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PUERTO RICO ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS FY 2003-2004

OVERVIEW

This accomplishment report covers the period from October 1, 2003 to September 30, 2004. During this fiscal year the Agricultural Extension Service (PRAES) used a total of 175.88 FTE's.

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

Goal 1, "An agricultural system that is highly competitive in the global economy", accounted for 73.10 FTE's.

The dairy sector continues holding the first position by income of all the agricultural sectors. The Grade A classification was maintained through the continued technical support of PRAES personnel. The 376 dairy farmers received training in the recommended dairy production practices. In average 348 (93%) of the dairy producers maintained consistent Grade A parameters. Eighty four (84) dairy facilities and 87 waste disposal systems were improved. Of the 168 farmers registered in the dairy herd improvement program, 87 (52%) improved their efficiency in production per cow.

A total of 1999(29%) farmers adopted the recommended forage production practices. Eighty-seven (87) farmers adopted soil conservation and water quality practices.

Of the 1,862 coffee producers oriented, 1,135 (61%) adopted the recommended production practices. One hundred and eighty (180) coffee producers increased their production per acre, and 80 improved the quality of their coffee.

In the fruit commodity 1,894 (55%) fruit producers adopted the recommended practices. Twenty-eight (28) farmers increased the value-added to their crops.

Off all vegetable farmers, 623 (33%) producers adopted the recommended production practices and 177 (13%) for hydroponics adopted the recommended hydroponics practices.

One hundred and sixteen (116) (58%) producers of grains and legumes adopted the recommended practices. Seven producers increased their income.

Nine hundred and seventy (970) farmers adopted the recommended production practices in starchy crops. A total of 1,612 increased their production.

In livestock production a total of 45 (45%), of the101 poultry producers trained, adopted the recommended production practices and 10 improved their farm facilities; 170 (31%) swine producers adopted the recommended production practices, 58 increased their income, and 45 improved their facilities.

One hundred and sixty-two (162) (21%) of 779 beef producers trained, adopted the recommended production practices, 84 improved their facilities and 40 increased their income.

A total of 200 ornamental producers were trained in the latest production practices for ornamentals; of these, 45 adopted the recommended practices. Five (5) persons established their own business and 10 increased their income.

Goal 2, "A safe and secure food and fiber system", accounted for a total of 8.06 FTE's.

During this fiscal year PRAES continues developing an ongoing food safety program at different levels with a from-the farm-to-the-table approach. PRAES continued coordination with eight state and federal agencies through the Partnership for Food Safety Education to develop and support food safety education for consumers including the "Fight Bac!" campaign, which focused on safety foods for infants and children during this fiscal year. PRAES also offered trainings to agronomists and farmers on "Good Agricultural Practices" (GAP) guidelines, in order to help them comply with the new regulations.

Two thousand three hundred and thirty-three (2,333) participants completed the Food Safety certification courses (24 contact hours). All of the participants adopted a method to control food temperature/time and other food safety recommendations. Three hundred and seventy-nine (379) persons in charge of food establishments prepared a food safety risk management plan. Through the Puerto Rico Partnership for Food Safety Education 478 consumers completed the "Fight Bac!" lessons, of these 463 demonstrated the adoption of the following recommended practices: improved hand washing practices, increased sanitation of surfaces, reduced cross contamination of foods, cooks at the proper temperature, and maintain an adequate temperature in the refrigerator.

Three hundred and sixty-seven (367) dairy farmers maintained consistent bacteria counts below 100,000 units of colonies per milliliter and of these, 264 maintained somatic cells below 400,000 cell/ml. Three hundred and forty-eight (348) dairy farmers maintained the Grade A standards.

GAP trainings in fruit and vegetables were offered by the specialists in charge of these commodities. Five trainings were offered on GAP for fruit and vegetables. One hundred and seventeen (117) farmers took advantage of the GAP trainings. Nine radio programs

were offered regarding food safety in fruits, vegetables and eggs and meat. A guide for the evaluation of GAP on fruit and vegetables was prepared.

One hundred and fifty three (153) children and youth completed the 5-lesson course designed to help them understand the importance of assuring food supply in Puerto Rico. Of the youth involved were made aware of food security and expressed their concerns about the security of food for the island.

Twelve food industries were evaluated, 41 managers approved the Hazard Analysis and critical Control Points (HACCP) training and 290 food industry employees increased their knowledge on food safety. Three (3) new processing plants prepared and implement HACCP.

Goal 3, "A healthy well-nourished population", accounted for a total of 17.25 FTE's. (This does not include EFNEP, as it is a 3(d) funded program.)

During this fiscal year PRAES continued to work in partnership with different health and environmental agencies to create innovative educational programs to promote a health and well-nourished population.

Nine hundred (900) children and youth completed non-formal health education and promotion programs, 814 of them adopted one or more of the recommended practices after completing one or more of these programs.

A total of 1,372 adults completed non-formal education programs on topics related to health promotion and health education. Of the, 1,256 reported having reduced their risk levels upon adoption of one or more recommended practices after completing the programs.

One thousand four hundred and fifty-five (1,455) individuals learned about indoor air contamination through short courses, seminars and home assessment. Of these, 982 learned about the different air contaminants and methods for their mitigation and elimination. Three hundred and fifty-one (351) individuals adopted practices to control the humidity in their homes and 746 reduced sources of contamination in the indoor air.

PRAES continued partnership with the Puerto Rico Health Prevention Commission through the Fraud Prevention Program. One hundred and eight (108) persons received training about fraud prevention with emphasis on stopping health fraud, internet fraud and how to report cases of fraud. Of these, 80 reported knowledge gained and behavior and attitudes changed. Ten (10) persons reported health fraud cases to government agencies.

The MeNu program was discontinued in FY 2004. The 7 session course designed for MeNu was modified, limiting the number of sessions to six with ten themes to choose from. The home economists were instructed to choose form these themes those that best

fit the needs of their audiences. One thousand five hundred and fifty eight (1,558) persons participated in short courses and an additional 2,250 participated in individual interventions that were designed to change behavior. Of these, 736 reported having managed to change one or more practices. In addition, 10,916 persons participated in community activities designed to increase knowledge about good nutrition.

A total of 2,249 persons completed non-formal nutrition education programs to improve their dietary habits and reduce the risk factors of chronic diseases. Of these, 15% adopted one or more recommended dietary habits.

Fifteen thousand eight hundred and twenty eight (15,828) individuals in the families oriented and 4,596 were enrolled in Puerto Rico EFNEP. Of the families enrolled 3,855 graduated, 2,577 received food checks, and 1,305 participated of the WIC program. Two hundred and fifty-six (256) pregnant EFNEP mothers were oriented on the importance of breastfeeding and adequate prenatal care in order to have healthier babies. No babies died during their first month of life. Seven (7) EFNEP mothers breastfed their babies.

As a result of the educational experience in EFNEP, 1,696 persons reported that they are now eating a variety of food and 1,390 are making good use of their allowance to obtain nutritional food. Eight hundred and thirty-seven (837) volunteers helped in some stage of the program. Of these, 338 worked with youth and 511 with adults. Three thousand three hundred and sixty (3,360) volunteer hours were dedicated to youth and 5,040 were dedicated to families. This represents an economic impact of $18,400 and $27,720 saved by using volunteers, respectively, at $5.50/hr.

Goal 4, “To achieve greater harmony (balance) between agriculture and the environment”, accounted for 9.80 FTE’s.

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

A spreadsheet to aid county agents in developing animal waste management plans in dairy, swine, horse, and poultry farms was completed during this fiscal year. One hundred and thirteen (113) waste management facilities for animals in confinement were improved or established, 121 persons adopted recommended practices to maintain and operate their waste disposal systems. Three hundred and eighty-one (381) persons adopted or improved recycling practices and 663 recycling projects were established. Three hundred and sixty-four (364) persons adopted compost practices and 114 compost projects were established.

Seventy-four farmers established and improved irrigation and drainage systems.

The Puerto Rico Department of Agriculture, USDA-NRCS, and the College of Agricultural Sciences joined efforts to implement new technology—Ecological Coffee Processing Technology (ATBEOL)—using ecological processing of coffee and subproducts. The ecological modules use technology that operates with little water and energy, reducing the size and costs of processing plants and disposal of subproducts. Thirty-four (34) conventional coffee processing units (25% of the coffee processing plants in Puerto Rico) were replaced for ecological ones. This project received the highest recognition by the Secretary of the US Department of Agriculture, the "USDA Honor Award", in the category "Protecting and Enhancing the Nation's Natural Resources Base and Environment".

Sustainable agricultural practices have become common among coffee farmers. More often coffee is planted following the soil contour and intercropped with bananas. Such practices provide the farmer with an additional income benefit while protecting the soil. Farm access roads are being established also following the soil contour. The most common sustainable agricultural practices adopted are: use of vegetative barriers, compost preparation, agroforestry, and IPM.

Eight hundred five hundred and fifty nine (859) farmer received orientation on sustainability, of these 365 established sustainability practices in their farm. One hundred and six (106) persons prepared compost using farm waste. Ten volunteers served as trainers or facilitators to disseminate information on sustainable agriculture, and 151 persons established sustainable agricultural projects.

Being Puerto Rico an island, land and the proper use of soils and fertilizers are key items for agriculture. Each municipality is required to prepare its land order plan to delineate the different land uses. Information and orientation is offered on the proper use of soils and fertilizers on the farm. Also, PRAES offers training and exams on pesticide use through its agreement with the State Department of Agriculture (SDA), and the SDA gives the certification for their application after receiving the required evidence of the applicators that passed the exams through the Pesticide Safety Education Program.

Nine hundred and ninety one (991) persons approved the exam to be certified as private pesticide applicators; 646 persons approved the exams to be certified as commercial applicators, 332 persons approved the exams for the commercial categories and 354 persons approved the 30-hour short course for the 8-A category.

One hundred and eighty (180) farmers use the results of the soil chemical analyses, irrigation water, and vegetable tissue for fertilizer application; 218 farmers used organic fertilizer as an amendment for their soil.

Two hundred and fifty two (252) persons adopted recommended practices for soil conservation. Two hundred and twelve (212) persons adopted or improved natural resources conservation practices.

The proposal “Improving Health of Forest Nurseries” in Puerto Rico was extended until September 2005 to finish the educational material and trainings to nursery personnel. Another proposal, “Forest IPM in Puerto Rico” (for $16,960), was submitted and approved.

The publication “Integrated Nursery Pest Management” is expected to be ready for printing and distribution on June 2005-

One hundred and ninety-five (195) samples affected by arthropods or diseases were processed and diagnosed in the Plant Diagnostic Clinic. A written report was made out to the farmers with the IPM practices they have to establish to maintain adequate pest control. The early and correct diagnosis of pests in the Plant Diagnostic Clinic saved farmers $100,000.

Fifty (50) employees of the Department of Natural Resources received orientation related to Forest health which included written materials and orientation about the use of the web page developed by PRAES, http://seam.uprm.edu/Forest/index.htm.

Twenty eight (28) samples of trees and woody ornamentals were processed in the Plant Diagnostic Clinic with a direct impact of $25,000 saved due to the correct diagnosis of the pest.

Goal 5, “To enhance opportunities and the quality of life among families and communities”, accounted for a total of 67.67 FTE’s.

Recognizing the special needs of the population of Puerto Rico, PRAES continued its efforts with the 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 in individuals, families and communities.

Three thousand eight hundred and two (3,802) families adopted practices in family relations, effective parenting and communication skills. After six months parents showed changed attitudes toward responsible parenting and assertive communication helping them to prevent child abuse and neglect. Three hundred and thirty-one (331) persons working in childcare centers adopted practices in child development related areas.

Low-income families were trained and oriented in money management, family budget, and financial skills. As a result, 2,572 families adopted one or more recommended practices to decrease consumer credit debit after completing non-formal education programs, 33 persons established their own business, 143 prepared a family budget and 465 families increased family income. Two hundred and fifty (250) families adopted the recommended practices.

Of a total of 1,485 farmers oriented on farm safety and prevention of farm accidents, 848 farmers changed attitudes and increased knowledge about farm safety, 198 adopted farm safety practices, 164 developed an emergency plan and 479 adopted practices in the event of natural disasters.

The Family Life and Child Development Specialist facilitated strategic planning, work-shops for families and communities at risk, curriculum, trainings, community organization, and local and state coalitions. The parenting project "Empower Parents to Raise Successful Kids", which was approved in 1999, continued helping families, children and communities at risk. The project received recognition at national level by the CSREES-USDA for its impact on these audiences. The PREPAS project was established in six additional municipalities to increase state-wide capacity of PRAES base programs.

Two hundred and seventy-three (273) Extension agents, community leaders, and professionals from other agencies working with populations at risk were trained in family relations, child development, and responsible parenting topics. Three thousand eight hundred and two (3,802) people completed non-formal education programs on parenting topics and related areas. As a result, 2,450 families adopted parenting principles, behaviors, and practices after completing educational programs. Through this project 635 parents learned how to teach their children social and emotional skills to improve their well-being. Four hundred and eleven (411) families acquired skills to prevent child neglect and abuse.

Base Programs

During Fiscal year 2003-2004 in the area of leadership in family and the community, 1,656 individuals were oriented in basic skills of leadership, personal development, motivation, communication, decision making, ethics and public policy, parliamentary procedures, networks of support, collaborations and/or coalitions. Of these, 1,243 leaders are quick to apply these skills.

The Four-H Youth Development base program accounted for 32.02 FTE's during FY 2003-2004. This base program continued focusing on youth at risk with an increase in activities, contests, projects, competitions, trainings, workshops, and volunteer recruitment. During this period the Four-H Youth Program impacted 30,975 members and 9,138 other children and youth. Projects developed were "Learning to be Healthy" HIV/AID prevention "Toward a Drug Free Year 2000 for Children", "*Posponiendo la Actividad Sexual-PAS"* ("Postponing Sexual Activity"), *"Resaltando tu Apariencia Personal-RAP"* ("Enhancing your Personal Appearance"), and "Protect the Air you Breathe-Indoor Air Quality Project". Curriculums on self-esteem, consumer education, and nutrition were also developed.

Four hundred and ten (410) children developed skills through special projects in after school enrichment programs. Three hundred and seventy eight (378) 4-H members and youth obtained knowledge and developed vocational skills and experiences related to

vocational exploration. One thousand six hundred and ten (1,610) projects were developed in technology and sciences by 4-H members.

During this fiscal year, 677 volunteers obtained knowledge in leadership skills and 147 volunteers organized youth activities to promote healthy lifestyles. Three thousand two hundred and sixty one (3,261) 4-H members and other youth obtained knowledge in leadership development, community development, and civil rights.

A total of 3,261 youth and adult volunteers offered 9,790 volunteer hours that represent an economic impact of $53,845 to the program.

Coalitions with the private sector were implemented in order to get sponsorship for the 4-H program. Special recognition was give to "Molinos de Puerto Rico" and the Cooperative of Employees of Agricultural Agencies, which sponsored a 4-H contest and made it possible for 10, 4-H members to travel to the National 4-H Congress.

The Community Resource Development Program (CRD) accounted for 9.87 FTE's during 2003-2004.

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

Through educational efforts of CRD 84 communities were organized and 250 families improved their community relations. Five hundred and seventy-five (575) community leaders were oriented about the development of community projects. Thirty-six (36) communities established recycling projects.

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

A. PLANNED PROGRAMS

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

OVERVIEW

During FY 2003-2004 the Puerto Rico Agricultural Extension Service (PRAES) continued working to increase production, consumption and competition of the agricultural products. Orientation was offered on how to increase the value-added of the different commodities and the availability of local products. PRAES continued collaboration with USDA agencies in order to implement the 2002 Farm Bill and with the State Department of Agriculture to promote the agricultural reform.

The agricultural gross income increased for FY 2003-2004 to $780.7 millions. The net increment was $25 million compared to fiscal year 2002-2003. There are 17,659 farms with an average size of 40.3 acres (39.1 cuerdas). The sector employs about 93,000 people--31,000 directly and 62,000 indirectly. This represents about 3% of the total working force and 1% of the National Gross Income (2000 USDA Census.)

The PR Department of Agriculture has been working in the agricultural reform for the past years. The intent is to arrange producers by commodities. This is done by establishing several levels: the first level is integrated by farmers of all agricultural sectors, the second level is for classification purposes; and the third level consists of the processing facilities. Through the establishment of commodity groups, production is organized based on supply and demand of the products. The production surplus is being used to produce a variety of byproducts partially cooked or ready-to-eat, therefore adding value to the products and increasing the farmers' income.

Facilities have been built and technology is being used to increase efficiency. Due to trainings, workshops, and mass media offered by PRAES to farmers; good agricultural practices have been used with a positive impact on production, such as increase in products, quality, profits, and participation in local markets

I. Key Theme: Agricultural Competitiveness

A. The agricultural sector includes crops and livestock. The crops are coffee, vegetables, starchy vegetables, fruit, grains and legumes. Intensive training in recommended sustainable coffee propagation, production, and post harvest and processing of coffee were emphasized. One thousand eight hundred and sixty-two (1,862) coffee farmers were trained in production, propagation, and handling of raw coffee beans.

The starchy crops sector increased production due to pest resistant varieties used, irrigation, and the adoption of the better management techniques during

harvesting and post harvesting. A total of 3,741 farmers were trained in pest control and recommended starchy crop practices to improve efficiency.

The fruit sector is the one with major diversity. The demand for fruit continues increasing and farmers are demonstrating a growing interest in this sector. The biggest efforts were aimed at recommended production practices with a total of 3,464 farmers trained in the latest production practices in quality, post harvesting, and disease prevention program.

A total of 1,894 farmers were trained in the recommended vegetable production practices and 1,366 were trained in hydroponic systems.

The production of grains and legumes has continued growing in the northern and southern part of the island where a total of 201 farmers were trained in the recommended production practices.

Our livestock sector includes poultry (layer eggs and broilers), swine, beef, forage and dairy. Local poultry producers supply 30% of the broiler consumption. A total of 101 farmers were trained in the recommended production practices, business administration, and farm safety. Five hundred and forty-two (542) swine producers were oriented in the recommended production practices.

Due to continuous competition from imports in the beef sector, the local market participation continues decreasing. A total of 779 beef farmers were trained in the recommended production practices.

On the other hand, the forage sector continued increasing due to dairy activities. Dairy producers continued using more hay and silage to reduce production costs and to reduce dependency on concentrated feed. A total of 677 farmers were oriented in the recommended production practices.

Also, the dairy sector continues holding the first position by income of all agricultural activities. The continued technical support provided by Extension personnel has contributed in maintaining the Grade A classification. All 376 dairy farmers received continued training in the recommended dairy production practices.

Extension personnel are working with small farmers of goats, sheep honeybees, rabbits, and horses to make them more profitable. To achieve this goal a total of 757 persons were trained in the recommended production practices.

. Impact – Of 1,862 coffee producers oriented, 1,135 (61%) adopted the recommended production practices. One hundred and eighty (180) coffee producers increased their production per acre, and 80 improved coffee quality.

Nine hundred and seventy (970) farmers adopted the recommended production practices in starchy crops. A total of 1,612 farmers increased their production. Forty-three (43) farmers increased the value-added to their crops.

One thousand eight hundred and ninety-four (1,894) (55%) fruit producers adopted the recommended production and post-harvesting practices. Twenty-eight (28) farmers increased the value-added to their crops.

Of all vegetable farmers oriented, 623 (33%) adopted the recommended production practices, 177 (13%) adopted the recommended hydroponics practices, and 90 increased the value-added to their crops.

One hundred and sixteen (116) producers (58%) of grains and legumes adopted the recommended production practices and seven increased their income. Five (5) farmers increased the value-added to their crops.

A total of 45 (45%) poultry producers adopted the recommended production practices, and 10 improved their farm facilities.

One hundred and seventy (170) (31%) swine producers adopted the recommended production practices, 58 increased their income, and 45 improved their facilities.

One hundred and sixty-two (162) (21%) beef producers adopted the recommended production practices. Eighty-four (84) improved their facilities and 40 increased their income.

A total of 199 (29%) farmers adopted the recommended forage production practices. Eighty-seven (87) farmers adopted soil conservation and water quality practices.

In average 348 (93%) dairy producers maintained consistent Grade A parameters. Eighty-four (84) dairy facilities and 87 waste disposal systems were improved. Of the 168 farmers registered in the dairy herd improvement program, 87 (52%) improved their efficiency in production per cow.

A total of 409 (54%) livestock producers (goats, sheep, honeybees, rabbits and horses) adopted the recommended production practices.

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

. Scope of Impact – State specific

II. Key Theme: Aquaculture

A. The aquaculture sector is organized according to the agriculture public policy of commodity groups. During the past years the demand for aquacultural products has continued increasing and consumers pay high prices for shrimp and fish. This sector is being promoted through educational activities and printed material. A total of 73 farmers were oriented in management and business financing.

B. Impact – A total of 51 (70%) farmers improved their facilities. Fifty, 50 (50%) farmers adopted the recommended farm safety practices.

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

D. Scope of Impact –State Specific

III. Key Theme: Ornamental/green agriculture

A. The ornamental sector is growing constantly and the demand is greater than the supply. It is organized through the ornamental commodity group. Due to a lack of organization among producers there has been a disruption in the market and overstock.

A total of 200 producers were trained in the recommended production practices for ornamentals.

. Impact – A total of 45 ornamental producers adopted the recommended production practices. Five (5) persons established their own business and 10 increased their income.

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 this the challenges related to production, marketing, and safety PRAES developed and offered several activities to the public. One of the methods is to provide information through trainings on topics such as the use of safety equipment, personal protective equipment, proper use of pesticides, health and occupational safety laws, and safe use of agricultural machinery. The trainings were offered to agronomists, farmers, and crop producers. To reach a broader 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 the quality of products is enhanced. One of them entails the utilization of genetically improved plants to increase yields and make them resistant to pests and diseases. A weed control program was also established, along with an effort to emphasize soil and environment protection. Furthermore, superior breeders are being imported to introduce superior traits. New structural designs for breeding farms are being used to improve efficiency and management. Seminars are offered to improve product quality, involving both government and private sectors.

INTERNAL AND EXTERNAL LINKAGES

Internal

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

External

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

Farm Service Agency sponsors the Small Farmer Outreach Training and Technical Assistance Program. It intends to educate small farmers on farm management.

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

Several proposals were submitted to SARE on livestock management disposal, to the Rangeland Research Grant Program, and to McIntere Stains for germplasm storage and production. Other external collaborators are the Department of Animal Industry of the University of Florida, the Caribbean Basin Administrative Group (CBAG), the National Science Foundation, National Agriculture Statistics Service (Census), Farm Service Agency (Puerto Rico Farm Management Project), and 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 GOALS AND OUT PUT AND INPUT INDICATORS

OBJECTIVE 1

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

PERFORMANCE GOAL 2

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

INDICATOR 1

A. The total number of persons completing non-formal education programs on production of new and value-added commodities and products. (output)
B. The total number of these persons who actually adopt one or more recommended practices or technologies within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	1286	1080	235	134[1]
2001	1316	1714	243	253
2002	1343	1202	252	128[1]
2003	1372	1708	257	97[1]
2004	1374	1450	261	166

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

OBJECTIVE 2

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

PERFORMANCE GOAL 2

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

INDICATOR 1

. The total number of persons completing non-formal education programs to improve the productivity and global competitiveness of the U.S. agricultural production system. (output)
B. The total number of these persons who actually adopt one or more new production techniques or strategies within six months of completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	20066	22747	11216	9873
2001	20461	22845	11517	11792
2002	20828	22076	11955	11784
2003	21106	22636	12264	11784
2004	21403	24200	12621	12090

OBJECTIVE 4

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

PERFORMANCE GOAL 2

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

INDICATOR 1

A. The total number of persons annually completing non-formal education programs on topics related to public policy issues affecting the productivity and global competitiveness of the U.S. agricultural production system. (output)
B. The total number of those persons who make use of such knowledge within six months of completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	986	762	400	149[1]
2001	978	492[1]	406	189[1]
2002	1000	419[1]	418	106[1]
2003	1007	597[1]	423	114[1]
2004	1015	338[1]	424	156[1]

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

PROGRAM DURATION

Last report of the long-term (5 years) 1999-2004 planning cycle.

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2000		$2,196,388.17	$75,070.00	$2,271.458.17
2001		$2,560,027.20		$2,560,027.20
2002		$3,605,790.62		$3,605,790.62
2003		$3,348,541.91		$3,348,541.91
2004		$3,275,709.41	$135,050.53	$3,410,759.94

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	79.99					
2001	78.86					
2002	78.48					
2003	77.58					
2004	73.10					

EDUCATION AND OUTREACH PROGRAMS

PRAES developed the agricultural program area in the crop and livestock commodities: 1) crops, which include coffee, starchy vegetables, fruit, grains and legumes, and ornamental plants; and 2) livestock, which includes honey bees, aquaculture, poultry, goats and sheep, horses, swine, rabbits, beef, dairy cattle, and forage.

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

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GOAL 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM

Overview

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

Food Safety: Integrated Pest Management – Integrated Pest Management (IPM) was used as a sustainable approach to manage pests by the use of biological, cultural, physical and chemical tools to minimize economic losses and health and environmental risks. Producers were induced to innovate and adopt new, more environmentally compatible technologies. The Plant Diagnostic Clinic played an important role in disseminating and fomenting adequate IPM practices. After diseased plant samples were processed and diagnosed, written reports were prepared with recommended IPM practices needed to establish and maintain adequate pest control. One hundred and ninety-five (195) samples affected by arthropods or diseases were processed with a savings of $100,000 due to early and correct diagnosis of pests. Nine hundred and seventy-five (975) used one or more IPM practices.

Food Safety: Mastitis Prevention Program - Although the 376 dairy farmers, which comprise the milk industry in Puerto Rico, are in full compliance with FDA/IMS Sanitary Standards, mastitis is still a concern for them at the farm level where management and climatic elements play an important role in the development of the disease. An average of 92% of all dairy producers maintained consistent Grade a parameters (FY 2003-2004 Statistics of the Puerto Rico DHIA and Puerto Rico Dairy Health Project).

Food Safety: Consumers – PRAES continued coordination with eight state and federal agencies through the Partnership for Food Safety Education to develop and support food safety education for consumers including the "Fight BAC!" campaign, which focused on "Safety Foods for Infants and Children". Through the Partnership a proclamation activity was organized. Also mass media activities were carried out throughout the year, especially during September "The National Food Safety Month".

Food Safety: Persons in charge of Food Establishments – PRAES, in partnership with the Puerto Rico Department of Health Food Establishments' Hygiene Program, offered the Food Safety Certification Course—based on HACCP principles—to persons in charge of food establishments. The curriculum was updated based on the FDA Food Code references (2001 and 2003 Supplements). Our Spanish version of the Food Code, was also updated in 2004 (Regulation number 6090, as approved by Puerto Rico Legislature and signed by the Governor). The course includes 12 lessons and orientation on how to implement risk management procedures and Standard Operational Procedures to prevent foodborne illnesses. The PRAES personnel offering this course included two

food specialists and 19 home economists with the support of the Environmental Health Personnel.

I. Key Theme – Food Security: Security of Supplies

. One hundred and fifty-three (153) children and youth completed the 5-lesson course designed to help them understand the importance of assuring food supply in Puerto Rico.

. Impact – All of the youth involved in the course, became aware of food security.

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

. Scope of Impact - State Specific

. Key Theme – Food Security: Affordability

. One thousand five hundred and thirty-eight (1,538) participants attended a 6-session short course to improve supermarket strategies, the use of resources for obtaining food, food safety practices, and nutrition.

. Impact – One hundred and nineteen (119) persons that completed a course were evaluated as a sample and all of them adopted the recommended practices. It is important to inform that another 2,313 persons attended information centers and agricultural markets, and 764 received individualized face-to-face orientation.

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

. Scope of Impact - State Specific

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

. Five (5) trainings on good agricultural practices (GAP) in fruits and vegetables were offered to clientele working in this sector. Four radio programs were broadcast about safety practices and products management.

The PRAES meat, egg, and poultry specialists attended two seminars: one related to HACCP and the other to meat inspection. Five radio programs were offered to the general public. The topics included biosecurity practices and proper egg and meat handling and cooking.

B. Impact – One hundred and seventeen (117) people were benefited by GAP trainings. Farmers, wholesalers, and retailers attended the 1, 2 or 3-day trainings.

A guide was prepared about good agricultural practices in fruits and vegetables.

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

D. Scope of Impact - State Specific

IV. Key Theme – Food Safety: Integrated Pest Management

A. Nine hundred and seventy-five (975) farmers used one or more IPM practice as follows: 375 farmers in coffee, 150 farmers in fruits, 350 farmers in starchy crops, banana and plantain; and 100 farmers in vegetables. The recommended IPM practices were based on visits and monitoring of pests in the farms.

Diseased samples were processed and diagnosed at the Plant Diagnostic Clinic and a written report to farmers with the recommended IPM practices they had to establish to maintain adequate pest control.

B. Impact – One hundred and ninety-five (195) samples affected by arthropods or diseases were processed and diagnosed in the Plant Diagnostic Clinic and a written report with recommended IPM practices to establish or maintain adequate control was made to farmers. The early and correct diagnosis of pests in the Plant Diagnostic Clinic saved farmers about $100,000.

Approximately 200 farmers were oriented in IPM through visits to the farm and reports containing IPM recommendations. Six hundred (600) persons including farmers, agricultural agents, homeowners, agronomists, and ornamental producers received educational IPM materials.

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

D. Scope of Impact – State Specific

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

A. Three hundred and sixty-seven (367) dairy farms maintained consistent bacteria counts below 100,000 units of colony per milliliter and of these 263 maintained somatic cells below 400,000 cell/ml.

B. Impact – Three hundred and forty-eight (348) dairy farmers maintained Grade A standards.

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

D. Scope of Impact – State Specific

VI. Key Theme - Food Safety: Consumers

A. Through the Puerto Rico Partnership for Food Safety Education 478 consumers completed the lessons of the "Fight Bac" course. Three thousand and seventy-nine (3,079) consumers participated in short conferences. Home economists participated in 218 radio and TV programs and wrote 81 press articles in local newspapers.

B. Impact – Four hundred and sixty-three (463) consumers that completed the "Fight Bac" course demonstrated the adoption of the following recommended practices: improved hand washing practices, increased sanitation of surfaces; reduced cross contamination of foods; cook at the proper temperature; and maintains an adequate temperature in the refrigerator.

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

D. Scope of Impact – State Specific

VII. Key Them – Food Safety: Future Chefs Competition

A. One hundred sixty (160) children and youth participated in the Regional Future Chefs Competition (five regions).

B. Impact – The participants demonstrated good food handling practices during transportation separating ready to eat food from raw foods to avoid cross contamination and maintaining perishable foods refrigerated.

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

D. Scope of Impact – State Specific

VIII. Key Theme – Food Safety Certification Course

A. Nineteen (19) home economists and two (2) food specialists (FTEs = 5.6) graduated 2,333 participants in 78 sections of the Food Safety Certification

Course (24 contact hours). This personnel was certificated by the National Restaurant Association Educational Foundation (ServSafe exams).

B. Impact – All the participants that approved the certification course adopted a method to control food temperature/time and other food safety recommend-dations. Three hundred and seventy-nine (379) persons in charge of food establishments prepared a food safety risk management plan. A sample of 160 participants was evaluated (see table). The practices evaluated that showed the most significant increase in the number of persons adopting the practices before and after the course are as follow: 1) Check with thermometer and refuses perishable foods over 45°F during receiving; 2) Uses thermometer; 3) Excludes or restricts food employees who have symptoms related to the foodborne disease as established in the FDA Food Code; 4) Uses appropriate method to maintain hot foods 135°F or more.

Food safety practices evaluated at the end of the certification courses
(Universe = 2,333 establishments that prepare food. Sample, total = 160)

Food handling practice evaluated in the food establishments	Do not Apply	Before CCIA		After CCIA	
		No.	%	No.	%
1. Check with thermometer & refuses perishable foods over 45°F during receiving	31	50	31	93	58
2. Employees washing their hands often.		130	81	131	82
3. Facility has separate cutting table and utensils for meat and for vegetable and fruit preparation.	21	98	61	104	65
4. Ingredients to prepare sandwiches and salads were maintained to 41°F or less.	44	97	60	100	62
5. Utilized correct method to defrost.	41	100	62	108	68
6. Used one or both of the following methods to maintain hot food to 140°F or more:					
Use thermometer and/or	41	43	27	78	49
Use time	23	82	51	78	49
7. Used measures to cool hot foods quickly to lower their temperature from 135°F to 41°F in six or less hours.	61	21	13	39	24
8. Used gloves and utensils while preparing and serving ready to eat food.		97	61	101	63
9. Reheated cooked foods in the stove or oven at the internal temperature of 165°F or more.	47	72	45	84	53
10. The establishment has a three compartment sink		123	77	123	77
11. Washed utensils with hot water and soap, rinsed, and in the third compartment used a solution of chlorine, iodine or quaternary.		123	77	123	77
12. Utilized a certified exterminator to keep pest management program.	12	109	68	114	71
13. Excluded or restricted food employees who had symptoms related to the foodborne disease as established in the FDA Food Code.		0	0	88	55
14. Used appropriate method to maintain hot foods 135°F or more.	45	64	40	56	35

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

D. Scope of Impact – State Specific

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

A. During FY 2003-2004 the directors of Head Start and Elderly Care Centers attended the conference "The Role of Administration in Food Safety".

B. Impact – Two hundred and four (204) directors attended the conference "The Role of Administration in Food Safety". Ninety-seven (97) PRAES professionals and 232 professionals of other agencies attended food safety trainings throughout the year.

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

D. Scope of Impact – State Specific

X. Key Theme – Food Safety: Food Industry

A. The Food Technology specialist offered 35 technical assistances to food industry personnel. Twelve (12) food industries were evaluated, 41 managers approved the Hazard Analysis and Critical Control Point (HACCP) training, and 290 food industry employees increased knowledge about food safety.

B. Impact – Three (3) new processing plants prepared and implemented HACCP.

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

. 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. Also, PRAES professionals offered short courses about the importance of agriculture in general and local agriculture in particular to the general public.

Affordability – A short course with follow-up two to six months later to assess impact over time was used. The course consists of 10 lessons, from which the home economists can pick and choose depending on the specific needs of the group. The course (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: Integrated Pest Management (IPM) – Extension agents and agronomists were trained in pest identification and alternative control measures so they can orient the clientele. Among the methods used to achieve and transfer pest control information are: training meetings, short courses, seminars, Extension publications, educational materials, radio and TV programs, and an IPM database program. The IPM program reaches audiences through meetings and contacts with other agencies, mass media, circular letters, and articles to journals, and the press. The office of the IPM Coordinator prepares checklists and surveys with the help of specialists and the Extension Evaluator to evaluate the adoption of IPM strategies in selected program areas.

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

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

Food Safety: Consumers - Food safety program for consumers contained eight lessons (transparencies or power point presentations, brochures, posters, and others. Home Economists select at least four lessons to provide a course as part of their PRAES programs' plan of work: Regular, EFNEP, and 4H, and the Puerto Rico Partnership for Food Safety Education. The Fight BAC lessons were also distributed to health educators, and nutritionist-dietitians through their respective representative in the partnership or through associations. The partnership organized the activity for the Food Safety Month proclamation and carried out mass media activities. Home economists continued partnership committees at local level to offer food safety lessons and educational activities through all PRAES programs addressed to consumers: EFNEP, 4H, and the Consumer and Family Sciences Regular Program. Volunteers, an integral part of PRAES programs, are used as community leaders as links to reach low-scholarity and low-income clientele.

Food Safety: Children and Youth - The "Future Chef's" (a 5-lesson course, one of which is *Fight BAC!*) and final competitions. PRAES home economists at local level recruited the youth and offered the course. Participants learned safe food handling procedures while learning about nutrition and practicing food preparation. The best youth were selected to participate in a food preparation competition at regional and state level.

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. The project director revised the contents and art of the 12-lesson course based on the Food Code, 2001 and 2003 Supplement (FDA) and Managing Food Safety: A HACCP Principles Guide for Food Establishments, April 1998.

PRAES home economists and inspectors of the Department of Health received trainings on the contents of the 12 lessons and the administrative procedures.

Food Safety: Institutional Personnel - The objective is to increase knowledge and improve understanding on food safety to enhance them to train and to advise food handling employees. PRAES home economists' plans at municipal level included offering the Food Safety Certification Course to food employees working with groups vulnerable to foodborne diseases.

INTERNAL AND EXTERNAL LINKAGES

Internal

UPR, Mayagüez Campus, Professional Resources - Evaluation Specialist, editors in charge of educational media and support personnel from the Educational Media and Information Office, the Radio and TV Specialist, Press Specialist, Graphic Arts Specialist, External Resources Office, and the Planning and Evaluation Office.

Food Security of Supplies – Food and nutrition specialists, agricultural specialists in horticulture and related areas, 4-H specialists, agronomists and home economists, faculty of the Agricultural Economics and Rural Sociology departments of the College of Agriculture, and the Sociology Department of the College of Arts and Sciences.

Food Safety: Farmers, Wholesalers, Retailer - PRAES personnel: aquaculture specialist, entomology specialists (2), poultry and eggs specialist, dairy herd Specialist, meat specialists (3), fruit specialist, starchy vegetables specialist, agronomists; personnel of the Mayagüez Campus-University of Puerto Rico: seafood products specialist and extension agent, SEA GRANT, professors in marine sciences, professors in food microbiology, professors in Food Science and Technology Program, and professors in College of Art and Sciences (Microbiology and Marine Sciences).

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

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

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

External

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

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

Food Safety: Integrated Pest Management (IPM) – Cooperation will continue and efforts will be strengthened with homemakers, the home economist's association, the food service industry, and other government agencies such as the State Department of Health.

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

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

Partnerships at local level (organized by PRAES Home Economists) - Puerto Rico Department of Health, Environmental Health Inspectors, Family and Consumer Education Association, communities, cooperatives and non-profit organization consumers groups, Puerto Rico Department of Education, School Food Authority, Puerto Rico Department of

the Family, Government day care services for infants, children, elderly, sick persons, etc., churches with day care services for infants, children, elderly, sick persons, etc., "CREA" (an educational rehabilitation center for drug addicts and alcoholics) and other homes for drug addicts in the rehabilitation process, the radio, and the press.

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

TARGET AUDIENCES

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

Food Security - Primary audience: children and youth of NAP families. Secondary audiences: other low-income children and their families.

Food affordability - Primary audience: People and families who receive food checks or electronic transfer of funds provided by the Department of the Family. Secondary audiences: other low-income children and their families.

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

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

Mastitis Prevention Program - Dairy farmers and dairy managers.

Food Safety: Consumers & Food Establishments - Consumers, 4H 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		Indicator IB	
	Target	Actual	Target	Actual
2000	1884	150	855	153
2001	1946	2494	911	780
2002	1990	90	974	2
2003	300	153	100	135
2004	300	1,557*	100	301

*We have only a total number of participants in the short course and individual instruction, but not information about those that received instruction specifically related to food affordability issues; therefore, an estimate was made based on the number reported to have adopted one or more practices regarding food affordability.

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
2000	482	1933	274	1887
2001	472	335	291	251
2002	538	2,852	470	700
2003	1,400	2,252	470	754
2004	1,400	1,538	470	119

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		Indicator IB	
	Target	Actual	Target	Actual
2000	843	1,173	515	685
2001	831	11,295*	466	10,092*
2002	796	8,602*	418	4,324*
2003	2,200	5,661*	1,000	3,033*
2004	2,200	3557*	1,000	3,443*

*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 had 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
2000	551	1,850
2001	1500	1,198
2002	1200	1,693
2003	1200	2,546*
2004	2000	2,333*

* The demand for the PRAES Food Safety Certification Course has increased during the past two years.

INDICATOR 3

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

Year	# of facilities meeting HACCP standards	
	Target	Actual
2000	196	159
2001	300	443
2002	300	154
2003	300	110*
2004	300	379** and 3 industries

*Risk management plan based on HACCP and temperatures documentations for restaurants facilities were accomplished as a voluntary action.

**Three additional Food Processing Plants prepared and implemented HACCP as part of the Food Technology Specialist intervention.

Data Collection Method - 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
2000	373	370	365	360
2001	378	390	370	390
2002	377	361	376	367
2003	369	367	348	258
2004	350	367	335	264

The number of dairy farms was reduced. Approximately 376 dairy farms provide 100% of Puerto Rico's needs. The control effectiveness was evaluated by using the parameters indicated in the table.

PROGRAM DURATION

Last report of the long-term (5 years) planning cycle 1999-2004.

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2000		$117,285.97		$117,285.97
2001		$124,533.00		$124,533.00
2002	$66,990.00	$227,167.23		$294,157.23
2003		$311,810.81		$311,810.81
2004		$360,990.11		$360,990.11

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	4.27					
2001	3.83					
2002	5.81					
2003	7.53					
2004	8.06					

EDUCATION AND OUTREACH PROGRAMS

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

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GOAL 3: A HEALTHY, WELL-NOURISHED POPULATION

OVERVIEW

During FY 2003-2004 PRAES continued to work in partnership with different health and environmental agencies to create innovative education program to promote the Indoor Air Quality (IAQ) education. An island-wide seminar was celebrated to train professionals working in the area of indoor air quality. Also, the health and safety specialist participated in TV programs and spots about IAQ; each of these programs had an estimated audience of 10,999 persons. This year, with the collaboration of members of the PR IAQ Coalition, all Extension Agents were trained about indoor air contaminants, their effects on human health, and their mitigation. They were also trained about the 4-H, IAQ Health Project. One hundred and ninety-nine (199) youth were trained in this Health Project as a result of this effort. Of these, 132 youth were selected to participate in the regional 4-H, IAQ Competitions where the participants demonstrated their knowledge and skills acquired in the project. Various articles related to the IAQ competitions in different regions were published in EL NUEVO DÍA, the leading daily newspaper of the island. The articles emphasized how the youth incorporated the knowledge and skills acquired in their lives.

To address the major health problem of diabetes of the Puerto Rican population, PRAES celebrated an island-wide symposium "Diabetes and Women: Prevention, Investigation and Treatment" in partnership with the Food Drug Administration and other agencies. Two hundred and fifty (250) health professionals were trained. The activity was evaluated as an excellent enriching opportunity for information exchange, discussion of diabetes prevention and control. The health specialist collaborated as trainer with the Puerto Rico Department of Health to develop the CDC program on the island "Diabetes the Community in Action". The purpose of this program is to provide community members with social support, education, and facilitate access to care and communities a stimulus for action.

The MeNu program, which was developed with funds from the Department of the Family, was discontinued in FY 2004. During this fiscal year the program was changed to make it more flexible in terms of delivery with increased emphasis on individual interventions as, although these interventions occurred with the MeNu Program, data regarding their number or impact was not being collected. We also increased our emphasis on improving dietary habits for diagnosed conditions. Physical activity indicators were specifically included in the new set of indicators.

I. Key Theme – Human Health

A. PRAES personnel continued implanting 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 children; and "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 adolescents. PRAES personnel used different curricula such as "Promoting Healthy Lifestyles" and "Human Sexuality", for adults. They also participated in the "Healthy Indoor Air for America's Homes" program, emphasizing on second-hand smoke and asthma prevention. Both groups were oriented in the aspects of risk reduction and safety.

B. Impact – Nine hundred (900) children and youth completed non-formal health education and promotion programs, 814 of them adopted one or more of the recommended practices after completing one or more of these programs.

A total number of 1,372 adults completed non-formal education programs on topics related to health promotion and health education. Of these, 1,256 reported having reduced their risk levels upon adoption of one or more recommended practices after completing the programs.

Four hundred and eighty-one (481) individuals were oriented in risk reduction and safety through accidents prevention education programs with 329 of the individuals oriented acquiring skills and modifying attitudes and practices related to accident prevention.

One thousand four hundred and fifty-five (1,455) individuals learned about indoor air contamination through short courses, seminars, and home assessment. Of these, 982 learned about the different air contaminants and methods for their mitigation and elimination. Three hundred and fifty one (351) individuals adopted practices to control the humidity in their homes and 746 reduce sources of contamination in the indoor air

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

D. Scope of Impact – State specific

II. Key Theme – Health Fraud Prevention

A. PRAES continued partnership with the Puerto Rico Health Fraud Prevention Commission through the Fraud Prevention program. One hundred and eight (108) individuals received training about health fraud prevention with emphasizes on stopping health fraud, fraud in the Internet, and how to report cases of fraud.

B. Impact – About 80 participants in the Fraud Prevention program reported knowledge gained, and behavior and attitudes changed. Ten (10) persons reported health fraud cases to the government agencies.

. Source of Federal Funds – Smith Lever 3(d) 3(c) funds and state funds

. Scope of Impact – State specific

III. Key Theme – Human Nutrition

A. The 7-session short course designed for MeNu was modified, limiting the number of sessions to six with 10 themes to choose from. The home economists were instructed to choose from these themes those that best fit the needs of their audiences.

B. Impact – During FY 2003-2004, 1,558 persons participated in short courses and an additional 2,250 participated in individual interventions that were designed to change behavior. Of these, 736 reported that they had managed to change one or more practices. In addition, 10,916 persons participated in community activities designed to increase knowledge about good nutrition.

The total number of persons completing non-formal consumer education programs (short courses or individual interventions) designed to improve the nutritional quality of their diet (output). Some of the indicators were modified so a direct comparison between FY 2002-2003 and FY 2003-2004 is not possible in all cases:

	Fiscal Years	
	2002-2003	2003-2004
Number of new short courses	654	
Number of people registered (FY 2003-2004) who learned something in a short course)	2,877	1,558
Number of individual orientations or interventions to change behavior		2,250
Number of people who increased knowledge from talks or speeches	24,533	3,114
Number of people who received information from competitions, exhibitions, health fairs, agricultural markets, information centers		7,802
Number who completed the course	1,916	
Number who planned to change one or more practices	2,200	
Number who adopted one or more practices	925	736
Number of volunteers recruited	119	787
Number of volunteers who taught a session	52	
Number of volunteers who taught a course	8	
Hours of work of volunteers	1,280	859
Number people who adopted practices:		
Increased consumption of fruits	647	572
Increased consumption of vegetables	560	472
Increased consumption of whole grain cereals and breads	425	232
Increased consumption of water	657	490
Increased consumption of milk and milk products	445	382
Use low fat or fat free milk		232
Increased the consumption of beans or fish		80

	Fiscal Years	
	2002-2003	2003-2004
Decreased consumption of meat, poultry and fish	234	97
Decreased consumption of liquids that are basically water and sugar	530	323
Decreased consumption of other sources of sugar	449	113
Decreased consumption of salt	383	272
Decreased consumption of added fat	468	264
Eat meals instead of nibbling	448	182
Eat an adequate breakfast	692	655
Prepare adequate snacks	471	637
Prepare one-dish meals	492	200
Have tried a new recipe for foods of high nutritional value	733	
Number of new recipes tried	451	
Increased tasks, diversions or activities that require that they be physically active		223
Achieve 30 minutes or more of physical activity three or more days a week		222

The number of short courses offered is 55% of what was offered in FY 2002-2003, which is a ratio that is understandable considering the reduction of staff in this program. A large number of individual interventions were informed in FY 2003-2004 that were not included in the indicators for MeNu and, thus, not reported. However, compared with the total number reached reported, the adoption of practices in FY 2002-2003 was 32% of those who attended a short course compared to 19% of those who learned something in a short course or an individual intervention.

Relative to the total number who reported adopting practices, there has been decreased emphasis in FY 2003-2004 on: (1) Decreasing meat consumption to allow room in the budget to increase the amount of money spent on fruits and vegetables and 2) Preparation of one dish meals. Relative to the number who reported adopting one or more practices, there was a marked increase in those who reported (1) Increased consumption of fruits or vegetables; (2) Eating an adequate breakfast; (3) Preparing adequate snacks; and (4) Decreased use of beverages that are basically sugar and water.

The biggest difference between the two years was a decrease in short courses, from 2,877 for those who registered and 1,916 for those who completed the course in FY 2002-2003 to 1,558 for those who learned something in a short course during FY 2003-2004; and a decrease in community activities from 24,533 in FY2002-2003 to 10,916 in FY 2003-2004. (During FY 2003 this number included talks and speeches as well as other activities).

A. Source of Federal Funds – Smith Lever 3(d) 3(c) funds and state funds

B. Scope of Impact: State specific

IV. Key Theme – Dietary Habits

A. A total of 2,249 persons (312 in FY 2003) completed non-formal nutrition education programs (shorts courses or individual interventions) to improve their dietary habits in order to reduce the risk factors of chronic diseases: obesity, hypertension, blood cholesterol, blood sugar, low consumption of vegetables, fruit and whole grain products, and others. An additional 3,295 persons increased their knowledge about dietary habits related to chronic diseases by attending talks, speeches, competitions, exhibitions, health fairs, agricultural markets or information centers.

B. Impact (outcome) 340 (15%) persons adopted one or more recommended dietary habits.

Practices adopted	FY 2003-2004
Number of new short courses:	1,350
People registered (who learned something in a short course)	796
Individual orientations or interventions to change behavior	1,141
People who increased knowledge from talks or speeches	2,154
People who adopted one or more practices	340
Volunteers recruited	55
Volunteer hours worked	351
Number of people who adopted the following practices:	
Increased consumption of fruits	184
Increased consumption of vegetables	159
Increased consumption of whole grain cereals and breads	83
Increased consumption of water	214
Increased consumption of milk and milk products	92
Use low fat or fat free milk	76
Increased the consumption of beans or fish	32
Decreased consumption of meat, poultry and fish	19
Decreased consumption of liquids that are basically water and sugar	199
Decreased consumption of other sources of sugar	86
Decreased consumption of salt	206
Decreased consumption of added fat	144
Eat meals instead of nibbling	135
Eat an adequate breakfast	117
Prepare adequate snacks	83
Prepare one-dish meals	102
Increased tasks, diversions or activities that require that they be physically active	84
Achieve 30 minutes or more of physical activity three or more days a week	26

Considering the high level of adoption of practices in the area of human nutrition, the number reporting adoption of practices in the area of dietary habits is low.

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

. Scope of Impact – State specific

KEY PROGRAM COMPONENTS

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

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

INTERNAL AND EXTERNAL LINKAGES

Internal

Health, Food and Nutrition Specialists, CRD Specialist, Agricultural Specialists in Horticulture and related areas, 4-H Specialists, Agronomists, Home Economists, Faculty of the Agricultural Economics and Rural Sociology departments of the College of Agriculture, the Sociology Department of the College of Arts and Sciences, 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, Nutrition Committee of Puerto Rico, Food and the Nutrition Commission of Puerto Rico, Puerto Rican Heart Association, Health Department, American Cancer Society, University of Puerto Rico-Medical Science Campus, Environmental Protection Agency, Puerto Rican Lung Association, Department of Labor and Health Educators´ Association.

TARGET AUDIENCES

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

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

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

Individuals interested in the prevention 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.

Extension and other Professionals - (trainer 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
2000	2254	3743	1309	1523
2001	2325	1500	1400	465
2002	2414	264	1402	86
2003	2389	312	1381	74
2004	2546	2146*	1492	340*

*The number of persons participating in the program to improve dietary habits related to chronic diseases has increased, but the number who adopted practices decreased from 24% of those reached to 16% of those reached.

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
2000	2080	2489	690	741
2001	2000	2494	670	788
2002	1400	1887	470	700
2003	1400	1916	470	925
2004	1400	3778*	470	787

*There are no apparent explanations for the increased numbers reached in this area for FY 2004. Since MeNu was based on short courses, it is possible that the home economists did not report what occurred with individual interventions, or perhaps during MeNu they were spending more time on community activities instead of the short courses. However, in spite of the increased numbers reached, the adoption of practices decreased from 48% of those who completed the course to 21% of those who learned something in the course. Perhaps the difference in measuring the parameter accounts for part of the difference in the results.

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
2000	1585	4786	660	2508
2001	1736	4995	853	643
2002	1816	5288	883	2949
2003	1886	5743	951	3124
2004	1979	2272*	997	1377*

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

PERFORMANCE GOAL 3

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

INDICATOR 1

A. The total number of persons completing non-formal education programs on topics related to home and workplace risk reduction and safety. (output)
B. The total number of participants meeting or exceeding some established goal or standard to reduce the level of home and workplace risk upon completion of one or more risk reduction programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1 B (Outcome)	
	Target	Actual	Target	Actual
2000	618	279	372	170
2001	677	502	407	200
2002	690	452	400	280
2003	614	596	401	330
2004	647	481*	417	329*

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

PERFORMANCE GOAL 5

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

INDICATOR 2

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

Year	# of participants community-wide health events	
	Target	Actual
2000	2427	2094
2001	2571	3440
2002	2506	3295
2003	2711	2812
2004	2716	2806

PROGRAM DURATION

Last report of the long-term 5-year planning cycle 1999-2004.

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2000		$775,138.34	$1,353,330.00	$2,128,468.34
2001		$923,495.68		$923,495.68
2002		$835,305.51		$835,305.51
2003		$938,655.27		$938,655.27
2004		$773,212.45		$773,212.45

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	18.26					
2001	28.44					
2002	21.38					
2003	21.75					
2004	17.25					

EDUCATION AND OUTREACH PROGRAMS

PRAES will continue focusing on health and nutrition programs. County Extension personnel will disseminate research from the Agricultural Experiment Station and the Medical Sciences Campus of the University of Puerto Rico through the island.

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

OVERVIEW

For 2004, the average temperatures felt higher (heat index) than usual, with a very short dry season. It rained almost continuously throughout the year, more intensely in the eastern and central mountain region. Tropical storm Jeanne passed over the island on September 14th, where the eastern part of the island was hit hard causing floods. Agriculture officials informed that crops of plantains, bananas, and coffee were seriously damaged by the winds at over 65 miles per hour.

A special project to estimate the use of agricultural water in the year 2025 was completed by the agricultural engineering unit. The estimate was 16.8 million gallons per year; an increase of 18% over the present water use by agriculture. The results will be used by the State Department of Natural Resources and Environment (SDNRE) to prepare a master plan for water use in Puerto Rico and by PRAES county agents in developing water conservation programs in their municipalities.

With the increase in fuel costs and the need for the efficient use of resources for competetiveness, anaerobic digestion for the production of energy has become an attractive technology. An effort is being made with the help of Cornell University, the Water Resources and Environmental Research Center and other collaborators to take a closer look at biogas as a source of energy for agriculture. Initial steps are being taken to establish a pilot plant with dairy waste at the Gurabo Experimental Station.

The collaboration agreement with the Solid Waste Authority (SWA) for school composts project —which started two years ago—was maintained with 25 projects. Data are collected by the SWA and PRAES. A compost preparation guide was prepared and revised during FY 2004 and is ready for printing, with an initial edition of 7,000 copies to be distributed by PRAES personnel. We expect it to be available through the Solid Waste Authority (http://www.ads.gobierno.pr/portada.html) and PRAES (http://seam.uprm.edu) websites by the end of 2005. Collaboration for compost preparation at the University of Puerto Rico-Rio Piedras Campus was also established. The environmental planner, the agronomist, and the Chancellor's special assistant received orientation about the project, which was inaugurated on April 2004. The activity was broadcasted through the television Channels 4 and 6. All campus garden waste from landscape maintenance that previously went to the landfills is now used for the preparation of compost.

Two proposals were approved: one for $10,000 to Medtronics and the other for $32,856 to the USDA-Forest Service. The Medtronics Villalba Compost (ViCom 4-H) project will consist of the preparation of educational lessons for youth, Extension Service personnel and community leaders' trainings to train 100 youth in four (4) schools. The Forest Service grant project Cooperation, Composting and Conservation (CCC), provides for 25 Extension personnel to receive training. They in turn will train their peers to offer

two trainings to the general public. The goal is the establishment of at least, two (2) demonstration projects on compost preparation and vermicompost.

The Renewable Resources Extension Act (RREA) began as an initiative in mid 2003 in Puerto Rico. This effort seeks the conservation of our natural resources with the establishment of conservation farm plans that encourage the use of native plants for landscaping. Close to $10,000 were received from CSREES to work in this initiative. A 40-hour workshop was offered on ArcView and GPS use as a tool for natural resource management. Ten Agricultural Agents, three specialists, and 15 biologists from the SDNRE participated. Approximately, 100 persons participated in two Plant Taxonomy workshops: one at Mayagüez and the other at Rio Piedras. A workshop on Tree Hazard Evaluation was offered at the 9th Caribbean Urban Forestry Conference in St. John. The workshop was geared at creating awareness of the importance of tree pruning as a maintenance practice to avoid hazardous conditions due to hurricanes or fires or the elimination of trees for safety reasons.

It is required that the SDNRE have a council integrated by representatives from the University, government, volunteer leaders and the private sector in order to receive federal funding for urban forestry. The UPR is represented by the Extension Landscape Specialist.

In an effort to comply with the Plan of Land Use for Puerto Rico by the Planning Board, an interagency collaboration among the State Department of Agriculture (SDA), the Environmental Quality Board (EQB), and PRAES was established. The objective is to identify land suited for farming in the central mountain region with the purpose of keeping those lands primarily for farming and to determine soils appropriate for agriculture, water resources and tourist value. The Community Board for Land Order at the local municipal level reviews regulations and develops new ones to determine the best possible use of land for the evaluation and approval of regulatory authorities. The board members are community representatives. During the past year an agriculture economics specialist has been an active collaborator with the Community Board.

A more recent trend for sustainable agriculture is the use of native plants as soil green cover in orange orchards. There has been an increased interest in hydroponics' production for vegetables. Farmers are using trimmers for weed control in their orange orchards. A combination of organic and chemical fertilizers, as well as organic and chemical pest control for vegetables, are used. Another practice implemented was permanent shade for coffee, plantain and bananas to reduce soil erosion and for weed control. Some innovative farmers are using coffee husk as fuel to pre-heat the air to dry coffee beans.

Coffee is grown, harvested and processed on the farm or nearby to ensure quality. However, according to the EQB our conventional way of coffee processing is a potential source for water contamination since most of the 118 coffee processing buildings are located near rivers or creeks and have a high requirement for water and the waste product resulting from these plants needs to be handled properly. A special joint effort with

USDA-NRCS and the State Department of Agriculture (SDA) is being conducted to encourage the establishment of new technology, and ecological coffee processing technology that require less water and energy to operate.

A study conducted by the State Fire Department sponsored by the USDA-FS showed that most brush and forest fires in Puerto Rico are intentional as a weed control method and for solid waste disposal. With the sponsorship of the US Forest Service and the collaboration of El Caribe RC&D Council a brush fire educational campaign was implemented with the logo "Protect your health, protect the environment: avoid fires". The opening activity was a conference held in December 2003 targeted to community volunteers and agency personnel. Educational material was prepared and distributed at this initial activity. It included the following: 12-page color publication – "*La quema a campo abierto: el humo, sus efectos a la salud y prácticas preventivas en la agricultura"*; a set of 25 color transparencies, and a compact disk with two power point presentations. Afterwards 5,000 bumper stickers and 1,400 copies of a poster that illustrates the long sequence effect of brush fires in the mountain, from soil erosion to the final coral reef death were prepared. Copies of these educational materials were distributed to all local Extension offices, SDA, SDNRE, Soil Conservation Districts, RC&D Councils, State Fire Department, and the USDA-NRCS. Several radio programs were offered on brush fire and soil erosion. The goal of this educational effort is to create awareness of the negative effects of brush fires to the environment and to our health and, eventually, to discourage this practice.

I. Key Theme -Water Quality

. PRAES continued its emphasis in this educational program targeting farm waste management and providing assistance to farmers on the environmental regulations for animals in confinement buildings as well as for processing plants. Information is also provided on management practices to maintain the water quality for homeowners, low-income communities and the general public.

During FY 2003-2004, the Agriculture Extension Service of the University of Puerto Rico worked on the following initiatives under the Region 2 EPA Water Quality Coordination Project: (1) Drainage channels were designed and built (following EQB regulations) to control runoff from a poultry facility in Orocovis. The farmers's permit was renewed and was permitted to continue operating his facilities; (2) A database that consists in over 64 Spanish publications related to water quality was designed. This list of publications is accessible through the Regional Website http://rwqp.rutgers.edu. (3) Work was completed on a spreadsheet to aid county agents in developing animal waste management plans in dairy, swine, horse and poultry farms. EQB regulations are being followed. (4) Training meetings and interagency coordination in septic systems design and management. Cornell University, Rutgers and the University of Virgin Islands are cooperating in this project.

As a result of the regional water quality collaboration project, a group of scientists led by Dr. George Loomis from the University of Rhode Island, hosted by Puerto Rico and the Virgin Islands, were offered a training seminar in alternative septic systems. The course was well attended and generated enthusiasm form private consultants, government personnel, leaders of the Special Communities project, and county agents looking for alternatives that can be used to handle domestic waste when the conventional septic systems do not work.

Samples are being taken in conjunction with the School of Public Health to test the aquifers in the southern region for septic pollution and salinity. This effort should provide information to adequately design systems that could help the Special Communities in the Salinas area to reduce pollution into the Jobos Bay Estuary.

Four hundred and fifty three (453) persons were trained in recycling; 529 persons received training in compost preparation using farm or garden waste; and 419 farmers were trained on the use of chemicals to reduce water contamination. Twenty-nine (29) waste management plans for animals in confinement were prepared. Four hundred and sixty-four (464) farmers received information or orientation to improve the efficiency in their irrigation and drainage systems.

B. Impact –The spreadsheet is available for county agents to help them in designing waste management systems for small farms with animals in confinement. Two county agents are already using the spreadsheet and it is anticipated that more will become interested.

Three hundred and eighty-one (381) persons adopted or improved recycling practices and 663 recycling projects were established.

Three hundred and sixty-four (364) persons adopted compost practices and 114 compost projects were established.

Two hundred and forty-eight (248) farmers reduced the use of chemicals in their farms.

One hundred and thirteen (113) facilities for waste management for animals in confinement were improved or established; 121 persons adopted recommended practices to maintain and operate their waste disposal systems.

Seventy-four (74) farmers established and improved irrigation and drainage systems.

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

D. Scope of Impact – State Specific

E. Success Story

"Establishment of Ecological Coffee Processing Technology"

An interagency initiative between the Puerto Rico Department of Agriculture, USDA-NRCS and the College of Agriculture for the implementation of new technology - Ecological Coffee Processing Technology (ATBECOL), using an ecological way to process coffee and use of sub products was established. The principal objective was the replacement of conventional equipment for ecological equipment in order to reduce the environmental impact as well as to improve quality. The ecological modules used a technology that requires less water and energy to operate. It also reduces the size and costs of the processing buildings and of the sub products disposal.

Thirty-four (34) conventional coffee processing units were replaced for ecological ones which represent 25% of the total of coffee processing plants in Puerto Rico. It is planned to switch twenty more coffee processing plants in 2005 and it is expected that in the near future all coffee processing plants in the Island will be converted into the ecological version. This project received the highest recognition "USDA Honor Award" by the Secretary of the US Department of Agriculture in the category of "Protecting and Enhancing the Nation's Natural Resource Base and Environment".

II. Key Theme – Sustainable Agriculture

A. Sustainable agricultural practices have become common among coffee farmers. More often coffee is planted following the soil contour and intercropped with bananas. Such practices provide the farmer with an additional income benefit while protecting the soil. Farm access roads are been established following the soil contour also. The most common sustainable agricultural practices adopted by farmers are: use of vegetative barriers, compost preparation, agro-forestry and IPM.

Eight hundred and fifty-nine (859) persons received orientation on sustainability.

B. Impact – Three hundred and sixty-five (365) persons established sustainability practices.

One hundred and six (106) persons prepared compost using farm waste.

Ten (10) volunteers served as trainers or facilitators to disseminate information on sustainable agriculture: and 151 persons established sustainable agriculture projects.

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

D. Scope of Impact – State Specific

E. Success Story

"Sustainable agriculture coffee demonstration project"

A sustainable coffee production demonstration project was established on a 75 acre farm at Las Marias (a small town in the mountain region, with an economy which relies heavily on agriculture), with six acres dedicated to the Bourbon coffee variety. Support was obtained through collaboration between PRAES, USDA-NRCS, SDA, Fish and Wildlife, and the SDNRE. A package of recommended sustainable agricultural practices were implemented that included minimum tillage, contour planting, partial shade with pigeon peas, half-moon planting, use of soil amendments, contour farm roads, vegetative barriers and buffers, wildlife habitat protection, road protection and conservation. As a result of the use of these practices the coffee yield has been above average and three permanent and five temporary jobs were created.

The project is used as an outdoor classroom for agricultural students for the evaluation of sustainable practices, as well as by neighboring farmers. Other educational activities were developed on the farm to showcase the adoption of practices to farmers and youth organizations. The USDA-NRCS developed research on soil and water conservation on the farm. Personnel from the NRCS Southern Region visited the project to observe sustainable practices on coffee production to determine incentives for these practices. A model budget was prepared that included sustainable practices.

The farm owner, Mr. Rivera, who represented Puerto Rico at SARE during 2002 was recognized as the Soil Conservationist and the Extension farmer of the year in 2003. Among his future plans are the establishment of an ecological coffee processing facility on the farm.

III. Key Theme - Natural Resources Conservation

A. Being Puerto Rico an island, land and proper use of soils and fertilizers are key items for agriculture. Soils are the basis for agricultural production, however the land is limited land and in high demand to satisfy other human needs. Each township or municipality is required to prepare its land order plan to delineate the different land use. The general public needs to be informed on this subject to maintain and protect agricultural productive soils for farming. Information and orientation is given on the proper use of soils and fertilizers on the farm. Also, PRAES provides training on pesticide use through an agreement with the State Department of Agriculture (SDA), while the SDA gives the certification for their application.

Soil Conservation

Four hundred and twenty-eight (428) farmers received information or were trained on the used of soil chemical analysis, irrigation water, and vegetable

tissue as a tool for the recommended fertilizer use. Five hundred and ninety-three (593) persons received orientation on soil conservation practices.

Natural Resources and Forestry
Seven hundred sixty nine (769) persons received orientation on natural resource conservation and ecosystem protection. Four hundred thirteen (413) persons were trained or received orientation on rural forestation.

Pesticide Safety Education Program
One thousand and seventy-nine (1,079) persons participated in the private pesticides applicators course; 788 persons participated in the course for basic commercial pesticide applicator, while 354 participated in the commercial category and 463 participated in the 30 hours short course category 8-A for pest control in buildings.

Public policy
Three hundred and forty-eight (348) persons were oriented on proper land use; 188 persons were oriented on municipal land use order as required by the Planning Board. Fifty (50) policy makers, government agency personnel and general public received information on costs and alternatives to improve water quality, and 32 policy makers were informed about the data available and information sources.

B. Impact – One hundred and eighty (180) farmers use the results of the soil chemical analyses, irrigation water, and vegetable tissue for fertilizer application; 218 farmers used organic fertilizers.

Two hundred fifty two (252**)** persons adopted recommended practices for soil conservation. Two hundred and twelve (212) persons adopted or improved natural resources conservation practices.

Two hundred and ten (210) persons adopted rural forestation practices and 32 forest projects were established.

Nine hundred and ninety-one (991) persons approved the exam to be certified as private pesticide applicators; 646 persons approved the exams to be certified as commercial applicators; 332 persons approved the exams for the commercial categories and 354 persons approved the 30-hour short course for 8-A category.

Two hundred and ninety-nine (299) persons increased knowledge on land use; 153 persons or decision makers made proper use of their land after receiving Extension education. Seventy eight (78) persons were involved in the decision making concerning environmental public policy.

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

D. Scope of Impact – State Specific

IV. Key Theme – Integrated Pest Management

A. Two hundred (200) farmers were oriented in IPM through visits to the farm and reports with IPM recommendations. Six hundred (600) persons including farmers, agricultural agents, homeowners, agronomists and ornamental producers received educational IPM materials.

Nine hundred and seventy-five (975) farmers used one or more IPM practice as follow: 375 farmers in coffee, 150 farmers in fruits, 350 farmers in starchy crops, banana and plantain, and 100 farmers in vegetables. The recommended IPM practices were based on visits and monitoring of pests on the farms.

One (1) publication was prepared: Integrated Nursery Pest Management and is in the peer revision process. It will be ready on June 2005.

The proposal "Improving Health of Forest Nurseries in Puerto Rico" was extended until September 2005 to finish the educational materials and trainings to nursery personnel. Another proposal "Forest IPM in Puerto Rico" was submitted and approved for $16,960. The objectives of the project are to update available information on destructive forest pests of possible introduction by maintaining an index record in the Extension Plant Diagnostic Clinic, to continue expanding and updating information in forest health in nurseries and in the urban landscape in the Web page "Forest Health Management in Puerto Rico http://seam.uprm.edu/Forest/index.htm, and to deliver an educational program in IPM in nurseries and in the urban landscape.

B. Impact – One hundred and ninety-five (195) samples affected by arthropods or diseases were processed and diagnosed in the Plant Diagnostic Clinic and a written report made to farmers containing the IPM practices they have to establish to maintain adequate control. The early and correct diagnoses of pests in the Plant Diagnostic Clinic saved farmers about $100,000.

Fifty (50) persons (personnel of the Department of Natural Resources) received educational information related to Forest health which included written materials and orientation about the use of the Web page.

Twenty eight (28) samples of trees and woody ornamentals were processed in the diagnostic clinic with a direct impact of $25,000 saved because of the correct diagnose of the pest.

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

B. Scope of Impact - State Specific

C. Success Story

"Bilingual Web page for Integrated Pest Management and Forest Health"

There is the need to educate the community regarding diseases and problems with arthropods that affect our trees. This subject has regained importance due to urban sprawling which has caused the loss of much of our green areas. Also many of the areas that are left are not well kept. To deal with these problems, a web page was designed in January 2003 entitled "Forest Health Management in Puerto Rico" http://seam.uprm.edu/Forest/index.htm.

This project was possible due to the collaboration of PRAES and the USDA-Forest Service-International Institute of Tropical Forestry, through a $29,862 grant. The page contains information about identification and management of forest pests, such as common arthropods in trees and other ornamentals, and diseases of trees, ornamental woody plants, shrubs, and palm trees in Puerto Rico. It can also be accessed through http://www.uprm.edu/agricultura Keyword "Manejo Forestal". To make the page accessible to a broader audience, part of the information is in English as well as in Spanish.

Two hundred (200) persons (including farmers, agricultural agents, homeowners, agronomists, ornamental producers, and nursery managers) received orientation about IPM in trees in nurseries and in the urban environment through this page.

The impact of the web page was measured by comments received from the agricultural agents, the State Department of Natural Resources and Environment personnel, and nursery producers who recognize it as an innovative useful educational tool.

KEY PROGRAM COMPONENTS

The PRAES educational program efforts are geared towards the encouragement of the adoption of recommended practices, primarily towards the increase and efficient farming production while complying with environmental regulations. These programs covers on farm management while conscious of the environment and vital natural resources conservation practices. Often times this is achieved through courses, training meetings, method demonstrations, workshops, seminars, use of new or recommended equipment or machinery, participatory research, follow-up visits and written communications, both through mass media and to agricultural professionals, rural communities, leaders, PRAES personnel in a train-the-trainer approach, the general public and other agency personnel. Also, through collaborative agreements with state and federal agencies as well as network with other higher education institutions.

INTERNAL AND EXTERNAL LINKAGES

Internal

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

External

A collaboration agreement with the Solid Waste Authority (SWA) was maintained for the school education on compost preparation project and in WQ efforts. Recently, another agreement was established with the Rio Piedras Campus to compost all garden waste. Work collaborations with the USDA-Forest Service, International Institute of Tropical Forest have provided for new efforts with the private sector and projects, such as the educational campaign on brush fires as a joint effort with the El Caribe RC&D Council. The Renewable Resources Extension Act (RREA) has provided for additional natural resource conservation effort. Extension is represented at the State Department of Natural Resources Council. Other agency collaborations continue such as with the State Department of Health, State Planning Board, the State Department of Agriculture, the Environmental Quality Board, Fish and Wildlife, the USDA-NRCS, Center for Water Resources-School of Engineering, Chemical Engineer Department, School of Public Health, several municipalities, Sea Grant, Mayagüez Space Grant Consortium, the EPA, and the Soil Conservation Districts. As well as collaborative efforts developed with Cornell University, Rutgers and the University of Virgin Islands.

TARGET AUDIENCE

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

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

OBJECTIVE 1

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

PERFORMANCE GOAL 2

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

INDICATOR 1

A. The total number of persons completing non-formal education program on sustaining and protecting ecosystem biodiversity while improving the productivity of the U.S. agricultural production system. (output)
B. The total number of these persons who actually adopt one or more recommended practices within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	527	2565[1]	380	1580[1]
2001	729	5060	416	2650[2]
2002	920	9889[3]	590	3009[3]
2003	945	2230[4]	745	667[4]
2004	956	2041	844	1044[5]

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

[2]This increase in the expected outcome can be accounted to the public policy of the State Department of Natural Resources and Environment, which launched an aggressive island-wide reforestation campaign; and to the Caribbean Urban Forestry Conference and the First Agricultural Congress, with around 500 participants, in which a sustainable approach to agricultural production was highlighted.

[3]Under PAT program education is offered on ground water protection, endangered species, protection of farm workers, pesticide safety and management. Citizens are interested in learning about recommended practices on management species for both urban and rural areas.

[4]The increase in actual output compared to the target output is due to the amount of information offered through a variety of activities offered during this fiscal year.

[5]The continued increase could be accounted to the new information technology that has been implemented.

DATA COLLECTION METHODOLOGY

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

OBJECTIVE 2

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

PERFORMANCE GOAL 1

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

INDICATOR 1

A. The total number of persons completing non-formal education programs on sustaining and/or protecting the quantity and quality of surface water and ground water supplies. (output)
B. The total number of these persons who actually adopt one or more water management practices within six months after completing one or more of these programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	2462	2494	1559	429
2001	2693	3270	1784	1437
2002	2900	5549[1]	1815	2618[1]
2003	3008	3605	1969	1892
2004	3388	4999[2]	2029	4599

[1]Water quality is a priority issue. Therefore, all personnel have time assigned to work in this issue under solid waste management, rural aqueducts, irrigation and drainage, and pesticide application.
[2]Increased is due to an already established and well structured course in pesticide application, as well as strong efforts in IPM practices.

PERFORMANCE GOAL 2
To annually increase producer adoption of agricultural production "best practices" that conserve, protect, and/or enhance the soil resources on or adjacent to agricultural production sites or land uses.

INDICATOR 1
A. The total number of persons completing non-formal education programs on conserving, sustaining, and/or protecting soil resources. (output)
B. Total number of these persons who actually adopt one or more soil conservation practices within six months of completing one or more non-formal education programs. (outcome)

Year	Indicator 1A (Output)		Indicator 1B (Outcome)	
	Target	Actual	Target	Actual
2000	2561	1109[1]	1493	279[1]
2001	2542	2141	1776	1516
2002	2607	1454[2]	1889	380[2]
2003	2619	2624	1908	1924
2004	2627	1021[2]	1945	650[2]

[1]The Environmental Quality Incentive Program coordinated by the USDA-NCRS, was not implemented during 1999-2000. Two trainings were offered on soil erosion and sedimentation control (Jan 98, Aug 98), sponsored by a local RC&D Council, but none were organized nor offered during 1999-2000, since in October 1999 Puerto Rico was the host of the Southeastern RC&D Development Council Association's Annual Training Meeting.
[2]Due to early retirement, we lack the services of a soil specialist. Most of the soil conservation education is conducted in collaboration with the USDA-NRCS.

DATA COLLECTION METHODOLOGY

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

OBJECTIVE 3
To improve decision-making on public policies related to agriculture and the environment.

PERFORMANCE GOAL 2
To annually increase the effectiveness of constituent and citizen participation on public policy issues affecting agricultural production, the environment, and ecosystem integrity and biodiversity.

INDICATOR 1

A. The total number of persons completing non-formal education programs on public policy issues affecting agricultural production and ecosystem integrity and biodiversity. (output)
B. The total number of these persons who actually become actively involved in one or more public policy issues within six months after completing one or more of these programs. (outcome

Year	Indicator 1a (Output)		Indicator 1b (Outcome)	
	Target	Actual	Target	Actual
2000	205	112	150	21
2001	290	279	241	81
2002	295	299	246	26
2003	307	288	275	162
2004	341	618[1]	292	530

[1]The increase might be in response to providing assistance and orientation to the municipal land order as required by the Planning Board.

PROGRAM DURATION

Last report of the long-term 5-year planning cycle 1999-2004

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2000		$864,583.50		$864,583.50
2001		$242,960.09		$242,960.09
2002		$324,709.98		$324,709.98
2003		$427,833.43		$427,833.43
2004		$439,020.73		$439,020.73

ESTIMATED FTE COMMITMENT

Year	Professional			Paraprofessional		
	1862	1890	Other	1862	1890	Other
2000	31.48					
2001	7.48*					
2002	8.31					
2003	9.92					
2004	9.80					

*NOTE: During previous years personnel worked on a special project sponsored by AmeriCorps—College Coastal Conservation Crops—where college students were hired to provide information and education about the protection and conservation of the coastal areas. The main project covered the Southwestern part of Puerto Rico. The project was not fully implemented during 2001, therefore the number of personnel was reduced. There was also a reduction of personnel assigned to the water quality unit.

EDUCATION AND OUTREACH PROGRAMS

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

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

OVERVIEW

In Puerto Rico of a population of 3,808,610 (2000 Census), 51.9% are women and 48.1% men. Seventy one percent (71%) of this population is urban and 29% rural; while 8% are children between the ages of 0 to 5 years old and 33% are children and adolescents between 5 to 19 years old.

Recognizing the special needs of these populations, PRAES continued its efforts with the state and federal governments to educate families on family relations, parenting skills, child development, consumer education, family budget, community development, family resource 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 in individuals, families, and communities. Different methodologies and strategies such as: workshops, short courses, information centers, mass media, and others were used to develop the educational program.

The Puerto Rico Department of Health (2002) reported 52,872 births, of which 32.1% were from adolescent mothers (10-19 years old). These young mothers are at a disadvantage as they are not prepared to face the emotional, social, and economic issues affecting their lives and their children. Therefore, our mission is to educate parents and young families in parenting skills and child development to contribute to the development of stable, happy, and successful children both in school and everyday life and to become responsible citizens as adults.

The Family Life and Child Development Specialist facilitated strategic planning workshops for families and communities at risk, curriculum, trainings, community organizations, and local and state coalitions. The project "Values Education in Character Traits" promoted education in a non-formal based program on parenting skills, behavior, and practices and the parenting project "Empower Parents to Raise Successful Kids", which was approved in 1999, continued helping families, children and communities at risk. National recognition was received by CSREES-USDA for its impact on families and communities at risk. The PREPAS project was established in six additional municipalities to increase state-wide capacity to PRAES base programs. Two hundred seventy-three (273) extension agents, community leaders, and professionals from other agencies that work with populations at risk were trained in family relations, child development and responsible parenting topics.

In our effort to attend our continuously growing elderly population, (800) elders were oriented in aging aspects in order help them to understand the process of aging and to help change their negative attitudes into positive ones. One hundred and one (101) elderly people adopted the recommended practices. We also oriented families of elderly people to assume responsibility with their parents with 127 families assuming responsibility for their elderly parents/community. At present, the Family Life Specialist is developing a curriculum in gerontology and related areas to train Extension agents.

According to the 4-H and Youth Program 40,113 youth completed non-formal education which included life skills, leadership development, self-esteem, safety, science and technology, nutrition, health, environment, sexuality education, and others. Twenty thousand four hundred and eighty-six (20,486) youth participated in the 4-H school enrichment program and 357 youth participated in the mentoring learning program. Five hundred and fifty-five (555) adults were recruited and trained in leadership topics. To reach this audience, the 4-H and Youth specialist developed different educational strategies and methodologies such as: trainings, club meetings, competitions, campaigns, and other learning experiences.

Among the most significant achievements of the Community Resources Development program were: 84 communities were organized, 250 families improved their community relations, and 36 communities established recycling projects. Thirty-three (33) new businesses started resulting from economic development programs and 56 jobs were created as a result.

PRAES developed informal educational programs to help low-income families to develop skills in the management of their resources and money and time management to obtain economic and social stability. To improve the financial status of families, financial education programs were implemented. Four thousand two hundred and seventy-eight (4,278) people completed the non-formal education program and 2,572 persons adopted practices to increase their incomes. One hundred and forty-three (143) families prepared a family budget and 465 people used their skills to increase family income. Twelve (12) resource management projects were established.

. **Key Theme - Child Care/Dependent Care**

. Extension agents continued training parents, families, and childcare providers in parenting skills and child development at childcare centers. These educational non-formal programs consisted of seven lessons (Family Values and Traits Education Curriculum) based on six character traits, values, communication skills, family strengths, childcare, and other areas related to family relations. Also staff, childcare centers, and professionals in charge of children were trained in child development practices.

. Impact – Three thousand eight hundred and two (3,802) families adopted practices in family relations, effective parenting, and communication skills. After six months parents showed changed attitudes toward responsible parenting and assertive communication helping them to prevent child abuse and neglect. Three hundred and thirty-one (331) people working in childcare centers adopted practices in child development related areas.

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

. 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 at risk with an increase in activities, contests, projects, competitions, trainings, workshops, and volunteer recruitment. The adoption of healthy lifestyles and skills that allow youth to make adequate decisions were promoted. Forty thousand one hundred and thirteen (40,113) members were impacted through the 4-H and Youth program. Curricula and projects developed to train this population to help them to adopt practices to improve quality of life and clarify values were used to achieve the goals established.

B. Impact – Five hundred and sixty (560) youth participated in 4-H activities, 494 4-H members adopted practices in self-esteem, 202 participated in the "Aprendiendo a ser saludables" project, 279 participated in RAP project, and 20,076 people were benefited through educational material.

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

D. Scope of Impact – State Specific

III. Key Theme - Family Resources Management

A. During the FY 2003-2004, Extension agents continued developing non-formal educational efforts to help low-income families deal with consumerism. Four-thousand two hundred and seventy-eight (4,278) low-income families were trained and oriented in money management, family budget, and financial skills.

B. Impact – As a result, 2572 families adopted one or more recommended practices to decrease consumer credit debit after completing non-formal education programs; 33 people established their own business, 143 people prepared family budget, and 465 families increased family income.

C. Source 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 and volunteer leaders continued developing non-formal educational home-based programs to help low-income families use their own resources to increase family income. These programs offer suggestions to families and individuals of on how they can turn skills and abilities into

money. Five hundred and seventy five (575) individuals were advised and trained on self-employment skills.

B. Impact – Thirty-three (33) people established their own business and 250 individuals adopted recommended practices.

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

D. Scope of Impact – State Specific

V. Key Theme - Farm Safety

A. One thousand four hundred and eighty-five (1,485) farmers were oriented about farm safety and the prevention of farm accidents.

B. Impact – As a result, 848 farmers changed attitudes and increased knowledge about farm safety, 198 adopted farm safety practices, 164 developed an emergency plan, and 479 adopted practices in the event of natural disasters.

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

D. Scope of Impact – State Specific

VI. Key Theme - Job/Employment

A. The CRD program developed projects to help people, youth, families and communities to improve their quality of life and well-being. Extension agents and community leaders aim to provide a knowledge base to community development efforts to increase their value system and economic progress.

B. Impact – Eighty-four (84) communities were organized and 250 families improved their community relations. Five hundred and seventy-five (575) community leaders were oriented about community projects development. Thirty-six (36) communities established recycling projects.

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

D. Scope of Impact – State Specific

VII. Key Theme – Parenting

A. PRAES continued its educational program to strengthen and enhance the capacity of families to nurture, support, and guide family members throughout their lives. The Extension specialist continued training field agents on how to

train and empower parents to raise successful kids and to become responsible parents and prevent child abuse and neglect. The PREPAS project established in six additional municipalities to increase state wide capacity to PRAES base programs. Three thousand eight hundred two (3,802) people completed non formal education programs on parenting topics and related areas. Home Economists continued working in a family project in their municipalities serving at risk population.

B. Impact – Two thousand four hundred and fifty (2,450) families adopted parenting principles, behaviors, and practices after completing educational programs. Through this project 635 parents learned how to teach their children social and emotional skills to improve their well-being. Four hundred and eleven (411) families acquired skills to prevent child neglect and abuse.

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

. Scope of Impact – State Specific

KEY PROGRAM COMPONENT (s)

PRAES, continued developing educational programs to orient the families to assure their resources; strengthen the capacity of families and communities; be partners in building stronger families that can contribute to on-going efforts in community development; strengthen and empower families to nurture, support and guide their members throughout their lives; and manage better the expertise of Extension educators at all levels. Each Extension agent prepared a plan of action to accomplish the state goal. At state level an educational model program was prepared for adaptation and implementation in the communities. Efforts to increase interagency and organization collaboration at federal, state, and local levels to improve outreach to families were emphasized. Other strategies used were training and empowering parents, couples, and children in different areas of family relations and child development; developing and establishing special projects in parenting skills, child and human development, adolescent life skills development, youth at risk issues, financial aspects, elderly-care, and leadership development to form better leaders and citizens. Also, emphasis was given to the use of volunteers as sources of support for families and communities at risk, involving 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/educators prepared publications, curriculums, articles, training, radio and television programs, forums, and workshops to reach state goals. The Agricultural Experiment Station provides the research basis needed to advance the producers' and communities understanding of the changes occurring in their given situations. Research results are shared with PRAES personnel and government officials, particularly with those in the position of making public policy decisions.

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
2000	546	559	267	0
2001	536	890	245	103
2002	507	712	219	245
2003	508	720	263	312
2004	530	575	258	250

INDICATOR 2

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

Year	# of new businesses started	
	Target	Actual
2000	41	19
2001	43	20
2002	44	22
2003	42	46
2004	44	33

INDICATOR 4

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

Year	Indicator	
	Target	Actual
2000	34	277*
2001	28	32
2002	25	8
2003	24	11
2004	27	56**

*Community projects were developed

**Due to the amount of 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
2000	4354	0	4098	1922*
2001	4629	5116	3827	2301*
2002	4379	2662*	3680	1241*
2003	4355	5045	3556	4713
2004	4355	4278	3458	2572*

***** There is no specialist in this area to train and present special projects.

OBJECTIVE 2

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

PERFORMANCE GOAL 1

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

INDICATOR 1

A. The total number of persons completing non-formal education programs on community decision-making and leadership development. (Output)
B. The total number of these persons who actually become actively involved in one or more community projects within six months after completing one or more of these programs. (Outcome)

Year	Indicator 1A (Output)		Indicator 1 B (Outcome)	
	Target	Actual	Target	Actual
2000	7492	6110	3784	2400
2001	7459	5469	3887	1699
2002	7554	7884	3874	1622
2003	7595	5928	4006	2464
2004	7711	6070	4037	3205

INDICATOR 2

A. The total number of dependent cares providers completing non-formal education programs. (Output)
B. The total number of these dependent cares providers who actually adopt one or more new principles, behaviors, or practices within six months after completing one or more of these programs. (Outcome)

Year	Indicator 1A (Output)		Indicator 1 B (Outcome)	
	Target	Actual	Target	Actual
2000	2843	1322	1200	6582*
2001	2654	1307	963	863
2002	2840	714*	904	412
2003	2695	1276	896	517
2004	2958	2947	761	843**

*Decrease of staff working at county level and there are no specialists working this area to promote the program

**Increase of staff working at the municipal level to promote the program.

PERFORMANCE GOAL 2

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

INDICATOR 1

A. The total number of persons completing non-formal education programs on parenting. (Output)
B. The total number of these persons who actually adopt one or more parenting principles, behaviors, or practice within six months after completing one or more these programs. (Outcome)

Year	Indicator 1A (Output)		Indicator 1 B (Outcome)	
	Target	Actual	Target	Actual
2000	2752	1337	2376	3262
2001	2796	2094	2383	1044
2002	2713	3234	2398	2658
2003	3009	3455	2424	1276
2004	2966	3802	2502	2450

INDICATOR 2

A. The total number of persons completing non-formal education programs on youth development. (Output)
B. The total number of these persons who actually adopt one or more youth development principles, behaviors, or practices within six months after completing one or more of these programs. (Outcome)

Year	Indicator 1A (Output)		Indicator 1 B (Outcome)	
	Target	Actual	Target	Actual
2000	10000	50624*	8500	29209*
2001	11500	52788	9200	33036
2002	12100	45137*	10309	18352
2003	14201	47996**	11140	20858
2004	16109	40113**	12900	23759

*Increased per cent of Extension Agents working this program. There are two 4-H and Youth Specialist to train and promote this program.

**Increased number of persons in youth program development as a result of an increase in percentage of Extensión Agents working this area.

PROGRAM DURATION

Last report of the 5-year Programming Cycle FY 1999-2005.

ALLOCATED RESOURCES

Fiscal Year	Resources			
	State	Federal	Others Federal	Total
2000		$2,454,673.68		$2,454,673.68
2001		$2,308,391.03		$2,308,391.03
2002		$2,635,442.08		$2,635,442.08
2003		$3,030,285.40		$3,030,285.40
2004		$3,032,947.50		$3,032,947.50

ESTIMATED FTE COMMITMENT

Year	Professional			Professional		
	1862	1890	Other	1862	1890	Other
2000	89.41					
2001	71.12					
2002	67.47					
2003	70.21					
2004	67.67					

EDUCATION AND OUTREACH PROGRAMS

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

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B. STAKEHOLDER INPUT PROCESS

During FY 2003-2004 we focused on developing a strategy to collect stakeholder input at the local (municipal) level. Agricultural agents and home economists have been working in re-structuring their Local Advisory Committees (LAC, in Spanish CASEA). These committees must be composed of at least two beneficiaries from each of the programs (Agriculture, Marketing and Natural Resources; Family and Consumer Sciences; Four-H and Youth, and Community Development) in addition to two representatives from local agencies that work with similar audiences. The members of these committees were selected by the agents from among their target audience, based on their experience and participation in the Extension programs and invited to join the committee. The process to collect stakeholder input takes place through meetings. The committees have to meet periodically during the year to discuss critical issues locally, as well as identify emerging issues that could be addressed by Extension. Issues identified by the LAC are established as priorities to be addressed in their annual plan of work at the local level.

At the state level, five focus groups were conducted to identify emerging needs and issues within each of the five GPRA goals. Stakeholders invited to these focus groups included farmers and community leaders, as well as representatives at the state level of Agencies that work with similar audiences including the Department of Education, Department of the Family, Department of Agriculture, Department of Health, Program of the Elderly, Food and Drug Administration, Puerto Rican Lung Association, Department of Natural Resources, USDA-NRCS. The findings of the focus groups were discussed with different staff members and scheduled to be discussed in a formal meeting with Administrators at the state level in order to identify strategies to address these needs.

Further input at the state level was collected from young stakeholders, members of the 4-H clubs. We recognized the importance of emphasizing input from young participants of our programs, as this audience is affected by many complex physical, emotional, and social issues. Young 4-H leaders, members of the organizing committee for the State Annual 4-H Conference, were informed about the importance of the stakeholder input process and our interest in learning about the critical issues and needs of our young people. The young leaders immediately demonstrated their interest in participating in this process; therefore, the Stakeholder Input Process was included in the agenda for the Annual 4-H Conference. The young stakeholders were randomly selected from the attendance list of the Annual Conference. Their input was collected through three focus groups where a total of 28 4-H members participated. They were asked about critical issues facing our youth, methodologies used in 4-H, and suggestions to improve the program. The collected input was presented and discussed with the 4-H Program Leader and other Administrators at the state level. Different actions have been taken to address these issues, as well as to improve the program to meet their needs. Among the actions taken were the reorganization of the clubs, including the frequency of meetings and the number and topics for camps and contests. In addition to the young stakeholder input, a 2-day meeting was held with our internal staff to provide input for the 4-H program. This input combined with the 4-H members' input was considered and strategies were

designed to address these issues. These strategies were part of a training meeting offered to the agents and home economists.

C. PROGRAM REVIEW PROCESS

There are no significant changes in the review process as submitted during the previous year. As described, there are four committees, representing each one of the four programs (Agriculture, Marketing and Natural Resources; Family and Consumer Sciences; Four-H and Youth; and Community 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

0. *Did the planned programs address the critical issues of strategic importance, including those identified by stakeholders?*

   Issues and needs identified by the stakeholders through the Stakeholder Input Process, as well as other issues identified by other staff members at the state level, formed the basis for the revision and design of planned programs. Issues of strategic importance have also been identified through collaborative and multidisciplinary efforts between the internal and the external linkages. Therefore, the priorities for planned programs are the issues identified by the stakeholders.

   Although Puerto Rico does not participate in multi-institutional activities, joint activities between PRAES and PRARS are conducted for several commodities including coffee, starchy crops, fruits, vegetables, beef and dairy among others. Through this joint collaboration, several public meetings are conducted that are open to farmers and other individuals or groups interested in identifying critical issues in the area of agriculture for further program planning.

0. *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. Under-represented populations that have been reached through these programs include: low-income women, children, youth and families and small farmers as well as families at risk. We have also identified the importance of addressing the increasing population of adolescent mothers and have focused various educational efforts to attend their particular needs in the areas of family, health, and resource management. Another population that has

required special attention is the elderly population and PRAES has also focused in addressing their needs. Collaborative efforts with other State agencies have facilitated our strategies to reach these under-represented populations, as they refer to us some of these audiences because of their high priority needs.

In PRAES, we could define people with disabilities, including those mentally challenged, as under-served population. We recognize this as an audience with special needs that has not been targeted enough by our past programs. During this fiscal year, several educational activities and projects have addressed the needs of this audience with special emphasis in providing them with skills needed for the job market. Most of the projects focused on agricultural skills. In addition, some of the needs of this under-served population in several municipalities where there is a high number of homeless people, have been addressed through the Family and Consumer Sciences Program.

0. *Did the planned programs describe the expected outcome and impacts?*

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

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

Planned programs are designed to address the needs of our populations. Educational techniques are constantly evaluated to adapt to the skills levels of the participants and their educational needs; therefore, resulting in increased program effectiveness. For example in the agricultural sector one of these techniques is the demonstration project. A demonstration project in coffee production has resulted in the adoption of ecological technology for coffee processing facilities.