to reduce production costs and dependency on concentrated feed.

A total of 17 (68%) forage farmers adopted the added-value production practices. Fifty-four (54) (56%) farmers adopted the recommended forage production practices and 11 (85%) farmers implemented the agricultural public policies.

Intensive trainings were offered to coffee farmers to develop new products and make them more competitive and capture new markets niche.

The starchy crops sector decreased production due to the Black Sigatoka (Mycosphaerella fijiensis), which was introduced recently from Dominican Republic. This resulted in the use of resistant varieties of plantains and bananas and better management techniques during plant growth to ensure a quality product during harvesting and post harvesting. These techniques added value to the product and increased its competitiveness.

Two hundred and seventy-three (273) (59%) farmers adopted the recommended value-added practices in starchy crops. A total of 815 (77%) farmers increased their production and 313 (53%) implemented the agricultural public policies.

The demand for fruit by consumers continues increasing and farmers continue showing a growing interest in this sector. Therefore, efforts were aimed at the farm level where recommended production practices were emphasized.

Sixty-six (66) (55%) fruit producers increased the value-added to their crops and a total of 526 (69%) farmers adopted the recommended production and post-harvesting practices. One hundred and nineteen (119) farmers (79%) implemented the agricultural public practices.

The use of land formerly dedicated to sugarcane resulted in an increase in vegetable production and a group of farmers of this sector is producing vegetables in hydroponics systems.

Of all vegetable farmers oriented, 105 (25%) adopted the recommended added-value practices and 1,080 (77%) adopted the recommended production practices. One hundred and sixty-nine (169) (95%) farmers implemented the agricultural public policies.

The beef sector still faces continuous competition from imports. However, participation in the local market has stabilized.

Fifty-one (51) (33%) beef producers adopted added-value practices, 126 (55%) farmers increased their production, and 71 (77%) implemented the agricultural public policies.

The small livestock sector is unique and is characterized by micro operations around the island. Extension personnel are working with small farmers, producers of goats, sheep, honeybees, rabbits, and horses to make them more profitable.

A total of 49 (43%) livestock producers (goats, sheep, honeybees, rabbits, and horses) adopted the added-value production practices. Seventy-two (72) (43%) farmers increased their production as a result of the recommended production practices and 14 (23%) implemented the agricultural public policies.

Swine operations for small businesses decreased due to environmental issues, while the operations for big businesses increased production. The swine operations were updated with more animals raised in each operation, making them more efficient and profitable.

Twenty-eight (28) (80%) swine producers adopted added-value practices, 102 (75%) increased their production, and 39 (70%) implemented the agricultural public policies.

Goal 2 "A safe and secure food and fiber system", accounted for a total of 12.80 FTE's (6.33%).

During fiscal year 2005-2006, PRAES continued developing an ongoing food safety program at different levels with a from-the-farm-to-the-table approach.

One thousand five hundred and thirty-seven (1,537) participants of food establishments prepared a food safety risk management plan; they are using a thermometer to monitor PHF temperatures, and are following the food safety recommendations. Of 1,459 consumers who completed one of the three short courses available for the "Fight Bac!" campaign (through the Puerto Rico Partnership for Safety Education), 1,222 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 maintain an adequate refrigerator temperature.

Three hundred and fifty-four (354) dairy farmers maintained consistent bacteria counts below 100,000 calories per milliliter and Grade A standards for milk.

Two thousand six hundred and ninety-one (2,691) participants of the Family Consumer Sciences program completed a short course to improve supermarket strategies and put them into practice. Of these, 1,085 planned to change one or more practices and 206 reported that they have sufficient food in the house to last one month.

The "Complete your Meal with Milk" campaign was developed during this fiscal year. The goal of the campaign is to increase milk consumption, especially the fresh milk produced in Puerto Rico. Four thousand four hundred and thirty-three (4,433) persons were oriented through this campaign; 741 of these, increased their consumption of milk and 515 mentioned increasing the consumption of low-fat milk.

The Extension Plant Diagnostic Clinic processed a total of 115 samples of different agronomic crops affected by arthropods or diseases. The early and correct diagnosis of pests saved farmers about $55,000.

Goal 3 "A healthy, well nourished population", accounted for a total of 24.08 FTE's (11.91%). This does not include EFNEP, as it is a 3(d) funded program.

During FY 2005-2006 PRAES continued training personnel to prepare them to promote good nutrition and health among their clientele and conduct 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, we continued the short courses based on 6 of 10 possible lessons. In addition, a section of indicators were added to foment creativity in the kitchen by fostering the development of recipes using foods and cooking techniques recommended in the Food Guide Pyramid for Puerto Rico. A "Complete Your Meals with Milk" campaign was introduced during this fiscal year. The campaign covers production, marketing, and use of milk. In the area of health and nutrition education, in addition to the nutritional value of milk, the campaign emphasized encouraging adolescents to combine a calcium rich diet with a regular physical activity lifestyle. Groups with special needs, such as diabetes, hypertension, high blood cholesterol, and obesity were also addressed in this campaign. It is expected that the consumption and sales of milk in Puerto Rico will increase as a result of this campaign.

Out of 2,324 children and youth who completed non-formal health education and promotion programs, 2,295 adopted one or more recommended practices.

A total of 1,069 adults completed non-formal education programs on topics related to health promotion and health education. Of these, 800 persons reported that they reduced their risk levels upon the adoption one or more recommended practices after completing the program.

In the area of indoor air quality (IAQ), 421 young people learned about the different air contaminants and methods for their mitigation and or elimination; and 445 adults learned about indoor air contamination through short courses, seminars and assessments.

One hundred and thirty (130) children and youth reported acquired knowledge in the prevention of traffic accidents and the relationship between traffic and accidents and drugs, after participating of educational programs on accident prevention.

During FY 2005-2006, 2,691 persons completed non-formal education programs designed to improve the nutritional quality of their diets, as recommended by the Food Guide Pyramid for Puerto Rico. Of these, 1,466 improved their nutrition in one or more recommended areas.

Goal 4 "To achieve greater harmony (balance) between agriculture and the environment", accounted for 19.59 FTE's (9.69%).

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 strategies to maintain water quality.

During this fiscal year, PRAES celebrated a series of educational activities in order to create awareness and to inform the general public about the Land Use Planning project and to encourage participation in public hearings. Professionals from the Planning Board (PB), the Department of Natural Resources and Environment (DNRE), the Department of Agriculture (DA), the Solid Waste Authority (SWA), the Environment Quality Board (EQB), and the Puerto Rico Agricultural Extension Service (PRAES), composed a working team to develop the tools for Land Use Planning (Law "550 of October 2004).

The "First Scientific Journey on Sustainable Agriculture", was held in March, 2006. This was an on-campus event to inform other University Campus personnel about the information dissemination efforts and experiences conducted by the College of Agriculture (faculty, research and extension) through its different programs.

One hundred and fifty (150) professionals participated of the workshop "Animal Waste Management Outreach". This workshop dealt with the new regulations on animal waste management. It included practical exercises on how to decide on the system to use and how to calculate the appropriate size.

One thousand four hundred and ninety-five (1,495) persons completed a training program on water quantity and quality. Of these, 75 farmers established a waste management system (AWMS), 122 made improvements to their existing system, 149 adopted the recommended practices to improve the operation and management of their AWMS. Two hundred and eighteen (218) farmers reduced the use of chemicals in their farms.

One hundred and ninety-two (192) persons established sustainable practices, 34 persons established sustainable agriculture projects and ecosystem protection.

Four hundred and seventy-six (476) farmers adopted recommended soil conservation practices, 253 farmers improved the soil by using organic fertilizers, and 668 farmers adopted soil conservation practices.

Twenty-six (26) farmers prepared compost in their farms and 578 adopted natural resources conservation practices.

One thousand five hundred and seventy-two (1,572) persons participated in activities to influence decision making on environmental public policy and 84 persons prepared and did a presentation at a public hearing on agricultural environmental issues and ecosystems.

Seven hundred and fifty-four (754) persons approved the private pesticide applicator certificate exam, 769 persons the basic commercial pesticide applicator certificate exam, 339 the commercial category exam, and 356 commercial applicator Category 8-A exam.

Three hundred and forty-nine (349) vegetative samples or bug infested samples were analyzed with recommendations at the EPDC. Around 40,000 acres of forestland have been impacted as a result of technical assistance. Forty-five (45) samples of herbaceous and woody ornamentals, nursery trees and palms were processed in the EDPC for pest identification with an impact of approximately $25,000 saved on pest management, including the use of pesticides.

Goal 5, "To enhance opportunities and the quality of life among families and communities", accounted for a total of 97.13 FTE's (48.05%).

During FY 2005-2006, 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 of individuals, families and communities.

Extension agents trained child-care providers and families on child development and practices. Thirty-five (35) dependent care providers gained knowledge and skills on child care and related areas.

The 4-H Youth Development base program continued focusing on youth and children at risk with an increase in enrichment activities, projects, trainings, workshops, and volunteer recruitment. Extension specialists and agents promoted the adoption of healthy life skills and styles that allow youth to make adequate decisions. Curriculum and projects were developed to train this population to help them to adopt practices to improve quality of life and clarify values.

Eight hundred and twenty-nine (829) 4-H members and other youth gained knowledge in values clarification based on character traits. One-thousand seven hundred and seventeen (1,717) youth adopted practices and developed leadership skills through the participation in 4-H activities. Two hundred and sixty (260) youth volunteers were recruited.

Extension agents continued developing non-formal educational efforts to help low-income families deal with the increase in consumerism of Puerto Rican families. Five hundred and thirty-nine (539) people of the 630 trained adopted practices and skills on family budget, and savings accounts.

Extension agents also continued developing non-formal educational home-based programs to help families increase their resources and family income. As result, 164 people were certified as artisans after completing training, 17 new businesses were established and 118 jobs were created.

Twenty-two (22) new businesses started resulting from economic development programs of the Community Resources and Economic Development program. One hundred and sixty-four (164) people and community leaders adopted one or more practices to attract new business and 28 jobs were created as a result of the formation of new businesses or the expansion of existing ones.

With the purpose of strengthening the capacity of families at risk, PRAES continued non-formal education parenting programs. One thousand three hundred and seventy-three (1,373) families/parents adopted parenting principles, behavior, and practices and 395 parents acquired skills to prevent maltreatment of children after completing non-formal educational programs through the PREPAS project.

Eight hundred and forty-three (843) farmers, of 5,610 farmers trained, adopted farm safety practices and showed increased knowledge, 317 developed emergency plans in case of natural disasters, and 674 improved their performance of farm safety practices.

A. PLANNED PROGRAMS

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

OVERVIEW

During FY 2005-2006, the Puerto Rico Agricultural Extension Service (PRAES) continued working to increase production, consumption and competitiveness of the agricultural products. We continued offering Orientation on how to increase the value-added commodities and the availability of local products. We also continued collaboration with USDA agencies to implement the 2002 Farm Bill and 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 $805.6 millions during FY 2005-2006. The change in production from one fiscal year to another was 5.77% higher.

The commodities sectors of starchy vegetables, coffee, vegetables and ornamentals, which were affected by Jeanne storm in 2004, had estimated losses of $94.7 millions. Although all of these sectors have recovered, starchy vegetables and coffee have recovered the most and had the highest increase in production during FY 2005-2006.

Farmers have been facing problems with environmental requirements, land usage competition, high labor costs, and a scarcity of farm workers to harvest the production, especially in the coffee and tomatoes commodities.

The agricultural reform (Puerto Rico Department of Agriculture), which has gone through several transformations during the past five years in order to improve the productivity, quality, and marketing of products, expects more changes and that 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.

I. Key Theme – Agricultural Competitiveness

A. Intensive trainings were offered to coffee farmers to develop new products and make them more competitive and capture new markets niche. Two hundred and eighty-four (284) coffee farmers were trained in value-added processes, while 494 were trained on agricultural production systems. In addition, 530 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), which was introduced recently from Dominican Republic. This resulted in the use of resistant varieties of plantains and bananas and better management techniques during plant growth to ensure a quality product during harvesting and post harvesting. These techniques added value to the product and increased its competitiveness.

Four hundred and sixty-three (463) starchy crop farmers were trained on value-added practices, 1,058 farmers were trained on agricultural production systems, and 596 farmers were trained on agricultural public policies. These activities improved production, value, and public policy efficiency.

The demand for fruit by consumers continues increasing and farmers continue showing a growing interest in this sector. Therefore, efforts were aimed at the farm level where recommended production practices were emphasized. A total of 120 farmers were trained on value-added processes and 767 farmers on agricultural production systems. One hundred and fifty-one (151) 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 and a group of farmers of this sector is producing vegetables in hydroponics systems. A total of 412 farmers were trained on value-added processes and 1,402 farmers on agricultural production systems. One hundred and seventy-seven (177) 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-three (23) farmers were trained on value-added processes and five on agricultural production systems. Two (2) 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. Four (4) farmers were trained on value-added processes and 137 farmers on agricultural production systems, and six (6) farmers on agricultural public policies.

Swine operations for small businesses decreased due to environmental issues, while the operations for big businesses increased production. Although the local swine sector is facing strong competition with imports, swine operations were updated with more animals raised in each operation, making them more efficient and profitable. Thirty-five (35) swine farmers were oriented on value-added processes, while 136 received orientation on agricultural production systems. Regarding agricultural public policies, 56 farmers were oriented on this topic.

The beef sector still faces continuous competition from imports. However, the local market participation has stabilized. One hundred and fifty-three (153) farmers were trained on value-added processes and a total of 228 beef farmers were trained on agricultural production systems. Ninety-two (92) 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 fifty-four (354) dairy farms operated in Puerto Rico during FY 2005-2006 and maintained the Grade A classification for milk. They also maintained consistent bacteria counts below 100,000 unit's colony per milliliter. The average of bacteria counts were 36,935 unit's col/ml and the average of somatic cells was 449,243 cells per milliliter. The Milk Quality Program discarded 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. One hundred and fourteen (114) dairy farmers were trained on value-added processes and 979 persons were oriented on agricultural production systems. In addition, 213 persons were trained on agricultural public policy.

The forage sector has continued increasing due to dairy activities. More hay and silage are being used by dairy farmers to reduce production costs and dependency on concentrated feed. A total of 25 farmers were oriented on value-added processes, 96 farmers were trained on agricultural production systems and 13 received orientation on agricultural public policy.

The small livestock sector is unique and is characterized by micro operations around the island. Extension personnel are working with small farmers, producers of goats, sheep, honeybees, rabbits, and horses to make them more profitable. A total of 114 farmers were trained on value-added processes, 169 farmers on agricultural production systems, and 60 farmers on agricultural public policy.

B. Impact – Of 284 coffee producers oriented in value-added techniques, 96 (34%) adopted the recommended practices. Three hundred and ninety-nine (399) (81%) coffee producers increased their production and 400 (75%) implemented the agricultural public policies. Twenty-six (26) new coffee processing plants were established as a result of the ATEBCOL project (Ecological Coffee Processing Plant). This plant has equipment which uses less water and reduces environmental contamination.

Two hundred and seventy-three (273) (59%) farmers adopted the recommended value-added practices in starchy crops. A total of 815 (77%) farmers increased their production and 313 (53%) implemented the agricultural public policies.

Sixty-six (66) (55%) fruit producers increased the value-added to their crops and a total of 526 (69%) farmers adopted the recommended production and post-

harvesting practices. One hundred and nineteen (119) farmers (79%) implemented the agricultural public practices.

Of all vegetable farmers oriented, 105 (25%) adopted the recommended added-value practices and 1,080 (77%) adopted the recommended production practices. One hundred and sixty-nine (169) (95%) farmers implemented the agricultural public policies.

Three (3) (13%) producers of grains and legumes adopted the recommended added-value techniques, and 5 (100%) increased their production. Eight (8) (6%) farmers adopted the recommended production practices. Three (50%) farmers implemented the agricultural public policies.

Twenty-eight (28) (80%) swine producers adopted added-value practices, 102 (75%) increased their production, and 39 (70%) implemented the agricultural public policies.

Fifty-one (51) (33%) beef producers adopted added-value practices, 126 (55%) farmers increased their production, and 71 (77%) implemented the agricultural public policies.

A total of 17 (68%) forage farmers adopted the added-value production practices. Fifty-four (54) (56%) farmers adopted the recommended forage production practices and 11 (85%) farmers implemented the agricultural public policies.

Eighty-three (83) (73%) dairy producers adopted the added-value production practices. Three hundred and forty three (343) (35%) farmers gained new knowledge concerning production practices and 139 (65%) were trained in agricultural public policies.

A total of 49 (43%) livestock producers (goats, sheep, honeybees, rabbits, and horses) adopted the added-value production practices. Seventy-two (72) (43%) farmers increased their production as a result of the recommended production practices and 14 (23%) 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) Guinea Hatching Eggs and Guinea Keet for Sale

In 2003, Mr. Emanuel Pérez visited the PRAES office at Moca looking for help in developing a project for the production of fertile guinea hen hatching eggs and for sale of the guinea fowl keets to agricultural stores. An economic feasibility study, conducted by the Extension poultry specialist, showed that the project had good potential for its establishment and growth. The Extension engineering section designed

the structures and quotes were made for equipment, materials for the construction of the structures, and cost of the laying guinea hens. Two proposals for $51,000 and $272,000 were submitted to the Infrastructure Program of the Department of Agriculture and the Development Bank ("Banco de Desarrollo"), respectively. Both grants were approved and construction of the facilities began in June 2005. In 2006, Mr. Pérez attended the International Aviculture Expo in Atlanta, Georgia, where he learned the dynamics of the aviculture industry around the world.

Five thousand guinea fowl were kept in the barn: 4,000 hens and 1,000 roosters. Bird production started in April, 2006. The eggs were hatched in incubators. Eight thousand (8,000) guinea keet, at a cost of $1.00 per unit, are born weekly. Hatchability was 70% for birds that are no under the artificial insemination program. Birds in this project mate naturally. Four direct jobs were created through this operation: three farm workers and one sales person.

Another proposal is being prepared to expand the facilities through the construction of another barn and the expansion of the incubation facilities. The goal is to offer the clientele other bird breeds, besides guinea fowl.

(2) Extension Service Dairy Herds Project (in Spanish "Proyecto de Extensión Agrícola en Ganado Lechero – PEAGL")

The agricultural enterprise Juan del Pueblo, Inc, operates in the Municipality of Arecibo. It consists of 315 cows: 150 are milked and 75 dry cows. Milk production is 3,3000 quarts daily a bi-weekly quota of 50,000 quarts.

After the cows on the farm were diagnosed with the micoplasma pathogen, a highly contagious disease against which antibiotics are ineffective, the person in charge visited the PRAES office at Arecibo for orientation about its control. During a visit to the farm to observe the milking process, the agricultural agent, Jaime Curbelo, noticed that the milkers were not following the recommended hygiene practices. An appointment was made with the farmer and his workers to offer orientation on the correct milking management practices.

Recommended practices were implemented, and samples were taken to see if changes had been effective. After three weeks, the diagnosis for micoplasma was negative. The farmer was able to eradicate the pathogen on the dairy farm after sacrificing a total of 15 animals ($37,500) and by following recommended practices. Had no urgent action been taken, he would have lost at least 20 animals (over $50,000) at this level of the infection and the losses of average milk production per cow (22 liters/day) during the infection period would have been approximately $6,000, assuming that the price per liter of milk is $0.52. Losses would have been greater if we take into consideration veterinary costs.

(3) Importance of Keeping Records on a Dairy Farm

The milk industry is the first agricultural industry in Puerto Rico. It had a gross income of $183 million of a total of $803 million during 2005. Mr. José R. González is part of this important industry with a dairy farm of 259 cows.

In order to comply with the requirement of keeping efficient, reliable records of the milk production and reproduction management of the dairy farm, Mr. González enrolled in an experimental recordkeeping system offered by the PRDHIP. After two years carrying out the recommended management practices, he increased annual milk production per

cow to 12,322 lbs; an increase of 571 lbs per cow. This represents an increased income of $39,000 during the past year.

Through his recordkeeping system, Mr. González also succeeded in reducing the days to first service from 82 to 77, average days open from 213 to 185, calving interval from 16.2 to 15.3 months, and the number of services from 3.6 to 3.0. Thus, confirming the importance of keeping records in an agricultural business.

(4) Relocation of a Commercial Plantain Project

José Nelson Ramírez has a commercial plantain project in the wet valley of the Municipality of Añasco. The crop was attacked by the Black Sigatoka, which is a fungus that affects the foliage of the plants, reducing their photosynthesis and the quality and weight of the plantain bunch. This disease, which was brought in from the Dominican Republic, was unknown in Puerto Rico at that time and caused great economic losses to all the farmers in this agricultural sector.

Mr. Ramírez enrolled in the agricultural program of the PRAES and followed recommendations to relocate his plantation to the municipality of San Germán, which is ecologically unfavorable for the development of this disease. He used techniques for the management of seeds, planting, and harvesting. He also established pesticides aspersion plan based on scientific recommendations and following integrated pest management practices and an aggressive fertilization plan based on scientific information gathered through chemical analyses of the soil and vegetative tissue.

Mr. Ramírez now has 1,200 plants per cuerda and harvests 1,000 bunches per cuerda, with an average of 37 fruit per bunch. The price at the farm level is $0.30, with an additional income of $1.00 per plant through the sale of the seeds. Twenty people work in these facilities. The potential gross annual income is over $500,000. The result is a first rate quality product, thanks to the help of the PRAES.

II. Key Theme – Aquaculture

A. The aquaculture sector is organized in commodity groups, according to the agriculture public policy. 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.

Aquaculture was promoted through educational activities and printed material. A total of ten (10) farmers were oriented in value-added processes, 74 farmers were trained on agricultural production systems and 45 received training on agricultural public policy.

B. Impact – Fifteen (15) (20%) farmers implemented the concepts of agricultural production systems, while 25 (56%) successfully integrated what they learned regarding agricultural public policy to their operations.

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. In the ornamentals sector, demand is greater than the supply. Constant competition among producers and a lack of organization have caused a disruption in the market and overstock. A total of 389 producers were trained in value-added processes and 1,100 on agricultural production systems. On the other hand, 262 producers received training on agricultural public policies.

B. Impact – A total of 37 (10%) ornamental producers implemented the recommended processes and techniques taught at the value-added course. Four hundred and eighty-three (483) (44%) ornamental producers successfully implemented agricultural production systems, while 242 (92%) 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 of these entails 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. In addition, 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 germoplasma 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	3743*	315	1137*

*Increased output and outcome due to more farmers oriented because more regulations were promoted to the commodity 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	16301*	14753	8190*

*Reduction in output was due to reduction in the number of growers, the lack of farm labor to harvest the products, and a high incidence of pests.

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	4639*	304	2078*

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

PROGRAM DURATION

This is the last report of the 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		$1.611.828.53		$1.611.828.53
2006		$1,500,406.66		$1,500,406.66

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	54.09					
2006	48.55					

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

Food Security: Affordability – A 6-session course offered during 2004 (initiated as part of the food security and affordability project in October of 1998), was modified to 10 lessons of which the home economists chose those they felt were most appropriate to their audiences. The lessons deal directly with food affordability issues including menu planning, food selection and purchasing practices, as well as the use of locally grown foods.

Food Safety: Integrated Pest Management - Three thousand (3,000) farmers used one or more Integrated Pest Management (IPM) practices. The recommended IPM practices were based on visits and monitoring of pests in the farms. Integrated pest management 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 encouraged to innovate and adopt new, more environmentally compatible technologies.

The Extension Plant Diagnostic Clinic (EPDC) played an important role in disseminating and fomenting adequate IPM practices. A total of 115 samples from different agronomic crops affected by arthropods or diseases were processed and diagnosed, and 93 written reports were prepared with the recommended IPM practices needed to establish and maintain adequate pest control. The early and correct diagnosis of pests and given recommendations saved farmers about $55,000. Three hundred and fifty (350) farmers were oriented in IPM through visits to the farm by the crop specialists and other crop protection specialists and through reports with IPM recommendations.

Food Safety: Mastitis Prevention Program – Three hundred and fifty-four (354) first class dairy farmers were in operation at the end of the FY 2005-2006. The sanitary inspections (2,180) and re-evaluations made by the FDA and the Puerto Rico 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 2006 educational materials (a four step brochure, poster and lesson) were revised as part of 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 – The Manual for the "Food Safety Certification Course" revised based on 2005 Food Code and other references, now includes 13 lessons and a Food Defense lesson, which was added to the curriculum. The PRAES personnel offering this course included two food specialists and 18 home economists with the support of the Environmental Health Personnel.

I. Key Theme – Food Security: Affordability

A. Two thousand six hundred and ninety-one (2,691) participants of the Family and Consumer Sciences Program of the Agricultural Extension Service completed a short course to improve supermarket strategies and put them into practice.

B. Impact – Of the 2,691 that completed the course 1,085 planned to change one or more practices and 206 reported that they have sufficient food in the house to last one month. Participants of the course reported a change in behavior in the use of supermarket strategies and the use of resources for obtaining foods. Five hundred and eighty-one (581) persons reported that they followed the plan they developed to improve meals and snacks. One thousand and sixty-one (1,061) persons reported that they are selecting more economical food alternatives of the same nutritional value. Four hundred and nine (409) persons that they compare food selling establishments and/or prices before making a decision to buy; 1,398 persons, that they use food harvested in Puerto Rico, and 152 persons, that they are active and involved in issues related to public policy in the area of food security.

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

D. Scope of Impact - State Specific

II. Key Theme – Food Security: Security of Supplies

A. The "Complete Your Meal with Milk Campaign" was introduced to the Field personnel during FY 2006. This campaign is designed to increase milk consumption, especially the fresh milk produced in Puerto Rico. It originated with a study of milk consumption in Puerto Rico done by PRAES agricultural economists in collaboration with other faculty members of the College of Agricultural Sciences. An exhibition developed as part of this campaign was used in 3,871 information centers or educational fairs. In addition, 409 press articles were published, 4,433 people were oriented through a talk or speech, and 1,015 people completed a short course of at least 4 lessons related to the campaign.

B. As a result of the short courses, 741 people increased their consumption of milk and 515 specifically mentioned increasing consumption of low-fat milk. Four hundred and ninety-seven (497) people lowered the consumption of drinks that are basically sugar and water, and 492 people used milk as a substitute for drinks that are basically sugar and water.

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

D. Scope of Impact - State Specific

III. Key Theme – Food Safety: Integrated Pest Management

A. The EPDC processed a total 115 samples from different agronomic crops affected by arthropods or diseases. Ninety three (93) written reports with recommended IPM practices were sent to farmers.

B. Impact – The early and correct diagnosis of pests and recommendations offered saved farmers about $55,000. Approximately 350 farmers were oriented in IPM through visits to the farm by the crop specialists and other crop protection specialists and through reports with IPM recommendations. Three thousand farmers used one or more IPM practices as follows: 250 farmers in coffee, 125 farmers in fruits, 100 farmers in starchy crops; and 75 farmers in vegetables.

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

D. Scope of Impact – State Specific

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

A. Puerto Rico has 354 dairy farms which were visited and evaluated by PRAES agronomists in six or more occasions during the FY 2005-2006.

B. Impact – Three hundred and fifty-four (354) dairy farms maintained consistent bacteria counts below 100,000 unit's colony per milliliter and Grade A classification for milk. The average of bacteria counts were 36,935 unit's col/ml and the average of somatic cells was 449,243 cells per milliliter. The Milk Quality Program discarded 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

V. Key Theme - Food Safety: Consumers

A. One thousand four hundred and fifty-nine (1,459) consumers completed one of the three short courses available for the "Fight BAC!" campaign.

B. Impact – One thousand two hundred and twenty-two (1,222) consumers evaluated 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

E. Success Story

(1) Fight BAC campaign in the west coast of Puerto Rico

The PRAES, working in coordination with the Elderly Center at Cabo Rojo, offered two (2) "Fight BAC!" courses. These courses were targeted the prevention of foodborne diseases caused by food related bacteria's. Fifteen (15) employees of the Elderly Center, four of which are assigned to the kitchen area, participated in the training. Thirty-five (35) persons took the Food Safety Certification course, which has been beneficial both to the personnel, as well as the participants.

The employees of the Center recognized the importance of adequate and sanitary handling of foods to maintain good health and have continued using the recommendations offered during the course. Twenty (20) of the participants improved the practices of selection and purchasing of food and food handling. The kitchen was equipped, the warehouse area was reorganized, and the products were labeled. Now the employees and participants are in a suitable environment.

The information received and the practices learned during the courses, as well as the good habits acquired have contributed to a better health and a better use of the project funds.

VI. Key Theme – Food Safety Certification Course

A. Eighteen (18) home economists and two (2) specialists (FTEs = 5.7) graduated 3,802 participants in 95 Food Safety Certification courses. Four of these sessions were offered to 334 persons in charge of the school lunch program. The personnel of the Food Hygiene Program of the Department of Health collaborated with 475 hours to offer Lesson 9, "Physical plants & Equipment", and Lesson 12, "Regulatory Agencies". The AES entomologist offered IPM mostly in all sessions.

B. Impact – One thousand five hundred and thirty-seven (1,537) participants of food establishments prepared a food safety risk management plan and are using a thermometer to monitor PHF temperatures.

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

D. Scope of Impact – State Specific

E. Success Story

(1) Food Safety Certification Course in the Puerto Rico Mountains
Due to the high incidence of diseases caused by food; the Puerto Rico Agricultural Extension Service is training and certifying employees and owners of establishments that prepare and serve Food (EPSF) at the municipalities of Barranquitas, Orocovis, and Comerío. Fifty (50) participants of EPSF in each municipality were trained and certified during FY 2006.

As a result of the training received, owners of EPSF improved their establishments, implemented HACCP, learned to monitor temperatures, learned the best handling of food in the kitchen, and increased their income after their establishments were up-dated, in their respective municipalities.

Improving EPSF knowledge decreases the tendency of non adequate foods and improves the health and quality of life of the Puerto Rican families.

II. Key Theme – Food Safety: Future Chefs Competition

A. A Pasta Chef competition was held in the Ponce Region based on the use of pasta.

B. Impact – Based on their participation in this competition, 181 children developed a new recipe and incorporated food safety measures in food preparation .

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

D. Scope of Impact – State Specific

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

A. Trainings were conducted with the participation of 322 PRAES personnel and participants from others agencies. The trainings were as follows: "Hazard Analysis & Critical Control Point (HACCP)" (a 2-day training), and "Sanitary Procedures for Food Processors (SSOP)" (1-day training), to 20 PRAES personnel and eleven (11) Environmental Health Inspectors (EHI). "New Revised Food Safety Certification Course (FSCC)" (2 days) to 19 home economists and 28 EHI, and "2005 Food Code (a 6-day intensive training). This last training was part of the regular trainings for all EHI personnel in which 22 home economists participated in 95 occasions. Eight home economists graduated with high honors or honors. The others will complete the training during March 2007. A 1-day training "Food Defense" was offered to 100 PRAES and personnel of other agencies.

B. Impact – Twenty (20) home economists, 28 EHI personnel and other PRAES personnel increased their knowledge about HACCP, SSOP, FSCC, 2005 Food Code and Food Defense for the benefit of the food industry. A new lesson "Food Defense" was prepared and incorporated as part of the FSCC. Nineteen

(19) home economists began to offer the new FSCC based on 2005 Food Code and 2006 HACCP for retail establishments to persons in charge of food establishments

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

D. Scope of Impact – State Specific

KEY PROGRAM COMPONENT (S)

Security of Supplies – Agronomists established or supported farmer's markets and organized groups or cooperatives, to expand access to affordable nutritious local food supplies. PRAES professionals offered short courses about the importance of agriculture in general and local agriculture in particular, to the general public. The "Complete Your Meal with Milk" campaign was designed to increase the consumption of fresh milk produced in Puerto Rico.

Affordability – A short course with follow-up two to six months later to assess impact over time was used. This course consists of 10 lessons from which the home economists can pick-and-choose depending on the specific needs of the group. The course (based on Belenky et al, and behavior modification techniques) includes sessions to assess the current situation in terms of eating behaviors with emphasis on what they are doing right, meal planning, shopping behaviors, and food preparation.

In addition, social marketing was carried out through talks to community groups, newsletters, bulletins, exhibits, radio, TV, bulletin boards, and other mass marketing activities. Coalitions were strengthened at the community level.

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 "Pasta Chef" competition. PRAES home economists of the Ponce Region recruited the youth and offered the course. The participants learned safe food handling procedures while learning about nutrition and practicing food preparation using pasta as the basic ingredient.

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 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, Radio and the TV Specialist, Press Specialist, Graphic Arts Specialist, the 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 Department of Agricultural Economics and Rural Sociology of the College of Agriculture, and the Sociology Department of the College of Arts and Sciences at the University of Puerto Rico-Mayaguez Campus.

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 the Food Science and Technology Department, and the SEA Grant program of the UPR-Mayagüez Campus.

External

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

Food Safety: Consumers and institutional personnel – Puerto Rico Partnership for Food Safety Education. The external personnel are: Director of Food Hygiene Division, the Puerto Rico Department of Health, the 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.

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 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 people and families.

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	2691*	500	1,085*

*The numbers of consumers increased due to more planned courses by PRAES personnel that in this FY received a new training in this area.

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	367*	50	152*

* The number of consumers increased due to more planned courses by PRAES personnel that in this FY received a new training in this area.

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	1,459*	1000	1,222*

*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	3,802*

* 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	1,537*

*HACCP plan and temperature documentations were accomplished as a voluntary action in food establishments. The Food Technology Specialist assisted three (3) Food Industry in the preparation of HACCP plan and implementation.

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	354	335	354

PROGRAM DURATION

This is the last 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		$395,402.75		$395,402.75

FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2005	11.58					
2006	12.80					

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GOAL 3: A HEALTHY, WELL-NOURISHED POPULATION

OVERVIEW

During FY 2005-2006 PRAES continued training personnel to prepare them to promote good nutrition and health among their clientele and conduct 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, we continued the short courses based on 6 of 10 possible lessons. In addition, a section of indicators were added to foment creativity in the kitchen by fostering the development of recipes using foods and cooking techniques recommended in the Food Guide Pyramid for Puerto Rico. A "Complete Your Meals with Milk" campaign was introduced during this fiscal year. The campaign covers production, marketing, and use of milk. In the area of health and nutrition education, in addition to the nutritional value of milk, the campaign emphasized encouraging adolescents to combine a calcium rich diet with a regular physical activity lifestyle. Groups with special needs, such as diabetes, hypertension, high blood cholesterol, and obesity were also addressed in this campaign. It is expected that the consumption and sales of milk in Puerto Rico will increase as a result of this campaign.

During fiscal year 2006 we began a project entitled PLUS "Prevención de Lesiones Usando la Seguridad", which in English stands for (Preventing Injuries by Using Safety), that targets the adult population. The 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 lives. The trainer kit includes five lessons, visual aids, brochures, and a copy of a video about safety. Fifty-six (56) PRAES home economists were trained, thereafter, forwarding the project to 489 adults and six volunteer leaders. Of those trained, 451 adults reported modified attitudes and practices related to the prevention of injuries.

We also continued working in partnership with different health and human services agencies to create assertive alternatives to improve the well-being of individuals and communities. The PRAES health specialist continued working in partnership with the Puerto Rico Department of Health in the implementation of the CDC program, Diabetes: The Community in Action on the island, with the purpose of providing community members with social support and education, and to facilitate access to care, and for a stimulus for action to the communities.

On April 2006, the PRAES Food and Nutrition specialist and the coordinator of the EFNEP program presented the new USDA food guide (MyPyramid) to Puerto Rico to the public. They also offered meetings for extension agents, EFNEP aides, and administrative staff of the Puerto Rico Agriculture Extension Service and Rural Development personnel.

I. Key Theme – Human Health

A. PRAES personnel implemented health projects directed to children and youth using 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, the PRAES personnel used different curricula such as "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. In the area of health-wellness the campaign "Complete Your Meals with Milk", emphasized on encouraging adolescents to engage in regular physical activity.

B. Impact – Two thousand three hundred and twenty-four (2,324) children and youth completed non-formal health education and promotion programs; of these, 2,295 adopted one or more recommended practices after completing one or more of these programs. The practices adopted were as follow: 412 youth reported they acquired skills using assertive response to peer pressure, 443 acquired knowledge and modified attitudes related to the prevention of sexually transmitted diseases, and 347 children and youth acquired skills to identify and reject sexual abuse. One thousand and twenty-two (1,022) children and youth acquired skills and practices related with personal hygiene, and 837 developed a personal hygiene program. In the area of drug prevention, 100 reported they acquired skills to deal with negative peer pressure.

In the area of indoor air quality (IAQ), 421 youth learned about the different air contaminants and methods for their mitigation and elimination; 90 limited and used more wisely the products with volatile organic compounds (VOCs); 241 stopped exposing their family to environmental tobacco smoke, and 131 detected and removed mold, mildew and biological hazards. One hundred and sixty-two (162) youth participated in the 4-H, IAQ competitions. As part of the "Complete Your Meals with Milk" campaign, 62 youth began to practice a physical sport daily.

A total number of 1,069 adults completed non-formal education programs on topics related to health promotion and health education. Of these, 800 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: 248 began to do 30 to 60 minutes of physical exercise daily, 233 incorporated physical activities to their lifestyles, 249 maintain and control their levels of blood sugar and blood cholesterol, and 206 check and maintain their blood pressure levels to normal.

In the area of indoor air quality (IAQ), 445 adults learned about indoor air contamination through short courses, seminars, and home assessment. Of these, 69 improved/corrected moisture levels in their home, 137 detected and controlled indoor air contaminants in their homes, 50 took steps to check/maintained/correct combustion appliance, 114 detected and removed

molds, mildew, and biological hazards, and 80 took steps to maintain the air conditioning equipment in optimum conditions.

C. Source of Federal Funds – CREES and state 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 "Rejection Drugs and Alcohol" (PAnDA), and adults were oriented through the curricula guide "Preventing Injuries by Using Safety".

B. Impact – Through the accidents prevention education programs, 130 children and youth reported acquired knowledge in the prevention of traffic accidents and the relationship between traffic accidents and drugs. Of this total, 55 began to use their seat belts, four take pedestrian and cyclist safety measures, and 126 can mention three types of drugs and their effects on health.

About 489 adults were oriented in risk reduction and safety; of these, 451 acquired skills and modified attitudes and practices related to injury prevention, 234 adopted practices to prevent poisoning, 207 prepared a first aid kit, and 171 demonstrated the steps to make a call to the emergency services (911).

C. Source of Federal Funds – CREES and state funds

D. Scope of Impact – State specific

III. Key Theme – Human Nutrition

A. Nutrition was divided into three basic areas of teaching: nutrition for the prevention of chronic diseases and for the general population based on the food guide pyramid for Puerto Rico; nutrition to help people who have already developed a chronic disease such as hypertension, diabetes, obesity or high cholesterol; food preparation based on the invention of new recipes, and the milk campaign. The 6-session short course was designed 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 2005-2006, 2,691 persons completed non-formal education programs (short courses) designed to improve the nutritional quality of their diets (output) as recommended by the Food Guide Pyramid for Puerto Rico. Of these, 1,466 improved their nutrition in one or more recommended areas. Improvement in specific areas was as follows: 951 persons improved their consumption of fruits and vegetables; 406 persons are now using whole grain

products rather than refined; 416 persons improved their consumption of legumes, seeds, nuts, or fish; 523 persons reduced their use of beverages that are basically water and sugar; 571 persons reduced their use of saturated fats, trans fats, fried foods or salt; 505 persons now consume a breakfast that includes fruit, milk, and cereal; 593 persons consume snacks that are based on the Food Guide Pyramid for Puerto Rico; and 278 persons prepare 1-dish meals (cereal or starchy vegetables: with vegetables and a small portion of meat). In addition, of 987 persons that completed a short course related to food preparation, 381 persons prepared the recipes that were invented in the short courses; 680 persons adopted recommended food preparation practices; 544 persons selected agricultural products from Puerto Rico from two or more food groups for their recipes; 191 persons limited the amount of salt in their recipes to ¼ teaspoon or less; 201 persons used a maximum of 1 teaspoon of fat or ½ teaspoon of sugar in their recipes; 260 persons used adequate temperatures for cooking, cooling, reheating, and maintaining their foods before eating; and 279 persons prepared a recipe that had good flavor and appearance. As part of the "Complete Your Meals with Milk" campaign, 3,871 fairs or information centers were held, 409 press articles were published, and 4,433 people were oriented by means of a speech or other educational presentation, and 1,015 completed a short course of at least 4 lessons. Of the people who were oriented or finished the short course, 741 increased their consumption of milk, 515 specifically identified their increase in consumption as low fat milk, 497 decreased the consumption of drinks that are basically sugar and water, and 492 chose milk in their meals instead of drinks that are basically sugar and water.

C. Source of Federal Funds: State funds

D. Scope of Impact: State specific

IV. Key Theme – Dietary Habits

A. A total of 513 persons completed non-formal short courses to improve their dietary habits to reduce the risk factors of chronic diseases: obesity, hypertension, blood cholesterol, and blood sugar.

B. Impact (outcome) – One hundred and fifty-five (155) persons completed or surpassed the goals that were established to reduce their risk level. As part of the overall improvement based on dietary change and increased activity levels, 116 people reduced their blood pressure level, 96 reduced their BMI, 202 reduced their cholesterol level, and 203 controlled their blood sugar levels.

C. Source of Federal Funds – CREES and state 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. Partnerships with different health education and federal and state agencies to develop the health projects were continued. Extension agents developed the educational program using different strategies such as short courses, exhibits, health clinics, and mass media, among others. The following health projects were used to help children and adolescents to develop skills to change behaviors: 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 – 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.

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

The "Complete Your Meals with Milk" campaign was introduced during FY 2005-2006. This campaign covers production, marketing, and use of milk. It is expected that the sales of milk in Puerto Rico will increase as a result of this campaign. Since 80% of milk consumption is fresh milk, this should have an impact on the sales of local industry.

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 Agriculture Education Department and, 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) to teach them about menu planning.

Adolescents - (Postponing Sexual Activity) using peer education strategy to promote the sexual education among this group of age. Youth, protect the air that you breathe, this 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	513	100	155

*The numebers for this year were affected by the publication of the new "Food Guide Pyramid for P.R:

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	3,706*	600	2,207*

*This increase is due to the impact of the "Complete your eals with milk" campaign.

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	2,324 *	780	2,295*

*The 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 the 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	619*	300	581*

* Increase is probably due to the implementation of the project Preventing Injuries by Using Safety.

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	4,432*

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

PROGRAM DURATION

This is the final report to the 2-year Plan of Work Update 2005-2006 of 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		$743,956.84		$743,956.8

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	23.63					
2006	24.08					

EDUCATION AND OUTREACH PROGRAMS

PRAES continued focusing in health and nutrition programs. Research from the Agricultural Experiment Station and the Campus of Medical Sciences of the University of Puerto Rico has been disseminated through the island by county Extension personnel.

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

OVERVIEW

Puerto Rico is a densely populated island with 3.8 millions inhabitants. This has resulted in a greater demand for land use, in an ever increasing threat to the agricultural land, and in a loss in value of agricultural lands. Early in 2006, a series of educational activities were conducted to create awareness and to inform the general public about the Land Use Planning Project and to encourage participation in public hearings. A working team composed by professionals from the Planning Board (PB), the Department of Natural Resources and Environment (DNRE), the Department of Agriculture (DA), the Solid Waste Authority (SWA), the Environmental Quality Board (EQB), and the Agricultural Extension Service (PRAES) was created to develop the tools for Land Use Planning (Law #550 of October 2004).

The "First Scientific Journey on Sustainable Agriculture", an on-campus event, was held in March, 2006. Its purpose was to inform other University Campus personnel about the information dissemination efforts and experiences conducted by the College of Agriculture (faculty, research and extension). Extension personnel had the highest participation on oral presentations with a total of 10 presentations. These conveyed an array of themes: sustainable plantain production, community development, sustainable ecosystem preservation, educational experiences in sustainable agriculture, sustainable practices for milk production, and waste management in small farms and others.

The 2006 Regional Water Coordination Program (RWCP) annual meeting was hosted by the UPR and DNRE, in San Juan on June 15th and 16th of 2006. Approximately 50 land grant faculty members, extension and regulatory personnel attended the meeting to explore priority regional water quality issues and workable solutions, drawing on the collective capabilities of the program partners and stakeholders. This meeting was scheduled to overlap with a training session focusing on the new Puerto Rico EQB regulations for waste management on confined animal farms. The 2-day workshop educated Extension personnel, farmers, and professionals from local environmental agencies, providing details about the regulations and the tools to address them. During the training session, the attendees at the meeting reviewed how to use the newly developed computer based design tool to implement animal waste management plans. The tool, which was discussed both in English and Spanish, is a user-friendly spreadsheet interface that uses a variety of input values and mathematical equations suggested by the EQB, leading to a standardized design of plans. Adapting the training program for the rest of the region, as similar regulations become required in other states, especially New Jersey, where small horse farms are abundant, is a priority for the RWCP team leaders.

During the second day of the meeting, there were field visits to four locations around the island: 1) A small confined swine operation, which showcased a waste management system built according to the Agricultural Extension Service's standardized tool. 2) A confined dairy operation, which used a similar waste management system 3) Anaerobic digesters

tanks being readied for a new research initiative in collaboration with Rutgers University; and 4) The Jobos Bay national Estuary Research Reserve, a 2,883-acre estuary facing unique water quality problems due to changes in upland potable water usage, changes in upland agricultural practices, new upland development, and changes in estuarine dynamics.

We were active with a Regional Water Quality Coordination Project in which the University of Virgin Islands, Rutgers University, Cornell University and the University of Puerto Rico have joined technical resources to address problems common to the region. Composting have been looked as a way to handle waste from horse stables and simple solid liquid separators and waste drying beds have been used in small swine farms.

The workshop "Animal Waste Management Outreach" was prepared and offered to agricultural agents, DNRE, ARPE, DA, EQB, NRCS and personnel of the milk industry through funding from the DNRE for the amount of $35,000. The workshop dealt with the new regulations on animal waste management with practical exercises on how to decide on the system to use and to calculate the appropriate size. Approximately 150 professionals participated in this practical train-the-trainer workshop. This effort was aimed to have better equipped professionals to offer proper recommendations to the clientele. The long range outcome is to improve water quality.

In September a forum was offered with the theme "Water in agriculture: requirements, conservation and its effects" geared to train-the-trainer. Professionals were invited to talk about the water situation in Puerto Rico, demand for future water use, watersheds as protection and conservation units, and biotechnological and economical considerations of water use in agriculture. Forty Extension professionals participated in this forum with the objective of identifying strategies and opportunities; determining needs to be addressed through an interagency coordinated effort and providing program alternatives for water protection and conservation. The curriculum "Give-water-a-hand" was published (in Spanish and adapted to Puerto Rico; Action Guide in Feb 2005 and the Leaders Guide in April 2006). Training meetings to Extension personnel began in August. A CD with Power-Point presentations (soil erosion, septic system maintenance, home water consumption, wildfire risks, watersheds, farm water protection, water treatment and a general overall presentation of the curriculum) was included as part of the training material to enhance the education in water issues.

The Extension Plant Diagnostic Clinic (EPDC) offered diagnostic services to nursery managers, landscapers and other personnel related to forest health. Updated information of key pests, including pests of possible introduction, is maintained in the EPDC. Information on forest pests and IPM was disseminated to public and private agencies, state managers involved with forest management, community groups, private land managers, and the general public through the PRAES web page on forestry (http://seam.uprm.edu/Forest/index.htm), PRAES agents throughout the Island, and through the presentation of educational information in seminars, conferences, posters, CD's and publications. The EPDC maintains updated information about common forest diseases and arthropods, and about emerging issues that pose a risk to urban and community forests in Puerto Rico.

Two (2) posters were presented in the International Symposium of Tropical Horticulture: "Common Pests of Palm Trees in Puerto Rico" and "Common Diseases of Trees in Puerto Rico". A poster about common diseases of trees in forest nurseries was presented in the Forest Conference celebrated at St. Croix on June 2006. The publication "Integrated Management of Diseases in Tree Nurseries in Puerto Rico" was distributed to personnel of the Department of Natural Resources, Extension agents, and public and private nursery managers. A CD about IPM of trees in Puerto Rico was produced and distributed to nursery managers, Extension agents and other personnel related to forest management. The CD contains the power point presentation "Identification and Management of Common Pests of Trees in Puerto Rico" and photos of pest and disease symptoms in trees and palm trees and common insects of trees.

I. Key Theme –Water Quality

A. One thousand four hundred and ninety-five (1,495) persons completed a training program on water quantity and quality;

B. Impact – During the past year, 75 farmers established a waste management system (AWMS); 122 farmers made improvements to the existing system; 149 farmers adopted recommended practices to improve the operation and management of their AWMS. Two hundred eighteen (218) farmers reduced the use of chemicals in the farm;

C. Source of Federal Funds – CREES and state funds

D. Scope of Impact – State specific

E. Success Stories

(1) Small Swine Project Contributes to the Sustainability of a Farm in Puerto Rico
During the summer of 2004, Mr. Eleuterio Figueroa visited the local Extension office of the Municipality of Naranjito looking seeking recommendations for the construction of a small swine project in a one acre lot where the he lives with his family. The total farm size is 11 acres and is located in a hilly area with 40 to 60 per cent slopes in the Anones Ward. Mr. Figueroa also produces bananas and beef on his farm.

After a year of planning with the agricultural agent and personnel from the Agricultural Biosystem Engineering office, and after going through a comprehensive permit acquisition process, Mr. Figueroa was awarded a construction permit for a small, 10 sow and swine house. The conditions for the permit were the establishment of a waste management system and erosion control measures on the back of the slope adjacent to Public Road #813. A waste management system consisting of a solid liquid separator, infiltration ditches, and land application of the dried solids was approved by the Environmental Quality Board. A drainage channel and a grass cover on the back slopes were suggested for erosion control. The financing and construction of the project took an additional year. By doing most of the work himself and with help of his family, Mr. Figueroa kept the cost of the project under $10,000. The original total cost estimate was

$18,000. The financing package consists of a loan and incentives form the State Department of Agriculture.

The farm has 10 farrowing sow and one boar. The average number of weaning piglets increased from five to eight and the annual production of piglets increased from 120 to 240. The feeding changed from all waste to more than 50% of concentrated feed. The project was completed in 2006 and is expected to contribute to the sustainability of the farm with an additional gross income of $7,200 per year.

(2) Environmentally Friendly Ecological Coffee "El Gran Batey"
The coffee processing plants in the municipality of Utuado do not comply with the Environmental Quality Board regulations since they do not have efficient waste management plans. The PRAES established an interagency agreement with the USDA-NRCS, the State Department of Agriculture and the Agricultural Experimental Stations for an educational program with economic and technical assistance to purchase ecological processing equipment (ATBECOL for its Spanish acronyms). The objective of the project was the replacement of conventional equipment, the establishment and improvement of the waste management systems, and the use of the processing sub-products.

Through this program, Mr. Jose Morales established a small coffee processing plant for the coffee he harvests in his 14-acrees farm. With the establishment of the plant, the quality of the coffee has improved. The economical benefits increased in approximately $26,000 by producing coffee in harmony with the environment and the farm worker social practices. Mr. Morales' processed coffee, a total of 100 quintales (100 per weight), is a combination of his farm production plus coffee he purchases from other small farmers that comply with the quality standards. The positive results obtained encouraged Mr. Morales to establish a small facility for roasting coffee with the commercial brand "El Gran Batey". This project also serves as a demonstration for small coffee farmers in the central mountain area.

Some of the accomplishments from the establishment of this ecological coffee processing plant are: a lower use of water and energy, lower building and labor costs, an increment in the quality of the coffee and of the water, economic benefits, and the conservation of the environment.

Once they observed the benefits achieved by Mr. Morales, six (6) small farmers began planning the establishment of ecological coffee processing in their farms also to increase yields and income by using less water and energy.

II. Key Theme – Sustainable Agriculture

A. Nine hundred and fifty-eight (958) farmers completed a training program on natural resources conservation and sustainable agriculture.

B. Impact – One hundred and ninety-two (192) persons established sustainable practices; 34 persons established sustainable agriculture projects and ecosystem protection.

C. Source of Federal Funds – CREES and state funds

D. Scope of Impact – State specific

E. Success Story

(1) Promoters of Friendly Environmental Practices

The "Festival del Huerto Casero" is an educational activity to promote the establishment of vegetable gardens in the Municipality of Gurabo. Mr. Francisco Cruz and Mr. Santos Perez are two volunteer leaders from the Rincon Ward. Both organized and coordinated the planting and maintenance of a demonstrative vegetable garden at the Agricultural Experimental Station. The educational activity has been organized for the past several years.

Mr. Cruz and Mr. Perez worked in the vegetable garden during four months and contributed with 20 hours of volunteer work to maintain the area, an economic impact of $320.00. They plowed the land, removed the weeds applied manure to the soil, and planted vegetables and flowers. Among the vegetables planted, they had argali, Pac Choy, asparagus, peppers, eggplants, lettuce, Chinese cabbage, and okra. Insects were controlled biologically by hand collecting and weeds were removed through mechanical means. The agricultural agent at Gurabo followed-up on the seedlings. Each year a new vegetable is introduced to the garden. Small plants are given away at the Festival to encourage gardening. This year over 10,000 small plants were given away and, on average, over a 100 gardens were established. The amount of calls to the Extension office requesting information about the new vegetables helped to asses the amount of gardens established.

During FY 2006, Mr. Perez, Mr. Cruz, and other volunteers oriented 300 people on the practice of making vegetable gardens without using pesticides during the three days of the "Festival del Huerto Casero". They offered 60 hours of volunteer work with an economic impact of $480.00. The effort and dedication of these Extension volunteers promoted IPM, composting, and the reduction in the use of pesticides. They helped the community by demonstrating how easy it is to make a vegetable garden and by providing a fulfilling experience. The Extension Advisory Committee ("Comite Asesor del SEA"), composed by these volunteers, shared their experiences and work with the people that participated in this educational activity full of environmental friendly practices.

III. Key Theme – Natural Resources Conservation

A. Soil Conservation – One thousand three hundred and thirty (1,330) persons completed a training program in soil conservation.

Natural Resources and Forestry – One thousand and ninety-two (1,092) persons completed a training program in natural resource conservation and ecosystem protection; 1,218 persons completed a training program in compost preparation.

Pesticides Safety Education Program – Nine hundred and fifty-two (952) persons completed the private pesticides applicators training course, 1,015

persons participated in the training course to renovate their certificate as private pesticide applicators. Nine hundred and thirty-six (936) persons participated in the basic commercial pesticides applicators certification course, 378 in the commercial pesticide applicator's certification course, 270 in the commercial certificate renovation course, and 477 participated in a 30-hour short course for Category 8-A for structural pest control.

Public Policy – Two thousand one hundred and seventy-nine (2,179) persons completed an agriculture public policy training program.

B. Impact

Soil Conservation – Four hundred and seventy-six (476) farmers adopted recommended soil conservation practices, 253 farmers improved the soil by using organic fertilizers, and 668 farmers adopted soil conservation practices.

Natural Resources and Forestry – Twenty-six (26) farmers prepared compost in their farms and578 persons adopted natural resources conservation practices.

Pesticides Safety Education Program - Seven hundred and fifty-four (754) persons approved the private pesticide applicator certificate exam, 769 persons the basic commercial pesticide applicator certificate exam, 339 the commercial category exam, and 356 commercial applicator Category 8-A exam.

Public Policy – One thousand five hundred and seventy-two (1,572) persons participated in activities to influence decision making on environmental public policy and 84 persons prepared and did a presentation at a public hearing on agricultural environmental issues and ecosystems.

C. Source of Federal Funds – CREES and state funds

D. Scope of Impact – State specific

E. Success Story

(1) To the Rescue of Green Areas in Orocovis

Orocovis is a municipality located in the heart of Puerto Rico with 63.47 square miles. It is part of the central mountain chain that runs east-to-west, characterized by steep slopes with limited business options for its residents. It also covers the area for an important watershed, the Toro Negro Watershed, which supplies water to the inhabitants of the northern part of the Island (close to one million persons). Its main source of income is from agriculture.

Through the effort and commitment of a group of leaders, Orocovis has become a protected green municipality. It obtained the protection of 65% of the land and was declared a "conservation zone". Farm land is protected, as well as the Toro Negro watershed with sustainable practices.

Three hundred (300) farmers have approximately 1,800 acres with coffee as an agro-forestry project. The coffee shrubs are planted following the contour of the hills, soil mount in a diamond pattern with temporary shade using plantain or bananas. On average, an acre is planted with 1, 000 coffee shrubs. Such practice not only provides appropriate land cover (minimizing the erosion effects in the terrain) and wild life habitat, but also, provides much needed income to the farmers.

There are future plans for agro-tourism where the rural population will be highly benefited. The Municipal government authorities are highly interested in the development of this kind of projects.

IV. Key theme – Integrated Pest Management

A. Four thousand seven hundred and fourteen (4,714) persons completed an IPM training program. Forest nurseries related personnel received technical assistance in identification and management of pests and diseases. Thirteen (13) state and private nurseries were visited and oriented on IPM practices. Thirty-nine (39) nursery managers (State and private), seven rural landowners, six urban landowners, and 12 farmers were reached through the EPDC, direct orientation, and visits to nurseries. Twenty-five (25) reports with IPM recommendations were sent to personnel related to forest management and Extension agents that submitted samples to the EPDC. Two (2) conferences were offered to forest biologists, nursery managers and field personnel of the Natural Resources and Environmental Department. The database of pesticides available for the control of common pests in forest nurseries, which contains pesticide recommendations for shrubs, palm trees, ornamental woody plants, and trees for urban purposes, was updated.

B. Impact – Three hundred and forty-nine (349) vegetative samples or bug infested samples were analyzed with recommendations at the EPDC. Around 40,000 acres of forestland have been impacted as a result of technical assistance. Forty-five (45) samples of herbaceous and woody ornamentals, nursery trees and palms were processed in the EDPC for pest identification with an impact of approximately $25,000 saved on pest management, including the use of pesticides.

C. Source of Federal Funds – CREES and state funds

D. Scope of Impact – State specific

KEY PROGRAM COMPONENETS

The Puerto Rico Extension Service educational program efforts are directed toward the adoption of recommended practices, mainly by encouraging the increase of efficient farming production while complying with environmental regulations. This program also paid attention to farm management to keep the farm business profitable. This was achieved through the implementation of courses,

training meetings, demonstration methods, workshops, seminars, the adoption of new technology, the use of new or recommended equipment or machinery that is environmentally friendly, participatory research, follow-up visits, special projects, and written communications, through mass media and through agricultural professionals. The general public and other agency personnel were often benefited too in a train-the-trainer manner. We strongly rely on collaborative agreements with state and federal agencies as well as network 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 USDA-Forest Service. It will continue as part of the general agriculture program. The collaboration with the Solid Waste Authorities (SWA) will continue for the schools´ and the general public on compost preparation and recycling. The educational campaign on brush fires will continue under the State Department of Natural Resources and Environment with the collaboration of the PRAES. Various agencies have worked closely in collaboration with the PRAES on different issues. These agencies include: the Environmental Quality Board, the Planning Board, the Department of Health, the State Department of Agriculture, Fish and Wildlife, the USDA-NRCS, the School of Public Health, Sea Grant, the Mayagüez Space Grant Consortium, the EPA, the State Water and Sewage Authority, the local Resource Conservation and Development (RC&D) Councils, and the Soil Conservation Districts. Collaborative efforts have also been achieved with Cornell University, Rutgers, and the University of Virgin Islands on animal waste management.

TARGET AUDIENCES

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 active research, education, and extension roles.

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	3268*	880	730*

*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

Data is collected through farmer interviews and observation of implementation of recommended practices 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	4235*	2052	2781*

*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	1330*	1968	1144*

*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 practice recommended separately. This resulted in almost double the 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	2,179*	296	1,656*

*The sharp increase in this indicator can be due to the special attention regarding Land Use Planning.

DATA COLLECTION METHODOLOGY

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

PROGRAM DURATION

This is the last report for the 2-year Plan of Work Update FY 2005 and 2006 of the 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		$605,284.78		$605,284.78

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	19.30					
2006	19.59					

CONTACT

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

OVERVIEW

During FY 2005-2006, PRAES' goals continued to be the development of educational projects and efforts to enhance economic opportunities and improve the quality of life and well-being of families and communities.

The change in the family structure in Puerto Rico has had important implications for children. The continued rise in the number of divorces and adolescent mothers has caused considerable concern among policy makers and the public. Another factor affecting the well-being families and their members is the increase in family violence. The number of single-parent families has also continued rising and children growing up in single-parent households are at an economic disadvantage relative to children growing up in households with both parents present. As a result 58% of these children (1,092,101) live below the poverty level, 71% are of female-headed household families. Fourteen percent (14%) of 16 to 19 years olds were high school drop-outs.

Another situation of great concern is grandparents providing child-care while the parents are working. In many households the grandparents are the primary caregivers for young children, 53% reported that they were responsible for most of the basic needs of one or more of their co-resident grandchildren. Thus, the importance of extended family members, particularly grandparents, and the need of developing effective non-formal education programs on parenting skills, behavior, and practices aimed at this audience.

According to the 2000 Population Census, there are 425,137 elderly people (65% years and over) and the number is expected to increase to 15.2%.

The police department has reported a continued increase in domestic violence and child abuse. Therefore, efforts to educate people on healthy couple relationships, parenting skills, child development, communication, family budget, decision making, and other related areas have continued.

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

References:
Department of Health, Vital Statistics, www.salud.gov.pr/estadisticas.htm, www.aarp.org

I. Key Theme - Child Care/Dependent Care

A. Extension agents trained child-care providers and families on child development and practices. Seven-hundred and one (701) parents and child care providers completed and participated in these non-formal educational programs. Two hundred and fifteen (215) dependent care providers completed non-formal educational programs in aging aspects.

B. Impact – Thirty-five (35) dependent care providers adopted one or more practices on aging aspects and 676 child care providers gained knowledge and skills in child care and related areas.

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 base program continued focusing on youth and children at risk with an increase in enrichment activities, projects, trainings, workshops, and volunteer recruitment. Through this program, 10,732 4-H members completed non-formal education on youth development. Extension specialists and agents promoted the adoption of healthy life skills and styles that allow youth to make adequate decisions. Curriculum and projects were developed to train this population to help them to adopt practices to improve quality of life and clarify values.

B. Impact – Eight hundred and twenty-nine (829) 4-H members and other youth gained knowledge in values clarification based on character traits. One-thousand seven hundred and seventeen (1,717) youth adopted practices and developed leadership skills through the participation in 4-H activities. Two hundred and sixty (260) youth volunteers were recruited.

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

D. Scope of Impact – State Specific

E. Success Story

(1) Values Workshop Impacts Family Relations

Leaders, teachers, and parents of the Municipality of San Lorenzo, became interested in the clarification of values topic encouraging family values, as there was a great need in this area in the municipality. The PRAES home economist was invited to offer orientation on this subject. As a result, she began a "Clarification of Values" workshop aimed at the parents and their children. During June of 2006, a 4-H summer camp was offered. Fifty children and 4-H members ages 7 to 12 participated in the camp. They gained knowledge in character traits and clarification of values. Two brothers

participating in the camp presented showed non-positive discipline and poor family relations. After the camp, their mother expressed her satisfaction at the improved family relationship and better communication between brothers. Other youth were impacted as a result of the participation of these two brothers. The home economist continued developing other activities to help improve family relations.

III. Key Theme - Family Resources Management

A. During the FY 2005-2006, Extension agents continued developing non-formal educational efforts to help low-income families deal with the increase in consumerism among Puerto Rican families. Six hundred and thirty (630) people completed a non-formal consumerism education program.

B. Impact – Five hundred and thirty-nine (539) people of the 630 trained adopted practices and skills on family budget, and savings accounts.

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

D. Scope of Impact – State Specific

IV. Key Theme - Home Based Business Education

A. Extension agents continued developing non-formal educational home-based programs to help families increase their own resources and family income. A total of 236 leaders were trained in the Economic-community Principals project and 740 people completed a non-formal education program on self-employment and home business education.

B. Impact – As result, 164 people were certified as artisans after completing training, 17 new businesses were established and 118 jobs were created.

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

D. Scope of Impact- State Specific

E. Success Story

(1) Self-empowerment response

The high employment level in the mountain Municipality of Lares has caused a great deal of stress in the families living there. To target this problem, the local PRAES home economist developed 16 non-formal education courses, which focused on self-empowerment and improving the quality of life of our clientele. Among these courses were: "Fagotting", "Artisan Jewelry", "Hand Embroidery", "Handcrafts", and "Home Administration". Thirty-five (35) persons were benefited by these courses. Twenty-five (25) participants gained knowledge and applied one or more skills and 13 participants were certified as artisans. They are marketing their products and earn money to help increase the family budget.

V. Key Theme – Farm Safety

A. Five thousand six-hundred and ten (5,610) people were oriented in farm safety and prevention of farm accidents.

B. Impact – Eight hundred and forty-three (843) farmers of those trained adopted farm safety practices and showed increased knowledge, 317 people developed emergency plans in case of natural disasters and 674 farmers improved their performance in farm safety practices.

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 PRAES' goals is to develop projects to help people, youth, families, and communities to improve their quality of life and well-being. Twenty-two (22) new businesses started resulting from economic development programs of the Community Resources and Economic Development program and 740 people completed a non-formal education program on economic or enterprise development.

B. Impact – One hundred and sixty-four (164) people and community leaders adopted one or more practices to attract new business and 28 jobs were created as a result of the formation of new businesses or the expansion of existing ones.

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 continued non-formal education parenting programs. Three thousand two hundred and seventy-three (3,273) parents/families were trained through the PREPAS project and non-formal educational programs focusing on parenting skills, family strengths, communication skills, values, and other related areas. An educational campaign was developed to prevent family violence and child maltreatment at state level.

B. Impact – After completing non-formal educational programs through PREPAS educational efforts, 1,373 families/parents adopted parenting principles, behaviors and practices and 395 parents acquired skills to prevent child maltreatment. Thousands of people were also benefited from radio programs, TV programs, campaigns, and other educational activities.

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

D. Scope of Impact- State Specific

E. Success Story

(1) Successful Parents from Gripiñas

The quick deterioration of family relations at the Gripiñas Sector in the Municipality of Jayuya, caused physical, emotional, and social instability among its families. As a result, the PRAES home economist and the Gripiñas school's social worker coordinated several workshops in an effort to improve the parents' family relations skills and to provide them with the tools necessary in raising their children and to prevent family violence and child maltreatment. The workshops included the following topics: "Clarification of Values", "Successful Parenting", and "Prevention of Child Abuse". Fifteen (15) low-income parents benefited from these workshops offered during FY 2006.

The parents gained knowledge and developed skills in effective discipline, communication, and new ways of raising their children with love. The parents expressed satisfaction of the knowledge and skills developed, motivated the development of new workshops on "Family Strengths", "Domestic Violence", and "Anger Management", which are under way by the extension personnel and the parents that participated in the previous workshops.

KEY PROGRAM COMPONENT(s)

The PRAES' continued developing educational programs to orient the families to assure their resources and strengthen the capacity of families and communities. Efforts to increase interagency and organization collaboration at federal, state, and local levels to improve outreach to families were emphasized. Each extension agent prepares an action plan to accomplish state goals based on their needs.

Emphasis was given to the use of volunteers as sources of support for families and communities at risk and the involvement of families and communities in public policy decisions that affect their communities and well-being through a more effective use of technology such as distance learning strategies to help reach more clientele.

Extension specialists 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	740	253	164*

*The decrease in adoption was due to new regulations established for businesses.

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	22

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	28

*The increase in relation to the target is due to new businesses 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	630*	3420	539

*A new specialist was recruited recently. We are in the process of developing educational material "¿Suena major ser positivo?" (Does it sound better to be positive?).

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	5438	3636	3202

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	1377*	741	711

The decrease is due to difficulties in complying with the new regulations of care provider businesses

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 adopted 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	3,273	2276	1,373

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	10,732*	14857	8,510

*The 4-H enrollment lists were updated as a request of the Leader of the 4-H Program.

PROGRAM DURATION

This is the final report of the 2-year Plan of Wok Update FY 2005 and 2006 of 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		$3,001,437.96		$3,001,437.96

FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2005	96.74					
2006	97.13					

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B. STAKEHOLDER INPUT PROCESS

During fiscal year (2005-2006), the stakeholder input process took place at different levels: at the local or county level through the local advisory committees and at the state level through specialists and representatives of other state agencies. Beneficiaries from the Four-H Youth Development Program and the Community Resources Development Program also offered their input.

At the local level, the local advisory committees' collected input from our local stakeholders. The committees were 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 Development; and Community Resource Development) in addition to a minimum of two representatives from local agencies that work with similar audiences as Extension. The members of these committees were selected by the agents from among their target audience, based on their experience and participation in Extension programs and were invited to join the committee. The process of collecting the stakeholder input took place through meetings. The committees met periodically during the year to discuss critical local issues, as well as to identify emerging issues that could be addressed by Extension. Each local committee identified five priority issues in each of the four base programs. A written report was prepared and sent to the state level to generate statewide data in order to determine priorities at the state level. Issues that respond to specific topics and localities were addressed by the specialist in that area. We also collected input from stakeholders in two specific program areas: Four-H and Youth Development and Community Resources Development; and from young stakeholders, members of the 4-H clubs.

As stated in our previous report, we recognize the importance of also collecting input from our young participants, as this audience is affected by many complex physical, emotional, and social issues. For FY 2005-2006, 20 young leaders were invited to participate and share their views with respect to how the 4-H program responds to the actual needs of today's youth. The young leaders were divided into four groups where they answered five questions concerning their views of Puerto Rico Extension Service's 4-H program. They prepared oral reports that were presented to the 4-H State Leader. Different actions have been taken to address these issues, as well as to improve the program to meet their needs.

Input was also collected from community leaders participating in the Community Resource Development Program. The method used for data collection was nominal groups. The municipalities or counties that participated were randomly selected and then a community leader from each of these municipalities was invited to participate in a voluntary manner. The leaders established priorities of the major problems affecting their communities. The State CRD Program Leader received direct input from these leaders. The priorities identified by these leaders, as well as other recommendations for the program, were evaluated and considered for planning and improvements within the CRD program.

At the state level, four focus groups were conducted to identify emerging needs and issues within four of the GPRA goals. Stakeholders invited to these focus groups included Extension county agents and clientele such as farmers, homemakers, young parents and representatives from state agencies that work with similar audiences, including the Department of Education, the Department of the Family, the Department of Agriculture, the Department of Natural Resources, USDA-NRCS, the SEA Grant Program and the Rural Development Corporation. Written reports were prepared and sent to the state program leaders and specialists in the pertinent areas for consideration in program planning.

C. PROGRAM REVIEW PROCESS

There are 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 programs (Agriculture, Natural Resources and Management; Family and Consumer Sciences; Four-H and Youth Development; and Community Resource Development) composed of internal, as well as external members to Extension. Each committee meets three times annually. 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.

   In the area of agriculture, the major critical issues presented by the stakeholders include improve marketing for coffee farmers, waste management and feeding for the dairy sector, Black Sigatoka *(Mycosphaerella fijiensis)* among starchy crops, production and marketing practices for the ornamental sector and production practices for the citrus crops. All designed planned programs had incorporated these areas among their educational materials. For example, PRAES and PRARS had joined efforts for a marketing initiative for a special brand of coffee.

   In the area of Community Resources and Economic Development, stakeholders identified different social and economic issues that affect the empowerment of their communities. Training meetings were offered to improve the competence of

the agents in the area of community economic development. In addition, a new curriculum was introduced as part of the planned programs to strengthen the leadership skills of community leaders. This curriculum is expected to provide the necessary tools for community leaders to guide their communities in addressing their own critical issues with the Extension agent as a facilitator.

In the areas of Families and Youth, obesity continues to be a critical issue that affects both adults and youth, as well as issues related to emotional development, which have been identified as critical issues. Both programs, Family and Consumer Sciences and Four-Hand Youth Development, have given special attention to these issues through their curriculums and educational materials.

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, families at risk and homeless people. We continued to focus various educational efforts to attend the particular needs of the increasing population of adolescent mothers with projects in the areas of family, health and resource management. PRAES continues paying 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 make referrals of these audiences to us because of their high priority needs.

Small farmers in the coffee, starchy crops, fruits and rabbit's sectors have received special training in the areas of production and farm administration. A particular under-served and under-represented population that PRAES has been targeting 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 of helping them to develop the necessary skills for the job market or to enable them to establish their own business. The prisoners
received training on agricultural skills and some of them are already designing their own projects. A similar project was also implemented to youth at juvenile institutions through the Four-H and Youth Development program.

In order to better address the needs of the mentally challenged under-represented audience, county agents received training on specific needs of this particular population. PRAES continued to develop educational activities to address the needs of people with disabilities, including the mentally challenged, through projects that focus agricultural skills. The 4-H program developed a special project that targets youth with mental disabilities in three particular counties.

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. In addition, major outcomes are distinguished through success stories.

4. Did the planned programs result in improved program effectiveness and/or efficiency?

Yes, planned programs have resulted in improved effectiveness since programs have achieved the expected outcomes in the different areas of agriculture, community, family, and youth. Expected outcomes show changes in skills and knowledge, as well as adoption of the recommended practices in the different planned programs. In addition, planned programs are designed to address the needs of our populations and critical issues within the state. Attention to these issues through the planned programs, as well as through new projects or initiatives, has resulted in increased participation and interest from our potential audiences. For example, new outdoor camps and environmental projects for 4-Hers have resulted in increased participation. In addition, educational techniques are constantly evaluated to adapt them to the skills levels of the participants and their educational needs, therefore, resulting in increased program effectiveness.