

2008 University of Puerto Rico Extension Plan of Work

I. Plan Overview

1. Brief Summary about Plan Of Work

This plan of work of the Puerto Rico Agriculture Extension Service (PRAES), University of Puerto Rico Land Grant College at Mayagüez, covers the fiscal years 2008-2012. This plan has a total of 198.2 FTE's for each of the years covered in this period.

The College of Agricultural Sciences (CAS) continued working on the Strategic Plan implementing its mission and vision, analyzing values, searching the external and internal environments, establishing strategic direction objectives and the Plan of Action.

Extension maintains close relations with government agencies, decision-makers, research scientists, and the clientele helping them to gain insight on what has happened and what is likely to happen during the next years. The staff of the local Extension offices establishes relations with key leaders such as: mayors, senators, representatives, directors, officials of organizations, and business people interested in/or related to Extension's agenda. They invite these stakeholders to participate in Extension activities and in the Stakeholder Input Process meetings and meetings of the Community Resources Development Committee. The collaborators from the public sector are personnel from the departments of Agriculture, Education, Health, Consumer Affairs, Labor and Human Resources, Transportation, Drug Abuse Prevention, and other government agencies (The Police Department, the Water and Sewer Authority, the Electric Energy Service, Forest Services, and the Youth Affairs State office). From the private sector, people from banks, cooperatives, and industry (agricultural, pharmaceutical, textiles, etc.), as well as religious, civic, and social leaders from different organizations, participate in the assessment process determining local needs, offering their collaboration, and involving their organizations in the search of solutions to problems. Extension specialists and administrators also maintain good relations with key leaders at the state level.

New coalitions were developed during the past year and new ones are expected to be established.

The Planning and Evaluation Office trained all the professional personnel on the preparation of their plans of work based on clientele needs, supported by up-to-date statistical data and outlook reports and pursuant to federal and state government public policies.

PLANNED PROGRAMS:

1) AGRICULTURE, MARKETING AND NATURAL RESOURCES

The livestock sector in Puerto Rico includes dairy, beef cattle, swine, poultry (broiler & laying hens), fish, shrimp, rabbits, goats, and sheep. It represents approximately 48% the island's total gross agricultural income, (Statistics, Puerto Rico Department of Agriculture for FY 2005-2006). During the past four decades milk production has been its most important enterprise, but the stability of the industry has been challenged by several factors. Current trends of the industry show a steady decline in the number of farms while the average herd size has increased correspondingly. At the same time, the number of acres dedicated to forage production at the average dairy has been significantly reduced by 12% over the past ten years. The insufficient land for feed production has resulted in the farmers' increasing dependence on imported ingredients to feed their milking cows.

Consequently, there has been an increase in the number of dairy cows in confinement or semi confinement and in the need of comprehensive nutrient management at the farm level to increase efficiency and reduce the threat of soil and water contamination. In addition, the steady reduction in fresh milk consumption during the past years has exacerbated the economic stability of the milk industry, since this product generates the highest income to the farmer.

Only 23% of all the meat consumed in Puerto Rico is produced locally. However, meat producers face common problems which affect the increase of the market: low efficiency and quality of production at the farm level and limited diversification of products to satisfy the needs of consumers. These problems are caused by limited control of imported products, and high costs of production per unit of product, especially land and feed. Such problems need to be addressed in order to compete with imported products.

On the other hand, the local animal production system could become non sustainable in the long run faced with the realities of high levels of nutrient excretion, the limited amount of land for forage production, and concentrated manure disposition. Eventually, if unattended, such a system can lead to the pollution of streams, estuaries, and groundwater resources. Therefore, It is crucial for the long-term sustainability of the system to reduce surplus nutrient excretion and to increase recycling of nutrients on the farm by increasing the efficiency of animal production.

A cost-effective agriculture also requires efficient engineering practices. The majority of the farms in Puerto Rico have structures that form part of their infrastructure. Biological systems compose most of the waste management, recycling, and reuse operations in farms with animals in confinement. The Engineering and Biosystems program seeks to improve existing structures and to provide farmers with model plans that comply with permits requirements. Through this program, PRAES helps farmers with animals in confinement to prepare waste management systems that meet state and federal requirements. In the area of irrigation and drainage, most of our efforts are geared toward the effective operation and maintenance of the equipment and water conservation.

Crop production is the second most important economic area of Puerto Rico's agriculture. In 2005-2006 the value of crop production was \$327,362,000 (preliminary data PRDA), an increase of \$46,266,000 compared to 2004-2005 with \$281,096,000 (revised data PRDA). The crop commodities include fruit (mango, avocado, pineapple, oranges, papaya, Spanish lime, Rambutan, other citrus and fruit), vegetable crops (tomatoes, peppers, sweet peppers, onions, pumpkin, aromatic herbs, and others), starchy crops (yams, tanager, cassava, and others), ornamentals (flowering plants, cut flowers, interior and exterior foliage plants, and landscaping), coffee, bananas, and plantains. Most of the farms are small or medium sized and owner operated. Their main crop production problems are product quality and the poor use of adequate crop cultivation practices. An economically profitable and progressive agriculture requires efficient plant management and good pre- and post-harvesting management practices of products to obtain excellent quality and better utilities.

For farmers to compete in the new global agriculture they need new technological practices, product quality innovations, and GAP. They need to be educated on how to change production practices from artisan crop production to production practices. Such efforts will help farmers to achieve higher production, better crop varieties, extend the harvest season, value-added, and improve quality to increase their profits.

The Crop Production program will make the Plant Product Quality and Utility and Plant Management Systems important key issues to the farmer's education program.

PRAES uses the Plant Protection program to manage, enhance, and implement integrated pest management (IPM) techniques. Its objectives are broad and may change in scope from year to year depending on the pest incidence. It includes all horticulture and agronomic plants of economic importance to Puerto Rico. Our plant protection educational programs promote the adoption of the best management practices to develop IPM systems that protect the environment, conserve the natural resources, and contribute to the competitiveness, profitability, and sustainability of Puerto Rico's agriculture. The objective is to develop integrated approaches to crop protection, minimizing the impact of pesticides on the environment. The Plant Protection program facilitates the coordination of work that includes diverse disciplines, organizations, and job functions (extension, teaching, research). It is the central point of contact for inquiries about integrated pest management, pesticide applicator training, and pesticide impact that enhances the visibility of the University of Puerto Rico-Mayaguez Campus' protection program.

Puerto Rico's high population density demands new infrastructure to satisfy its needs. This has resulted in a reduction of land available for agriculture; this squandering and urban development threatens our natural resources.

According to the 2002 Census of Agriculture 690,687 acres were dedicated to agricultural uses. Of these, 178,663 were improved pastures, 109,597 were nature pastures, and 64,963 abandoned pastures. Range and pasture production require better and more efficient use of our lands and farm animal production requires extensive, as well as intensive pasture lands for dairy and livestock production. Our main industries dairy and beef cattle as well as other emerging agricultural enterprises, such as horseback riding and "paso fino" horses, depend directly and indirectly on hay and range lands for grazing. Seventy-eight percent (78%) of livestock farmers depend on hay to feed their animals. The agricultural net income for hay and silage during 2006-2006 was \$8,738,000 (preliminary data PRDA)

The Soil, Water, and Air program intends to train our farmers on the appropriate management of our soil, water, and air resources to increase yields and prevent contamination. This is necessary, since we are losing available land suitable for agriculture, have a high rate of erosion, low soil fertility, and problems with salinity. Also, our watersheds are being sedimented, the water for irrigation is scarce and expensive, and agriculture produces small particles and odors which affect the people and the efficiency of the enterprises. The regulatory agencies are enforcing laws to reduce environmental impact with which farmers have to comply to receive the required farm operations permits.

Although the Aqueduct & Sewer Agency provides most of the water that we consume, 300 communities are still operating their own drinking water systems. These systems extract the water from rivers, streams or groundwater. We need to develop a program that will encourage farmers to adopt practices to reduce the effect of residual fertilizers and conserve the quality of the water for farming and household uses. PRAES will offer technical assistance, conduct follow-ups to the producers, and visit the farms to ensure that the recommended practices are being implemented and working properly. The relation soil-plant-water-air will be analyzed to maintain a balance. In addition, educational material will be prepared to deliver the information to the farmers and collaboration with other agencies will strengthen the education.

2) FAMILY AND CONSUMER SCIENCES:

The family structure in Puerto Rico has changed with important implications for children. The issues that most concern policy makers and the public are the increasing number of single-parent families over the past three decades, and the increase in family violence, which affects the well-being of our families and their members. It is important to develop educational programs to empower families to nurture, support, and guide their members throughout their lives and motivate them to improve their quality of life and well-being. To reach this goal, the family life specialist develops programs facilitating strategic planning, workshops, curriculum, and trainings in successful parenting, character traits, clarification of values, family strengths, aging aspects, and life

skills for families, children, youth, and elderly people. A special family project will be continued to help develop skills to change behaviors and adopt practices to strengthen family relations and values.

Health and disease have been humanity's mayor concern since antiquity and, without a doubt, people should be concerned about their health. However, despite its priority, they engage in behaviours that place them at risk of diseases. It is necessary to develop preventive educational programs targeted to children, youth, and families directing efforts towards the causes of the problems rather than their symptoms.

PRAES will continue working in different partnerships with health and human services agencies to focus on collaborative efforts on the development of programs aimed at the promotion of health and the prevention of disease. We will promote healthy lifestyles for people in both rural and urban areas and address high risk factors through the prevention and early detection of diseases, prevention of injuries and disabilities, and appropriate use of the health care system (promoting the development of self-care skills). Once the diverse needs of the general public are recognized, we will concentrate our efforts to train professionals, community leaders, and the public on decision-making related to health practices, including the importance of physical activity to prevent conditions related to the leading causes of death. The special project Promoting Healthy Lifestyles will target adult clients to educate and empower individuals and families to adopt healthy behaviors and lifestyles. A curriculum guide "Prevention of Injury Using Safety", which targets the adult population, was developed to prepare individuals and families to take the correct steps in case of an emergency and to encourage them to incorporate safety habits in their lives.

We will continue working in the Healthy Indoor Air for America's Homes project, which prepares individuals with skills to help them identify interior air contaminants, their sources, their effects on human health, and their mitigation. Youngsters will demonstrate the knowledge and skills acquired in this project through Indoor Air Quality 4-H competitions.

The basic issue in the area of nutrition education and behavior is developing a healthy, well-nourished population within the income constraints of each participant. This issue relates to personal satisfaction in one's life, the reduction of the incidence of chronic diseases, and moderating the trends of increased obesity in the population. Current efforts to reduce the incidence of overweight and obesity are based on medical models developed over 50 years ago, and are aimed at weight control rather than health. The adequate health status issue based on nutritious food, adequate physical activity, and accepting one's body as beautiful, not health status based on a specific BMI; concerns individuals, households, communities, and society at large.

In Puerto Rico there are no statistics concerning the presence of an adequate food supply in households to last the entire month. Studies conducted by the Puerto Rico Department of the Family show that the funds provided by NAP are not sufficient to buy nutritious food for the whole month. In working with low-income populations, it is evident that there is a problem with the availability of foods in socially acceptable ways. Households with children in school have fewer problems because the children can have one to two meals at school; however, households with small children at home, or which consist of adults or have older children that are not in school, may be at high risk for food insecurity.

CDC statistics for Puerto Rico, 1996 (earliest date for which the statistics are available), indicate that the prevalence for overweight was 37.2 (34.6-39.8) with a prevalence of obesity of 16.8 (14.8-18.8). The analogous numbers for 2002 are: overweight 39.2 (37.6-41.5, and obesity 22.0 (20.4-23-5). Persons 18 to 34 have a lower prevalence of overweight and obesity than persons 35 and older. The prevalence of overweight is greater in males than in females, but the prevalence of obesity is similar.

Studies indicate that between 80% and almost 100% of people who lose weight regain it. An informal survey of PRAES county personnel indicates that between 90 and 95% of the people failed to maintain weight loss after two to five years. However, recent work show that the non-diet approach (Health at Every Size) results in long term improved health in adults, although it was not associated with weight loss. Food related factors associated with overweight and obesity include: skipping breakfast, larger portion sizes, larger total amount of food served, high-fat-high-sugar diets, increased snacks, increased fruit juice consumption coupled with lower milk consumption, multi-tasking while eating, parent-child interactions while the child is eating, eating at fast food establishments, and increased choice in the marketplace. Participation in physical activity was identified as an important factor in 1955, and was recently confirmed in the WIN the Rockies program.

To deal with these problems related to overweight and obesity we have developed the program Healthy: No matter what my size or income, which is based on the idea that a healthy body feels good and looks good, no matter what its size. The basic attitude to be developed is: "I inherited a unique, complex, and attractive body. I will make sure it is as healthy as possible."

There is a safe food supply for Puerto Rico and the USA, thanks to a coordinated system of inspection that watches the entrance, the production, and the distribution of foods. Foodborne illnesses are a great public health problem; according to CDC estimates for the United States, annually there are 76 million cases, 325,000 hospitalizations, and 5,000 deaths. The number of cases for the four big foodborne illnesses (Puerto Rico Department of Health), were as follow: 1,044 cases of Salmonellosis, 207 of Hepatitis A, 12 of Shigellosis, and 1 of E. Coli 0157:H7 for 2001 and 798 cases of Salmonellosis, 102 of Hepatitis A, 33 of Shigellosis, and 3 of E. Coli 0157:H7 for 2003. The outbreaks of Salmonellosis and Hepatitis A were reduced in 24% and 51%, respectively, while the cases of Shigellosis increased in 60%, and E. coli 0157:H7 is minimal.

Research among Americans (fsis.usda.gov/OA/rePRAESrch) reveals that consumers are more knowledgeable about food safety, but may have erroneous ideas of which practices are effective to reduce risks and have attitudes that support it. The majority of consumers do not carry out food safety practices, although they wrote in a questionnaire that they do.

PRAES will continue developing and revising educational programs to support the "Fight BAC!" campaign. The Food Safety focal group concluded that educational priorities should emphasize on: 1) The basic four-steps to prevent foodborne illnesses. 2) Food handling outside the home: adequate time/temperature. 3) Food storage time. 4) Food allergies.

About 80% of foodborne disease outbreaks are associated with meals served in commercial and institutional food services. Some factors that contribute to this increase are: 1) Increase in the number of susceptible persons. 2) Consumers spend more money on meals outside the home. 3) Food employees are not trained and haven't been supervised by well-trained managers. 4) Preparation of foods in supermarkets. 5) More surveillance and detection by Federal and State agencies.

During the past decade, federal and state agencies developed new laws and regulations bringing to the mass media problems that always existed and hadn't been given the importance that they have on public health. PRAES' priorities are to offer the Food Safety Certification Course (FSCC) to persons in charge of food establishments, to promote the Food Code regulations, and the application of the recommended food handling practices to control, reduce or eliminate the risks associated to food-borne illnesses.

Professional personnel in charge of establishing and/or supervising the application of regulations and procedures in institutions that prepare and/or serve food to high risk clientele, are required to manage the food safety bases of the HACCP principles. PRAES' priority is to continue offering formal education to professionals that work in teaching or enforcing compliance of the regulations established.

Food processing plants in PR must operate with the HACCP plan, GMP & SSOP. PRAES will continue offering educational support and technical assistance to this personnel.

Puerto Rico has a population of 3,808,610 people (2000 US Population Census); an absolute increase of approximately 1.1 million people over the past 30 years. Families with both parents present comprise 68% of all families on the Island. Of this type of families, 31.4% live under the poverty level (income is less than \$10,000 per year). The total number of families with a woman as head of household (no man present) is 268,476. Of these families 49.8% earn less than \$10,000/year.

According to the Puerto Rico Planning Board, the personal income rose from \$38.4 billion (2001) to 45.4 billion (2005) during the past five years. But this growth in income does not translate into an increase in savings. Negative savings fell to -\$2.1 billion by 2005. One of the main explanations is that the level of personal debt has sky-rocketed. During this same period, the personal consumer debt increased by 14.1% (from \$17.2 billions in 2001 to \$19.6 billion in 2005), with an average per capita personal debt of \$5,000. Internal factors like in families such as unplanned spending and conspicuous consumption seem to worsen the personal debt. These economic pressures have caused an increase in the number of divorces (14,578).

Financial problems can cause negative impacts on individuals, families, and employers. Families are dealing in a complicated and aggressive world, where global marketing exposes them to irrational decision-making, conspicuous consumption, and faster economic resource exhaustion without adequate consumer education to help them consume in a rational way. The advertising and marketing industry aggressively seeks to create perceived needs and desires in young people, individual, families, and the general public (Kraack and Pelletier, 1998). In a study by Anderson (2004), he found that low-income audiences, which are susceptible to lending predatory practices, don't like to prepare their own budget. Irrational decision-making, the inflationary process and the lack of appropriate money management skills, constrain the consumers' income and spending patterns, forcing them to borrow. Consequently, consumers have a bad credit record. In addition, young individuals and couples lack good role models in financial matters and many employees are struggling with financial woes that threaten job productivity (Garman, 2005).

This social panoramic view shows the increasing need to help consumers and households to deal effectively in a complicated economy through financial literacy and market understanding, giving them the appropriate tools for a better decision-making process. Financial education offered through PRAES' programs could help individuals to deal proactively with the following areas: marketing problems, resource management expenses tracking, budgeting, savings, investment, debt reduction, and wise credit card use.

3) FOUR-H AND YOUTH DEVELOPMENT:

The primary audience of the 4-H and Youth Development program are children and youngsters between 5 to 19 years old. Due to the difference of age and diversity, their characteristics may vary according to their stage of development.

In the FY 2003-2004 Stakeholders Input process the youngsters selected the use of alcohol and drugs, sexuality, and criminality as the areas of most concern to them. According to statistics of the Department of Education (Area of Planning and Education Development, Statistics Division), during 2001-2002 there were a total of 1,872 school desertions at the intermediate and high school levels of an enrollment of 211,523 youngsters (approximately 1% of school dropouts in relation to the total student population); and studies indicate a close relationship between school desertion and juvenile delinquency. One of these studies, by

Dora Nevarez-Muniz, is entitled Crime in Puerto Rico. The Administration for Mental Health and Addiction Control Services (ASSMCA, 2004) revealed that 56.9% of about 24,000 students at the elementary, intermediate, and high school levels from public and private schools drink alcohol; and the Alliance for a Puerto Rico without Drugs (2002-2004) indicated that alcohol was the substance mostly used among youngsters of the public school system. Some 55.9% of the adolescents reported having drunk alcohol at least once in their life time. Other problems are offences against society (Puerto Rico's Assistant Police Superintendent for Citizen Services of the Statistics Division, 2004), with a total 933 cases for the entire island. Seven hundred and sixteen (716) cases were drug related. In addition, 5,168 minors were intervened by the police (Puerto Rico Police Statistics Division, 2003). These offences were related to violence and not to sexual crimes as it was thought before. Another serious problem that may lead to school desertion is pregnancy among adolescents. During 2001-2002 there were 244 pregnant students at the intermediate level and 1,037 at the high school level (Department of Education). According to the Department of Health (2003), births from adolescent mothers constitute 17.7% of all births in Puerto Rico. These data confirm the concerns of the youngsters consulted in the Stakeholder Input Process (2003-2004). In the FY 2004-2005 Stakeholders' Input process the youngsters chose arts (65%), technology (59%), sports (53%), music (41%) and agriculture (34%) as the areas that most interested them.

In both studies the youngsters pointed out the importance of having these needs dealt with. Attending these concerns will help make a more interesting and educational program resulting in more participation. We should identify creative and innovative strategies to attain a combined balance between the themes of major interest pointed out by the youngsters and the mission of the 4-H Program. PRAES professionals will use the technical material to reach and satisfy other needs pointed out by the youngsters to develop values and life skills.

To achieve or accomplish an appropriate development of the 4-H Program, we will use different activities and methods, such as: camps, competitions, meetings, demonstrations, and workshops; but, especially, the development of projects as strategic learning tools. We will also promote learning experiences in-service that will give youngsters the opportunity for reflection and action about impact issues. Through the project the youngsters will acquire and develop life skills to identify the most important issues within a real world situation through critical thinking, generate emotional consequences, which challenge values and ideas, and support social, emotional and cognitive learning and development.

4) COMMUNITY RESOURCE DEVELOPMENT:

Forty six per cent (46.1%) of the municipalities in Puerto Rico have from 50% to 59% of the families living below the poverty level (2000 US Population Census). The Special Communities Office of Puerto Rico developed social and economic studies in 686 special communities with a sample of 76,306 residents surveyed. The studies found that there are 138 outskirt communities with 37.3% of the residents lacking property titles to their houses; 37% of the houses are built of wood, cement and zinc; 78.3% of the residents are unemployed, lack security, and public transportation, and their communities are socially disadvantaged. In addition, There is a prevalence of families with some indicators of school desertion, illiteracy (10%), families with only one head of household working, unemployed persons, persons lacking workskills; and a total lack of basic public services such as schools, post offices, waste disposal management systems; environmental problems; and a total or partial absence of infrastructure and basic services like electricity, aqueducts and sewers, and recreational areas. Other social problems such as addictions, lack of security, and domestic violence are endemic. These situations force residents to depend on government assistance (42.4%.or 407,275 NAP families).

CRD focuses its efforts to attending the social and economically disadvantaged communities by training leaders in community organizations, fostering empowerment and self-management. Community development has been improving the social, economic, and environmental quality of live for individuals and families. Leadership developed in the communities contributes to civic engagement and healthy communities by promoting the interaction of community institutions, health, and social services. It is a priority of the State to build a visionary, accountable, and inclusive culture of civic decision-making and problem solving, ensuring strong human and social services to support individuals, families, and those in need; ensure public health and safety projects in the communities; and help build strong community development programs, anchored in research, education, and teaching their partners.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2008	198.2	0.0	0.0	0.0
2009	198.2	0.0	0.0	0.0
2010	198.2	0.0	0.0	0.0
2011	198.2	0.0	0.0	0.0
2012	198.2	0.0	0.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- Internal University Panel
- External Non-University Panel

2. Brief Explanation

The Merit Review process is conducted through four committees representing each of the four major programs: Agriculture, Marketing and Natural Resources; Family and Consumer Sciences; Four-H and Youth Development; and Community Resource Development. Each committee is composed of at least five members: Internal University members, which includes the program leader and two specialists (one from the Planning and Evaluation Office and one from the major subject area); and one faculty member from similar disciplines; and the external Non-University members representatives of the major government agencies or organizations that work with similar audiences. Members to the different committees include the Family and Consumer Sciences program (UPR), the director of Agricultural Education department (UPR-RUM), and the director of the Institute for Community Development (UPR), as well as representatives from the regional or state level of the Department of the Family, the Department of Education, the Governor’s Office for Special Communities, the Governor’s Office for Youth Issues, the Farmers’ Association, and the Farm Service Agency. Each committee meets quarterly to evaluate the proposed plan of work for the year. External committee members evaluate the quality and relevance of the activities and programs to the State goals and offer recommendations in order to continue emphasizing critical areas already addressed in the program or to modify those areas that need to be improved. A written report is prepared at the end of each fiscal year by the program leader, in accordance with the committee members. The report describes how the committee’s recommendations will be addressed.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Critical issues will be identified from several sources. Particularly, issues will be identified through the Stakeholder Input Process. They will also be identified by staff members at the state and local levels and through joint activities between PRAES and PRARS that are conducted for different commodities. Issues of strategic importance will be collected through collaborative and multidisciplinary efforts between the internal and the external linkages.

The identification of these critical issues has formed the basis for the revision and design of the new planned programs. Continuous revision of these issues will take place through periodic meetings with staff teams in charge of the Planned Programs in order to evaluate how these issues have been addressed and for new issues, identified educational strategies to attend those critical issues. Most of the educational strategies defined to address critical issues are the development of new and updated materials on the new topics and the establishment of special projects.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

PRAES planned programs are mainly designed to address the needs of various under-represented populations, particularly low income women, children, youth and families at risk, and small farmers, as well as homeless people. We continue to focus various educational efforts to attend the particular needs of the increasing population of adolescent mothers with planned programs in the areas of family, health, and resource management. PRAES has also placed special attention to the needs of the elderly population within the Families and Children planned program. Particular under-served and under-represented populations that PRAES is also targeting are the mentally challenged, as well as the jailed population that is soon to be out in the free community. A special project has been designed to address their particular needs with the objective of helping them develop the necessary skills for the job market or to allow them to establish their own business. Through the planned programs, they will continue to receive education in agricultural skills and other areas. Collaborative efforts with other state agencies have facilitated our strategies to reach these under-represented populations, as they refer some of this audience to us because of their high priority needs.

3. How will the planned programs describe the expected outcomes and impacts?

Planned programs describe the expected outcomes through the outcome indicators. Impacts of the planned program will be collected through Success Stories as well as Impact Statements.

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

Planned programs are designed to address the needs of our populations. Educational techniques will be constantly evaluated to adapt to the skills levels of the participants and their educational needs, therefore, resulting in increased program effectiveness. Evaluation visits will be conducted on-site to observe program performance and evaluate if programs are conducted as originally planned. Periodic meetings will also be conducted with staff teams to evaluate the effectiveness of their planned programs and identify strategies for improvement when needed.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Targeted invitation to traditional stakeholder individuals

Brief explanation.

Stakeholders for the input process consist mainly of traditional participants or clientele of our programs who are members of the Local Advisory Committee. These clientele have vast experience in the four major Extension programs and include farmers, homemakers, youth, and key community leaders. One or two representatives of state agencies that work with similar clientele, who are also members of the Local Advisory Committees are invited to participate in the stakeholder input process.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups

Brief explanation.

Stakeholders are identified through the local advisory committees and are mainly internal members of the committees. Periodically, internal focus groups will be conducted with a sample of the committee members.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder individuals
- Other (Focus group)

Brief explanation

Stakeholder input is collected at local advisory committee meetings. Stakeholders are asked about the most critical issues affecting the different areas in our educational programs including: agriculture, families and youth, and communities. They are then asked to help prioritize these issues. Focus groups are conducted periodically at the state level with a representative sample of the committee members. A written report is prepared by the county agents in collaboration with the committee members and sent to the PRAES Planning and Evaluation Office at the state level.

3. A statement of how the input will be considered

- In the Action Plans
- To Identify Emerging Issues
- In the Staff Hiring Process
- Redirect Extension Programs
- To Set Priorities

Brief explanation.

Input collected from the stakeholders are received at the state level and discussed at staff meetings with program leaders, the Planning and Evaluation Office, and the Associate Dean in order to set priorities for our programs. When there are issues which need to be emphasized, programs are redirected to address these issues. New emerging issues are identified through these processes and analyzed according to staff and resources available to address them; when needed, recommendations will be set for hiring staff.

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Animal Production
2	Animal Protection
3	Community Resources Planning and Development
4	Consumer Education and Individual and Family Resources Management
5	Crop Production
6	Economics, Marketing and Policy
7	Empowering and Self-management Communities
8	Engineering and Biosystems
9	Families and Children
10	Food Safety Program
11	Healthy: No matter what my size or income
12	Human Health and Well-Being
13	Management of Rangeland and Forestry Resources
14	Natural Resources and Environment - Soil, Water, and Air
15	Plant Protection
16	Strengthening Youth Life Skills, Leadership and Their Community

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Animal Production

2. Brief summary about Planned Program

Local animal production is limited by low efficiency of production at the farm level, high costs of production and limited control of imported products. Improving the efficiency of production can allow more opportunity to increase the rentability of the animal production enterprises and advantages in competition with imported products. The aim of the Animal Production planned program is to assist producers to improve efficiency of production through modern techniques.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 301 15% Reproductive Performance of Animals
- 302 20% Nutrient Utilization in Animals
- 303 10% Genetic Improvement of Animals
- 305 10% Animal Physiological Processes
- 306 10% Environmental Stress in Animals
- 307 20% Animal Management Systems
- 308 15% Improved Animal Products (Before Harvest)

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The livestock enterprises in Puerto Rico are: dairy and beef cattle, swine, poultry (broiler and laying hens), fish and shrimp, rabbits, goats, and sheep. These represent approximately 48% of Puerto Rico's gross agricultural income (Statistics of the Puerto Rico Department of Agriculture for FY 2005-2006). During the past four decades, milk production has been the most important agricultural enterprise, but the stability of the industry has been challenged by several factors. Current trends of the industry show a steady decline in the number of farms, as the average herd size has increased correspondingly. At the same time, the number of acres dedicated to forage production at the average dairy has been significantly reduced by more than 12% over the past ten years. The insufficient land for feed production has resulted in the farmers' increasing dependence on imported ingredients to feed their milking cows. Consequently, there has been an increase in the number of dairy cows in confinement or semi confinement and in the need of comprehensive nutrient management at the farm level to increase efficiency and reduce the threat of soil and water contamination. In addition, the steady reduction in the consumption of fresh milk observed during the past years has exacerbated the economic stability of the milk industry, since this is the product that generates the highest income to the farmer.

On the other hand, only 23% of all the meat consumed in Puerto Rico is produced locally. The common problems faced by meat producers are: low efficiency and quality of production at farm level and limited diversification of products to satisfy the needs of consumers. These problems are caused by limited control of imported products, high costs of production per unit of product, especially land and feed. Such problems need to be addressed in order to compete with imported products.

The local animal production system could become non sustainable in the long run faced with the realities of high levels of nutrient excretion, limited amount of land for forage production, and concentrated manure disposition. Eventually, if unattended, such a system can lead to the pollution of streams, estuaries, and groundwater resources. Therefore, it is critical for the long-term sustainability of the system to reduce surplus nutrient excretion and to increase recycling of nutrients on the farm by increasing the efficiency of animal production.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

PRAES' experience with educational programs in animal production indicates that the adoption of production practices by farmers depends on several factors: subsidies from government agencies, laws or regulations that force farmers to adopt or establish certain practices, and the ratio of return from their investment. The increase in size of animal operations observed during the past year in Puerto Rico is evidence of the tendency of producers to improve economies of scale. The PRAES Animal Production program has six full-time specialists at the state level and Extension agents in all the local offices. The success of the program in reaching the target audience depends on the number of agents assigned to work in animal production and the direct work of the agricultural agents with the farmers.

2. Ultimate goal(s) of this Program

To improve the animal production and products through better management practices.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	14.0	0.0	0.0	0.0
2009	14.0	0.0	0.0	0.0
2010	14.0	0.0	0.0	0.0
2011	14.0	0.0	0.0	0.0
2012	14.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conduct seminars, meetings and workshops.
 Establish collaborations with other local and federal agencies and other University partners on research and extension programs.
 Work in collaboration with the communications media.
 Write and submit extension and research proposals.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● Demonstrations ● Workshop ● One-on-One Intervention 	<ul style="list-style-type: none"> ● Newsletters ● Other 1 (Exhibitions) ● Web sites ● TV Media Programs

3. Description of targeted audience

Farmers, Extension professionals, government personnel, and private professionals.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	3200	4500	0	0
2009	3400	5000	0	0
2010	3600	6000	0	0
2011	4000	7000	0	0
2012	4000	7000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	0
2011	1	2
2012	1	2

V(H). State Defined Outputs

1. Output Target

- Number of farmers trained on animal production.

2008 :300 2009 :300 2010 :300 2011 :300 2012 :300

- Number of farmers trained on control of environmental stress on animals.

2008 :100 2009 :100 2010 :100 2011 :100 2012 :100

- Number of farmers trained on animal products.

2008 :60 2009 :70 2010 :80 2011 :100 2012 :100

- Number of collaborations established.

2008 :45 2009 :50 2010 :50 2011 :50 2012 :50

V(I). State Defined Outcome

1. Outcome Target

Number of persons that improved efficiency of animal production.

2. Outcome Type : Change in Action Outcome Measure

2008 :160 **2009 :** 170 **2010 :** 180 **2011 :**200 **2012 :** 200

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)

1. Outcome Target

Number of persons that adopted one or more practices to control heat stress.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :50 **2009 :** 40 **2010 :** 50 **2011 :**50 **2012 :** 50

3. Associated Knowledge Area(s)

- 305 - Animal Physiological Processes
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems

1. Outcome Target

Number of persons that improved the quality of their product.

2. Outcome Type : Change in Condition Outcome Measure

2008 :40 **2009 :** 50 **2010 :** 60 **2011 :**70 **2012 :** 70

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)

1. Outcome Target

Numbers of persons that improved the animal reproduction practices.

2. Outcome Type : Change in Condition Outcome Measure

2008 :60 **2009 :** 70 **2010 :** 80 **2011 :**90 **2012 :** 90

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 305 - Animal Physiological Processes
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems

1. Outcome Target

Number of persons that improved the nutrient utilization practices in animals.

2. Outcome Type : Change in Condition Outcome Measure

2008 :90 **2009** : 100 **2010** : 120 **2011** :150 **2012** : 150

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)

1. Outcome Target

Number of persons that increased animal production after adopting the recommended practices.

2. Outcome Type : Change in Condition Outcome Measure

2008 :125 **2009** : 140 **2010** : 150 **2011** :150 **2012** : 150

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Populations changes (immigration,new cultural groupings,etc.)
- Public Policy changes
- Appropriations changes
- Competing Public priorities
- Competing Programatic Challenges
- Natural Disasters (drought,weather extremes,etc.)
- Government Regulations
- Economy

Description

Because Puerto Rico is a tropical island, it is subject to extreme weather conditions such as hurricanes or prolonged periods of heavy rains or droughts. These prolonged periods of too much rain or no rain at all can affect animals and animal production, as

well as crops, increasing the dependence on imported ingredients for animal production. Changes in the public policy and regulations can also affect animal production, making farmers change their priorities. The development of the program depends on the amount of time that the agricultural agents allocate to it. Administrative changes in the priorities can affect program outcomes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Case Study

Description

A survey among participants prior to initiation of trainings and immediately after their completion will evaluate their knowledge and attitudes about animal production systems. Case studies will be used to evaluate this planned program with the purpose of compiling information about the factors that influence the participants' adoption of practices.

2. Data Collection Methods

- Observation
- Case Study
- Sampling

Description

The planned program will use qualitative methods including observation and case studies to collect the data.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Animal Protection

2. Brief summary about Planned Program

Livestock is the agricultural sector that has contributed the most to Puerto Rico's gross agricultural income. It includes dairy beef, poultry, swine, aquaculture, and small operations such as rabbits, goats, sheep, bees and horses. Of all agricultural activities, it is the sector most prone to the transmission of diseases to humans. Transportation of persons, equipment, materials, and goods which can take hours or days, increase the risk of transporting diseases from one place to another in a short period of time. This poses a great threat and risk to farm activities involving animals. Farmers should be made aware of the importance of developing a control and prevention program of animal diseases and of following the recommended production practices to reduce the risk of losses in production and low yields. The Puerto Rico Agricultural Extension Service (PRAES) will orient farmers of the importance of maintaining the animals in good health. Practices such as keeping the farm facilities clean, establishing a vaccination program, keeping the animals by age groups, and biosecurity will be promoted between farmers. The implementation of these practices will result in more successful farm operations.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 311 40% Animal Diseases
- 312 25% External Parasites and Pests of Animals
- 313 25% Internal Parasites in Animals
- 315 10% Animal Welfare/Well-Being and Protection

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

According to statistics of the Department of Agriculture, the livestock sector is the biggest contributor to the agriculture gross income. During fiscal year 2005-2006 it contributed with 48% of the agricultural gross income. The biggest contributors to this sector are dairy and poultry followed by beef, swine, aquaculture, and rabbits. However, given the importance of this sector, not all the farmers are following the guidance to manage their facilities properly. The new trends in commercial treatments between countries make the implementation of bio-security practices indispensable to avoid the spread of diseases. The bio-security program should be improved among those farmers that have them in place and those that are not implementing these bio-security measures should begin to do so. Animal products provide us with food, fiber, medicine, and wildlife. Animal health is an important task of farm business production that needs the support and education of our clientele. Some diseases that can devastate the animal enterprise and affect humans are: foot and mouth disease, avian influenza, exotic Newcastle, bovine "spongiform encephalopathy" (mad cow disease), and swine fever. Through the Animal Protection planned program, PRAES will create awareness of these diseases and will establish partnerships with agencies such as APHIS-Veterinary Services, the Puerto Rico Department of Agriculture-Animal Division, and local animal associations. We will promote the prevention and control of diseases and internal and external parasites at farm level and detect possible highly infectious animal disease agents.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Information about good disease management practices in farm animal and regulations will be available to all farm animals. PRAES will orient the farmers on the importance of adopting a disease control and prevention program and implementing the

recommended practices through its educational program.
The regulations are established by state federal agencies.

2. Ultimate goal(s) of this Program

Enhance the prevention and control of diseases at farm level to increase animal health, production, and quality.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	7.0	0.0	0.0	0.0
2009	7.0	0.0	0.0	0.0
2010	7.0	0.0	0.0	0.0
2011	7.0	0.0	0.0	0.0
2012	7.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Trainings.
Establish collaborations with local and federal agencies.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● One-on-One Intervention 	<ul style="list-style-type: none"> ● Newsletters ● Web sites ● Other 1 (Radio Programs)

3. Description of targeted audience

Agricultural producers, extension professionals, community leaders, and other professionals.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	2600	2200	0	0
2009	2800	2400	0	0
2010	3000	2500	0	0
2011	3300	2800	0	0
2012	3300	2800	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	1
2009	0	1
2010	0	1
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons trained in control and prevention of diseases.

2008 :200 2009 :250 2010 :250 2011 :250 2012 :250

- Number of persons trained in bio-security program.

2008 :250 2009 :300 2010 :300 2011 :300 2012 :300

- Number of persons trained in control and prevention of internal and external parasites.

2008 :200 2009 :200 2010 :200 2011 :200 2012 :200

- Number of persons trained in animal welfare and protection.

2008 :50 2009 :75 2010 :100 2011 :100 2012 :100

- Number of collaborations established.

2008 :22 2009 :24 2010 :26 2011 :28 2012 :30

V(I). State Defined Outcome

1. Outcome Target

Number of persons that adopted disease control and prevention practices.

2. Outcome Type : Change in Action Outcome Measure

2008 :150 **2009 :** 200 **2010 :** 200 **2011 :**200 **2012 :** 200

3. Associated Knowledge Area(s)

- 311 - Animal Diseases
- 312 - External Parasites and Pests of Animals
- 313 - Internal Parasites in Animals

1. Outcome Target

Number of persons that reduced the number of diseased animals on their farm.

2. Outcome Type : Change in Condition Outcome Measure

2008 :250 **2009 :** 300 **2010 :** 300 **2011 :**300 **2012 :** 300

3. Associated Knowledge Area(s)

- 311 - Animal Diseases
- 315 - Animal Welfare/Well-Being and Protection

1. Outcome Target

Number of persons that adopted a bio-security program.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :150 **2009 :** 200 **2010 :** 200 **2011 :**200 **2012 :** 200

3. Associated Knowledge Area(s)

- 311 - Animal Diseases
- 315 - Animal Welfare/Well-Being and Protection

1. Outcome Target

Number of persons that adopted practices in animal welfare and protection.

2. Outcome Type : Change in Action Outcome Measure

2008 :20 **2009 :** 25 **2010 :** 30 **2011 :**40 **2012 :** 40

3. Associated Knowledge Area(s)

- 315 - Animal Welfare/Well-Being and Protection

1. Outcome Target

Number of persons that adopted practices for the control of parasites on their farm.

2. Outcome Type : Change in Action Outcome Measure

2008 :150 **2009 :** 200 **2010 :** 200 **2011 :**200 **2012 :** 200

3. Associated Knowledge Area(s)

- 312 - External Parasites and Pests of Animals
- 313 - Internal Parasites in Animals

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Competing Public priorities
- Natural Disasters (drought,weather extremes,etc.)
- Government Regulations
- Appropriations changes
- Public Policy changes

Description

Puerto Rico is located in the Caribbean are and is subject to many climate changes. It is affected by natural occurrences such as hurricanes, which cause heavy rains and high winds during hurricane season (June to November) that affect animals and animal production; and long periods of drought during the dry season followed by periods of heavy rains, which often have devastating effects on animals and animal production, and consequently on the economy.

Government changes and lack of long term planning, result in an unstable environment in government agencies. This causes changes in the agencies' priorities and their performance in general, resulting in changes and disruption in the projects and affecting program outcomes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Other (Focal groups)
- Before-After (before and after program)

Description

The administration of pre and post tests is the best way to measure knowledge gained and effectiveness.

2. Data Collection Methods

- Sampling
- Other (Focal groups)
- Unstructured

Description

The collection will be done using as reference the four cardinal points. A sampling of every livestock sector will be taken and questions will be discussed to measure the adoption and to know any needs to perform the adoption.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Community Resources Planning and Development

2. Brief summary about Planned Program

The poverty level in Puerto Rico is 48.2 % (Census of Population, 2000); which means that the island has a higher number of low-income rural and urban communities in comparison to other states. Most of these communities share common characteristics such as limited and/or unequal access to natural resources, economic, and social development. Other characteristics include limited geographical space, high dropout and unemployment rates, domestic violence, and a long history of environmental and health problems. Therefore, our plan of work should consider the current situation of these communities. A key component is to develop educational programs that focus on empowerment. The educational effort will aim making communities more sustainable. It is important to develop collaborative work to assist them in taking control of their own lives. This will be achieved through the promotion of participatory methodologies, such as Participatory Action Research by developing tools to gain consciousness of their situation. We will continue our collaboration with other agencies to promote micro-enterprises initiatives as a tool to create community based businesses.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 608 100% Community Resource Planning and Development

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

In December 1997, the Puerto Rico Community Foundation created the Community Economic Development Consortium, which created the basis to promote the communities' economic development in a systematic way. In 2000 the government of Puerto Rico adopted a public policy to promote community organization, socio-economics, and the environment. A small community business (micro-enterprise) usually has less than nine employees. In Puerto Rico, small businesses conform 13.5% of the total businesses, and are mainly located at the municipalities of San Juan, Bayamón, Ponce, and Caguas. Forty percent (40%) of these businesses were dedicated to services, 30.4% to retail sales, 6.8% to finances or real estate, and 22.8% to sales, construction, manufacturing, transportation, and other activities. All personnel working in community development and educational institutions have the responsibility of promoting community self-management to increase self-esteem and reduce government dependence.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Educating our county agents, home economists, and community leaders will help disseminate the information to the communities. Working in collaboration with government agencies will help in maximizing the human resources available. Targeted communities will improve their quality of life.

2. Ultimate goal(s) of this Program

To increase the communities' well-being, quality of life and sustainability through the establishment of community-based businesses.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	11.5	0.0	0.0	0.0
2009	11.5	0.0	0.0	0.0
2010	11.5	0.0	0.0	0.0
2011	11.5	0.0	0.0	0.0
2012	11.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conference/training related to micro enterprises and community-based businesses.
 Individual counseling.
 Participate in radio programs in order to promote initiatives.
 Collaboration with the Special Communities Office of the Government of Puerto Rico.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● One-on-One Intervention ● Workshop 	<ul style="list-style-type: none"> ● Other 1 (Radio Programs) ● Other 2 (Publications, Exhibitions) ● Web sites

3. Description of targeted audience

Extension professionals, community leaders, and other professionals.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	525	10500	0	0
2009	550	11000	0	0
2010	575	11500	0	0
2011	600	12000	0	0
2012	600	12000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	1
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons trained in community-based business.

2008 :75 2009 :75 2010 : 100 2011 :125 2012 :150

V(I). State Defined Outcome

1. Outcome Target

Number of persons applying the recommended practices in the process of developing a community-based business.

2. Outcome Type : Change in Action Outcome Measure

2008 :25 2009 : 25 2010 : 35 2011 :45 2012 : 55

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

1. Outcome Target

Number of community-based businesses established.

2. Outcome Type : Change in Condition Outcome Measure

2008 :5 2009 : 5 2010 : 5 2011 :10 2012 : 20

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Government Regulations
- Appropriations changes
- Other (Changes persons involved)
- Competing Public priorities
- Public Policy changes
- Natural Disasters (drought,weather extremes,etc.)

Description

Puerto Rico's location in the Caribbean area make it object of a variety of natural events, which include hurricanes, heavy winds, droughts, and heavy rainy seasons that affect communities with floods and fires.

Because of the government's inability to solve the problems with its budget, the people have the feeling that we have an unstable economy. As a result, we expect possible changes in the budget assigned to government agencies and instrumentalities, as well as changes in public policies and regulations.

Due to the nature of Puerto Rican politics, sometimes the support needed from mayors in the municipalities may vary if his/her interests are different from those presented by the program. A presented or on-going project can be affected, if for any reason the person responsible for the agency's administration or the community leader change and the person replacing him is not interested in continuing with the educational initiatives established previously.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)

Description

Evaluation studies will be conducted during the program in order to understand the changes occurring in the communities. Periodic visits to the communities will be conducted.

2. Data Collection Methods

- Unstructured
- Sampling

Description

A sample of five communities, one from each of the PRAES regional districts, will be evaluated. Data will be collected during visits to the communities through observations of the community and unstructured interviews with community leaders, and other community members to understand how they perceive the changes that have occurred to the community and how these have improved the quality of life of the community.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Consumer Education and Individual and Family Resources Management

2. Brief summary about Planned Program

Families are dealing in a complicated and aggressive world, where global marketing exposes them to irrational decision-making, conspicuous consumption, and faster economic resource exhaustion without the adequate consumer education that helps them to consume in a rational way.

Financial education is an area that has gained interest among the public in recent years. Too many individuals and families are experiencing financial crisis because of inadequate savings, increasing debt, and lack of basic skills for a better financial decision-making. The goal of the planned program Consumer Education and Individual and Family Resource Management is to increase the financial well-being of consumers through knowledge, skills, and self-confidence in competencies such as: how consumer behavior influences decision-making, budgeting, debt reduction, credit wise, savings, and investment. The program targets low-income families, new couples, 4-H members, undergraduate students, and employees from public and private sectors. Educational activities will include group workshops and individual counseling. The Behavior Change Theory, as well as the stages of change and the process of changes concepts, will be applied in the design of the curriculum. This will give participants the opportunity to think about different strategies to move ahead toward change in conduct patterns. Social marketing and outreach activities, such as seminars, newsletters, radio programs, bulletin information center, and websites will be employed to help individuals to foster the desired behavior change.

We will join efforts through the establishment of coalitions with other agencies in Puerto Rico, such as: Department of Consumer Affairs, Department of Education, Consumer Credit Counseling, IRS, the Cooperative League, and the Puerto Rico Banks' Association, in order to work toward a successful consumer education program.

3. Program existence : Intermediate (One to five years)

4. Program duration : Medium Term (One to five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 607 20% Consumer Economics
- 801 80% Individual and Family Resource Management

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Puerto Rico has a population of 3,808,610 people (2000 US Population Census); an absolute increase of approximately 1.1 million people over the past 30 years. Families with both parents present comprise 68% of all families on the Island. Of this type of families, 31.4% live under the poverty level (income is less than \$10,000 per year). The total number of families with a woman as head of household (no man present) is 268,476. Of these families, 49.8% earn less than \$10,000/year.

According to the Puerto Rico Planning Board, the personal income rose from \$38.4 billion (2001) to 45.4 billion (2005) during the past five years. However, this growth income does not translate into an increase in savings. Negative savings fell to -\$2.1 billion by 2005. One of the main explanations is that the level of personal debt has sky-rocketed. During this same period, the personal consumer debt increased by 14.1% (from \$17.2 billion in 2001 to \$19.6 billion in 2005), with an average per capita personal debt of \$5,000. Internal factors in families such as unplanned spending and conspicuous consumption seem to worsen the personal debt. These economic pressures have caused an increase in the number of divorces (14,578). These statistics coincide with many behavioral and psychological studies which attribute economic pressures as one of the main causes of divorce.

Financial problems can also cause negative impacts on individuals, families, and employers. Families are dealing in a complicated and aggressive world where global marketing exposes them to irrational decision-making, conspicuous consumption, and faster economic resource exhaustion without adequate consumer education to help them consume in a rational way. The advertising and marketing industry aggressively seek to create perceived needs and desires in young people, individuals, families, and the general public (Kraack and Pelletier, 1998). In a study by Anderson (2004), he found that low-income audiences, which are susceptible to lending predatory practices, don't like to prepare their own budget. Irrational decision-making, the inflationary

process and the lack of appropriate money management skills, constrain the consumers' income and spending patterns, forcing them to borrow. Consequently, consumers have a bad credit record. In addition, young individuals and couples lack good role models in financial matters and many employees are struggling with financial woes that threaten job productivity (Garman, 2005).

This social panoramic view shows the increasing need to help consumers and households to deal effectively in a complicated economy through financial literacy and market understanding, giving them the appropriate tools for a better decision-making process. Financial education offered through PRAES' programs could help individuals to deal proactively with the following areas: marketing problems, resource management expenses tracking, budgeting, savings, investment, debt reduction, and a wise use of credit cards.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Financial education is an area that has gained interest among the public in recent years. Too many individuals and families are experiencing financial crisis because of inadequate savings, increasing debt, and a lack of basic skills for a better financial decision-making. According to Hogarth (2002), well educated consumers should make better decisions for their families, increasing their economic security and well-being. Furthermore, secure families are better able to contribute to vital, thriving communities, further fostering community economic development. Barheim, Garret, and Maki (2001) found that early exposure to financial concepts may increase comfort and familiarity with financial matters, thereby removing psychological barriers that impede proper decision-making.

According to O'Neill (1999), Money 2000 was an educational program that many State Cooperative Extension workers used as a method to increase the financial well-being of consumers. The most important find of this study was that those participants that paid more than the minimum balance due on credit cards, were more eager to make behavior changes, specifically on wise investment actions and setting financial goals. Utilizing the Transtheoretical Model of behavior change, individuals in the preparation and action stages of changes will probably be more attracted to enrollment in Money 2000 or other educational services programs than others that are not ready for change. O'Neill found that marketing and outreach activities, such as seminars, newsletters, and websites can help individuals to foster the desired change in anticipation of the preparation stage.

Coalitions with other consumer agencies will be an important component for a successful consumer education program. Such agencies could be: the Department of Consumer Affairs, the Department of Education, the IRS; Consumer Credit Counseling, the Cooperative League, and the Puerto Rico Banks' Association.

2. Ultimate goal(s) of this Program

To increase the financial well-being of consumers through knowledge, skills and self-confidence in competencies such as: how consumer behavior influences decision making, budgeting, debt reduction, credit wise, savings, and investment.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	9.2	0.0	0.0	0.0
2009	9.5	0.0	0.0	0.0
2010	9.5	0.0	0.0	0.0
2011	9.5	0.0	0.0	0.0
2012	9.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Curriculum and educational materials development
 Training the trainers
 Workshops
 Establishment of collaborations
 Consulting
 Media programs
 Exhibitions (Billboards in malls and public places with informative brochures and other educational material)

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Education Class ● One-on-One Intervention ● Group Discussion ● Demonstrations 	<ul style="list-style-type: none"> ● Other 1 (Radio Program) ● Other 2 (Exhibitions) ● Web sites ● Newsletters

3. Description of targeted audience

New couples, individuals, low-income families, Extension professionals, personnel from other State agencies.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	3200	4500	0	0
2009	3400	5000	0	0
2010	3600	6000	0	0
2011	4000	7000	0	0
2012	4000	7000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Total number of consumers that completed the Consumer Education Course.

2008 :325 2009 :350 2010 : 375 2011 :400 2012 :400

- Total number of consumers that completed individual and family resource management course.

2008 :325 2009 :350 2010 : 375 2011 :400 2012 :400

V(I). State Defined Outcome

1. Outcome Target

Total number of consumers that prepared an individual or family budget (Family Resource Management)

2. Outcome Type : Change in Action Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that adopted the practice of preparing their individual or family budget (Family Resource Management)

2. Outcome Type : Change in Action Outcome Measure

2008 :225 2009 : 250 2010 : 275 2011 :300 2012 : 300

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that acquired skills on how to use their credit card, their checking account, or their savings account. (Family Resource Management)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that made plans to reduce credit card use. (Family Resource Management)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :225 **2009 :** 250 **2010 :** 275 **2011 :**300 **2012 :** 300

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that adopted debt reduction.(Family Resource Management)

2. Outcome Type : Change in Action Outcome Measure

2008 :225 **2009 :** 250 **2010 :** 275 **2011 :**300 **2012 :** 300

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that acquired knowledge about track spending patterns. (Family Resource Management)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 **2009 :** 325 **2010 :** 350 **2011 :**375 **2012 :** 375

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that adopted practices on how to save.(Family Resource Management)

2. Outcome Type : Change in Action Outcome Measure

2008 :225 **2009 :** 250 **2010 :** 275 **2011 :**300 **2012 :** 300

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Number of consumers that opened a savings account. (Family Resource Management)

2. Outcome Type : Change in Action Outcome Measure

2008 :175 **2009 :** 200 **2010 :** 225 **2011 :**250 **2012 :** 250

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Number of consumers that acquired knowledge to request their credit record. (Family Resource Management)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 **2009 :** 325 **2010 :** 340 **2011 :**375 **2012 :** 375

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Number of consumers that improved their financial well-being.

2. Outcome Type : Change in Condition Outcome Measure

2008 :55 2009 : 75 2010 : 80 2011 :100 2012 : 125

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that acquired knowledge about consumption decision-making process (Consumer Education course)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 607 - Consumer Economics

1. Outcome Target

Total number of consumers that acquired knowledge about their rights and responsibilities as consumers (Consumer Education course)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 607 - Consumer Economics

1. Outcome Target

Total number of consumers that acquired skills on how to differentiate between needs and desires. (Consumer Education course)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 607 - Consumer Economics

1. Outcome Target

Total number of consumers that acquired skills to avoid the influence of publicity and marketing on decision-making. (Consumer Education course)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 607 - Consumer Economics

1. Outcome Target

Total number of consumers that adopted savings practices through goods and services selection process. (Consumer Education course)

2. Outcome Type : Change in Action Outcome Measure

2008 :225 2009 : 250 2010 : 275 2011 :300 2012 : 300

3. Associated Knowledge Area(s)

- 607 - Consumer Economics

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that acquired knowledge to establish goals and objectives (Family Resource Management)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

1. Outcome Target

Total number of consumers that acquired knowledge about saving. (Family Resource Management)

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 325 2010 : 350 2011 :375 2012 : 375

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Public priorities

Description

Goal enhancement could be affected by external elements, such as rivalry with other public priorities and other programmatic challenges. Said situation could realign human and fiscal resources to those other priorities, reducing the potential effectiveness of the proposed program.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)

Description

After finishing the course, all contestants will answer a retrospective evaluation questionnaire. This evaluation would ask the participant to determine his or her level of knowledge, skills, and adopted practices.

2. Data Collection Methods

- Tests
- Whole population

Description

An on-site retrospective test will be administered to all participants to measure changes in skill and practices after participating in the program.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Crop Production

2. Brief summary about Planned Program

An economically profitable and progressive agriculture requires efficient plant management and good pre-harvesting management practices of products to obtain excellent quality and better utilities. New technological practices and product quality innovations are essential for farmers to survive in the new global agriculture. The Crop Production program seeks ways to improve the use of improved production practices and Good Agricultural Practices (GAP) to provide farmers with better growth management systems. Our efforts are geared toward the effective production of our crop commodities and improved product quality.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 204 30% Plant Product Quality and Utility (Preharvest)
- 205 70% Plant Management Systems

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Crop production is the second most important economic area of Puerto Rico's agriculture. In 2005-2006 the value of crop production was \$325,362,000 (preliminary data PRDA), an increase of \$46,266,000 as compared to 2004-2005 with \$281,096,000 (revised data PRDA). The crop commodities include fruit (mango, avocado, pineapple, oranges, papaya, Spanish lime, Rambutan, other citrus and fruit), vegetable crops (tomatoes, peppers, sweet peppers, onions, pumpkin, aromatic herbs, and others), starchy crops (yams, tanager, cassava, and others), ornamentals (flowering plants, cut flowers, interior and exterior foliage plants, and landscaping), coffee, bananas, and plantains. Most of the farms are small or medium sized and owner operated. Their main crop production problems are product quality and the poor use of adequate crop cultivation practices. An economically profitable and progressive agriculture requires efficient plant management and good pre- and post-harvesting management practices of products to obtain excellent quality and better utilities.

For farmers to compete in the new global agriculture they need new technological practices, product quality innovations, and GAP. Farmers need to be educated on how to change production practices from artisan crop production to more effective production practices. Such efforts will help them to achieve higher production, better crop varieties, extend the harvest season, value-added, and improve quality to increase their profits.

The Crop Production program will make the Plant Product Quality and Utility and Plant Management Systems important key issues to the farmer's education program.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Our experience with crop production programs shows that farmers are motivated by economic government incentives and high product prices. In the past year the Puerto Rico Department of Agriculture announced a reduction in crop production incentives. It is important to move the farmers to be competitive with better and more cost effective plant management practices to increase the production, quality, and utility of their products. With better management, good quality and different product uses, the products can be sold in different market places. Different product uses (value-added) and high quality are essential to sell products to niche markets like hotels, restaurants and cruise lines that pay a high prices for products of better quality.

2. Ultimate goal(s) of this Program

To improve product quality, increase production and competitiveness through the use of the most effective management system practices, new varieties, and good agricultural practices.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	16.7	0.0	0.0	0.0
2009	16.7	0.0	0.0	0.0
2010	16.7	0.0	0.0	0.0
2011	16.7	0.0	0.0	0.0
2012	16.7	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Conduct production trainings.
- Farmers visits and guidance.
- Conduct farmers' meetings.
- Collaborate with local government agencies (Departments of Agriculture and Environmental and Natural Resources) and USDA (NRCS and others) .
- Prepare cultivation practices plan.
- Prepare products quality improvement plan.
- Distribute publications.
- Prepare crop production publications.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● Education Class ● Demonstrations ● One-on-One Intervention ● Workshop ● Other 1 (Telephone Calls and Email) 	<ul style="list-style-type: none"> ● Other 1 (Radio Programs) ● Other 2 (Publications, Exhibitions) ● Web sites ● Newsletters ● TV Media Programs

3. Description of targeted audience

The crop production program's target audience consists of farmers, government professionals, county agents, USDA professionals, products distributors, and professionals from the private sector.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	5000	3000	0	0
2009	5000	3000	0	0
2010	5000	3000	0	0
2011	5000	3000	0	0
2012	5000	3000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	4
2009	0	4
2010	0	3
2011	0	4
2012	0	3

V(H). State Defined Outputs

1. Output Target

- Number of persons trained on plant management systems in crop commodities.

2008 :1200 2009 :1350 2010 :1500 2011 :1500 2012 :1500

- Number of persons trained on products quality in crop commodities.

2008 :700 2009 :800 2010 :950 2011 :1000 2012 :1000

- Number of persons trained on value added in crop commodities.

2008 :400 2009 :500 2010 :550 2011 :600 2012 :600

V(I). State Defined Outcome

1. Outcome Target

Number of farmers that adopted one or more recommended practices of the plant management systems in crop commodities.

2. Outcome Type : Change in Action Outcome Measure

2008 :700 2009 :900 2010 :900 2011 :900 2012 :900

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems

1. Outcome Target

Number of farmers that increased production in crop commodities.

2. Outcome Type : Change in Condition Outcome Measure

2008 :475 2009 : 580 2010 : 600 2011 :600 2012 : 650

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems

1. Outcome Target

Number of farmers that increased the quality in crop commodities.

2. Outcome Type : Change in Action Outcome Measure

2008 :400 2009 : 400 2010 : 500 2011 :500 2012 : 500

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)

1. Outcome Target

Number of farmers that adopted new value-added practices in crop commodities.

2. Outcome Type : Change in Condition Outcome Measure

2008 :200 2009 : 250 2010 : 300 2011 :325 2012 : 325

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)

1. Outcome Target

Number of farmers that increased their income after having adopted one or more practices of plant management systems and/or product quality.

2. Outcome Type : Change in Condition Outcome Measure

2008 :300 2009 : 350 2010 : 400 2011 :400 2012 : 400

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)
- Populations changes (immigration,new cultural groupings,etc.)
- Other (Imports from other countries)
- Competing Public priorities
- Government Regulations
- Public Policy changes

Description

Puerto Rico, being a tropical island in the Caribbean, can be affected by natural disasters that in turn can have devastating effects on our agriculture. Long periods with too much rain or without rain and hurricanes are common. High winds and rain from

tropical storms (hurricanes) affect production, product quality, and increase the dependence on imported products. Changes in the economy and public policies cause farmers to change their priorities and reduce their farm capital. When the general feeling in the economy is positive, the farmers are more aggressive in their farm investments. Puerto Rico depends on imports of food products to supply the food demand. Also, changes in prices and the quantity of products from other countries affect the local production. The success of crop production programs depends on the amount of time allocated by PRAES county agents and crop specialists. Changes in program priorities by the administration have negative effects on program goals.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)

Description

Before and after each training a test will be administered to the participants to measure knowledge gained.

2. Data Collection Methods

- Sampling

Description

The county agents can take notes of farmer's progress during the farm visits and in trainings or short courses. They can also administer tests to know how the farmers are using the different practices.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Economics, Marketing and Policy

2. Brief summary about Planned Program

The planned program Economics, Marketing and Policy consists of educational and technical assistance to farmers and agricultural entrepreneurs on economics of agricultural production and farm management; business management, finance and taxation; marketing and distribution practices, and domestic policy analysis. Agriculture is a business and the farmer is an entrepreneur. The farmers have to make decisions on the use of their resources such as land, labor, capital, and management skills. They need business tools to be successful. Through this planned program the farmers will receive the necessary education and technical assistance to strengthen their abilities as managers and entrepreneurs. The program will provide intensive assistance in keeping records and evaluation of alternatives; tax management approaches; accounting methods; enterprise budgets; credit and income statements; inventory; agricultural risks; marketing strategies, and policies analysis. The farmers need tools and skills to stand up to the increased competition, environmental concerns, new production technologies, and changes in the economy.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 601 40% Economics of Agricultural Production and Farm Management
- 602 30% Business Management, Finance, and Taxation
- 604 20% Marketing and Distribution Practices
- 610 10% Domestic Policy Analysis

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

PRAES offers education to farmers on Economics, Marketing and Policy. During the past years, PRAES has conducted an effective educational program. The farmers received intensive trainings and technical assistance on farm management, finance, taxation, risk, marketing, and agricultural policies. The challenges of the economy make it necessary for PRAES to continue offering farm management education to help alleviate the economic situation faced by the farmers. On the other hand, the farmers and agricultural entrepreneurs need knowledge on diverse areas such as: how to use planning to prepare for the future, how farm managers make decisions, how to choose enterprises, how to integrate production and marketing management, farm records and accounting system, strategies for risk management, and how to obtain and use agricultural credit. Decision-making has always been a challenge to the farmers. Production technology is more dynamic.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Agricultural production is a competitive business. Based on this statement the farmers need be prepared in areas such as of the economics of agricultural Production and farm management; business management, finance and taxation; marketing and distribution practices, and domestic policy analysis. The program is based on the supposition that better educated farmers face new economic challenges with better possibilities of success. Farmers and agricultural entrepreneurs have a strong base to manage their business if they know different strategies. An educational program that offers the opportunity to obtain information about the economics of agricultural production and farm management; business management, finance and taxation; marketing and distribution practices, and domestic policy analysis, increase the possibility to be successful. The farmers who are early adopters

of new information can expect increased income.

2. Ultimate goal(s) of this Program

To improve the agricultural business of the farmers and agricultural entrepreneurs through the utilization of tools and skills in economics, marketing and policies.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	5.0	0.0	0.0	0.0
2009	5.0	0.0	0.0	0.0
2010	5.0	0.0	0.0	0.0
2011	5.0	0.0	0.0	0.0
2012	5.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Farm visits
- Trainings
- Seminars
- Meetings
- Educational material (publications, newsletters, CD)

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Other 1 (Telephone calls and email) ● Demonstrations ● One-on-One Intervention ● Education Class 	<ul style="list-style-type: none"> ● Other 2 (Software) ● Newsletters ● Other 1 (Publications, Exhibitions)

3. Description of targeted audience

Farmers, agricultural entrepreneurs, Extension professionals.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	300	600	0	0
2009	300	900	0	0
2010	300	900	0	0
2011	300	900	0	0
2012	300	900	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	2
2009	0	0
2010	0	1
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of trainings, courses and seminars offered.

2008 :15 2009 :20 2010 :25 2011 :30 2012 :30

- Number of farmers and agricultural entrepreneurs trained.

2008 :225 2009 :300 2010 :375 2011 :450 2012 :450

V(I). State Defined Outcome

1. Outcome Target

Number of farmers and agricultural entrepreneurs that adopted one or more economic practices.

2. Outcome Type : Change in Action Outcome Measure

2008 :55 2009 :75 2010 :85 2011 :100 2012 :100

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices

- 610 - Domestic Policy Analysis

1. Outcome Target

Number of farmers and agricultural entrepreneurs that utilize economic tools to take effective economic decisions to improve their business.

2. Outcome Type : Change in Action Outcome Measure

2008 :15

2009 : 30

2010 : 40

2011 :50

2012 : 50

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices
- 610 - Domestic Policy Analysis

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Natural Disasters (drought,weather extremes,etc.)
- Government Regulations
- Appropriations changes
- Public Policy changes
- Competing Public priorities

Description

Puerto Rico's location in the Caribbean puts it in the path of hurricanes with high winds and intensive rains. It is also subject to seasons with droughts followed by heavy rains which affect the economy and agricultural production.

The government's economic and budget constraints and changes in public policies affect program priorities.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Case Study
- During (during program)

Description

On going evaluations to determine whether or not the program is being implemented as planned will be carried out during the program and to identify project activities that need to be modified, deleted or added. Case studies will be employed to understand how participants have adopted the recommended practices to have a successful agro-business.

2. Data Collection Methods

- Sampling
- Unstructured
- Case Study
- Observation
- On-Site

Description

A convenience sample of farmers that have adopted the recommended practices will be selected for follow-up and evaluate how these practices have resulted in benefits for their business. Methods for data collection will include unstructured interviews and observations.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Empowering and Self-management Communities

2. Brief summary about Planned Program

Poverty is one of the most serious problem in Puerto Rico that requires urgent measures. The 2000 Population Census 48% of the Puerto Rican population lives below the poverty level. Some of the communities are at high risk of suffering from natural disasters such as floods by rivers and streams during the rainy season. The Community Resources Development program approaches its efforts to guide the communities' leaders towards self-management and empowerment and developing their emergency plans to face these situations. This is obtained through trainings to develop the leaders' capacities and to give them the necessary tools to organize their communities, getting involved in the decision-making process, and facilitating and encouraging the communities' participation.

In our social and disadvantaged communities, there is a prevalence of families with unequal access to economic and social development compared to other population groups on the island. With the development of the Empowering and Self-management Communities program, we expect the citizen's participation in personal, family, and community decision-making. We encourage community efforts to respond to and find solutions to population needs, participate in power structures, and access to ways of preventing social problems. The community is the focal point where people feel a sense of personal involvement and take pride in their actions. Work in this area provides the opportunity to obtain empowering and self-managing communities by the understanding of social, technological, and demographic changes occurring in society. Understanding of the development, quality, and function of community institutions and social services are other desirable outcomes.

The areas of work include the sociology/psychology of the farm family and other aspects of rural life and living conditions; impact of change in communities; community development, asset building, civic engagement, and leadership; social and educational factors affecting poverty and social impact of environmental change; development, coordination, and adaptation of agencies and organizations; community services institutions, including volunteer organizations, non-profit groups and centers; development of community fire prevention and other emergencies in the community, suppression plans, and related homeland security activities; community and civic engagement. The empowerment and self-management of the communities requires information, guidance, education, and civic engagement. Strong communities develop programs anchored in research, education, and in teaching their partners. It is important to help diverse communities to chart their futures.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 803 50% Sociological and Technological Change Affecting Individuals, Families and Communities
- 805 50% Community Institutions, Health, and Social Services

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Forty six per cent (46.1%) of the municipalities in Puerto Rico have from 50% to 59% of the families living below the poverty level (2000 US Population Census). The Special Communities Office of Puerto Rico developed social and economic studies in 686 special communities with a sample of 76,306 residents surveyed and found that there are 138 outskirts communities with 37.3% of the residents lacking property titles of their houses. Thirty-seven percent (37%) of the houses are built of wood, cement and zinc. Seventy-eight per cent (78.3%) of the residents are unemployed, lack security, and public transportation and their communities are socially disadvantaged. There is a prevalence of families with some indicators of school desertion and illiteracy (10%), families with only one head of household working, unemployed persons, persons lacking work skills. The communities lack basic public services such as schools, post offices, waste disposal management systems and have environmental problems. There is a total or partial absence of infrastructure and basic services such as electricity, aqueducts and sewers, and recreational areas. Social problems such as addictions, lack of security, and domestic violence are endemic. These situations force residents to depend on government assistance (42.4% or 407,275 PAN families). CRD focuses its efforts to attending the social and economically

disadvantaged communities by training leaders in community organizations, and fostering empowerment and self-management.

Community development has been improving the social, economic, and environmental quality of life for individuals and families. Leadership developed in the communities contributes to civic engagement and healthy communities by promoting the interaction of community institutions, health, and social services. It is a priority of the State to build a visionary, accountable and inclusive culture of civic decision-making and problem solving ensuring strong human and social services to support individuals, families, and those in need; ensure public health and safety projects in the communities; and help build strong community development programs, anchored in research, education, and teaching their partners.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

To obtain a positive outcome in the development of the program it is necessary that people work together to address their common interests and goals. A strong program is developed when the people involved in it are motivated to learn and adopt changes in the program’s implementation. The use of capable leaders in making decisions, participating in community organization and evaluation, helps bring about solutions to population needs and encourages a strong program.

2. Ultimate goal(s) of this Program

To obtain empowered and self-managed communities improving the social, economic and environmental quality for individuals and families.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	23.0	0.0	0.0	0.0
2009	23.0	0.0	0.0	0.0
2010	23.0	0.0	0.0	0.0
2011	23.0	0.0	0.0	0.0
2012	23.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Workshops and meetings.

Develop educational material like curriculums and modules.

Establish community coalitions with volunteer organizations, community service organizations, institutions, and other agencies.

Community educational campaigns.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● One-on-One Intervention ● Education Class ● Group Discussion ● Workshop 	<ul style="list-style-type: none"> ● Other 1 (Radio Programs) ● Newsletters ● Public Service Announcement ● Other 2 (Publications, Exhibitions)

3. Description of targeted audience

Individuals and families in social and economic disadvantaged communities and key leaders.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	1400	10000	0	0
2009	1800	10000	0	0
2010	2200	10000	0	0
2011	2600	10000	0	0
2012	2000	10000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	1
2011	0	0
2012	0	1

V(H). State Defined Outputs

1. Output Target

- Number of workshops in leadership development.

2008 :35 2009 :45 2010 :55 2011 :65 2012 :65

- Number of leaders participating in workshops.

2008 :350 2009 :450 2010 :550 2011 :650 2012 :325

- Number of workshops on community organization and empowerment development.

2008 :30 2009 :35 2010 :40 2011 :50 2012 :65

- Number of leaders participating in workshops on community organization and empowerment development.

2008 :150 2009 :175 2010 : 200 2011 :250 2012 :325

- Number of coalitions established in the communities.

2008 :30 2009 :35 2010 : 40 2011 :50 2012 :65

- Number of coalition members.

2008 :150 2009 :175 2010 : 200 2011 :250 2012 :325

- Number of seminars on emergency and disaster situations offered.

2008 :30 2009 :35 2010 : 40 2011 :50 2012 :65

- Number of leaders participating in seminars.

2008 :150 2009 :175 2010 : 200 2011 :250 2012 :325

V(I). State Defined Outcome

1. Outcome Target

Number of communities organized.

2. Outcome Type : Change in Action Outcome Measure

2008 :30 2009 : 35 2010 : 40 2011 :50 2012 : 65

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

1. Outcome Target

Number of communities that took action over their necessities to improve their quality of life through empowerment and self-management.

2. Outcome Type : Change in Action Outcome Measure

2008 :30 2009 : 35 2010 : 40 2011 :50 2012 : 65

3. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities

1. Outcome Target

Number of leaders with community and civic engagement.

2. Outcome Type : Change in Action Outcome Measure

2008 :150 2009 : 1750 2010 : 200 2011 :250 2012 : 325

3. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities

1. Outcome Target

Number of communities that took action over specific necessities.

2. Outcome Type : Change in Action Outcome Measure

2008 :30 2009 : 35 2010 : 40 2011 :50 2012 : 65

3. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities

1. Outcome Target

Number of community projects established to benefit the community.

2. Outcome Type : Change in Condition Outcome Measure

2008 :30 2009 : 35 2010 : 40 2011 :50 2012 : 65

3. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities

1. Outcome Target

Number of leaders participating actively in the design and implementation of community projects.

2. Outcome Type : Change in Action Outcome Measure

2008 :300 2009 : 350 2010 : 400 2011 :500 2012 : 325

3. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities

1. Outcome Target

Number of communities that developed an emergency and safety plan.

2. Outcome Type : Change in Action Outcome Measure

2008 :30 2009 : 35 2010 : 40 2011 :50 2012 : 65

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

1. Outcome Target

Number of governmental or other organizations that collaborated in the communities' organization and development.

2. Outcome Type : Change in Condition Outcome Measure

2008 :30 2009 : 35 2010 : 40 2011 :50 2012 : 65

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations
- Natural Disasters (drought,weather extremes,etc.)
- Appropriations changes
- Economy
- Public Policy changes
- Competing Public priorities

Description

The external factors that interact and influence the development of the program include natural disasters, the economic structure, changes in public politics and issues, changing policies and programs priorities.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Case Study

Description

Descriptive case studies will be used to understand how Extension has contributed in the development of self-managed communities. A sample of five communities will be selected. These communities will be followed throughout the program to describe their transformation and empowerment process.

2. Data Collection Methods

- Journals
- Case Study
- Portfolio Reviews
- Other (Focus Groups)
- Sampling
- Unstructured
- Observation

Description

A sample of five communities will be followed to describe the empowerment process in the communities. The main methodology for data collection will be defined as case studies; however, various common methods will be employed during this process:

- Non-structured – Interviews with key leaders to understand how Extension has contributed in their leadership development and how Extension can contribute to the empowerment of their communities.
- Observations – A structured standardized guideline will be employed to observe meetings and other activities in the community to identify the number and level of participation of the community members.
- Portfolios – Analysis of documents used by the community to describe their activities.
- Journals – Key members in the communities will be asked to keep journals to describe the changes they observe in their communities as well as on their own personal changes and civic engagement.
- Focus groups – This qualitative methodology will be used to understand, through the dynamics of the group process, how the members of the community describe the changes that occurred and how these changes have affected their personal life and the quality of life of the community.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Engineering and Biosystems

2. Brief summary about Planned Program

A cost-effective agriculture requires efficient engineering practices. The majority of the farms in Puerto Rico have structures that form part of their infrastructure. Biological systems compose most of the waste management, recycling, and reuse operations in farms with animals in confinement. The Engineering and Biosystems program seeks to improve existing structures and to provide farmers with model plans that comply with permits requirements. Through this program, PRAES helps farmers with animals in confinement to prepare waste management systems that meet state and federal requirements. In the area of irrigation and drainage, most of our efforts are aimed at the effective operation and maintenance of the equipment and water conservation

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 401 15% Structures, Facilities, and General Purpose Farm Supplies
- 402 10% Engineering Systems and Equipment
- 403 65% Waste Disposal, Recycling, and Reuse
- 405 10% Drainage and Irrigation Systems and Facilities

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Most farms in Puerto Rico have structures and waste management systems as part of their infrastructure; many of these old and were built without permits. The experience with tropical hurricanes during the past two decades has motivated changes in the local building codes that affect agriculture. In addition to reducing the risk to human life of many of the existing structures, new structures need to follow efficient engineering practices and comply with the permit requirements of the Puerto Rico Buildings and Regulations Authority and Environmental Quality Board, the Department of Health, and other agencies. Financing and government incentives for new projects are issued pending compliance with all permits.

There is a high risk of pollution of surface and groundwater by agriculture. The new regulations for farms with animals in confinement have completed the public hearings process and are waiting to be signed into law. These regulations affect all farms with animals in confinement that produce more than 5 cubic feet of waste. Farmers need to be oriented on these new regulations. In addition, the existing waste management systems of many farms will have to be modified and, in some cases, relocated. These modifications need to be done minimizing the economic burden on the farmers.

Water quality is also affected by the design, construction, and maintenance of septic systems. More than 50% of all households in Puerto Rico dispose of their wastewater in septic systems; many of which are overloaded, their drain fields are not working, and receive no maintenance. Preliminary research results by the School of Public Health of the UPR indicate that the risk to human health from septic systems is imminent. More than 300 new irrigation systems were constructed on the Island as a result of legislation issued in 1995; these systems need maintenance so that they work effectively. The older systems also need operation and maintenance. The subject of efficient water use and conservation by the agricultural sector is addressed in a forthcoming water use plan by the Department of Natural and Environmental Resources. This document will make water conservation a key issue and farmers need to be kept informed and educated on this matter.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

In our experience with the Engineering and Biosystems program we have found that farmers are motivated by one or more of the following: economic incentives from the government, laws and regulations that require they make improvements in their farms, and a high rate of

return in their investment (cost effectiveness). Traditionally, most of our farmers have received economic incentives from the PR Department of Agriculture (PRDA); and eventhough it has announced reductions in some of these incentives, it will continue to offer incentives for the improvement of farm structures and the installation of waste management systems. The new environmental regulations and pressure from environmentalists will motivate farmers to improve their waste management practices. To be cost effective, many of the small farmers will try to increase the size of their operations (economies of scale). Success in achieving this goal will depend on obtaining all of the required permits and financing from the lending institutions. The financing packages offered by banks for new projects and for improvements to existing projects require compliance with all permits; and insurance companies only insure those structures which can be guaranteed to comply with the new building code requirements. PRAES staff has been submitting proposals and working on special projects to obtain external resources to expand our capabilities. Our program could be expanded, if we are successful in attracting external funding and working through our network of county agents.

2. Ultimate goal(s) of this Program

Our ultimate goal is to improve agricultural infrastructures and waste disposal management through the use of effective engineering and biological systems.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	5.0	0.0	0.0	0.0
2009	5.0	0.0	0.0	0.0
2010	5.0	0.0	0.0	0.0
2011	5.0	0.0	0.0	0.0
2012	5.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Conduct workshops and meetings.
- Establish collaborations with government agencies (Environmental Quality Board; State Departments of Health, Agriculture, Environmental and Natural Resources, and Education; Puerto Rico Aqueducts and Sewage Authority; USEPA; USDA; NRCS; and others).
- Establish collaborations with our partners in the University of Puerto Rico and other educational institutions.
- Develop educational material consisting of model plans and specifications for structures.
- Distribute plans and specifications for structures.
- Design waste management systems (new or improvement to existing facilities).
- Collaborate in the construction of demonstration facilities.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● Demonstrations ● One-on-One Intervention ● Workshop 	<ul style="list-style-type: none"> ● Other 1 (Radio Programs) ● Web sites

3. Description of targeted audience

Extension professionals, government personnel (professional), professionals from the private sector, and farmers.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	4100	1000	0	0
2009	4200	1000	0	0
2010	4300	1000	0	0
2011	4500	1000	0	0
2012	4500	1000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	1
2009	0	1
2010	0	1
2011	0	1
2012	0	1

V(H). State Defined Outputs

1. Output Target

- Number of workshops and meetings offered.

2008 :5 2009 :5 2010 :5 2011 :5 2012 :5

- Number of collaborations established to improve engineering and biological systems infrastructure.

2008 :25 2009 :25 2010 :25 2011 :25 2012 :25

- Number of clients that participated in the workshop on structures.

2008 :50 2009 :50 2010 :50 2011 :50 2012 :50

- Number of clients that participated in workshop on waste management systems.

2008 :200 2009 :200 2010 :200 2011 :200 2012 :200

- Number of waste management systems designed.

2008 :50 2009 :50 2010 : 50 2011 :50 2012 :50

- Number of clients that participated in workshop on drainage or irrigation systems.

2008 :10 2009 :10 2010 : 10 2011 :10 2012 :10

- Number of plans and specifications for model structures completed and distributed.

2008 :100 2009 :100 2010 : 100 2011 :100 2012 :100

- Number of demonstration facilities established.

2008 :2 2009 :2 2010 : 2 2011 :2 2012 :2

V(I). State Defined Outcome

1. Outcome Target

Number of clients that increased their knowledge about improvements to increase the efficiency of their structures (new and existing) and compliance with regulations.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :50 2009 : 50 2010 : 50 2011 :50 2012 : 50

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies

1. Outcome Target

Number of clients that increased their knowledge about appropriate systems for waste management in their projects.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :200 2009 : 200 2010 : 200 2011 :200 2012 : 200

3. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of clients that increased their knowledge about drainage or irrigation facilities.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :10 2009 : 10 2010 : 10 2011 :10 2012 : 10

3. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

1. Outcome Target

Number of clients that adopted one or more of the recommended practices to increase the efficiency of their structures and comply with all permits.

2. Outcome Type : Change in Action Outcome Measure

2008 :25 2009 : 25 2010 : 25 2011 :25 2012 : 25

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies

1. Outcome Target

Number of clients that adopted one or more practices to improve their drainage or irrigation facilities.

2. Outcome Type : Change in Action Outcome Measure

2008 :5 2009 : 5 2010 : 5 2011 :5 2012 : 5

3. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

1. Outcome Target

Number of farmers that improved their structures (new or existing) and/or comply with permits.

2. Outcome Type : Change in Condition Outcome Measure

2008 :25 2009 : 25 2010 : 25 2011 :25 2012 : 25

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies

1. Outcome Target

Number of waste management systems improved (new or existing).

2. Outcome Type : Change in Condition Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of drainage or irrigation facilities improved.

2. Outcome Type : Change in Condition Outcome Measure

2008 :5 2009 : 5 2010 : 5 2011 :5 2012 : 5

3. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

1. Outcome Target

Number of farmers that increased their production as a result of improving their structures.

2. Outcome Type : Change in Condition Outcome Measure

2008 :25 2009 : 25 2010 : 25 2011 :25 2012 : 25

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies

1. Outcome Target

Number of farmers that increased their production as a result of improving their waste management systems.

2. Outcome Type : Change in Condition Outcome Measure

2008 :70 2009 : 70 2010 : 70 2011 :70 2012 : 70

3. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

1. Outcome Target

Number of farmers that increased their production as a result of improving their drainage or irrigation facilities.

2. Outcome Type : Change in Condition Outcome Measure

2008 :2 2009 : 2 2010 : 2 2011 :2 2012 : 2

3. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Natural Disasters (drought,weather extremes,etc.)
- Competing Programatic Challenges
- Government Regulations
- Public Policy changes
- Other (Availability economic incentives)

Description

In a tropical island setting, agricultural priorities can be drastically affected by natural disasters. Tropical hurricanes and long periods without rain or with too much rain are the most common. Many agricultural facilities can be severely affected by high winds caused by tropical hurricanes and periods of no rain or excessive rain can severely affect crops and increase the dependency on imported concentrated cattle feed. A general feeling that the economy is weak is another factor that precludes people from investing in the improvement of the infrastructure in their farms. When the general feeling is that the economy is strong, people tend to be more aggressive. Changes in public policies and regulations cause farmers to change their priorities and to postpone projects. The availability of economic incentives is decisive in making final decisions that require capital investments. Many projects depend on economic incentives to be cost effective. Our program depends on the amount of time that the PRAES county agents can allocate to it. Any changes in priorities set by the administration will have an effect on the program's outcomes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Case Study

Description

Case studies will be used to evaluate this planned program to gather an in-depth understanding of the factors of the program that have influenced the farmers to adopt the recommended practices. The cases will be individual clients that have succeeded in adopting the recommended practices. Therefore, the evaluation period will depend on the time for adoption. Case studies will begin approximately by the second year of the program. Five clients will be selected, one from each of our district regions.

2. Data Collection Methods

- Unstructured
- Case Study
- Observation

Description

We will make use of qualitative methods, including observations in the projects, and interviews with the clients. Interviews will be non-structured, as themes and issues will emerge through the conversation. We will sample five clients to gather in-depth understanding of how the program has helped them achieve success in their projects.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Families and Children

2. Brief summary about Planned Program

The family structure in Puerto Rico has changed with important implications for children. The issues that most concern policy makers and the public are the increasing number of single-parent families over the past three decades and the increase in family violence, which affect the well-being of our families and their members. It is important to develop educational programs to empower families to nurture, support, and guide their members throughout their lives and motivate them to improve their quality of life and well-being. To reach this goal, the family life specialist develops programs facilitating strategic planning, workshops, curriculum, and trainings in successful parenting, character traits, values, family strengths, aging aspects, and life skills for families, children, youth, and elderly people. A special family project will be continued to help develop skills to change behaviors and adopt practices to strengthen family relations and values.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 802 100% Human Development and Family Well-Being

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The family is considered the first institution that has the responsibility and commitment to prepare and educate its members and it is where character is formed and values are learned. According to the 2000 Census of Population for Puerto Rico and other statistics, the increase in population, social, political, and economic changes impact Puerto Rican families, affecting their vital function. The increase in the number of divorces, single mothers, adolescent mothers, stepfamilies, woman headed household families (27%), and grandparents raising grandchildren (53%) have affected the quality of life. This has resulted in an increase in child maltreatment and neglect, sexual and emotional abuse, family violence, high school dropouts (14%), and others. We must, therefore, direct our efforts to changing this situation by developing and promoting education to provide knowledge, strategies, and skills to change behaviors and adopt practices to strengthen and empower family relations and values.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Our experience working with this program shows that:

Coordination and collaboration with government and private agencies and partnerships are important to increase the impact of educational/preventive programs through the intervention of Extension Specialists/Educators.

Education to our Extension agents/educators and community leaders will help to disseminate and promote the information to families and children.

Clientele is motivated to learn and adopt practices in family relations and related areas to satisfy their essential needs.

Submitting proposals and working on special projects to obtain external resources that expand our staff and capabilities.

Information related to human development and family relations available through the internet, publications, curriculum, articles, radio and TV programs, and trainings help to reach state goals.

2. Ultimate goal(s) of this Program

Increase the number of families that support and guide their members throughout their lives.

Decrease child maltreatment and family violence.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	9.2	0.0	0.0	0.0
2009	9.5	0.0	0.0	0.0
2010	9.5	0.0	0.0	0.0
2011	9.5	0.0	0.0	0.0
2012	9.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Participate in radio/TV programs.
- Offer advice when clientele visit the office.
- Develop curriculum related to family relations, child development, human development, elder care, family resilience, and related areas.
- Conduct workshops, trainings, and meetings.
- Continue the collaboration with government and private agencies and institutions (Department of Family, Department of Education, Head Start, local government).
- Collaboration with partners in the University of Puerto Rico and other educational institutions.
- Use and implementation of curriculum, educational material, etc.
- Write proposals.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● One-on-One Intervention ● Group Discussion 	<ul style="list-style-type: none"> ● Other 2 (Campaigns & Exhibitions) ● Newsletters ● Other 1 (Radio Programs) ● Web sites

3. Description of targeted audience

Extension agents, home economists, PRAES specialists, government personnel (professionals), professionals from other agencies, parents, families, children, youth, elder people, volunteers, and general public.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	10500	15000	0	0
2009	10500	15000	0	0
2010	10500	15000	0	0
2011	10500	15000	0	0
2012	10500	15000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of workshops, trainings, and meetings offered.

2008 :55 2009 :55 2010 : 55 2011 :55 2012 :55

- Number of collaborations/established.

2008 :260 2009 :260 2010 : 260 2011 :260 2012 :260

- Number of persons trained in parenting and related areas.

2008 :900 2009 :900 2010 : 900 2011 :900 2012 :900

- Number of volunteers/community leaders trained in family relations and related areas.

2008 :200 2009 :200 2010 : 200 2011 :200 2012 :200

- Number of persons trained in aging aspects.

2008 :200 2009 :200 2010 : 200 2011 :200 2012 :200

- Number of persons trained in values, character traits, and/or family strengths.

2008 :600 2009 :600 2010 : 600 2011 :600 2012 :600

V(I). State Defined Outcome

1. Outcome Target

Number of persons that reported improved parenting skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :600 2009 : 600 2010 : 600 2011 :600 2012 : 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Number of persons that increased knowledge in parenting and related areas.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :600 2009 : 600 2010 : 600 2011 :600 2012 : 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Number of volunteer/community leaders that demonstrated their adopted skills by teaching and/or training others.

2. Outcome Type : Change in Action Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Number of persons that gained knowledge in aging aspects.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Number of persons reported improved skills and increased knowledge in values and character traits.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :600 2009 : 600 2010 : 600 2011 :600 2012 : 600

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Number of children and youth benefitted indirectly.

2. Outcome Type : Change in Condition Outcome Measure

2008 :200 2009 : 200 2010 : 200 2011 :200 2012 : 200

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

1. Outcome Target

Number of persons that increased knowledge from educational material and resources through campaigns and other educational methodologies

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :2000 **2009 :** 2000 **2010 :** 2000 **2011 :**2000 **2012 :** 2000

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Other (Availability fed., ext. funds)
- Competing Public priorities
- Public Policy changes

Description

In a tropical island setting, we are subject to a variety of natural events, which include hurricanes, long periods with heavy rains and/or winds, and droughts. There is a general feeling that the economy is weak and the government’s inability to solve our budget problems project an unstable economy. As a result, we expect changes in the money assigned to government agencies and changes in public policy and priorities. The support needed from the municipal mayors may vary if their interests are different from the interests presented by the program. Another situation could be any change in priorities of the agency’s administrators that could have an effect on the program outcomes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)

Description

The retrospective test is one of the most useful ways to determine knowledge, skills and/or attitudes acquisition. It is an important tool of evaluation that helps us to know the clientele knowledge before and after the participation in the program and determine its effectiveness and improvement in the quality of life.

2. Data Collection Methods

- Whole population
- Sampling
- Unstructured
- Observation
- Journals

Description

Data will be collected in different ways: (1) The unstructured interview is useful when we want to fully understand someone’s impressions or experiences and get full range and indepth information. (2) The observation method is helpful to gather information about how a program actually operates and allows its adaptation to events as they occurred. (3) The reflexive journal provides data base for transferability judgments and provides an opportunity for the participant to reflect on the changes experienced.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Food Safety Program

2. Brief summary about Planned Program

The goal of this program is "To improve food safety through the control, reduction or elimination of contamination risks". It includes four main components: A) "Fight BAC!" campaign for consumers; B) The Food Safety Certificate course for persons in charge of food establishments; C) Train-the-trainers for university personnel and professionals from other government agencies and organizations; and D) Trainings and food technology counseling for the development of food products, to small and medium processor plants.

The Fight BAC! Campaign is the consumer educational strategy promoted by the National Initiative, "From Farm to Table". The Puerto Rico Agricultural Extension Service (PRAES) adapted this to the Puerto Rican consumer's particular situations for food handling and socioeconomic and cultural factors. PRAES has three curriculums: (1) Fight BAC!, maintain food free from bacterias; (2) Preparation of nutritional safe recipes; and (3) Protect your baby.

The Food Safety Certificate Course (FSCC) includes 13 lessons that facilitate the training of the persons in charge of food establishments in the FDA 2005 Food Code regulations: 17 knowledge areas (2-102.11), the responsibilities (FC 2-101.11, 2-103.11) and Hazard Analysis and Critical Control Points (HACCP). This course includes the certification test of knowledge that is required by the Puerto Rico Department of Health.

Train-the-trainers to PRAES personnel on the curriculums developed for their clientele and their professional continuing education. PRAES maintains coordination with Federal and State government agencies in their common goal to improve food safety. PRAES has a protagonist roll in the Partnership for Food Safety Education (PSE) that groups representatives of regulatory agencies and the ones that serve susceptible clientele. PFSEP makes plans and offers trainings to professional personnel, promotes the collaboration of private and public institutions, and delivers education to the respective clienteles. Educational activities are developed and celebrated during September, "Month of Food Safety Education".

Offer technical assistance to small food processing, packing, and distributing plants. Assistance and trainings to personnel focus on "Hazard Analysis and Critical Control Point (HACCP)", "Good Manufacturing Practices (GMP)", and "Sanitation Standard Operating Procedures (SSOP)".

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 712 100% Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The food supply for Puerto Rico and the USA is safe thanks to a coordinated system of inspection that watches the entrance, the production and the distribution of foods. Foodborne illnesses are a great public health problem. According to CDC estimates for the United States, there are 76 million cases annually, 325,000 hospitalizations, and 5,000 deaths. The number of cases for the four big foodborne illnesses (Puerto Rico Department of Health), were as follow: 1,044 cases of Salmonellosis, 207 of Hepatitis A, 12 of Shigellosis, and 1 of E. Coli 0157:H7 for 2001 and 798 cases of Salmonellosis, 102 of Hepatitis A, 33 of Shigellosis, and 3 of E. Coli 0157:H7 for 2003. The outbreaks of Salmonellosis and Hepatitis A were reduced in 24% and 51%, respectively, while the cases of Shigellosis increased in 60%; E. coli 0157:H7 is minimal.

Research among Americans (fsis.usda.gov/OA/rePRAESrch) reveals that consumers are more knowledgeable about food safety, but may have wrong ideas of which practices are effective to reduce risks and have attitudes that support it. Most consumers do not carry out f practices, although they wrote in a questionnaire that they do.

PRAES will continue developing and revising educational programs to support the "Fight BAC!" campaign. The Food Safety focal group concluded that educational priorities should emphasize on: 1) The basic four-steps to prevent foodborne illnesses. 2) Food handling outside the home: adequate time/temperature. 3) Food storage time. 4) Food allergies.

About 80% of foodborne disease outbreaks are associated with meals served in commercial and institutional food services. Some factors that contribute to this increase are: 1) Increase in the number of susceptible persons. 2) Consumers spend more money on meals outside the home. 3) Food employees are not trained and are not supervised by well-trained managers. 4) Preparation of foods in supermarkets. 5) More surveillance and detection by Federal and State agencies.

During the past decade federal and state agencies developed new laws and regulations bringing to the mass media problems that always existed and hadn't been given the importance that they have on public health. PRAES' priorities are to offer the Food Safety Certification Course (FSCC) to persons in charge of food establishments and to promote the Food Code regulations and the application of the recommended food handling practices to control, reduce, or eliminate the risks associated to food-borne illnesses.

The professional personnel in charge of establishing and/or supervising the application of regulations and procedures in institutions that prepare and/or serve food to high risk clientele, are required to manage the food safety bases of the HACCP principles. PRAES' priority is to continue offering formal education to professionals that work in teaching or enforcing compliance of the regulations.

Food processor plants in PR must operate with the HACCP plan, GMP & SSOP. PRAES will continue offering educational support and technical assistance to this personnel.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Consumers – PRAES has 60 home economists that utilize three courses of “Fight BAC” to teach different types of clienteles. The curriculums were prepared and validated according to the Puerto Rican idiosyncrasy.

Persons in charge of food establishments – Since the year 2000, the Puerto Rico Department of Health adopted the FDA Food Code to regulate and inspect food establishments. This regulation demands that they have at least one certified person in charge during each shift to efficiently supervise food handling during the production and service hours. FSCC contained the regulations and all critical limits that food establishments must comply with. We expect all of them to adopt the majority of the practices learned.

PRAES and personnel of other agencies – The Partnership for Food Safety Education of Puerto Rico discusses food safety public policy and makes agreements to enforce the Food Code and other regulations applying to institutions.

The small food product processors, packers and distributors, do not have enough economic resources to pay private consultants for assessment in the preparation and implementation of HACCP, GMP & SSOP. PRAES is offering that service without cost to small businesses to help them be competitive in the market and at the same time help Puerto Rico's general economy.

2. Ultimate goal(s) of this Program

To improve food safety through the control, reduction or elimination of the contamination risks.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	8.2	0.0	0.0	0.0
2009	7.0	0.0	0.0	0.0
2010	7.0	0.0	0.0	0.0
2011	7.0	0.0	0.0	0.0
2012	7.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

For Consumers

- Fight BAC! Courses: The teaching field personnel will select a minimum of four lessons out of eight available based on the needs of consumers.
- Protect your baby: Includes four lessons, brochures, and flip chart addressed to pregnant women and mothers with infants.
- Course and competition Nutritional & innocuous recipes: This includes three lessons: 1) Developing nutritional & innocuous recipes. 2) Steps to prepare innocuous recipes. 3) Puerto Rico Food Pyramid) and competition on the preparation of original nutritional and innocuous recipes.
- Exhibitions, information centers, radio programs, and other activities.

Persons in charge (PIC) of food establishments

- Continue training and coordination using home economists to offer FSCC (13 lessons) to PIC.
- Specialists provide follow-up to the implementation of the HACCP system.

PRAES and personnel of other agencies:

- Trainings: Emphasis on institutions that serve foods to high risk clientele in the FC regulations, "Hazard Analysis Critical Control Point", Food Defense, and other themes
- Specialized advising

Persons in charge (PIC) of food processor plants, packaging and distribution (GMP, HACCP, SSOP): Trainings and Specialized advising

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● One-on-One Intervention ● Demonstrations ● Workshop ● Group Discussion 	<ul style="list-style-type: none"> ● TV Media Programs

3. Description of targeted audience

Fight BAC courses: Consumers, with emphasis on young mothers and susceptible groups (elderly, children, adolescents, and others).

Food Safety Certificate Course: PIC of foods in high risk institutions (school lunch program, children and elderly day care centers, and others), Owners/administrators, managers and food employees-Will give special attention to oystermen booths and improvised food establishments.

Training and specialized advising to professionals: Specialists, home economists and agricultural agents; Administrators of institutions that serve susceptible populations; Environment health inspectors, nutritionists, educators, agronomists, and others; Graduates students of the Food Science and Technology Program; Universities students; The professionals of institutions that belong (public educators) to the Partnership for Food Safety Education.

Advising and technical help in food processor plants: Owners/administrators, managers and food production and packaging supervisors; Persons that transport and distribute food products.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	12100	9000	0	0
2009	10100	7000	0	0
2010	10100	7000	0	0
2011	10100	7000	0	0
2012	10100	7000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of consumers completing one educational curriculum.

2008 :1200 2009 :1000 2010 :1000 2011 :1000 2012 :1000

- Number of participants that completed FSCC.

2008 :2500 2009 :2500 2010 :2500 2011 :2500 2012 :2500

- Number of technical help in HACCP, GMP and/or SSOP provides through visits, documents evaluation for revision or writing, to take samples, and others.

2008 :4 2009 :1 2010 :1 2011 :1 2012 :1

- Number HACCP, GMP y/o SSOP documents evaluated, corrected or written.

2008 :3 2009 :1 2010 :1 2011 :1 2012 :1

V(I). State Defined Outcome

1. Outcome Target

Number of consumers that adopted one or more food handling practices.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 **2009 :** 1000 **2010 :** 1000 **2011 :**1000 **2012 :** 1000

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of participants that approved the certification exam.

2. Outcome Type : Change in Action Outcome Measure

2008 :2500 **2009 :** 2500 **2010 :** 2500 **2011 :**2500 **2012 :** 2500

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of participants that wrote a plan to control the temperatures in Potentially Hazardous Foods (PHF).

2. Outcome Type : Change in Action Outcome Measure

2008 :1200 **2009 :** 1200 **2010 :** 1200 **2011 :**1200 **2012 :** 1200

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of participants that adopted 15 or more of 20 selected food handling practices recommended by the Food Code.

2. Outcome Type : Change in Action Outcome Measure

2008 :1750 **2009 :** 1750 **2010 :** 1750 **2011 :**1750 **2012 :** 1750

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of facilities that implement prepared or corrected HACCP plan as a result of the technical help offered.

2. Outcome Type : Change in Action Outcome Measure

2008 :3 **2009 :** 1 **2010 :** 1 **2011 :**1 **2012 :** 1

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

1. Outcome Target

Number of facilities improving or modifying the existing GMP and SSOP as a result of the technical help offered.

2. Outcome Type : Change in Action Outcome Measure

2008 :3 **2009 :** 1 **2010 :** 1 **2011 :**1 **2012 :** 1

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Government Regulations
- Natural Disasters (drought,weather extremes,etc.)

Description

Puerto Rico is in a high-risk area for hurricanes, especially between July and November. After a disaster, the risks of foodborne illnesses originating from floods, the interruption of electricity and contaminated water increases. The interruption of electricity and water services has been become a common issue, which requires constant education about the additional practices that the whole population has to carry out to maintain safe foods. PRAES has developed special educational material entitled "Fight BAC! After Floods and Blackouts". The professionpersonnel at the local level will offer education through short courses, mass media community resources during hurricane season.

Puerto Rico's economy has been affected by the increase in the prices of petroleum products and the new sales tax laws. These changes could affect the safety of foods. Imposition of penalties by inspectors of the PR Department of Health should have positive effects on food safety.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)

Description

Also, a pre/post evaluation study will be conducted to assess adoption of practices by the participants after completing the program.

2. Data Collection Methods

- Whole population
- Tests

Description

To collect data on the pre/post evaluation, for each course, a questionnaire will be administered on-site to determine adoption of food handling practices by the participants. These will be administered to the total population of participants in each course. Data is reported on the Information Electronic Reporting System for PRAES. For the Food Safety Certification Course, all participants will complete a final examination. Certification is granted to all participants having a score of 70 or more.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Healthy: No matter what my size or income

2. Brief summary about Planned Program

This program is based on the idea that a healthy body feels good and looks good, no matter what its size. The basic attitude to be developed is: "I inherited a unique, complex, and attractive body. I will make sure it is as healthy as possible." Although it seems contradictory, studies in the USA show that low-income populations are at an increased risk of being overweight and obese. The problem may be related to the fact that they may not be able to feed their family adequately the entire month using the money available; thus being motivated to use low-cost-non-nutritious foods. Low-income participants who have no children or have pre-school children are particularly at risk for hunger. Ten (10) lessons will be available to home economists, from which they will pick the six that are most appropriate to the expressed needs of their particular audiences. These lessons are based on learning tasks and emphasize attitudes and skills. Among the attitudes to be developed are: "I can include more physical activity in my daily life", "I am an attractive person", "I can prepare nutritious meals for myself and for my family", and "I can make nutritious choices when I eat out". The skills to be learned include: how to compliment a person without referring to their size, how to cook nutritious meals for myself and for my family, how to make nutritious choices when eating out, and leaving food on the plate, if too much is served. It is very important that people who have limited incomes be taught food preparation skills and how to make the best use of the money available for food. They also need to learn how to increase the use of food produced by the participant or food that is already found on trees growing around the house, make wiser selection of foods, compare prices and places to buy foods, and plan meals and snacks. The "Guía Pirámide para Puerto Rico", which is an adaptation of MyPyramid, will be used as the basis of our educational efforts. Behavior changes anticipated include increased consumption of whole grains, fruits, and vegetables; decreased use of beverages that are basically sugar and water; choosing fruits instead of juices; including oils or avocados in their meals; and consuming milk with meals. The home economists will be given a 2-day training to introduce the program. The first day will be dedicated to recognizing attitudes about weight and appearance and accepting the fact that a person can be healthy no matter what their size or income; and the second day will be spent experiencing the learning tasks and developing skills to create their own learning tasks. An exhibition will be developed to encourage people to sign up for the lessons.

3. Program existence : New (One year or less)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 703 80% Nutrition Education and Behavior
- 704 20% Nutrition and Hunger in the Population

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The basic issue in the area of nutrition education and behavior is developing a healthy, well-nourished population within the income constraints of each participant. This issue relates to personal satisfaction in one's life, the reduction of the incidence of chronic diseases, and moderating the trends of increased obesity in the population. Current efforts to reduce the incidence of overweight and obesity are based on medical models developed over 50 years ago, and are aimed at weight control rather than health. The adequate health status issue based on nutritious food, adequate physical activity, and accepting one's body as beautiful, not on health status based on a specific BMI; concerns individuals, households, communities, and society at large.

In Puerto Rico there are no statistics concerning the presence of an adequate food supply in households to last the entire month. Studies conducted by the Puerto Rico Department of the Family show that the funds provided by NAP are not sufficient to buy nutritious food for the whole month. In working with low-income populations, it is evident that there is a problem with the availability of foods in socially acceptable ways. Households with children in school have fewer problems because the children are able to have one to two meals at school; however, those households with small children at home, or which consist of adults or with older children who are not in school, may be at high risk for food insecurity.

CDC statistics for Puerto Rico, 1996 (earliest date for which the statistics are available), indicate that the prevalence for

overweight was 37.2 (34.6-39.8) with a prevalence of obesity of 16.8 (14.8-18.8). The analogous numbers for 2002 are: overweight 39.2 (37.6-41.5, and obesity 22.0 (20.4-23-5). Persons 18 to 34 have a lower prevalence of overweight and obesity than persons 35 and older. The prevalence of overweight is greater in males than in females, but the prevalence of obesity is similar.

Studies indicate that between 80% and almost 100% of people who lose weight regain it. An informal survey of PRAES county personnel indicates that between 90 and 95% of the people failed to maintain weight loss after two to five years. However, recent work shows that the non-diet approach (Health at Every Size) results in long term improved health in adults, although it was not associated with weight loss. Food related factors associated with overweight and obesity include: skipping breakfast, larger portion sizes, larger total amount of food served, high-fat-high-sugar diets, increased snacks, increased fruit juice consumption coupled with lower milk consumption, doing something else while eating, parent-child interactions while the child is eating, eating at fast food establishments, and increased choice in the marketplace. Participation in physical activities was identified as an important factor in 1955, and was recently confirmed in the WIN the Rockies program.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The attitudes, assumptions, and motivations of Extension personnel have to be modified:

The character of a person is more important than his appearance.

The environment is conducive to weight gain produced by an abundance of calorie dense foods and built in lack of opportunity to engage in physical activity as a part of normal daily activities.

Focus on reducing weight or on weight control does not work.

Obesity/overweight affects all members of society not just those who manifest the problem.

The overweight or obese individual is making the same kind of choices that normal weight individuals do, although they may not do it to the same degree.

The main difference between overweight and normal weight individuals is the hereditary tendency necessary to produce the symptom of overweight or obesity.

Overweight or obese individuals "may" be more sedentary or "may" eat more food than normal weight individuals, but not necessarily.

The focus has to be changed to:

Good health as a state of physical, mental, emotional, and social well-being rather than being a particular size or shape.

Improvement is more important than meeting a specific goal.

Eating a variety of foods is pleasurable.

Enjoyment in eating fruits and vegetables more often.

Listening to hunger and fullness cues.

Establishing an environment in which healthful choices are the easy choices.

Recognizing that references, negative or positive, to weight are not tolerable.

"Clean your plate" may not be healthful.

"Forbidden" or favorite foods can be included.

Recognizing cues to eating that are not food related.

Specific goals are important to know, but establishing behavior that would lead to those goals is more important than the goal itself.

The problem of overweight and obesity needs to be addressed at the household, school or community levels, and not so much at the individual level. The Institute for Community Development of the UPR in Mayagüez will collaborate with the PRAES in these efforts. The external environment will continue emphasize on weight loss and the condemnation of those who exhibit the problem.

No one wants to admit that they have problems with having enough food for their family. Coping strategies include:

Going to the homes of family members to eat.

Feeding the children, with mothers eating less.

Buying foods that will fill them up, regardless of nutritive value.

Adults learn by being presented practical solutions to perceived problems. These include:

Growing food for their own use, in gardens or in flower pots.

Preparing meals for the people living in their household.

Planning their meals based on rice and beans or pasta, with one to two ounces of meat per person.

Preparing one-dish meals.

Selecting lower cost alternative foods of the same or increased nutritional value.

Comparing similar items before purchasing.

Making a shopping list.

Making use of food specials.

Use of herbs and condiments grown by the person rather than fat, sugar or salt to enhance the flavor and appeal of foods.

2. Ultimate goal(s) of this Program

Change in attitudes, assumptions and motivations, implementing steps to improve the diet/physical activity characteristics of the individual and his or her family; and having sufficient nutritious food in the house to last the entire month. The ideal would be that everyone eat according to the Food Guide Pyramid for Puerto Rico and engage in sufficient aerobic activities, activities that increase muscle strength and promote greater flexibility of the body so that good physical capacity can be developed and maintained. The program focuses on reaching new audiences every year to achieve community-wide acceptance of the premises of the program. Emphasis will be on keeping the goal in mind, and taking small steps towards that goal. For many people reaching the goal will involve major changes in many areas of their lives, and this probably will not happen within the time frame available for reasonable evaluation of a program. However, improvement can be made and measured.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	9.2	0.0	0.0	0.0
2009	9.5	0.0	0.0	0.0
2010	9.5	0.0	0.0	0.0
2011	9.5	0.0	0.0	0.0
2012	9.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Train the home economists regarding basic attitudes, assumptions, and motivations.

Train the home economists in adult teaching methodology so that people decide to make changes.

Initial evaluation before the beginning of the course, of what the people expect from the course/activity.

Courses based on learning tasks.

Exhibits/Community activities which emphasize the new focus on "health, no matter what my size or income".

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Other 2 (Learning Tasks) ● Other 1 (Participatory Action Research) 	<ul style="list-style-type: none"> ● Other 1 (Radio Sports) ● Billboards

3. Description of targeted audience

Extension professionals, parents, the person that plans/buys/prepares food for the family, low-income families with small children or no children.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	10000	8000	4000	1500
2009	10000	8000	4000	1500
2010	10000	8000	4000	1500
2011	10000	8000	4000	1500
2012	10000	8000	4000	1500

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	1
2009	0	1
2010	0	0
2011	0	1
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons that completed the short course.

2008 :1000 2009 :1000 2010 :1000 2011 :1000 2012 :1000

- Number of volunteers that use the curriculum for a course or project.

2008 :25 2009 :25 2010 :25 2011 :25 2012 :25

V(I). State Defined Outcome

1. Outcome Target

Number of people who recognize that they are attractive, no matter what they weigh.

2. Outcome Type : Change in Condition Outcome Measure

2008 :300 2009 :300 2010 :300 2011 :300 2012 :300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who recognize that they can prepare a meal for their family or for themselves.

2. Outcome Type : Change in Condition Outcome Measure

2008 :300 2009 : 300 2010 : 300 2011 :300 2012 : 300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who recognize that they can make choices that are more nutritious when they eat out.

2. Outcome Type : Change in Condition Outcome Measure

2008 :400 2009 : 400 2010 : 400 2011 :400 2012 : 400

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who developed the attitude that "It is possible to feed my family with the money that is available."

2. Outcome Type : Change in Condition Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who can compliment a person without referring to their size.

2. Outcome Type : Change in Condition Outcome Measure

2008 :300 2009 : 300 2010 : 300 2011 :300 2012 : 300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who increased the consumption of whole grains.

2. Outcome Type : Change in Action Outcome Measure

2008 :200 2009 : 200 2010 : 200 2011 :200 2012 : 200

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who increased the consumption of fruits.

2. Outcome Type : Change in Action Outcome Measure

2008 :250 2009 : 250 2010 : 250 2011 :250 2012 : 250

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who increased the consumption of vegetables.

2. Outcome Type : Change in Action Outcome Measure

2008 :250 **2009 :** 250 **2010 :** 250 **2011 :**250 **2012 :** 250

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who decreased the consumption of beverages that are basically sugar and water.

2. Outcome Type : Change in Action Outcome Measure

2008 :350 **2009 :** 350 **2010 :** 350 **2011 :**350 **2012 :** 350

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who consume milk with their meals.

2. Outcome Type : Change in Action Outcome Measure

2008 :300 **2009 :** 300 **2010 :** 300 **2011 :**300 **2012 :** 300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who consume oils, nuts or avocados frequently.

2. Outcome Type : Change in Action Outcome Measure

2008 :200 **2009 :** 200 **2010 :** 200 **2011 :**200 **2012 :** 200

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people that grow food for their own use in gardens or flower pots.

2. Outcome Type : Change in Action Outcome Measure

2008 :200 **2009 :** 200 **2010 :** 200 **2011 :**200 **2012 :** 0

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who use fruit that grows in their backyard.

2. Outcome Type : Change in Action Outcome Measure

2008 :200 **2009 :** 200 **2010 :** 200 **2011 :**200 **2012 :** 200

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who prepare meals for the people living in their household.

2. Outcome Type : Change in Action Outcome Measure

2008 :300 2009 : 300 2010 : 300 2011 :300 2012 : 300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who prepare one-dish meals.

2. Outcome Type : Change in Action Outcome Measure

2008 :225 2009 : 225 2010 : 225 2011 :225 2012 : 225

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who select lower cost alternative foods of the same or increased nutritional value.

2. Outcome Type : Change in Action Outcome Measure

2008 :225 2009 : 225 2010 : 225 2011 :225 2012 : 225

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who make a shopping list.

2. Outcome Type : Change in Action Outcome Measure

2008 :225 2009 : 225 2010 : 225 2011 :225 2012 : 225

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who make use of food specials.

2. Outcome Type : Change in Action Outcome Measure

2008 :225 2009 : 225 2010 : 225 2011 :225 2012 : 225

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who are proud that they can prepare delicious low cost meals.

2. Outcome Type : Change in Condition Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who plan their meals based on rice and beans or pasta, with one to two ounces of meat or meat substitute per person.

2. Outcome Type : Change in Action Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

1. Outcome Target

Number of people who now use herbs and condiments to enhance the flavor and appeal of foods.

2. Outcome Type : Change in Action Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who now eat according to the recommendations of the Food Guide Pyramid for Puerto Rico.

2. Outcome Type : Change in Condition Outcome Measure

2008 :50 2009 : 50 2010 : 50 2011 :50 2012 : 50

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

1. Outcome Target

Number of people who now have enough food to feed their family the entire month.

2. Outcome Type : Change in Condition Outcome Measure

2008 :50 2009 : 50 2010 : 50 2011 :50 2012 : 50

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Public Policy changes
- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)
- Competing Public priorities
- Other (Focus Prog other Agencies)
- Economy

Description

Puerto Rico is subject to hurricanes. A major hurricane could completely reorient the government's priorities and make it essential to spend scarce resources on recovery rather than health related programs. Currently Puerto Rico is going through a major financial crisis which may or may not be solved in the near future. This situation is causing a rise in the cost of living with concomitant pressure to reduce the government payroll.

The prevalent overweight/obesity intervention model is the medical model based on weight control. This program is based on a completely different paradigm: Health at any Size. It will take a great deal of time for the home economists and the general public to change their attitudes and adopt the new model.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Other (Assessment of interests & needs)

Description

Initial assessment of the interests and needs of the people who plan to participate in the activity will be a one page questionnaire with open questions to assess:

- 1) Whether their attitudes changed because of the participation in the program.
- 2) What did they learn that they can put into practice immediately.
- 3) Would they recommend the classes to another person? Why? or, Why not?
- 4) What else would they like to learn.

In addition, the home economists will interview a small sample of participants about how the program has affected them (positively or negatively).

2. Data Collection Methods

- Whole population
- Other (Open questions)
- Sampling
- Unstructured

Description

Open questions will be administered using a one-page questionnaire. The home economists will tabulate the response according to the attitudes, skills, and behaviors included in the indicators. These results will be entered into the existing information system of the Planning Office of the Puerto Rico Agriculture Extension Service.

There will be an initial assessment of the interests and needs of the people who plan to participate in the activity. A one page questionnaire will be administered at the end of the course with open questions to assess:

- 1) Whether their attitudes changed because of the participation in the program.
- 2) What did they learn that they can put into practice immediately.
- 3) Would they recommend the classes to another person? Why? Or, Why not?
- 4) What else would they like to learn.

In addition, the home economist will interview a small sample of participants about how the program has affected them (positively or negatively).

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Human Health and Well-Being

2. Brief summary about Planned Program

Health and disease have been humanity's major concerns since antiquity and, without a doubt, people should be concerned about their health. However, despite its priority, they engage in behaviors that place them at risk of diseases. It is necessary to develop preventive educational programs targeted to children, youth, and families directing efforts towards the causes of the problems rather than their symptoms. To reach this goal PRAES will continue working in different partnerships with health and human services agencies to focus on collaborative efforts to develop programs aimed at the promotion of health and the prevention of disease. We will promote healthy lifestyles for people in both rural and urban areas, and address high risk factors through the prevention and early detection of diseases, the prevention of injuries and disabilities, and the appropriate use of the health care system (promoting the development of self-care skills).

Once the diverse needs of the general public are recognized, we will concentrate our efforts in training professionals, community leaders, and the public on decision-making related to health practices, including the importance of physical activity to prevent conditions related to the leading causes of death. Through the special project Promoting Healthy Lifestyles, targeted to our adult clientele, we will educate and empower individuals and families to adopt healthy behaviors and lifestyles. In addition, the curriculum guide "Prevention of Injury Using Safety", which also targets the adult population, will prepare individuals and families on how to take the correct steps in case of an emergency and encourage them to incorporate safety habits in their lives.

We will also continue working in the Healthy Indoor Air for America's Homes project, to prepare individuals with the skills necessary to help them identify interior air contaminants, their sources, their effects on human health, and their mitigation. Youngsters will demonstrate the knowledge and skills acquired in this project through Indoor Air Quality 4-H competitions.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 724 90% Healthy Lifestyle
- 804 10% Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The general health status is the product of the influence of the general environment and numerous specific risk factors associated to unhealthy behaviors, such as: cigarette smoking, physical inactivity, and unattended high blood pressure and diabetes. In 2004 about 46.6% of Puerto Ricans reported that in the past month they had not participated in any physical activity (PRBRFSS, 2006). Obesity, which is caused by the interplay of a poor diet and the lack of sufficient physical activity, is another contributing factor to added with the leading causes of death. Overweight and obesity in general increased from 54.0% to 61.6% during 1996-2002. The prevalence of overweight was higher in males than in females, and increased significantly with age (PRBRFSS, 2004). Obesity is also a key factor in the development of Type 2 Diabetes. The estimated prevalence of Diabetes Mellitus in 18 year olds and the older population increased from 8.5 in 2000 to 10.7 in 2004. This increment has been observed in age and in both genders, although in 2003 and 2004 women had a higher estimated prevalence than men.

Most people spend approximately 90% of their time indoors. This can be highly harmful to their health, if we consider the scientific evidence which indicates that toxic levels in air in interiors can be higher than the outdoor air in even the largest and most industrialized cities.

The lung is the most common site of injury by airborne pollutants. Pneumonia and influenza are the eighth leading cause of death in Puerto Rico. In 2004 there were a total of 1,165 deaths due to pneumonia and influenza, which represent 4.0% of the total deaths (Department of Health, 2006).

Accidents, the seventh cause of death (Health Department, 2006), are a significant threat to adults and older people. They

may ents cause not only death, but an extraordinary number of disabilities as well. There is some concern among policymakers about both the cost and health implications of overuse and inappropriate use of emergency rooms. A recent study made by the “Oficina de la Procuradora del Paciente” found that 64.3% of the persons that visited hospital emergency rooms had major and minor medical problems, but not urgent conditions. It is important that people learn how to identify the signs and symptoms that really require a visit to the emergency room. The Health and Safety program’s priority areas are to promote healthy lifestyles for people by addressing high risk factors to prepare individuals with skills that may help them identify interior air contaminants and mitigate them, and to encourage individuals to incorporate safety habits in their lives.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Educating our PRAES agents and community leaders will help disseminate the information to the communities. Working in different partnerships with health and human services agencies to focus on collaborative efforts will help in the development of programs aimed at the promotion and prevention of health. Recent information related to medicine and health is available through the internet and PR Medical Science Campus, the State Department of Health (DOH), and other state agencies. Those individuals who show up for a course or enroll in a program are motivated to learn/change. The ability of learning is fundamental to the nature of humans, but there are individual differences between learners.

2. Ultimate goal(s) of this Program

To promote healthy lifestyles for people by addressing high risk factors through the prevention and early detection of diseases. To prepare individuals and families to take the correct steps in case of an emergency and to encourage them to incorporate safety habits in their lives to reduce injuries. To prepare individuals with skills that may help them identify interior air contaminants, their sources, their effects on human health, and their mitigation to improve the quality of indoor air.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	9.2	0.0	0.0	0.0
2009	9.5	0.0	0.0	0.0
2010	9.5	0.0	0.0	0.0
2011	9.5	0.0	0.0	0.0
2012	9.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conference/ training related to healthy lifestyle.
 Conference/ training related to diabetes.
 Conference/ training related to injury prevention .
 Conference/ training related to indoor air quality.
 Offer counseling in the areas of health and safety .
 Work in collaboration with the communication media.
 Prepare educational materials.
 Continue working in partnership with other agencies to develop educational programs.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● One-on-One Intervention ● Group Discussion ● Workshop 	<ul style="list-style-type: none"> ● Other 1 (Radio Programs) ● Newsletters ● Other 2 (Publications, Exhibitions)

3. Description of targeted audience

Extension professionals (in service training), individuals interested in promotion/preventing diseases and professionals from other agencies, low-income families, community leaders, and the general public.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	4000	5000	4000	1500
2009	4000	5000	4000	1500
2010	4000	5000	4000	1500
2011	4000	5000	4000	1500
2012	4000	5000	4000	1500

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons that completed non-formal health education and health promotion programs

2008 :1100 2009 :1100 2010 :1100 2011 :1100 2012 :1100

V(I). State Defined Outcome

1. Outcome Target

Number of persons that reduced their risk levels upon the completion of one or more recommended practices on healthy lifestyles

2. Outcome Type : Change in Action Outcome Measure

2008 :800 2009 : 800 2010 : 800 2011 :800 2012 : 800

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Number of persons that reduced their risk levels for a chronic disease upon the increase of physical activity in to their lifestyle.

2. Outcome Type : Change in Action Outcome Measure

2008 :500 2009 : 500 2010 : 500 2011 :500 2012 : 500

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Number of persons that learned about risk reduction and safety

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :600 2009 : 600 2010 : 600 2011 :600 2012 : 600

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

1. Outcome Target

Number of persons that learned about indoor air contamination

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :500 2009 : 500 2010 : 500 2011 :500 2012 : 500

3. Associated Knowledge Area(s)

- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

Number of persons that detected and controlled indoor air contaminants in their homes

2. Outcome Type : Change in Action Outcome Measure

2008 :300 2009 : 300 2010 : 300 2011 :300 2012 : 300

3. Associated Knowledge Area(s)

- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

1. Outcome Target

Number of persons that acquired skills and modified attitudes and practices related to injury prevention

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :300 2009 : 300 2010 : 300 2011 :300 2012 : 300

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Public priorities
- Appropriations changes
- Government Regulations
- Competing Programatic Challenges
- Economy
- Natural Disasters (drought,weather extremes,etc.)
- Public Policy changes
- Populations changes (immigration,new cultural groupings,etc.)

Description

Puerto Rico's location in the Caribbean area is subject to a variety of natural events, which include hurricanes with heavy winds, droughts, and heavy rainy seasons that can cause floods.

The government's inability to solve the problems related to the budget has the people feeling that we have an unstable economy. Because of this, we expect changes in the money assigned to government agencies and instrumentalities, as well as changes in public policies and regulations. Sometimes the support needed from the Municipal government may vary if his/ her interests are different from those presented by the program. A project presented or on-going could be affected if, for any reason, the person responsible for the agency's administration changes. The same situation can occur if the community leaders are changed and the next ones are not interested in continuing with the education process.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- After Only (post program)
- Retrospective (post program)

Description

Different methods will be employed to evaluate changes in the participants. These methods will vary according to the curriculum used as some topics will be measured with post tests, pre/post test and other topics will be evaluated using a post retrospective test. These methods will be used to evaluate changes in knowledge and practices in a sample of the participants.

2. Data Collection Methods

- Tests
- Sampling

Description

Data will be collected in a sample of participants through different tests (pre/post, post, and retrospective tests) administered on-site.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Management of Rangeland and Forestry Resources

2. Brief summary about Planned Program

One way to promote the management of rangelands is through a collaborative effort with the USDA-NRCS. It will be directed toward the development of educational activities (training, meetings, seminars, follow-up visits and others) geared at implementing the recommended practices to protect the natural resources and the best management practices during farming. Farm demonstrations will be established as educational tools to showcase the desired practices and their benefits, and to encourage other farmers to adopt the practices. Each farm visit will require a report of the findings and recommendations. Short courses will be offered on improved pasture varieties, fertilization, silage, cover crops, and other related topics. A pre and post test will be administered to measure the knowledge gained.

Puerto Rico Agricultural Extension Service (PRAES) programs promote the use of better management practices that seem economically profitable for grazing hay and silage production on agricultural lands. PRAES seeks to promote the management of range lands to increase the grazing capacity, as well as the production of hay and silage, through the implementation of sustainable management practices using minimum tillage. There is great concern with soil erosion and deforestation of our lands and problems associated with the eutrofication and sedimentation of rivers on the island. Each year the risks of flooding increase causing numerous agricultural losses to the local economy. The development of new green areas, tree conservation, and reforestation are some of the alternatives to enhance, improve and promote wildlife in and around the cities. Reforestation and development of green areas in urban and rural areas by non government entities should be promoted. Rangeland and forestry practices will be improved to prevent the contamination of our natural resources.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 121 40% Management of Range Resources
- 122 5% Management and Control of Forest and Range Fires
- 123 20% Management and Sustainability of Forest Resources
- 124 30% Urban Forestry
- 133 5% Pollution Prevention and Mitigation

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Puerto Rico is characterized by a high population density, which demands the update and construction of infrastructure to satisfy the needs of the population. As a result, the land available for agriculture has been reduced. This squandering and urban development threaten our natural resources. The 2002 Census of Agriculture reported 690,687 acres for agricultural uses. Of these 178,663 were improved pastures, 109,597 were nature pastures, and 64,963 abandoned pastures. There is a need for better and more efficient use of our lands for range and pastures production. Farm animal production requires extensive, as well as intensive pasture land for dairy and livestock production. The main industries are dairy and beef cattle. Other emerging agricultural enterprises, such as horseback riding and paso fino horses, depend directly and indirectly of hay and range lands for grazing. Seventy-eight percent (78%) of livestock farmers in PR depend on hay to feed their animals. The agricultural net income for hay and silage during 2005-2006 was \$8.738,000 (preliminary data PRDA).

Intensive use of agricultural lands, deforestation, eutrofication, and sedimentation of rivers increase flooding risks, threatening the lives of people and livestock. Large social organizations are interested in developing urban forest programs to improve the environment in their communities. Workshops and publications are needed to use and promote the protection of our forest and trees.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

MANAGEMENT OF RANGE RESOURCES:

Land is in high demand for a variety of uses in Puerto Rico. As a result, natural resources such as land, water, and forest are being reduced in size and quality.

It is often believed that agricultural production is to be blamed for the contamination of the natural resources and their depletion.

If farmers implemented a package of better management practices in their farming operations, they could contribute to the conservation of the natural resources.

MANAGEMENT AND SUSTAINABILITY OF FOREST RESOURCES:

Reforestation of steep slope lands can contribute to the conservation of soil and water and the control of sedimentation and erosion.

URBAN FORESTRY:

Reforestation projects of non government entities contribute to improve the natural environment of the communities.

2. Ultimate goal(s) of this Program

To improve the recommended practices on range and forest resources to assure enough forage production for livestock and conserve the forest ecosystems.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	6.0	0.0	0.0	0.0
2009	6.0	0.0	0.0	0.0
2010	6.0	0.0	0.0	0.0
2011	6.0	0.0	0.0	0.0
2012	6.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conduct workshops and meetings.

Collaborate with government agencies (DNRA, USDA-NRCS and others).

Collaborate with our partners in the University of Puerto Rico and other educational institutions.

Conference/training related to range management.

Conference/training related to urban forestry.

Participate in radio programs.

Offer advice when clientele visit the office.

Conduct a campaign on the prevention of forest fires.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Other 1 (Telephone) ● Group Discussion ● Demonstrations ● Workshop 	<ul style="list-style-type: none"> ● Web sites ● Other 2 (Exhibitions) ● Newsletters ● Other 1 (Radio Programs)

3. Description of targeted audience

Audience will be county agents, home economists, government personnel, community residents, youth 13-18 years old, farmers, and homeowners.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	2500	3500	400	200
2009	3000	4000	500	300
2010	3500	4500	600	400
2011	4000	5000	600	500
2012	4000	6000	600	500

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	1
2009	0	1
2010	0	1
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of farmers trained in range management.

2008 :300 2009 :300 2010 :300 2011 :300 2012 :300

- Number of people that participated in workshops, conferences or meetings on urban forestry.

2008 :400	2009 :500	2010 : 500	2011 :600	2012 :650
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- Number of persons trained on forest and rangeland fire prevention.

2008 :100	2009 :120	2010 : 150	2011 :150	2012 :175
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- Number of persons trained on pollution prevention and mitigation of natural resources.

2008 :250	2009 :300	2010 : 350	2011 :400	2012 :450
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- Number of agency collaborations established.

2008 :5	2009 :5	2010 : 5	2011 :5	2012 :5
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- Number of people trained on natural resources and forest conservation.

2008 :400	2009 :500	2010 : 500	2011 :600	2012 :650
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V(I). State Defined Outcome

1. Outcome Target

Number of farmers that improved their pastures.

2. Outcome Type : Change in Action Outcome Measure

2008 :120	2009 : 130	2010 : 140	2011 :150	2012 : 175
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3. Associated Knowledge Area(s)

- 121 - Management of Range Resources

1. Outcome Target

Number of persons that adopted one or more practices on natural resources and forest conservation.

2. Outcome Type : Change in Action Outcome Measure

2008 :200	2009 : 250	2010 : 250	2011 :300	2012 : 375
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3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry

1. Outcome Target

Number of reforestation projects established.

2. Outcome Type : Change in Condition Outcome Measure

2008 :20	2009 : 20	2010 : 25	2011 :30	2012 : 40
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3. Associated Knowledge Area(s)

- 124 - Urban Forestry

1. Outcome Target

Numbers of persons that adopted one or more practices on fire prevention in forests and rangelands.

2. Outcome Type : Change in Action Outcome Measure

2008 :40 2009 : 50 2010 : 60 2011 :60 2012 : 70

3. Associated Knowledge Area(s)

- 122 - Management and Control of Forest and Range Fires

1. Outcome Target

Number of farmers that adopted the recommended range management practices.

2. Outcome Type : Change in Action Outcome Measure

2008 :160 2009 : 175 2010 : 185 2011 :200 2012 : 250

3. Associated Knowledge Area(s)

- 121 - Management of Range Resources

1. Outcome Target

Number of acres in improved pastures.

2. Outcome Type : Change in Action Outcome Measure

2008 :1500 2009 : 1500 2010 : 1600 2011 :1600 2012 : 1600

3. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 123 - Management and Sustainability of Forest Resources

1. Outcome Target

Number of persons that adopted practices for pollution prevention and mitigation of natural resources.

2. Outcome Type : Change in Action Outcome Measure

2008 :125 2009 : 150 2010 : 175 2011 :200 2012 : 225

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Other (Availability economic incentives)
- Natural Disasters (drought,weather extremes,etc.)
- Government Regulations
- Appropriations changes
- Economy
- Public Policy changes

Description

Every year Puerto Rico is subjected to and affected by a variety of natural disasters. Hurricanes, long periods of drought, or extensive periods of rain are the most common. Many agricultural facilities can be severely affected by these atmospheric events; which can also affect range production and increase the dependency on concentrated cattle feed. Changes in public policy and regulations may also cause farmers to change their priorities and to postpone projects. The availability of economic incentives for farmers and non government entities is important in making decisions requiring capital investments. Any change in priorities set by the administration will have an effect on the program outcomes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)

Description

Pre/post test will be employed to determine knowledge gained by program participants.

2. Data Collection Methods

- On-Site
- Whole population

Description

The data will be collected through pre- and post- test to compare and determine effectiveness of the educational programs.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Natural Resources and Environment - Soil, Water, and Air

2. Brief summary about Planned Program

The Soil, Water, and Air program intends to train our farmers on the appropriate management of our soil, water, and air resources to increase yields and prevent contamination. This is necessary since we are losing available land suitable for agriculture, have a high rate of erosion, low soil fertility, and problems with salinity. In addition, our watersheds are being sedimented, water for irrigation is scarce and expensive, and agriculture produces small particles and odors which affect the people and the efficiency of the enterprises. The regulatory agencies are enforcing laws to reduce environmental impact and which farmers have to comply with to receive the required farm operations permits.

Although the Aqueduct & Sewer Agency (PRASA) provides most of the water that we consume, 300 communities are still operating their own drinking water systems. These systems extract the water from rivers, streams or groundwater. Fifty percent (50%) of the population receives the sewer treatment service from PRASA and the rest uses household septic systems. We need to develop a program that will encourage farmers to adopt practices to reduce the effect of residual fertilizers and conserve the quality of the water for farming and household uses. PRAES will offer technical assistance, conduct follow-ups to the producers, and visit the farms to ensure that the recommended practices are being implemented and working properly. The relation soil-plant-water-air will be analyzed to maintain a balance. In addition, educational material will be prepared to deliver the information to the farmers and collaborative efforts with other agencies will strengthen the education. The planned program will be evaluated using case studies at the middle and at the end of the program.

3. Program existence : Intermediate (One to five years)

4. Program duration : Medium Term (One to five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 101 10% Appraisal of Soil Resources
- 102 40% Soil, Plant, Water, Nutrient Relationships
- 104 10% Protect Soil from Harmful Effects of Natural Elements
- 111 15% Conservation and Efficient Use of Water
- 112 15% Watershed Protection and Management
- 141 10% Air Resource Protection and Management

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Puerto Rico is 8,959 square kilometers. There are 17,659 farmers on the Island, with an average age of 58, that grow around 57 commodities (2002 Agricultural Census). Sixty percent (60%) of the cultivated land is more than 20% slopes. According to data from the Natural Resources Conservation Service, there is 10% of erosion annually. The soils have been meteorized creating a low fertility, wherefore the farmers have to establish conservation practices and a good fertilization program to get reasonable yields.

The main enterprises coffee, plantains, fruits, and starchy crops are cultivated in the hilly area and represent 25% of the total gross agricultural income. Some animal waste disposal systems in Puerto Rico have never been completed or submitted for approval to the regulatory agencies. Often, they lack an adequate system and receive poor maintenance, causing environmental impacts among which are odor, land and water pollution, and dissemination of pathogens, among others.

Animal production (2002 Agricultural Census) is composed mostly of 195 broilers, 130 egg producers, 363 dairy farms, 700 beef cattle, 1,170 swine, 395 rabbit, 309 lamb, and 208 goat farms. Most of these are small sized family operated farms and have conventional waste management systems, which rely mostly on uncovered lagoons to avoid runoff and possible surface and ground water contamination. The residues are applied to crops or pasture as organic fertilizer. Such practices reduce the nitrogen content of manure by volatilizing nitrogen (ammonia) to the atmosphere with other volatile compounds such as methane, organic and sulfur.

On the other hand we have problems with the quality and quantity of the water resources due to turbidity, erosion,

sedimentation and the presence of microorganisms.

Few options are available. Research is being conducted by the Puerto Rico Agriculture Experiment Station on anaerobic digester to respond to this situation in the dairy cattle and swine enterprises. But there is still much needed research on practices for combined air and water quality that are environmentally sound and economically feasible is essential.

This program is devoted to promoting the education of farmers and people related with agriculture through activities addressed to establish conservation practices to protect the watersheds, increase appropriate fertilization practices, conserve water, and mitigate emissions of particles from agriculture to the air. We will also emphasize on better soil management on the flood plains, the recharge of groundwater, and new alternatives to ensure compliance with air and water quality regulations.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Most of the animal farm production is family operated and small in size; they have few options available in terms of adequate waste disposal, considering that such systems require big land areas and are expensive.

We have to train the farmers on land movement and conservation practices in order to reduce the erosion of the soils.

The Natural Resources Conservation Service, the Puerto Rico Departments of Agriculture and Natural Resources and Environment will approve incentives to establish conservation practices, as well as water retention and sedimentation reduction practices.

The Environmental Protection Agency, Puerto Rico Department of Health, the Puerto Rico Environmental Quality Board, and the Puerto Rico Department of Natural Resources and Environment annually report on the regulations and other information which our agricultural agents use to orient our clientele.

If farmers obtain their operation permits and comply with the environmental regulations, the quality of our soil, air, and water will improve.

2. Ultimate goal(s) of this Program

To improve the utilization and conservation of soil, water, and air through the adoption of practices and regulations.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	8.0	0.0	0.0	0.0
2009	8.0	0.0	0.0	0.0
2010	8.0	0.0	0.0	0.0
2011	8.0	0.0	0.0	0.0
2012	8.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Develop a curriculum on air quality in agriculture (animal waste management).

Compile the guidelines of the regulatory laws for water quality.

Offer short courses and trainings on practices, laws, and regulations related to soil, water, and air.

Develop a curriculum related to watersheds protection.

On-site farm visits.

Establish demonstrative projects on the recommended practices for air quality and soil conservation practices.

Establish collaboration with government agencies (local, state & federal).

Distribute information at agricultural fair & festivals.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● One-on-One Intervention ● Other 2 (Telephone and email) ● Other 1 (Curriculum) ● Workshop ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Other 2 (Exhibitions, Publications) ● Other 1 (Radio Programs) ● Web sites

3. Description of targeted audience

Farmers (includes small family farms, large scale farm business operation), farm workers, government professionals, Extension professionals, and community residents.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	3500	2500	0	0
2009	4000	3000	0	0
2010	4000	3000	0	0
2011	4500	3500	0	0
2012	4500	4000	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	1
2009	0	1
2010	0	1
2011	0	1
2012	0	1

V(H). State Defined Outputs

1. Output Target

- Number of trainings offered on soil, water, and air.

2008 :15 2009 :20 2010 : 20 2011 :20 2012 :20

- Number of farmers trained on agricultural practices for air and water quality.

2008 :150 2009 :200 2010 : 250 2011 :250 2012 :300

- Number of people trained on environmental regulations for soil, air and water quality.

2008 :300 2009 :400 2010 : 500 2011 :600 2012 :700

- Number of farmers trained on soil fertility.

2008 :250 2009 :300 2010 : 350 2011 :400 2012 :400

- Number of farmers trained on soil conservation practices.

2008 :150 2009 :200 2010 : 250 2011 :300 2012 :300

- Number of people trained on watershed protection.

2008 :75 2009 :100 2010 : 125 2011 :150 2012 :150

- Number of people trained on conservation and effective use of water resources.

2008 :250 2009 :300 2010 : 350 2011 :350 2012 :400

V(I). State Defined Outcome

1. Outcome Target

Number of farmers that adopted the recommended practices for air and water quality

2. Outcome Type : Change in Action Outcome Measure

2008 :75 2009 : 100 2010 : 125 2011 :150 2012 : 150

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 141 - Air Resource Protection and Management

1. Outcome Target

Number of farmers that comply with the soil, air, and water regulations.

2. Outcome Type : Change in Action Outcome Measure

2008 :150 2009 : 200 2010 : 250 2011 :300 2012 : 350

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

- 141 - Air Resource Protection and Management

1. Outcome Target

Number of farmers that adopted the fertilization practices.

2. Outcome Type : Change in Action Outcome Measure

2008 :200 **2009 :** 250 **2010 :** 300 **2011 :**350 **2012 :** 350

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships

1. Outcome Target

Number of farmers that adopted one or more soil conservation practices.

2. Outcome Type : Change in Action Outcome Measure

2008 :100 **2009 :** 150 **2010 :** 200 **2011 :**250 **2012 :** 250

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 112 - Watershed Protection and Management

1. Outcome Target

Number of farmers that established practices for the protection of watersheds.

2. Outcome Type : Change in Action Outcome Measure

2008 :40 **2009 :** 60 **2010 :** 80 **2011 :**100 **2012 :** 100

3. Associated Knowledge Area(s)

- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

1. Outcome Target

Number of persons that adopted practices to improve water resources.

2. Outcome Type : Change in Action Outcome Measure

2008 :200 **2009 :** 250 **2010 :** 300 **2011 :**350 **2012 :** 0

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Appropriations changes
- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Other (change agency adm and com leader)
- Government Regulations

Description

As Puerto Rico is located in the path of hurricanes, it is annually threatened by these natural phenomena (June to November). Often, heavy rains (early in May through October) cause floods or mud slides. In the central mountain region the heavy rains increase the soil erosion and sedimentation of rivers and watersheds.

In relation to obtaining operation licenses or permits, the various agencies that farmers have to go through to submit the required documents, the time incurred, and the procedures are a burden and the main factors that discourage them from completing the process. Also, if the farmers still need some financing to cover the costs of improving their waste disposal system, they will incur in additional delays.

Because of the governments' inability to solve the problems with its budget, the people have the feeling that we have an unstable economy. Due to this same reason, we expect that there might be changes in the money assigned to government agencies and instrumentalities, as well as changes in public policy and regulations.

A project presented or on-going can be affected if, for any reason, the person responsible for the agency's administration changes. The same situation can occur if the community leaders change and the next ones are not interested in continuing with the education process.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Case Study

Description

Case studies will be used to evaluate this planned program and gather information of factors that influence the farmers in adopting the recommended practices. The cases will be individual clients that have succeeded in adopting the practices. Case studies will begin during the third year of the program. Three cases will be selected.

The use of pre/post-tests--two different tests--to determine knowledge acquisition. The Evaluation specialist will prepare the tests.

2. Data Collection Methods

- Case Study
- Sampling
- Unstructured

Description

The data collection can be done in different ways. For example, a sample of the community population can be informally interviewed to comprehend and understand the situation presented, the situation can then be compared with others nearby or with other municipalities with similar situations, and with the population of the Island. Also, we can interview the farmers and identify case studies.

The agricultural agents are required to keep a file of the farmers they visit or offer technical assistance to. The file includes a farm development plan and records with all the main practices implemented on the farm, problems, and recommendations, as well as participation in other USDA program assistance.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Plant Protection

2. Brief summary about Planned Program

PRAES uses the Plant Protection program to manage, enhance, and implement integrated pest management (IPM) techniques. Its objectives are broad and may change in scope from year to year depending on the pest incidence. It includes all horticulture and agronomic plants of economic importance to Puerto Rico. Our plant protection educational programs promote the adoption of the best management practices to develop IPM systems that protect the environment, conserve the natural resources, and contribute to the competitiveness, profitability, and sustainability of Puerto Rico's agriculture. The objective is to develop integrated approaches to crop protection, minimizing the impact of pesticides on the environment. The Plant Protection program facilitates the coordination of work that includes diverse disciplines, organizations, and job functions (extension, teaching, research). It is the central point of contact for inquiries about integrated pest management, pesticide applicator training, and pesticide impact that enhances the visibility of the University of Puerto Rico-Mayaguez Campus' protection program.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 211 25% Insects, Mites, and Other Arthropods Affecting Plants
- 212 20% Pathogens and Nematodes Affecting Plants
- 213 20% Weeds Affecting Plants
- 214 5% Vertebrates, Mollusks, and Other Pests Affecting Plants
- 216 30% Integrated Pest Management Systems

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The main agricultural enterprises in Puerto Rico are: coffee, vegetables, banana and plantains, citrus fruits, starchy crops, and ornamentals. Their annual contribution to the economy is about \$300 millions. These crops are intensively managed, with a high use of fertilizers and pesticides that create a potential threat to human health and the environment. With rising pesticide costs and growing public concerns about pesticide residues in food and contamination of surface and ground-water supplies, farmers want to reduce their reliance on chemicals to control insects, nematodes, weeds, and diseases. The situation is similar in Puerto Rico's urban settings. The Island has experienced unprecedented rates of urban and industrial development. Between 1992 and 1997, Puerto Rico lost approximately 12,460 acres per year of agricultural and open land (USDA National Resources Inventory). Such an accelerated development triggered a boom of the landscape maintenance industry; which includes approximately 1,500 pest control operators (PCO's) and 1,000 landscapers. Personal interviews with PCO's, landscapers, county agents, and pesticide distributors (2002), revealed that the industry represents a significant challenge and opportunity for the adoption of the IPM approach. Approximately 80% of landscapers and their employees do not know how to monitor and diagnose key pest problems and, instead, resort to indiscriminate periodic pesticide applications. This promotes unnecessary applications of pesticides with monetary costs and needlessly increases the load of these pollutants in the urban environment. The priority of the Extension Plant Protection program is to produce educational materials for Extension agents and other agricultural educators in Puerto Rico. IPM educational materials available are in English and/or are not readily available or comprehensible to an average field employee; therefore, it is necessary that these materials be available in Spanish to teach environmentally responsible pest management strategies for the protection of our crops and urban vegetated areas. IPM helps these diverse audiences accomplish this goal. Rather than relying strictly on pesticides to cope with pest problems, they can use a combination of biological, cultural, mechanical, and limited chemical control strategies. This minimizes the potential for adverse effects on human health or the environment while maximizing economic benefits to both producers and consumers. The adoption of the IPM approach is key in diminishing the negative impacts associated with pest control. In agriculture and landscape, it effectively reduces the potential for pest problems, is environmentally responsible, and economically practical.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Puerto Rico grows a great diversity of valuable crops that constitute a major source of healthy locally-grown products which contribute to the local and regional economies. Progress has been made in developing management programs and educational materials for some crops, such as: coffee, plantain and banana, and citrus. These commodities are affected by a variety of pests. Thus, coordinated efforts are needed to determine the importance of each crop, the associated pests, and the plan of action. Vegetables are often grown close to urban neighbors and negative impact related to pesticide use is expected. The development and implementation of IPM programs in Puerto Rico, that focus on reduced pesticide input would help minimize problems associated with pesticide use near urban areas. Such efforts would be enhanced by educational programs that teach growers integrated management methods. Moreover, federal and state laws and regulations favor the use of integrated pest management. The Food Quality Protection Act greatly restricts the use of pesticides while promoting IPM practices. To achieve permanent solutions to pest problems, the pest management staff will educate Extension agents and other agricultural educators in Puerto Rico about their role and participation in the training of growers, pesticide applicators, landscapers, and other personnel related to agriculture. Also, cooperation from extension agents, researchers, faculty, and government entities (PR Department of Agriculture, USDA Forest Service) is an integral part of PRAES' pest management program and, as a result of this multidisciplinary teamwork, pest management services and information flow more effectively to the clientele. The Extension Plant Disease Clinic will diagnose disease problems and make pest management recommendations to growers, ornamental producers, landscapers, and other persons, aiding in the main goal of the program of promoting the use of IPM and providing technical assistance to a diverse clientele. The clinic is connected to the IFAS Distance Diagnostic and Identification System (DDIS) which allows users to submit digital samples obtained in the field for rapid diagnosis and identification of pests.

2. Ultimate goal(s) of this Program

To increase the use of integrated pest management options to minimize pesticide use and reduce contamination.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	10.0	0.0	0.0	0.0
2009	10.0	0.0	0.0	0.0
2010	10.0	0.0	0.0	0.0
2011	10.0	0.0	0.0	0.0
2012	10.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

PRAES agents will continue training the farmers on pests of economical importance that affect the profitability of the crop commodities. In banana and plantain we will develop a manual guide and electronic presentations in integrated management of starchy commodities to assist Extension agents and other educators. Pests related to the plantain and banana commodities will be emphasized, (especially Black Sigatoka) in order to train the growers on IPM approach. After delivering the educational materials to educators, there will be demonstrations of the benefits of IPM at the farm level. In forest, we will develop field guides and a series of electronic presentations for Extension agents, agricultural educators, and personnel of the Department of Natural and Environmental Resources about the management of key pests in nurseries and urban forests. The manual and electronic presentations will be posted in the Extension web page. We will continually update the web page and the information on

destructive key pests and pests of possible introduction, to make it easier to document the benefits derived from IPM and guide future research and education efforts. In herb production, we will emphasize the identification of key pests of culantro (“Eryngium foetidum”) and cilantro (“Coriandrum sativum”) and the development of educational materials. A field guide and electronic presentation about management of key pests of culantro and cilantro will be developed to assist agricultural educators in training farmers to understand and implement IPM practices. Seminars and radio programs will be developed to inform about key pests of cilantro and the management practices available for control. There will be demonstrations on farms or hydroponic nurseries of producers interested to demonstrate the benefits of IPM practices and promote their adoption. The citrus commodity will emphasize on evaluating IPM practices in nurseries to control the citrus leafminer and developing the Citrus Crop Profile. The Crop profile will be developed by the IPM specialist in coordination with the citrus commodity leader and the fruit specialist. An entomologist, researcher of the Crop Protection Department, will evaluate citrus leaf miner IPM practices in nurseries. Seminars will be developed to inform nursery managers, Extension agents and other agricultural educators about the IPM practices available. The plant protection program will continue collaborating with the USDA Forest Service to assist forest nurseries and personnel of state agencies related to forest management by developing educational materials in IPM and updating the web page with forest health information.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● One-on-One Intervention ● Workshop ● Demonstrations ● Other 1 (Seminars) 	<ul style="list-style-type: none"> ● Newsletters ● Other 2 (Exhibitions) ● Other 1 (Radio Programs) ● Web sites

3. Description of targeted audience

Pesticide applicators, homeowners, landscapers, Extension agents, farmers, personnel of the Department of Environmental and Natural Resources, agronomists of the Department of Agriculture.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	6000	2500	0	0
2009	6000	3000	0	0
2010	6000	3500	0	0
2011	6000	3500	0	0
2012	6000	3500	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	2
2009	0	2
2010	0	2
2011	0	2
2012	0	2

V(H). State Defined Outputs

1. Output Target

- Number of trainings offered on pesticide use and IPM program.

2008 :100 2009 :100 2010 : 100 2011 :100 2012 :100

- Number of persons that completed a training program in integrated pest management in the crop commodities.

2008 :200 2009 :150 2010 : 150 2011 :150 2012 :150

- Number of farmers that completed a training program on pesticide application.

2008 :2000 2009 :2000 2010 : 2000 2011 :2000 2012 :2000

- Number of persons trained on commercial pesticide application.

2008 :1400 2009 :1500 2010 : 1500 2011 :1500 2012 :1500

V(I). State Defined Outcome

1. Outcome Target

Number of persons that acquired knowledge after completing a training program in integrated pest management.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :250 2009 : 250 2010 : 250 2011 :250 2012 : 250

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

1. Outcome Target

Number of persons that adopted one or more techniques after completing an integrated pest management program.

2. Outcome Type : Change in Action Outcome Measure

2008 :100 2009 : 100 2010 : 100 2011 :100 2012 : 100

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

1. Outcome Target

Number of persons that reduced the use of pesticides after completing an integrated pest management program.

2. Outcome Type : Change in Condition Outcome Measure

2008 :75 2009 : 75 2010 : 75 2011 :75 2012 : 75

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

1. Outcome Target

Number of persons that established IPM program after completing a training program.

2. Outcome Type : Change in Condition Outcome Measure

2008 :40 2009 : 50 2010 : 60 2011 :70 2012 : 70

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

1. Outcome Target

Number of farmers that acquired knowledge after completing a training program in pesticide application.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :1900 2009 : 1900 2010 : 1900 2011 :2000 2012 : 2000

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants

1. Outcome Target

Number of farmers that acquired knowledge after completing a training program in integrated pest management.

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :150 2009 : 150 2010 : 150 2011 :150 2012 : 150

3. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)

Description

In Puerto Rico we are at risk of hurricanes, heavy rainfalls, and droughts that can affect crop production. These in turn affect the emphasis on different programs within the agency and the activities that can be performed in the field (field days, field demonstrations, farm visits, etc.).

Changes in public policy regulations can make farmers change their priorities related to crop production. The development of the program depends on the amount of time that the agricultural agents allocate to it. Administrative changes in the priorities can affect program outcomes.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Other (Surveys)

Description

A survey will be conducted among PRAES agents and other educators prior to the initiation of trainings and immediately after their completion, to evaluate their knowledge and attitudes concerning IPM. The initial survey will be administered at the beginning of the educational program and a second survey will be administered at the end to evaluate program impacts. Both surveys will be administered to the same persons in order to sensitively measure changes in practices and attitudes. The future evaluation of educational activities and materials will be tracked by interviews of the clientele by Extension agents to determine if they have incorporated IPM practices to their farm management.

2. Data Collection Methods

- Structured
- Observation
- Sampling

Description

To achieve the proposed objectives in the plant protection program we plan to conduct surveys to request information on pesticide use and IPM practices. The surveys will be prepared by the Extension specialists and delivered to the field by the Extension agents. The surveys will be addressed to farmers, pesticide applicators, personnel related to forest management, landscapers, and ornamental producers. Specific indicators of program impacts measured by surveys will include: crop production acreage, number of crop farms and average extension, number of pesticide treatments, rate of pesticides applications, number and kinds of pesticides used (formulation specific), target organisms intended, percentage of growers following pesticide container disposal practices, cost of pesticide application and overall pest management, alternative control measures, number and percentage of farmers following IPM practices such as scouting, biological controls or beneficial organisms, and other specific IPM practices. Evaluation of progress toward objectives of the program will be accomplished through periodic surveys of the commodities included in the plan of work of the program.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Strengthening Youth Life Skills, Leadership and Their Community

2. Brief summary about Planned Program

Today's children and youth face diverse social problems that can result in risky behavior, if they are poorly equipped with the necessary skills to avoid them. The use and abuse of substances is a major social-medical problem of great impact in the adolescent and young adult population of Puerto Rico. An estimated three quarters of Puerto Rican students have consumed some alcohol in their life time and one third of them have used cigarettes. Studies indicate that this can be translated, in many occasions, in school absenteeism, poor academic progress, in physical and emotional change, being sexually active without any responsibility, and poorly accepted social behavior. All children and youth experience some degree of risk as they progress from birth to adulthood, but an increasing amount of children are at a substantially higher risk for negative outcomes. These children and youth do not have the advantages that promote an optimum, healthy development of the body, mind, and spirit; and many do not have opportunities to experience positive stimulation for growth or nurturing support from their family, friends and community.

The Puerto Rico 4-H and Youth Development Program has identified Youth Development as a mayor emphasis area for its long range educational program. It is designed to provide youth with positive opportunities to learn and interact with peers and adults, provide leadership development, and focus on the enhancement of life skills through research-based educational programs. These spotlight Family and Consumer Sciences, (health, nutrition, food safety, managing resources, personal relations, clothing, consumer education, child care and development, and others), Science and Technology (aerospace and astronomy, computer sciences, electricity, energy, photography, and others), Community and Economic Development (civic education, workforce readiness, leadership, community services, and others), and Agriculture and National Resources (plant and animals, veterinary sciences, and others) . To achieve or accomplish an appropriate development of the 4-H Program, we will use different activities and methods, such as: camps, competitions, meetings, demonstrations, and workshops; but, especially, the development of projects as strategic learning tools. We will also promote learning experiences in-service that will give youngsters the opportunity for reflection and action about impact issues. Through the project the youngsters will acquire and develop life skills in order to identify the most important issues within a real world situation through critical thinking, generate emotional consequences, which challenge values and ideas, and support social, emotional and cognitive learning and development. The development of life skills for the prevention of negative high risk conduct will be emphasized in this program.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

- 806 100% Youth Development

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The primary audience of the 4-H and Youth Development program are children and youngsters between 5 to 19 years old. Due to the difference of age and diversity, their characteristics may vary according to their stage of development.

In the FY 2003-2004 Stakeholders' Input process the youngsters selected the use of alcohol and drugs, sexuality, and criminality as the areas of most concern to them. According to statistics of the Department of Education (Area of Planning and Education Development, Statistics Division), during 2001-2002 there were a total of 1,872 school desertions at the intermediate and high school levels of an enrollment of 211,523 youngsters (approximately 1% of school deserters in relation to the total student population); and studies indicate a close relationship between school desertion and juvenile delinquency. One of these studies, by Dora Nevárez-Muñiz, is entitled Crime in Puerto Rico. The Administration for Mental Health and Addiction Control Services (ASSMCA, 2004) revealed that 56.9% of about 24,000 students at the elementary, intermediate, and high school levels from public and private schools drink alcohol; and the Alliance for a Puerto Rico Without Drugs (2002-2004) indicated that alcohol was the substance mostly used among youngsters of the public school system. Some 55.9% of the adolescents reported having drunk alcohol at least once in their life time. Other problems are offences made by these minors against society (Puerto Rico's

Assistant Police Superintendent for Citizen Services of the Statistics Division, 2004) with a total 933 cases for the entire island. Of these, 716 cases were drug related. Also a total of 5,168 minors were intervened by the police (Puerto Rico Police Statistics Division, 2003). These offences were related to violence and not to sexual crimes as it was thought before. Another grave problem that may lead to school desertion is pregnancy among adolescents. Sources from the Department of Education indicate that during 2001-2002 there were 244 pregnant students at the intermediate level and 1,037 at the high school level; and statistics from the Department of Health (2003) reveal that births from adolescent mothers constitute 17.7% of all births in Puerto Rico. These data confirm the concerns of the youngsters consulted in the Stakeholders' Input Process (2003-2004).

In the FY 2004-2005 Stakeholders' Input process, the selected youngsters chose the curricular areas of most interest to them. These were: arts (65%), technology (59%), sports (53%), music (41%) and agriculture (34%).

In both studies the youngsters pointed out the importance of having these necessities dealt with. Attending to these concerns will help make a more interesting and educational program resulting in more participation. We should identify creative and innovative strategies to attain a combined balance between the themes of major interest pointed out by the youngsters and the mission of the 4-H Program. PRAES professionals will use the technical material to reach and satisfy other needs pointed out by the youngsters to develop values and life skills.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

When we work in an integral form respecting the competency and potential of each participant, there is a great amount of motivation and disposition on behalf of the youngsters to learn and participate in 4-H, scholastic, and community activities. The experiences learning-to-know, learning-to-make, learning-to-be and learning-to-live, according to John Dewey's philosophy, have been extensively used by the 4-H program "Learning-by-doing".

We have 1,309 volunteers working with youngsters in different activities in which they support the 4-H Program (Youth Enrollment Report 2005).

Life skills prepare people to be successful in life. The goal is that every person learn the necessary skills to succeed.

Life skills are the tools to cope with whatever life brings. When integrated into curriculum development, life skills determine how subject matter content is delivered and practiced, when a learner is engaged in an educational activity. Life skills are useful long afterwards in other life situations.

We depend on a dedicated staff that acknowledges the mission of the 4-H Program to address youth needs.

2. Ultimate goal(s) of this Program

Increase the number of youngsters that have improved their life skills for better decision making in life.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	43.6	0.0	0.0	0.0
2009	43.6	0.0	0.0	0.0
2010	43.6	0.0	0.0	0.0
2011	43.6	0.0	0.0	0.0
2012	43.6	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conferences or workshops training in life skills, leadership, and community services.
 Camping and outdoor activities.
 Curriculum developed in life skills, leadership and community service.
 Participate in mass communication to promote 4-H as a positive organization for youth.
 Projects where youth and adults volunteers can develop skills that will enable them to make a positive contribution to society.
 Competitive activities/events.
 Non-competitive activities/events.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● Demonstrations ● One-on-One Intervention ● Workshop 	<ul style="list-style-type: none"> ● Web sites ● Other 2 (Exhibitions) ● Other 1 (Radio Programs)

3. Description of targeted audience

Youth and 4-H members, Extension professionals, professional government personnel, volunteers, and community residents.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	1500	0	50000	20000
2009	1500	0	50000	20000
2010	1500	0	50000	20000
2011	1500	0	50000	20000
2012	1500	0	50000	20000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	0	0
2009	0	0
2010	0	0
2011	0	0
2012	0	0

V(H). State Defined Outputs

1. Output Target

- Number of training and workshops in life skills and subject matter.

2008 :500 2009 :700 2010 : 800 2011 :900 2012 :900

- Number of children/ youth who participated in competitive activities.

2008 :1000 2009 :1000 2010 : 1000 2011 :1000 2012 :1000

- Number of children/ youth who participated in non competitive activities.

2008 :5000 2009 :5500 2010 : 5500 2011 :6000 2012 :6000

- Number of youth who participated in community service projects.

2008 :500 2009 :500 2010 : 600 2011 :650 2012 :700

- Number of children/ youth who participated in life skills and subject matter educational programs designed to teach basic life skills.

2008 :5000 2009 :5000 2010 : 5000 2011 :5000 2012 :5000

- Number of youth and others volunteers working with youth in youth development programming.

2008 :800 2009 :850 2010 : 850 2011 :900 2012 :900

- Number of children/youth participating in youth leadership programs.

2008 :1000 2009 :1500 2010 : 1800 2011 :2000 2012 :2200

V(I). State Defined Outcome

1. Outcome Target

Number of children/youth who reported working in one or more educational project areas.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 2009 : 1200 2010 : 1500 2011 :2000 2012 : 2200

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who reported improved decision making skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :800 **2009 :** 1000 **2010 :** 1300 **2011 :**1500 **2012 :** 1700

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who reported improved communication relationships with parents or peers.

2. Outcome Type : Change in Action Outcome Measure

2008 :1800 **2009 :** 2000 **2010 :** 2500 **2011 :**2800 **2012 :** 3000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who assumed leadership roles.

2. Outcome Type : Change in Action Outcome Measure

2008 :100 **2009 :** 300 **2010 :** 500 **2011 :**1000 **2012 :** 1000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who reported improved conflict management skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 **2009 :** 1000 **2010 :** 1000 **2011 :**1000 **2012 :** 1000

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who reported improved planning and organization skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :2400 **2009 :** 2600 **2010 :** 2800 **2011 :**3000 **2012 :** 3200

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of youth volunteers conducting community service programs.

2. Outcome Type : Change in Action Outcome Measure

2008 :250 **2009 :** 325 **2010 :** 325 **2011 :**325 **2012 :** 325

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who developed and established a community projects to address a particular issue.

2. Outcome Type : Change in Action Outcome Measure

2008 :20 **2009 :** 20 **2010 :** 20 **2011 :**20 **2012 :** 20

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who demonstrated improved self-esteem skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 **2009 :** 1000 **2010 :** 1100 **2011 :**1150 **2012 :** 1200

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who demonstrated improved skills in managing their feelings.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 **2009 :** 1000 **2010 :** 1150 **2011 :**1200 **2012 :** 1250

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who demonstrated improved teamwork skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 **2009 :** 1000 **2010 :** 1200 **2011 :**1250 **2012 :** 1300

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who demonstrated improved healthy life-style choices skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 **2009 :** 1000 **2010 :** 1150 **2011 :**1150 **2012 :** 1200

3. Associated Knowledge Area(s)

- 806 - Youth Development

1. Outcome Target

Number of children/youth who demonstrated improved service learning skills.

2. Outcome Type : Change in Action Outcome Measure

2008 :1000 **2009 :** 1000 **2010 :** 1150 **2011 :**1150 **2012 :** 1200

3. Associated Knowledge Area(s)

- 806 - Youth Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Public Policy changes
- Competing Public priorities
- Natural Disasters (drought,weather extremes,etc.)

Description

The Island's location in the Caribbean area puts it in the area of tropical hurricanes with heavy winds and heavy rains which cause floods. The people's feeling that we have an unstable economy, because of the government's inability to solve its budget problems. We expect that there may be changes in the budget assigned to government agencies and changes in public policy.

V(K). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Before-After (before and after program)

Description

Life skills developed will be determined by pre and post tests administered to those youth participating in a pilot project. The purpose of this pilot study is to evaluate the effectiveness of a health curriculum in promoting life skills in youth and at the same time to validate the questionnaires. Once the questionnaires are validated, they will become part of the future evaluations of the program by sampling youth for evaluation on a yearly basis. It is expected that club leaders will develop the necessary skills to conduct observations to document changes in life skills improvements. We also contemplate including non-participant observers. In addition, by the end of fiscal year 2008 a comparative study will be conducted among 4-H members and non 4H members.

2. Data Collection Methods

- Sampling
- On-Site
- Observation

Description

The pre and post test questionnaire is a translation and adaptation from the Skills from Everyday Living Survey (Perkins and Mincemoyer) and the Washington State Life Skill Evaluation System. It will be validated in a pilot study and will be used later for a comparison study. Also an observation register was developed to observe changes in life skills.