

2012 University of Puerto Rico Extension Plan of Work

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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 Mayaguez, covers the FY 2012- 2016. We budgeted an estimate of 169.44 FTE's for the five years covered in this period, a reduction of 3.86 FTE's from FY 2011-2015 plan of work due to retirement of personnel during 2009 and 2010. At present we have no plans of increasing this number due to reductions in budget.

The College of Agricultural Sciences (CAS) will continue 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 establish 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. 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.

We expect to make new coalitions during FY 2012-2016. The Planning and Evaluation Office trained its 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:

Although during FY 2009 PRAES consolidated its planned programs from 16 to 7 in order to use resources more effectively and reduce the paper burden to comply with the paper reduction act, with the emergence of the five new emphasis areas we had to reorganize our planned programs, some of which had to be split up, and refocus priorities to meet these new goals. As a result, we have 11 planned programs for this plan of work 2012-2016. The planned programs are as follow (1) Strengthening Youth Life Skills, Leadership and their Community; (2) Plant System; (3) Family Well-being; (4) Management of Rangeland and Forestry Resources/Soil, Water, and Air; (5) Animal Systems; (6) Community Resources Development by Means of Fostering Sustainable Communities; (7) Food Safety, (8) Climate Change; (9) Sustainable Energy (10) Global Food Security and Hunger, (11) Childhood Obesity.

1. Strengthening Youth Life Skills, Leadership and their Community

Today's children and youth face a diversity of social problems that can result in risky behavior when kids 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. 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 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 focusing on Healthy Lifestyles; Science, Engineering and Technology; Citizenship and Leadership. Different activities and methods such as: camps, competitions, meetings, demonstrations, and workshops will be used, but, especially, the development of projects as a strategic learning tool. Furthermore, in-service learning experiences will be promoted to give youngsters the opportunity to reflect on and take action concerning issues that impact them. 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.

Our ultimate goal is to increase the number of youngsters that have improved their life skills for better decision making.

2. Plant System

The Plant system program promotes a diverse educational program to farmers and other agricultural entrepreneurs so they can improve product quality, increase production and competitiveness through the use of the most effective management system practices, integrated pest management options, irrigation systems, better practices in drainage and soil conservation, and tools and skills in economics, marketing and policies.

Puerto Rico's gross agricultural income for FY 2009-2010 was \$821,839 million (Preliminary data Puerto Rico Department of Agriculture). Animal and crop production represent 87% of this total gross income. Crop production is second in economic importance. During 2009-2010 crop value was \$325.81 million, a decrease of \$7.4 million as compared to 2008-2009.

Around 85% of the food consumed in Puerto Rico is imported. Recent increases in transportation costs, distribution, and food at the point of production outside Puerto Rico have made us more vulnerable to the disruption in the food supply chain. More data is needed on imports to enable those involved in research, education, and outreach to better prepare Puerto Ricans to produce, process, and prepare fresh, local foods.

Most of the Island's farms are small or medium sized and owner operated. The main crop production problems confronted by farmers are product quality and deficient crop cultivation practices. Also, the lands available for agriculture are scarce, as a result of the high population density, which puts other demands on the use of lands other than farming. Many of the important crops are located in mountainous areas where cultivation and management are more difficult due to the uneven terrain, and are confronted with low soil fertility and erosion. On the other hand, farmers are more aware of the public's growing concerns about pesticide residues in food and contamination of surface and groundwater supplies and are trying to reduce their reliance on chemicals to control pests.

To improve crop production and quality farmers must have an organized structure to enhance soil fertility and structures, waste management systems and drainage and irrigation systems. The use of Integrated Pest Management (IPM) practices to grow healthy crops and minimize pesticide use is essential to reduce the negative impacts associated with pest control. Outreach to producers concerning best varieties to use and best management practices are critical.

On the other hand, as economic conditions get worse and the interest in organic and sustainable living increases, many people in Puerto Rico are turning to vegetable gardening to supplement to their family's diet. Extension outreach objectives will address critical needs in vegetable home gardens to respond in a faster and more accurate way to the needs of the homeowners, Extension agents, and the general public. Extension agents and other agricultural educators will train homeowners and other people interested in home gardening production and IPM. The educational resources developed will help homeowners to prepare a sustainable home garden assisted by Extension personnel. This addresses the needs of Extension agents, researchers and agronomists of the PR Department of Agriculture, that were presented in the Vegetable Commodity Meetings of 2010, and the needs observed and detected by Extension Agents in farm visits and in the Vegetable Gardening Festival (held at the University Research Station facilities in the Municipality of Gurabo since 1997).

The ultimate goal the Plant Systems planned program is to improve product quality and increase production and competitiveness through the use of the most effective management practices, integrated pest management options, irrigation systems, better practices in drainage and soil conservation, and tools and skills in economics, marketing and policies.

3. Family Well-being

In society, the family is considered the first institution that has the responsibility and commitment to prepare and educate its members. It is where character is formed and values are learned.

The increase in population, as well as social, political, and economic changes impact Puerto Rican families, affecting their vital function. The family structure in Puerto Rico has changed with important implications for the children. Also, financial problems can cause negative effects on individuals, families, and employees. Several researches on family and financial issues conclude that economic stress affects the emotional stability of family members and can affect their mental health, the marital relationship, and parental responsibilities (Dennis, Parke, Scout & Duffy, 2003; Leinonen, Solantaus & Punamaki, 2003; Shaklee, 2007). The socioeconomic issues may also impinge on the health, nutrition, and food security of the family members, which can in turn result in childhood obesity and food insecurity.

The Family Well-being planned program targets families, children, youth, elderly people, new couples, and employees of the public and private sectors. Its goal is 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 in addition to increasing their financial well-being through knowledge, skills, and self-confidence.

To reach this goal, the Family Life and Consumer Education specialists develop through workshops, curriculum, radio programs, bulletins, information centers, and trainings in successful parenting, character traits, values, family strengths and aging aspects, and through competencies such as: how consumer behavior influences decision-making, budgeting, debt reduction, credit wise and savings.

Efforts will be joined through the establishment of coalitions with other agencies in Puerto Rico, such as the Department of Consumer Affairs, the Department of the Family, and the Department of Education and Consumer Credit Counseling.

Households with both parents present comprise 68% of all families on the Island; 31.4% of these families live under the poverty level (income is less than \$10,000 per year) (2000 Census of Population for Puerto Rico). The number of families whose head of household is a women (no man present) is 268,476; 49.8% of these families earn less than \$10,000 year.

The personal income increased from \$51 billion (2006) to \$53 billion (2007), accordingly the personal consumer debt increased from \$21billion to \$22 billion (Puerto Rico Planning Board, 2008). Family internal factors like unplanned spending and conspicuous consumption seem to worsen the personal debt.

The Consumer Price Index suggests that the rate of inflation was slightly more than 9.6% in the last 12 months (Department of Labor and Human Resources, 2008) and the Puerto Rico Bulletin reported 9,048 bankruptcies for year 2008, 17% more compared with the last year. This suggests hard economic times for individuals and families. Financial problems can cause negative effects on individuals, families and employees.

Another negative impact on families is child abuse. According to the Commonwealth of Puerto Rico's Children and Families Administration, during fiscal year 2007-2008, 16,022 families had active cases involving children maltreatment, which involved 38,149 children. The distribution by type is as follows: negligence (51%), physical abuse (13%), emotional maltreatment (12%), sexual abuse (6%), and for multiple causes (18%).

There was also an increase in the number of divorces, single mothers, adolescents pregnant, stepfamilies, grandparents raising grandchildren, women headed household families, and domestic violence.

Financial education has gained interest among consumers. According to Hogarth (2002), well educated consumers should make better decisions for their families, increasing their economic security and well-being. Financially secure families are better able to contribute to vital, thriving communities, further fostering community economic development.

The above socioeconomic data show the increasing need to help consumers and house hold to deal effectively in a complicated social and economic scenario. Through family and financial literacy, families should develop the appropriate tools for a better decision-making process in the following areas: savings, debt reduction and budget design, while simultaneously promoting behavioral changes that strengthen family relations and values.

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.

Assumptions for this planned program are as follow:

- 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.
- Early exposure to financial concepts may increase comfort and familiarity with financial matters, thereby, removing psychological barriers that impede proper decision-making (Barthein, Garret and Maki (2001)).
- Programs that enable households to identify savings rules that are manageable and easy to follow, will help households build wealth (Youn, Montalto and Hanna, 2006)
- Educating parents to deal properly with any future economic, emotional, or familiar challenge contributes to attenuate the adverse effects of economic hardship.

4. Management of Rangeland and Forestry Resources/Soil, Water, and Air

Puerto Rico Agricultural Extension Service (PRAES) and USDA-NRCS will join efforts to promote the management of rangelands. These collaborative efforts are 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 best management practices during farming.

Farm demonstrations will be conducted as educational tools to showcase the desired practice and benefits, and to stimulate other farmers to adopt the practices. Each farm visit will require a report of the findings and recommendations. Short courses will be conducted 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.

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 rangelands 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 eutrophication 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 that will be used to enhance, improve and promote wildlife in and around the cities. The Reforestation and development of green areas in urban and rural areas by non-government entities should also be promoted. Rangeland and forestry practices will be improved to prevent the contamination of our natural resources.

Puerto Rico's gross agricultural income for FY 2009-2010 was \$821.84 million (Puerto Rico Department of Agriculture). Animal and crop production represent 88% of this total.

Animal producers consist of small family operated farms with 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 and phosphorus content of manure by volatilizing nitrogen (ammonia) to the atmosphere with other volatile compounds such as methane, organic and sulfur. There are still farms with animal waste disposal systems which have never been completed or submitted for approval to the regulatory agencies. There is still a need for adequate systems and those in existence need better maintenance to avoid environmental impacts such as bad odors, land and water pollution, and dissemination of pathogens, among others.

Sixty percent (60%) of the land on the island is more than 20% slopes, with an erosion of 10% annually, and low fertility (Natural Resources Conservation Service). Coffee, plantains, fruit, and starchy crops, are cultivated in the hilly areas. The intensive use of agricultural lands, deforestation, eutrophication, and Sedimentation of rivers increase the risk of flooding, threatening the lives of people and the loss of livestock and crops.

On the other hand, Puerto Rico's high population density demands that existing infrastructure be updated and new infrastructure constructed to satisfy the population's needs. However, this ever increasing demand for new and improved infrastructure has resulted in the reduction of lands available for agriculture. We need a better and more efficient use of our lands to improve animal and crop production. In order to get reasonable yields farmers have to establish soil and water conservation practices and a good fertilization program to improve soil fertility.

The planned program Management of Rangeland and Forestry/Soil, Water and Air is devoted to promoting the education of farmers and people in areas related with agriculture through activities addressed to establish conservation practices to promote the protection of our forests, trees, and watersheds; increase appropriate fertilization practices, conserve water, and mitigate emissions of particles from agricultural practices to the air. We will also emphasize on better soil management in the flood plains, the recharge of groundwater, and new alternatives to ensure compliance of air and water quality regulations.

Our goal is to improve the recommended practices on range and forest resources to assure enough forage production for livestock and conserve the forest ecosystems and the utilization and conservation of soil, water, and air through the adoption of practices and regulations.

5. Animal Systems

Current trends show a steady decline in the number of farms and an increase in the average size of herds or flocks. At the same time, the number of acres dedicated to forage production at the average dairy farm has been reduced by more than 12% over the past ten years. This reduction has resulted in the farmers' growing dependence on imported ingredients to feed the livestock sector with a consequent increase in the number of animals in confinement or semi confinement and the need of comprehensive nutrient management at the farm level to increase efficiency and reduce the threat of soil and water contamination.

These farmers have to comply with the new regulations concerning farms with animals in confinement (farms that produce more than 5 cubic feet of waste). The waste management systems of many of these farms will have to be modified and, in some cases, relocated to comply with the new regulations. Changes in the local building codes due to our experience with tropical hurricanes during the past two decades have also affected agriculture. Existing structures, as well as 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. These modifications should be made with the least amount of economic burden on farmers.

The farmers should implement the Good Agriculture Practices to produce free born disease products. To reduce the possibility of products contamination, increase the cleanness of the facilities and implement bio-security practices should be emphasized.

Economic challenges make it necessary for PRAES to continue offering farm management education to farmers to help alleviate their economic situation. 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 farm 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. The farmers have received intensive trainings and technical assistance on farm management, finance, taxation, risk, marketing, and agricultural policies.

The ultimate goals to the Animal Systems planned program are as follow: 1) To improve animal production and products through better management practices. 2) Enhance the prevention and control of diseases at farm level to increase animal health, production, and quality. 3) To improve agricultural infrastructures and waste disposal management through the effective use of engineering and biological systems. 4) To increase agricultural business of the farmers and agricultural entrepreneurs through the use of tools and skills in economics, marketing and policies.

6. Community Resources Development by Means of Fostering Sustainable Communities

The Community Resources Development by Means of Fostering Sustainable Communities planned program, continues focusing in the delineation of an effective Community Economic Development and Self-management program that will address Puerto Rico's most pressing social issues.

Puerto Rico has experienced a sustained poverty level rate close to 50% for the past two decades. Official poverty figures once again surpassed those of fiscal year 2009, which were at a 30 years high. Per capita personal income dropped to \$15,846 (48% of that of Mississippi, the poorest State in the US). Unemployment figures continue close to 17% (compared to the prevailing 9.5% in the U.S.). The agricultural production still represents a skimp component of the Puerto Rican economy with a 0.9% of the GNP (Government Development Bank, 2009); personal bankruptcies continue increasing with a hike of 21% between 2009 and 2010 with 6,545 additional cases ("Corte Federal de Quiebra del Distrito de Puerto Rico"). As a result, between 2007 and 2010, Puerto Rico has added over 100,000 people to the unemployment rolls (20,000 more than in 2009). Low labor force participation has surpassed last year's 30 years low at 41.1 with an additional 4.6 descent from that of 2008. Puerto Rico is the only U.S. jurisdiction where there are more people of the working age" group out of the labor market than working (Government Development Bank, 2011; Puerto Rico Department of Labor, 2011).

As the previous figures make evident, Puerto Rico's government led economic restructuring plan, ended the government role as the principal promoter for the creation of jobs and the generator of economic activity. The rate of communities, both urban and rural, that experience long term spells of poverty and inequality far surpass those in the U.S. The above situation has led to the island's present state of uncontrolled social decomposition with unmanageable criminality, domestic violence, school dropouts, suicides, drug addiction, and high alcoholism rates.

To help manage both the agricultural activity and community crises, the Empowering Communities, and Community Economic Development sections of CRD will expand the initiative started in 2010 giving special emphasis to community based agricultural land conservation and to the generation of sustainable low scale family or community based agriculture and other economic initiatives. To achieve these objectives, the CRD strategies which began in 2010 will continue focusing beyond training activities centered toward specific careers or job areas and will focus on the identification and development of skills already present in the participants or the communities that might be geared toward activities of economic production, self-employment or the creation of micro enterprises. Accordingly, our program will continue to stress the development of methodological tools that allow participants with various and diverse talents, skills and dexterities to be able to organize economic activities that will allow them to take advantage of these skills for their benefit and sustenance. In addition, CRD will focus its efforts in guiding community leaders towards self-management and empowerment.

In the communities we serve, there is a prevalence of families with unequal access to economic and

social development, compared to other groups on the island. The community is the focal point where people feel a sense of personal involvement and take pride in their actions. Accordingly, CRD in Puerto Rico works hard developing a sense of community belonging and increased identity in all its programs. 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. That is why we have adopted the Participative Action Research methodology as our principal approach to empowering and constructing stronger communities.

Our plan of work focuses on holistic educational strategies that will promote self-employment and community oriented initiatives to foster sustainability, self-reliance and empowerment. A participant oriented methodology will be employed (Participatory Action Research), in which participants will take an active role in defining problems and aspirations, seeking possible solutions, implementing strategies, and evaluating the results (Foote, 1991; Greenwood, 1998; Macpherson (et.al.), 2005). A holistic training of the field agents, home economists, and community leaders will help disseminate information to the communities to foster social change.

To make the adult education program successful, we must integrate the participants to all aspects of the educational process (i.e., definition of the problems and aspirations, development of possible solutions, implementation and evaluation). Meaningful long-term changes in behavior and attitude will take time to accomplish.

In brief, PRAES work in the Community Resources Development by Means of Fostering Sustainable Communities planned program will carry out the following educational activities and methodologies to meet our goals:

- Community assemblies, gatherings, and other meetings to establish rapport and explore needs and aspiration
- Conference/training in areas of social investment, marketing, market study and analysis, self-employment opportunities identification, community-based business and empowerment
- Participative Action Research strategies such as "reading the streets", participant observation, ethnographies, life histories, focal groups, informal interviews, and reflexive diaries
- Use of the "Community Entrepreneurial Toolbox" material that will empower community participants to take advantage of the endless amount of possibilities for community oriented economic initiatives
- Establishment of strategic alliances with government agencies, non-governmental organizations and community institutions to collaborate in the promotion of community-based economic initiatives
- Development of radio programs with the participation of community members and field personnel to promote community-based economic initiatives
- Develop educational material such as curriculum and modules
- Establishment of community coalitions with volunteer organizations, community services organizations, institutions, and other agencies
- Seminars with community services institutions that offer assistance in case of disaster or emergency, including volunteer organizations, non-profit groups and government agencies.

7. Food Safety

The goal of the Food Safety planned program is "To improve food safety through the control, reduction or elimination of contamination risks". This component consists of two main areas: education for consumers and education for Food Managers. The Puerto Rico Agricultural Extension Service (PRAES) has the following curriculums on Food Safety: (A) The "Fight BAC!" campaign, for consumers, which is being updated with new lessons from which the home economists can select according to their audience; (B) The Food Safety Certificate course, for persons in charge of food establishments; and (C) Train-the-trainers, for university personnel and professionals from other government agencies and organizations.

According to the CDC (Center for Disease and Prevention) reducing foodborne illness by just 10% would keep 5 million Americans from getting sick each year and preventing a single fatal case of E. coli O157 infection would save an estimated \$7 million. Ensuring safe food is an important public health priority. During 2007 Puerto Rico had 11 confirmed food-borne outbreaks (CDC). The number of notifiable diseases were: 64 cases of Hepatitis Type A, 949 cases of Salmonella, 1 cases of Shigella, and 24 cases of E. Coli O157:H7.

The ideal retail food program performance indicator should be the level of foodborne illness, but the occurrence of these illnesses is grossly underreported (FDA (2004). Preliminary data of the Morbidity and Mortality Weekly Report, April 2008 reported that a long-term decline in foodborne illness appears to be stalling. This makes the incidence of foodborne illness an unreliable program measurement. On the other hand, research reveal that American consumers are more knowledgeable about food safety, but may have erroneous ideas of which handling practices are effective to reduce foodborne illnesses at a home environment (<http://fsis.gov/OA/rePRAESrch>). Among restaurants, the major difference between those with foodborne disease outbreaks and those with non-outbreaks is the presence of a certified kitchen manager, (Hedberg, C. W., et al., 2006). It was found that food workers are more likely to wash their hands when they are trained in food safety (Green, et al., 2007). Following the Food Code's recommended cooking temperatures ensures that food reaches a temperature high enough to kill pathogens.

PRAES' priorities are to offer the Food Safety Certification Course (FSCC) to persons in charge of retail food establishments and to continue offering formal education to professionals that teach or enforce compliance regulations, to improve food safety handling practices among individuals that prepare and serve food through the control, reduction or elimination of contamination risks.

8. Climate Change

The global climate is changing, and will continue to change, in ways that affect the planning and day-to-day operations of businesses, government agencies, and other organizations. The manifestations of climate change include higher temperatures, altered rainfall patterns, and more frequent or intense extreme events such as heat waves, drought and storms. Natural disasters quadrupled during 1987 to 2007, from 120 to 500 events.

In Puerto Rico the year 2010 was recorded as a precipitation record breaking year; however 2011 started with a very low precipitation rate, fostering a significant amount of brush fires. Such extreme events have negative effects on our agricultural production. An example of this is dairy and plantain production, as demonstrated by a significant price increase due to shortage.

Soil erosion, caused by excessive rainfall and inadequate land management practices and urbanism, is one of the most serious environmental and public health problems. Humans obtain more than 99.7% of their food (calories) from the land and less than 0.3% from the oceans and other aquatic ecosystems. Overall soil is being lost from land areas 10 to 40 times faster than the rate of soil renewal imperiling future human food security and environmental quality.

With 9,000 square kilometers and close to 4 million people, Puerto Rico is one of the most densely populated countries in the world and has a long history of ineffective land-use planning. Also, due to its geographical location Puerto Rico is constantly exposed to the effects of natural disasters (hurricanes) which negatively affect natural resources such as water and soil. These resources are at stake by their susceptibility to weather changes and by the ever increasing demand and pressure to satisfy the needs of a growing human population. Urban and housing development, as they refer to urban sprawl, degradation of natural resources like forests, wetlands and watersheds, and the reduction of agricultural lands, are also subjects of frequent attention in Puerto Rico.

There is still great skepticism regarding climate change. Information is available on climate change through different channels, mostly generated from US Universities. However, it needs to be adapted to our tropical conditions and translated into Spanish. The personnel of the Puerto Rico Agricultural Extension Service (PRAES) need to be more diligent in providing the farmers and the community with information, technologies, and education on how to cope with climate change and ways to contribute to greenhouse gas (GHG) mitigation. They need to engage in the development of farmers' leadership to enable them to be proactive (risk management practices) and actively involved in decision-making. This is of utmost importance, especially for the resource-scarce small farmers (most of our agricultural production comes from small-scale farms which are often family owned and operated), who contribute little to climate change and yet will be among the most affected.

The logical first step for this plan of work is the development of an appropriate curriculum (What it is - How it affects us - What we need to do), tailored to our local situation, which includes measures proven to be useful in the past, besides providing support with skills to choose the best option to deal with climate uncertainty to make informed decisions. The second step is capacity building to our Extension personnel together with the State Department of Agriculture and other service agencies, geared to the implementation of practices, measures and resources that enable farmers to adapt, to mitigate and to minimize economic losses.

This effort needs to be supported by work in the community on issues on land-use and the preservation of agricultural land, strategies such as collaborations, development of decision-making skills, and involvement in public policy to ensure the long-term success of the program.

Soil erosion and storm water runoff need special attention. Water turbidity in rivers and water bodies is high, severely affecting coastal areas. Despite of this, there is still a need for research in this area regarding the amount of soil lost and the economic impact at the farm level.

Water pollution degrades surface waters making them unsafe for drinking, fishing, swimming, and other activities. The National Pollutant Discharge Elimination System (NPDES) permits program is authorized by the Clean Water Act (CWA) section 402. The 1987 Water Quality Act (WQA) expanded the program to cover storm water discharges explicitly, both from municipal separate storm sewer systems (MS4) and industrial sources. The MS4 NPDES permits require regulated municipalities to use Best Management Practices (BMP's) to reduce pollutants to the "Maximum Extent Practicable." To demonstrate compliance, storm water permits typically require facilities to prepare a Storm Water Pollution Prevention Plan and to implement BMPs. In Puerto Rico most of the 78 municipalities are not complying with the NPDES program plan due to their critical economic situation and face the risk of costly fines. Extension personnel will be trained to assist in the implementation of (BMP's) for NPDES.

Besides water pollution, the other main consequence of storm water runoff mismanagement is floods. Another problem of great concern is solid waste. Besides its high generation (greater than in the US), there is the aggravating circumstance that the life expectancy of the landfills is almost overdue. The Island's dimensions and critical ecosystems provide virtually no safe area or space where to build new ones. Recycling is still the fastest and cheapest alternative. Twenty-seven per cent (27%) of the solid waste that gets into the landfills is organic. Its decomposition process generates methane, which contributes 20 times more CO₂ to GHG. We need to work on recycling-incorporating such organic "waste" to the soil or encouraging more composting, alternative uses, and markets.

All levels of government have roles to play in addressing climate change. Some aspects of the climate problem could be addressed at the local level, such as greenhouse gas reduction, by implementing smart growth and adapting to climate impacts. Priorities will be set for water and soil, where sustainable practices will be strongly emphasized. Community volunteers could be trained for water monitoring to create a baseline data to assess progress.

From a temporal perspective, adaptation to climate risks can be viewed at three levels, including responses to: current variability (which also reflect learning from past adaptations to historical climates), observed medium and long-term trends in climate, and anticipatory planning in response to model-based scenarios of long-term climate change. The responses across the three levels are often intertwined, and indeed might form a continuum.

There are several ways that the Extension system can help farmers and communities deal with climate change. These include: (1) Adaptation and contingency measures for what cannot be prevented (i.e., providing advice on how to deal with droughts, floods, and others). Adaptation to current climate variability can also increase resilience to long-term climate change. In a number of cases, however, anthropogenic climate change is likely to also require forward-looking investment and planning responses that go beyond short-term responses to current climate variability. (2) Mitigation of climate change, which includes links to new markets, information about new regulatory structures, and new government priorities and policies. Extension can help with adaptation and mitigation through technologies and management information; capacity development; and facilitating, brokering and implementing policies and programs. (3) Technical training to enhance community leaders and farmer's abilities for planning, problem solving, critical thinking, prioritizing, negotiating, building consensus and leadership skills, working with multiple stakeholders and being proactive. (4) Introduction of locally appropriate technologies and management techniques that enable community and farmers to adapt to climate change (i.e., rain water harvesting, water storage for irrigation). (5) Implementing BMPs to control the amount of runoff water and to prevent water Pollution. Education in risk management and encourage the use of insurance to minimize lost. And, (6) Stimulating the implementation of environmentally sound practices, sustainable agriculture to remain profitable.

The ultimate goals of this planned program are to enhance resilience and response capacity to extreme weather events, while maintaining productivity and quality of life, and to protect vital resources (soil and water) by implementing and adopting recommended preventive measures (BMP's).

9. Sustainable Energy

The dependence on fossil fuels has affected the economic well-being of the citizens of Puerto Rico for the past decades. At a cost per kilowatt of electricity that fluctuates between 15 and 24 cents, the cost of producing goods in the industrial sector is extremely high. Potential local and foreign investors are often discouraged from establishing business on the Island due to these costs. For the average household, the electric bill takes a big part of the income, personal comfort and the use of basic consumer appliances often need to be limited to be able to pay for utility bills.

The local government has been partially successful at motivating people to invest in sustainable energy technologies like solar heaters, by offering tax incentives. The federal governments' \$200.00 economic incentive to change to more efficient appliances had little acceptance during this first year and a recent effort to trade-in old vehicles for newer, more efficient ones by offering economic incentives was cited by the local press as being short of meeting expectancies. New legislation that requires the local electric utility (Puerto Rico Electric Power Authority) to buy surplus electric power produced by their clients "net metering", has been criticized for requiring high capital investments and being too complicated to be understood by the average client.

On the other hand, research results from work in the Agricultural Experiment Station of the UPR (using dairy waste and sugar cane), that date back to the 1980's show that this type of project can be successful under climate conditions in Puerto Rico. A demonstration project using biodiesel in the maintenance of vehicles in the Municipality of Caguas is showing excellent preliminary results. Poultry waste hydrolyzed with slaughterhouse wastewater to produce biogas in Aibonito also improved water

quality and produced organic fertilizer.

Our experience with some of the most technically oriented clients in the PRAES is that they have a desire to learn about technologies like biogas production, solar power, "green roofs" and net metering; but there is a very timid interest in making capital investments without big government incentives. The technologies are too complicated to be understood by the average citizen and they require high initial investments.

There is an imminent need to educate our clientele in all aspects of energy sustainability. Education is needed from the most basic concepts of energy audits and conservation, to the use and demonstration of the technologies. Our program is intended to increase existing knowledge of our clientele of the sustainable energy technologies, energy conservation, and opportunities to finance sustainable energy projects and their cost and environmental benefits.

We have found that our clients are motivated by one or more of the following: economic incentives, laws and regulations that require them to make improvements, and a high rate of return in their investment (cost effectiveness).

PRAES specialists have been working on proposals and special projects to obtain external resources to expand our capabilities.

Our ultimate goal is to increase clientele's knowledge of the sustainable energy technologies, energy conservation, opportunities to finance sustainable energy projects, and their cost and environmental benefits. To meet this goal we will carry out the following activities:

- Include in our workshops and meetings aspects of sustainable energy with emphasis on structures, waste management and irrigation equipment, and energy conservation.
- Continue collaborations with government agencies (Puerto Rico Electric Power Authority; Environmental Quality Board; Departments of Agriculture, Environmental and Natural Resources, and Education; Puerto Rico Aqueducts and Sewage Authority; USEPA; USDA; NRCS; and others) and with our partners in the University of Puerto Rico and other educational institutions.
- Design and make plans that include and promote energy sustainability and efficiency in structures, waste management systems and irrigation systems (new facilities or improvement to existing facilities).

10. Global Food Security and Hunger

Food security emerged as one of the major risks of the 21st century (Global Risk Forum, 2008). For Puerto Rico this is more evident due to its condition as an island. Food availability is mainly through imports (80%) due to an extremely low domestic production of less than 20%. Extended supply chains that generated competitive advantage to agribusiness and people increased the vulnerability of the Puerto Rico's food system to disruptive risk.

In 2008, only 16.6% of the food and beverages consumed in Puerto Rico were produced on the Island (External Trade Statistics, 2009). Practically all of the cereal, oil, fat, sugar, vegetables, fish, and soup consumed were imported, as were more than 3/4 of fruit, vegetables, and meats. Most imports came from the United States (food miles from the USA to PR are an average of more than 2,800 miles, 1,300 are by sea), but Puerto Rico received food from more than 50 countries around the world. The domestic production consists mainly of milk, eggs, plantains, and coffee.

Although 58% of the people in Puerto Rico have access to appropriate foods for a nutritious diet through transfer income benefits, they need continuous orientation on the utilization of food through an adequate diet, water, sanitation, and health care. The system's stability is threatened by various factors such as climate change and the economic crisis which increase food prices.

Among the vulnerabilities of Puerto Rico's food supply chain are: a low local agricultural production with continued loss of agricultural land, a high dependence on imported foods, oligopolistic food import and transport logistics, the food reserve is not clearly defined, the lack of and adequate food security policy,

and the sea routes towards the island match the path of Caribbean hurricane routes. Ensuring Puerto Rico's food security presupposes the elimination or reduction of these vulnerabilities. Although the Government is in charge of solving any crisis and emergency related to food, the private sector still has to develop innovative strategies to guarantee food security.

The Puerto Rico Agricultural Extension Service (PRAES) should help farmers, agro entrepreneurs and the public in general to understand the threats to our food security and to identify strategies to attend these threats. Extension can coordinate the exchange of information between the government, academy and private sectors to define and adopt strategies. The initiative will promote a business culture among farmers as a means to encourage the development of local capital and small and medium businesses on the island. To accomplish this goal Extension will use different strategies such as curriculum development, collaboration with the public and private sectors, and the dissemination of information.

Ensuring Puerto Rico's food security presupposes the elimination or reduction of its vulnerabilities. Although the Government is in charge of solving any crisis and emergency related to food, the private sector still has to develop innovative strategies to adapt to and handle food supply chain risks.

In Puerto Rico many people assume that there are no problems with our food security due to continuous food supplies, but they are unaware that these are mainly imported (more than 80 %) and that a lot of people use transfer income to purchase their food. The food reserve, the food miles, and the threats to the food supply chain are also unknown.

In the management of Food Security PRAES should help farmers, agro entrepreneurs and the public in general to understand the threats to our food security and to identify strategies to attend these threats. The exchange of information between the government, the academy, and the private sectors is required for the definition and adoption of strategies. The initiative will promote a business culture among farmers as a way to encourage the development of local capital and small and medium businesses in the island.

Because food security is a multi-sector issue, we will work with both the government and the private sector, as they need to coordinate work together. Some of the strategies that can be promoted are: an increase in local agricultural production, the development of risk management plans, monitoring the food supply chain's vulnerability and risks, evaluation and adjustment of the infrastructure and transportation systems (like irrigation and storage systems), the promotion of a food security public policy, and the establishment of public/private partnerships to attend this situation.

The ultimate goal of this planned Program is to increase food security at the national and household levels by: (1) Increasing local food production and competitiveness; (2) Establishing a network of enterprises working as a food supply chain system and not as individual enterprises that negotiate together; (3) Developing home gardens; (4.) Establishing a nutritious and safe food supply for the household.

11. Childhood Obesity

According to the World Health Organization (WHO), over 1 billion people globally are currently overweight, 300 million people are clinically obese and the number of overweight children under the age of five is estimated to be over 42 million. More than 2.5 million deaths annually are weight related and this could rise to 5 million by 2020. The USA is forecast to spend 19% of GDP on health care by 2014, up from 15% in 2003.

Results from the National Health and Nutrition Examination Survey-NHANES (2007-2008), using measured heights and weights of children in the United States, indicate that an estimated 16.9% of children and adolescents aged 2-19 years are obese. Between 1976-1980 and 1999-2000, the prevalence of obesity increased; between 1999-2000 and 2007-2008 there was no significant trend in obesity prevalence. Among preschool children aged 2-5, obesity increased from 5.0% to 10.4% between 1976-1980 and 2007-2008 and from 6.5% to 19.6% among those aged 6-11. Among adolescents aged 12-19, obesity increased from 5.0% to 18.1% during the same period. Puerto Rico's childhood obesity prevalence is close to Hispanics in New York, 22%.

Twenty-five percent of children in the US ages 5 to 10 already have elevated cholesterol levels and high blood pressure, 32% of children with Type 2 Diabetes are obese (10 times increment, between years 1982-1994). These conditions put them at risk of heart disease, diabetes, and sleep disorders as they grow older as. Because of overweightness and Type 2 Diabetes it could be possible the first generation of

children whose life expectancy is lower than their parents.

The Recommended Community Strategies and Measurements to Prevent Obesity in the U.S. propose the community base strategies that change obesogenic environments. Changes might get access to healthy food and promote free practice of physical activity. Also, this document suggests push to create public policy that guarantee the equal opportunity for all citizens, avoiding disparities by gender, socioeconomic status, race and ethnicity.

The ultimate goal of this planned program is to reduce the prevalence of childhood obesity through improved nutrition and health practices.

To accomplish this we plan to carry out the following activities:

- Offer courses in nutrition and physical activity for children/youth and their parents or caregivers.

- Promote breastfeeding during first 12 months of babies' life to prevent overweight and illness (help to enforce breastfeeding public policy, Bill 239).
 - Develop joint action at community level to promote and implement physical activity programs and nutrition education for parents and kids.

- Teach about school breakfast, lunch, and snacks in schools and other institutions to comply with communication 2-2007-2008 that rules expenditure and consumption of food and beverages minimum nutritional value.
 - Teach retailers close to schools about best food offers according to the Puerto Rico's Kids Food Pyramid to help them comply with Bill No. 91, August 20, 1997, Free School Zone that prohibits expenditure of food with lower nutritional value close to schools.

- Promote discretionary calories food control

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

Year	Extension		Research	
	1862	1890	1862	1890
2012	169.4	0.0	0.0	0.0
2013	169.4	0.0	0.0	0.0
2014	169.4	0.0	0.0	0.0
2015	169.4	0.0	0.0	0.0
2016	169.4	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 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 (the program leader, two specialists—one from the Planning and Evaluation Office and one from the major subject area), a researcher from the Agricultural Experiment Station and other faculty members, and external non-University members (representatives of the major government agencies or organizations that work with similar audiences). External Members to the different committees include representatives from government agencies at the regional or state level, such as: the Department of the Family, the Department of Education, the Governor's Office for Special Communities, the Governor's Office for Youth Issues, the Rural Development Corporation, the Farmers' Association, and the Farm Service Agency, among others. Several private organizations have also become part of the committees. Each committee meets at least twice during the fiscal year 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 in our programs. A written report is prepared at the end of each fiscal year by the program leader, in accordance with the committee members. The report, which describes how the committee's recommendations will be addressed, is presented to the committee.

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. They will be namely identified through the Stakeholder Input Process conducted at the municipal level through the local advisory committees. For the agricultural programs, critical issues will also be identified through joint activities between the Puerto Rico Agriculture Extension Service and Agricultural Experiment Station conducted for different commodities. At the state level, other stakeholder input activities, such as focus groups and surveys of women as heads of households, 4-Hers and community leaders, will take place periodically, in coordination with program leaders, to complement the process conducted at the local level. Issues of strategic importance will also be collected through collaborative and multidisciplinary efforts between the internal and the external linkages.

The identification of these critical issues is the basis for the revision and design of the planned programs. Continuous revisions 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. Educational strategies defined to address critical issues include, but are not limited to, 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 ever increasing elderly population within the Families and Children planned program, where a new curriculum has been developed. 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. In agriculture, two special projects address the needs of the small farmers and women in agriculture. Collaborative efforts with other state agencies have facilitated our strategies to reach these under-represented populations, as they refer some of these audiences 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 indicator measures, which are focused on changes in action. It is expected that as people increasingly adopt the recommended practices, this will eventually result in improved social, economic, environmental, and civic conditions. As for the five new priorities, emphasis will be placed on improving outcome measures, and data collection to describe changes in condition as programs mature. Impacts of the planned programs will be described in the impact statements. Again, these will focus on changes at the higher levels, action and condition.

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

Planned programs are designed to address the needs of our populations. Educational techniques will be constantly evaluated to adapt to the skill levels of the participants and their educational needs, therefore, resulting in increased program effectiveness. Process evaluations, including methodologies, such as focus groups, interviews and on-site observations will be conducted periodically to evaluate strengths and weaknesses of the planned programs. Multi-institutional and integrated activities will contribute to achieve the efficiency of the planned programs.

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 are mainly 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. 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

Brief explanation.

Stakeholders are mostly local advisory 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.

Input from stakeholders is collected at the local advisory committees meetings . Stakeholders are asked about the most critical issues affecting the different areas in our educational programs, including: agriculture, families, youth, and communities. They are also asked to help prioritize these issues. Focus groups will be conducted periodically at the state level with a representative sample of the committee members and other participants of our educational programs. 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, which collects and analyzes the data.

3. A statement of how the input will be considered

- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- In the Action Plans
- 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. Data collected from the stakeholders will also be sent to the specialists, according to the area of needs. Needs related to the area of agriculture will be collected in a report to be sent to PRAES specialists that participate in the commodity joint meetings with the Agricultural Experiment Station. When there are issues which need to be emphasized, the programs are redirected to address these issues. New emerging issues are identified through these processes and analyzed according to the staff and resources available to address them; when needed, recommendations will be set for hiring staff. At the local level, input offered by the stakeholders is used to set priorities for their local plan of work.

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Strengthening Youth Life Skills, Leadership and their Community
2	Plant System
3	Family Well-being
4	Management of Rangeland and Forestry Resources/Soil, Water, and Air
5	Animal Systems
6	Community Resources Development by Means of Fostering Sustainable Communities
7	Food Safety
8	Climate Change
9	Sustainable Energy
10	Global Food Security and Hunger
11	Childhood Obesity

V(A). Planned Program (Summary)

Program # 1

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 a diversity of social problems that can result in risky behavior when kids 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. 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 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 focusing on Healthy Lifestyles; Science, Engineering and Technology; Citizenship and Leadership. Different activities and methods such as: camps, competitions, meetings, demonstrations, and workshops will be used, but, especially, the development of projects as a strategic learning tool. Furthermore, in-service learning experiences will be promoted to give youngsters the opportunity to reflect on and take action concerning issues that impact them. 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 : Mature (More then 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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
806	Youth Development	100%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

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. According to findings of the VI Youth Consultation survey carried out by the Medical Sciences Campus of the University of Puerto Rico and the Administration for Mental Health and Addiction Control Services (ASSMCA) 2008, 40% of our kids have tried alcohol before age 12 and over 44% of high school youth in making use of alcohol. With these findings we intend to assess the magnitude of the problem of drug and substance abuse including alcohol, snuff, and other drugs.

The social impacts of this phenomenon is numerous and harmful. We can correlate the following evils to the excessive use of alcohol: family dysfunction, domestic violence, and mental health problems among others. In recent years we have seen and experienced the impact of domestic violence, drug dealing, the disturbing high incidence of violent crimes, the shortcomings of our public education, the high dropout rates, poor quality and lack of accessibility to mental health services, among others on our society. These situations have impacted the well-being of Puerto Ricans.

The prevalence of children and young people who meet the diagnostic criteria of the Diagnostic and Statistics Manual of Mental Disorders-DSM IV is 19.8% (Canino, et al., 2004). According to the 2000 Census, this represents 116,373 children. Of these, only half (49.6%; 57,721) receive any type of service (Kennel, et al., 2004).

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".
- There are 1,023 adult volunteers offering support to the 4-H Program working with youngsters in different activities (Youth Enrollment Report 2010).
- Life skills prepare people to be successful in life. The goal is that every person learn the necessary

skills to succeed.

•Life skills are tools that help people 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.

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
2012	37.0	0.0	0.0	0.0
2013	37.0	0.0	0.0	0.0
2014	37.0	0.0	0.0	0.0
2015	37.0	0.0	0.0	0.0
2016	37.0	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"> • Workshop • Group Discussion • One-on-One Intervention • Demonstrations 	<ul style="list-style-type: none"> • Web sites other than eXtension

3. Description of targeted audience

Youth and 4-H members, Extension professionals (agricultural agents and specialists, home economists), professional government personnel, volunteers, and community residents.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of children/ youth who participated in life skills and subject matter educational programs designed to teach basic life skills.

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of children/youth who demonstrated improved managing skills (decision making, problem solving, planning, organization and service learning, according to the Targeting Life Skills Model).
2	Number of children/youth who demonstrated improved relating skills (communication).
3	Number of children/youth who assumed demonstrated improved giving and working skills (leadership, community service volunteering, teamwork).
4	Number of children/youth who demonstrated improved being and living skills (self-esteem and healthy lifestyle choices).

Outcome # 1

1. Outcome Target

Number of children/youth who demonstrated improved managing skills (decision making, problem solving, planning, organization and service learning, according to the Targeting Life Skills Model).

2. Outcome Type : Change in Action Outcome Measure

2012:2500 2013:2600 2014:2700 2015:2800 2016:2900

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of children/youth who demonstrated improved relating skills (communication).

2. Outcome Type : Change in Action Outcome Measure

2012:1300 2013:1350 2014:1400 2015:1450 2016:1500

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of children/youth who assumed demonstrated improved giving and working skills (leadership, community service volunteering, teamwork).

2. Outcome Type : Change in Action Outcome Measure

2012:1700 2013:1800 2014:1800 2015:1900 2016:2000

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Number of children/youth who demonstrated improved being and living skills (self-esteem and healthy lifestyle choices).

2. Outcome Type : Change in Action Outcome Measure

2012:1600 2013:1650 2014:1700 2015:1750 2016:1800

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Competing Programmatic Challenges

Description

The Island's location in the Caribbean area puts it in the path of tropical hurricanes with heavy winds and heavy rains which cause floods. The people feel that we have an unstable economy. Changes in the budget assigned to government agencies and changes in public policy due to the situation of the economy are expected.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

A pre and post questionnaire, as well as a retrospective one, will be validated to measure changes in life skills after participating in 4-H educational activities.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Plant System

2. Brief summary about Planned Program

The primary commodity crops produced in Puerto Rico are coffee, banana, plantain, starchy crops, fruits, vegetables and ornamentals. During 2009-2010, the value of these crops was \$325.81 million (Preliminary data, PR Department of Agriculture), contributing economically to the Island's communities.

In Puerto Rico, the increase in the price of farm inputs, the prolonged fiscal crisis, and the presence of new pests have affected considerably the Island's agriculture. The most important local commodities have been impacted by the introduction of new devastating pests and diseases, such as the coffee berry borer (*Hypothenemus hampei*), the black sigatoka (*Mycosphaerella fijiensis*) in plantains and bananas, and citrus greening (*Huanglongbing*) in citrus fruit orchards.

Extension personnel receive feedback from stakeholders during commodity meetings, workshops, field days, and farm visits that help them to identify major constraints to agricultural production and to establish priorities that are addressed by our Extension program.

The Plant System planned program focuses on the delivery of timely and relevant information and sound agronomic production principles in order to accelerate the adoption of production practices by farmers, increase profitability, and reduce economic and environmental risks. The main goal is to help farmers increase and improve their production through the use of good agricultural practices (GAP) and the adoption of IPM systems that protect the environment, conserve the natural resources, and contribute to the competitiveness and sustainability of Puerto Rico's agriculture. The farmers will receive the necessary education and technical assistance through economic, marketing and policy to strengthen their abilities as managers and entrepreneurs.

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
204	Plant Product Quality and Utility (Preharvest)	9%			
205	Plant Management Systems	8%			
211	Insects, Mites, and Other Arthropods Affecting Plants	12%			
212	Pathogens and Nematodes Affecting Plants	9%			
216	Integrated Pest Management Systems	13%			
401	Structures, Facilities, and General Purpose Farm Supplies	7%			
402	Engineering Systems and Equipment	5%			
403	Waste Disposal, Recycling, and Reuse	7%			
405	Drainage and Irrigation Systems and Facilities	8%			
601	Economics of Agricultural Production and Farm Management	5%			
602	Business Management, Finance, and Taxation	5%			
604	Marketing and Distribution Practices	7%			
610	Domestic Policy Analysis	5%			
	Total	100%			

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

The gross agricultural income for FY 2009 2010 was \$821,839 million (Preliminary data Puerto Rico Department of Agriculture). Animal and crop production represent 87% of this total gross income. Crop production is second in economic importance. During 2009-2010 crop value was \$325.81 million, a decrease of \$7.4 million as compared to 2008-2009.

Around 85% of the food consumed in Puerto Rico is imported. Recent increases in transportation costs, distribution, and food at the point of production outside Puerto Rico have made us more vulnerable to the disruption in the food supply chain. More data is needed on imports to enable those involved in research, education, and outreach to better prepare Puerto Ricans to produce, process, and prepare fresh, local foods.

Most of the Island's farms are small or medium sized and owner operated. The main crop production problems confronted by farmers are product quality and deficient crop cultivation practices. Also, the lands available for agriculture are scarce, as a result of the high population density, which puts other demands on the use of lands other than farming. Many of the important crops are located in mountainous areas where cultivation and management are more difficult due to the uneven terrain, and are confronted with low soil fertility and erosion. On the other hand, farmers are more aware of the public's growing concerns about pesticide residues in food and contamination of surface and groundwater supplies and are trying to reduce

their reliance on chemicals to control pests.

To improve crop production and quality farmers must have an organized structure to enhance soil fertility and structures, waste management systems and drainage and irrigation systems. The use of Integrated Pest Management (IPM) practices to grow healthy crops and minimize pesticide use is essential to reduce the negative impacts associated with pest control. Outreach to producers concerning best varieties to use and best management practices are critical.

As economic conditions get worse and the interest in organic and sustainable living increases, many people in Puerto Rico are turning to vegetable gardening to supplement to their family's diet. Extension outreach objectives will address critical needs in vegetable home gardens to respond in a faster and more accurate way to the needs of the homeowners, Extension agents, and the general public. Extension agents and other agricultural educators will train homeowners and other people interested in home gardening production and IPM. The educational resources developed will help homeowners to prepare a sustainable home garden assisted by Extension personnel. This addresses the needs of Extension agents, researchers and agronomists of the PR Department of Agriculture, that were presented in the Vegetable Commodity Meetings of 2010, and the needs observed and detected by Extension Agents in farm visits and in the Vegetable Gardening Festival (held at the University Research Station facilities in the Municipality of Gurabo since 1997).

The Plant System planned program promotes a diverse educational program to farmers and other agricultural entrepreneurs so they can improve product quality, increase production and competitiveness through the use of the most effective management system practices, integrated pest management options, irrigation systems, better practices in drainage and soil conservation, and tools and skills in economics, marketing and policies.

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 production, which contribute to the local and regional economies. It is important to motivate the farmers to become competitive with better and more effective crop production practices in order to increase the production, quality, and utility of their products.

- Farmers can expect to increase their income with better management practices, the development and implementation of IPM programs, good operation of irrigation systems, educational programs to gather information about agricultural production economics, and marketing and farm management.
- Farmers who are early adopters of new information can make different product uses (value added) and have essential high quality products to sell to niche markets like hotels, restaurants, and cruise lines, which pay high prices for better quality products.
- To achieve program outcomes it is very important that Extensionists, researchers, agronomists of the Department of Agriculture and other agencies related to agriculture work together to address the farmer's problems and promote their interest in adopting efficient and innovative practices to improve production.

2. Ultimate goal(s) of this Program

The ultimate goal is to improve product quality and increase production and competitiveness through the use of the most effective management practices, integrated pest management options, irrigation systems, better practices in drainage and soil conservation, and 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
2012	23.5	0.0	0.0	0.0
2013	23.5	0.0	0.0	0.0
2014	23.5	0.0	0.0	0.0
2015	23.5	0.0	0.0	0.0
2016	23.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Technical production training meetings.
- Capacity building workshops
- Demonstration of methods
- Meetings, visits and guidance to farmers
- Collaboration with state, local and federal government agencies.
- Use of mass media to disseminate information.
- Preparation of technical plans (IPM, irrigation systems, cultivation practices)
- Prepare curricula and other educational materials

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 • Workshop • One-on-One Intervention • Demonstrations • Other 1 (Seminars) 	<ul style="list-style-type: none"> • Newsletters • TV Media Programs • Web sites other than eXtension • Other 1 (Radio Programs) • Other 2 (Exhibits)

3. Description of targeted audience

Farmers, government professionals, county agents, agricultural entrepreneurs, pesticide applicators, homeowners, landscapers, and professionals from the private sector.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of producers trained in integrated coffee management.
 - Number of producers trained in banana and plantain management.
 - Number of producers trained in integrated starchy crops management.
 - Number of producers trained in integrated vegetable management.
 - Number of producers trained in integrated tropical fruits management.
 - Number of producers trained in integrated citrus management.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers that adopted one or more recommended practices for integrated coffee management.
2	Number of producers that increased production and quality of coffee.
3	Number of producers that adopted one or more recommended practices for integrated plantain and banana management.
4	Number of producers that increased production and quality of plantain and bananas
5	Number of producers that adopted one or more recommended practices for starchy crops management.
6	Number of producers that increased production and quality of starchy crops.
7	Number of producers that adopted one or more recommended practices for vegetable management.
8	Number of producers that increased production of vegetable crops.
9	Number of producers that adopted one or more practices for integrated tropical fruit management.
10	Number of producers that increased production and quality of tropical fruit crops.
11	Number of producers that adopted one or more practices for integrated citrus management.
12	Number of producers that increased production and quality of citrus.

Outcome # 1

1. Outcome Target

Number of producers that adopted one or more recommended practices for integrated coffee management.

2. Outcome Type : Change in Action Outcome Measure

2012:500 2013:500 2014:600 2015:600 2016:600

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of producers that increased production and quality of coffee.

2. Outcome Type : Change in Action Outcome Measure

2012:300 2013:300 2014:300 2015:300 2016:300

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of producers that adopted one or more recommended practices for integrated plantain and banana management.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:700 2013:750 2014:700 2015:650 2016:650

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Number of proudcers that increased production and quality of plaintain and bananas

2. Outcome Type : Change in Action Outcome Measure

2012:400 2013:400 2014:400 2015:400 2016:400

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number of producers that adopted one or more recommended practices for starchy crops management.

2. Outcome Type : Change in Action Outcome Measure

2012:400 2013:400 2014:400 2015:400 2016:400

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Number of producers that increased production and quality of starchy crops.

2. Outcome Type : Change in Action Outcome Measure

2012:300 2013:300 2014:300 2015:300 2016:300

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Number of producers that adopted one or more recommended practices for vegetable management.

2. Outcome Type : Change in Action Outcome Measure

2012:500 2013:550 2014:550 2015:500 2016:500

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Number of producers that increased production of vegetable crops.

2. Outcome Type : Change in Action Outcome Measure

2012:400 2013:400 2014:400 2015:400 2016:400

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

Number of producers that adopted one or more practices for integrated tropical fruit management.

2. Outcome Type : Change in Action Outcome Measure

2012:500 2013:500 2014:500 2015:500 2016:500

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 10

1. Outcome Target

Number of producers that increased production and quality of tropical fruit crops.

2. Outcome Type : Change in Action Outcome Measure

2012:300 2013:300 2014:300 2015:300 2016:300

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 11

1. Outcome Target

Number of producers that adopted one or more practices for integrated citrus management.

2. Outcome Type : Change in Action Outcome Measure

2012:700 2013:700 2014:700 2015:700 2016:700

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 12

1. Outcome Target

Number of producers that increased production and quality of citrus.

2. Outcome Type : Change in Action Outcome Measure

2012:300 2013:300 2014:300 2015:300 2016:300

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

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 affect production, product quality, irrigation systems, structures and IMP programs. These events also increase the dependence on imported products. Also, the government's economic and budget constraints and changes in public policies affect program priorities and outcomes.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Before and after each training a test will be administered to the participants to measure knowledge gained. A survey, administered after the completion of training to PRAES agents and other educators, will evaluate their knowledge and attitudes. Case studies will be used to evaluate different areas of 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.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Family Well-being

2. Brief summary about Planned Program

In society, the family is considered the first institution that has the responsibility and commitment to prepare and educate its members. It is where character is formed and values are learned.

The increase in population, as well as social, political, and economic changes impact Puerto Rican families, affecting their vital function. The family structure in Puerto Rico has changed with important implications for the children. Also, financial problems can cause negative effects on individuals, families, and employees. Several researches on family and financial issues conclude that economic stress affects the emotional stability of family members and can affect their mental health, the marital relationship, and parental responsibilities (Dennis, Parke, Scout & Duffy, 2003; Leinonen, Solantaus & Punamaki, 2003; Shaklee, 2007)

The Family Well-being planned program targets families, children, youth, elderly people, new couples, and employees of the public and private sectors. Its goal is 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 in addition to increasing their financial well-being through knowledge, skills and self-confidence.

To reach this goal, the Family Life and Consumer Education specialists develop through workshops, curriculum, radio programs, bulletins, information centers, and trainings in successful parenting, character traits, values, family strengths and aging aspects, and through competencies such as: how consumer behavior influences decision-making, budgeting, debt reduction, credit wise and savings.

Through the establishment of coalitions we will join with other agencies in Puerto Rico such as the Department of Consumer Affairs, the Department of the Family, and the Department of Education and Consumer Credit Counseling .

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
607	Consumer Economics	10%			
724	Healthy Lifestyle	20%			
801	Individual and Family Resource Management	30%			
802	Human Development and Family Well-Being	40%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The increase in population and social, political and economic changes have impacted Puerto Rican families, affecting their vital function. Households with both parents present comprise 68% of all families on the Island; 31.4% of these families live under the poverty level (income is less than \$10,000 per year) (2000 Census of Population for Puerto Rico) The number of families whose head of household is a women (no man present) is 268,476; 49.8% of these families earn less than \$10,000 year.

The personal income increased from \$51 billion (2006) to \$53 billion (2007), accordingly the personal consumer debt increased from \$21billion to \$22 billion (Puerto Rico Planning Board, 2008). Family internal factors like unplanned spending and conspicuous consumption seem to worsen the personal debt.

The Consumer Price Index suggests that the rate of inflation was slightly more than 9.6% in the last 12 months (Department of Labor and Human Resources, 2008) and the Puerto Rico Bulletin reported 9,048 bankruptcies for year 2008, 17% more compared with the last year. This suggests hard economic times for individuals and families. Financial problems can cause negative effects on individuals, families and employees.

Another negative impact on families is child abuse. According to the Commonwealth of Puerto Rico’s Children and Families Administration, during fiscal year 2007-2008, 16,022 families had active cases involving children maltreatment, which involved 38,149 children. The distribution by type is as follows: negligence (51%), physical abuse (13%), emotional maltreatment (12%), sexual abuse (6%), and for multiple causes (18%).

There was also an increase in the number of divorces, single mothers, adolescents pregnant, stepfamilies, grandparents raising grandchildren, women headed household families, and domestic violence.

Financial education has gained interest among consumers. According to Hogarth (2002), well educated consumers should make better decisions for their families, increasing their economic security and well-being. Financially secure families are better able to contribute to vital, thriving communities, further fostering community economic development.

The above socioeconomic data show the increasing need to help consumers and house hold to deal effectively in a complicated social and economic scenario. Through family and financial literacy, families should develop the appropriate tools for a better decision-making process in the following areas: savings, debt reduction and budget design, while simultaneously promoting behavioral changes that strengthen 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.
 - Early exposure to financial concepts may increase comfort and familiarity with financial matters, thereby, removing psychological barriers that impede proper decision-making (Barthein, Garret and Maki (2001).
 - Programs that enable house holds to identify savings rules that are manageable and easy to follow, will help households build wealth (Youn, Montalto and Hanna, 2006)
 - Educating parents to deal properly with any future economic, emotional, or familiar challenge contributes to attenuate the adverse effects of economic hardship

2. Ultimate goal(s) of this Program

- Increase the number of families that support and guide their members throughout their lives.
- Decrease child maltreatment, neglect and family violence.
- Increase the financial well-being of consumers through Knowledge, skills and self-confidence in competencies such as: how consumers' behavior influences decision making, budgeting, debt reduction, credit wise and savings.

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
2012	17.0	0.0	0.0	0.0
2013	17.0	0.0	0.0	0.0
2014	17.0	0.0	0.0	0.0
2015	17.0	0.0	0.0	0.0
2016	17.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Participate in radio/TV Programs
- Write Proposals
- Curriculum and educational materials development.
- Training-the-trainers
- Workshops
- Establishment of collaborations
- Consulting
- 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 • Group Discussion • One-on-One Intervention 	<ul style="list-style-type: none"> • Newsletters • Web sites other than eXtension • Other 1 (Radio Programs) • Other 2 (Campaigns & Exhibits)

3. Description of targeted audience

Extension agents, home economists, PRAES specialists, professionals from other agencies, parents, families, children, youth, elder people, volunteers, new couples, and the general public.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of persons trained in parenting and related areas.
 - Number of persons trained in aging aspects.
 - Number of persons that completed the Consumer Education course.
 - Number of persons that completed individual and family resource management course.
 - Number of persons that completed non-formal health education and health promotion programs.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons that reported improved parenting skills.
2	Number of persons that gained knowledge in aging aspects.
3	Number of consumers that adopted the practice of preparing their individual family budget.
4	Number of persons that reduced their risk levels upon the completion of one or more recommended lifestyles.
5	Number of consumers that adopted savings practices through goods and services selection process (Consumer Education course)

Outcome # 1

1. Outcome Target

Number of persons that reported improved parenting skills.

2. Outcome Type : Change in Action Outcome Measure

2012:700 2013:800 2014:850 2015:850 2016:850

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of persons that gained knowledge in aging aspects.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:300 2013:400 2014:400 2015:400 2016:400

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of consumers that adopted the practice of preparing their individual family budget.

2. Outcome Type : Change in Condition Outcome Measure

2012:400 2013:600 2014:600 2015:600 2016:600

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

2012:800 2013:800 2014:800 2015:850 2016:850

3. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2012:400 2013:600 2014:600 2015:600 2016:600

3. Associated Knowledge Area(s)

- 607 - Consumer Economics

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Public Policy changes
- Competing Programmatic Challenges
- Other (Availability fed., ext. funds)

Description

Achievement of goals could be affected by external elements, the economic crisis, and availability of competitive federal and/or external funds.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Management of Rangeland and Forestry Resources/Soil, Water, and Air

2. Brief summary about Planned Program

Puerto Rico Agricultural Extension Service (PRAES) and USDA-NRCS will join efforts to promote the management of rangelands. These collaborative efforts are 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 best management practices during farming. Farm demonstrations will be conducted as educational tools to showcase the desired practice and benefits, and to stimulate other farmers to adopt the practices. Each farm visit will require a report of the findings and recommendations. Short courses will be conducted 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.

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 rangelands 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 eutrophication 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 that will be used to enhance, improve and promote wildlife in and around the cities. The Reforestation and development of green areas in urban and rural areas by non-government entities should also 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 : 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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	5%			
102	Soil, Plant, Water, Nutrient Relationships	20%			
121	Management of Range Resources	25%			
122	Management and Control of Forest and Range Fires	5%			
123	Management and Sustainability of Forest Resources	15%			
124	Urban Forestry	20%			
133	Pollution Prevention and Mitigation	5%			
141	Air Resource Protection and Management	5%			
	Total	100%			

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

Puerto Rico's gross agricultural income for FY 2009-2010 was \$821.84 million (Puerto Rico Department of Agriculture). Animal and crop production represent 88% of this total.

Animal producers in Puerto Rico consist of small family operated farms with 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 and phosphorus content of manure by volatilizing nitrogen (ammonia) to the atmosphere with other volatile compounds such as methane, organic and sulfur. There are still farms with animal waste disposal systems which have never been completed or submitted for approval to the regulatory agencies. Often, there is a lack of adequate systems and those in existence receive little maintenance, causing environmental impacts, such as bad odors, land and water pollution, and dissemination of pathogens, among others.

Sixty percent (60%) of the land on the island is more than 20% slopes, with an erosion of 10% annually, and low fertility (Natural Resources Conservation Service). Coffee, plantains, fruit, and starchy crops, are cultivated in the hilly areas. The intensive use of agricultural lands, deforestation, eutrophication, and sedimentation of rivers increase the risk of flooding, threatening the lives of people and the loss of livestock and crops.

On the other hand, Puerto Rico's high population density demands that existing infrastructure be updated and new infrastructure constructed to satisfy the population's needs. However, this ever increasing demand for new and improved infrastructure has resulted in the reduction of lands available for agriculture. We need a better and more efficient use of our lands to improve animal and crop production. In order to get reasonable yields farmers have to establish soil and water conservation practices and a good fertilization program to improve soil fertility.

The planned program Management of Rangeland and Forestry/Soil, Water and Air is devoted to promoting the education of farmers and people in areas related with agriculture through activities addressed to establish conservation practices to promote the protection of our forests, trees, and watersheds; increase appropriate fertilization practices, conserve water, and mitigate emissions of particles from agricultural practices 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 of 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

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.

SOIL, WATER, AND AIR

- * 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.
- * NRCS, 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 recommended practices on range and forest resources to assure enough forage production for livestock and conserve the forest ecosystems.
- * 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
2012	6.0	0.0	0.0	0.0
2013	6.0	0.0	0.0	0.0
2014	6.0	0.0	0.0	0.0
2015	6.0	0.0	0.0	0.0
2016	6.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- * Collaborate with government agencies (DNRA, USDA-NRCS and others).
- * Collaborate with our partners in the University of Puerto Rico and other educational institutions.
- * Conduct workshops, short courses and trainings on practices, laws, and regulations related to range management, urban forestry, soil, water, and air.
- * On-site farm visits and field trips to demonstration projects.
- * Offer advice when clientele visit the office.
- * Participate in radio 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"> ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Other 1 (Radio Programs, telephone, email) ● Other 2 (Exhibitions, publications)

3. Description of targeted audience

Farmers (includes small family farms, large scale farm business operation), farm workers, government professionals, Extension professionals, community residents and youth 13-18 years old.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of farmers trained in range management.
- Number of people that participated in workshops, conferences or meetings on urban forestry.
- Number of persons trained on forest and rangeland fire prevention.
- Number of persons trained on pollution prevention and mitigation of natural resources.
- Number of people trained on natural resources and forest conservation.
- Number of trainings offered on soil, water, and air.
- Number of farmers trained on agricultural practices for air and water quality.
- Number of people trained on environmental regulations for soil, air, and water quality.
- Number of farmers trained on soil fertility.
- Number of farmers trained on soil conservation practices

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of farmers that improved their pastures.
2	Number of persons that adopted one or more practices on natural resources and forest conservation.
3	Number of reforestation projects established.
4	Numbers of persons that adopted one or more practices on fire prevention in forests and rangelands.
5	Number of farmers that adopted the recommended range management practices.
6	Number of acres in improved pastures.
7	Number of persons that adopted practices for pollution prevention and mitigation of natural resources.
8	Number of farmers that comply with the soil, air, and water regulations.
9	Number of farmers that adopted the fertilization practices.
10	Number of farmers that adopted one or more soil conservation practices.
11	Number of people that adopted one or more practices on soil, water, and air.

Outcome # 1

1. Outcome Target

Number of farmers that improved their pastures.

2. Outcome Type : Change in Action Outcome Measure

2012:100 2013:100 2014:110 2015:110 2016:100

3. Associated Knowledge Area(s)

- 121 - Management of Range Resources

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

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

2012:70 2013:70 2014:70 2015:70 2016:70

3. Associated Knowledge Area(s)

- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of reforestation projects established.

2. Outcome Type : Change in Condition Outcome Measure

2012:200 2013:200 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 124 - Urban Forestry

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

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

2012:20 2013:20 2014:20 2015:20 2016:20

3. Associated Knowledge Area(s)

- 122 - Management and Control of Forest and Range Fires

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number of farmers that adopted the recommended range management practices.

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:200 2014:250 2015:250 2016:250

3. Associated Knowledge Area(s)

- 121 - Management of Range Resources

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Number of acres in improved pastures.

2. Outcome Type : Change in Action Outcome Measure

2012:2000 2013:2500 2014:2500 2015:2500 2016:1500

3. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 123 - Management and Sustainability of Forest Resources

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

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

2012:30 2013:30 2014:30 2015:30 2016:30

3. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Number of farmers that comply with the soil, air, and water regulations.

2. Outcome Type : Change in Action Outcome Measure

2012:180 2013:180 2014:180 2015:180 2016:180

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 141 - Air Resource Protection and Management

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

Number of farmers that adopted the fertilization practices.

2. Outcome Type : Change in Action Outcome Measure

2012:110 2013:110 2014:110 2015:110 2016:110

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 10

1. Outcome Target

Number of farmers that adopted one or more soil conservation practices.

2. Outcome Type : Change in Action Outcome Measure

2012:120 2013:120 2014:120 2015:120 2016:120

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 11

1. Outcome Target

Number of people that adopted one or more practices on soil, water, and air.

2. Outcome Type : Change in Action Outcome Measure

2012:120	2013:120	2014:120	2015:120	2016:120
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3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 141 - Air Resource Protection and Management

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Other (Avail. econo. incentives)

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. Ocean-atmosphere phenomenon El Nino/La Nina has potential catastrophic impact on the weather in Puerto Rico. Many agricultural facilities can be severely affected by these atmospheric events, which affect range production, cause floods or mud slides, and increase soil erosion and sedimentation of rivers and watersheds. Changes in public policy and regulations 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 - Planned Evaluation Studies

Description of Planned Evaluation Studies

Case studies (during third year of the program) will be used to evaluate this planned program and gather information of factors that influence the farmers in adopting the recommended practices. The cases (three) will be individual clients that have succeeded in adopting practices Pre/post tests--two different tests--will be administered to determine knowledge acquisition.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Animal Systems

2. Brief summary about Planned Program

The agricultural gross income for FY 2009-2010 increased 3.62% (Puerto Rico Department of Agriculture, Statistics for 2009-2010). The sector that contributed the most to Puerto Rico's gross agricultural income was livestock, which includes: dairy beef, poultry, swine, aquaculture, and small operations such as rabbits, goats, sheep, bees and horses. It is the agricultural activity most regulated by environmental regulations and transmission diseases to humans.

Farmers need to recognize the importance of proper waste management practices to the environment and meeting established regulations through good agricultural practices. New sanitary regulations should be implemented at farm level to eradicate the presence of microorganism in raw food and improve food security in order to be more self-sufficient and improve local production. This poses a challenge to farm activities involving animals as local animal production has also been impacted by high input costs and limited control of imported products.

The farmer is an entrepreneur working in an agricultural business. He has to make decisions on the use of resources such as land, labor, capital, and management skills. Therefore, he needs business tools to be successful and needs to develop skills to stand up to the increased competition, environmental regulations and adoption of technological changes.

To help make farm operations more successful the Puerto Rico Agricultural Extension Service (PRAES) will orient farmers through the Animal Systems planned program. Farmers will be oriented on the importance of maintaining farm animals in good health and the preparation of waste management systems that meet state and federal requirements for animals in confinement. Educational efforts will be aimed at the effective operation and maintenance of farm equipment and the promotion of water conservation practices. This includes keeping the farm facilities clean and promoting bio security practices among farmers. Modern techniques that include management, business management, finance and taxation, marketing and distribution practices, and domestic policy analysis will also be promoted.

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	8%			
302	Nutrient Utilization in Animals	8%			
303	Genetic Improvement of Animals	4%			
305	Animal Physiological Processes	4%			
306	Environmental Stress in Animals	8%			
307	Animal Management Systems	16%			
308	Improved Animal Products (Before Harvest)	8%			
311	Animal Diseases	16%			
315	Animal Welfare/Well-Being and Protection	8%			
401	Structures, Facilities, and General Purpose Farm Supplies	6%			
402	Engineering Systems and Equipment	6%			
405	Drainage and Irrigation Systems and Facilities	8%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Current trends show a steady decline in the number of farms and an increase in the average size of herds or flocks. At the same time, the number of acres dedicated to forage production at the average dairy farm has been reduced by more than 12% over the past ten years. This reduction has resulted in the farmers' growing dependence on imported ingredients to feed the livestock sector with a consequent increase in the number of animals in confinement or semi confinement and the need of comprehensive nutrient management at the farm level to increase efficiency and reduce the threat of soil and water contamination.

These farmers have to comply with the new regulations concerning farms with animals in confinement (farms that produce more than 5 cubic feet of waste). The waste management systems of many of these farms will have to be modified and, in some cases, relocated to comply with the new regulations. Changes in the local building codes due to our experience with tropical hurricanes during the past two decades have also affected agriculture. Existing structures, as well as 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. These modifications should be made with the least amount of economic burden on farmers.

The farmers should implement the Good Agriculture Practices to produce free born disease products. To reduce the possibility of products contamination, increase the cleanness of the facilities and

implement bio-security practices should be emphasized.

Economic challenges make it necessary for PRAES to continue offering farm management education to farmers to help alleviate their economic situation. 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 farm 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. The farmers have received intensive trainings and technical assistance on farm management, finance, taxation, risk, marketing, and agricultural policies.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

The experience with educational programs 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 is evidence of the tendency of producers to improve economies of scale.

The new environmental regulations and pressures 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 as 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.

The farmers need to be prepared in areas such as the economics of agricultural production and farm management; business management, finance and taxation; marketing and distribution practices, and domestic policy analysis to be competitive. There is a 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 needs to offer the opportunity to obtain information about the economics of agricultural production and farm management; recommended production practices, good disease management practices in farm animal and regulations; disease control and prevention program and the regulations established by local and federal agencies regarding agricultural activities.

2. Ultimate goal(s) of this Program

- To improve animal production and products through better management practices.
- Enhance the prevention and control of diseases at farm level to increase animal health, production, and quality.
 - To improve agricultural infrastructures and waste disposal management through the effective use of engineering and biological systems.
 - To increase agricultural business of the farmers and agricultural entrepreneurs through the use 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
2012	21.5	0.0	0.0	0.0
2013	21.5	0.0	0.0	0.0
2014	21.5	0.0	0.0	0.0
2015	21.5	0.0	0.0	0.0
2016	21.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Conduct seminars, meetings, trainings and workshops
- Farm visits
- Educational material (publications, newsletters, CDs)
- Offer counseling and orientation
- Work in collaboration with the communications media
- Write and submit extension and research proposals
- 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 educational material (publications, newsletters, CDs)

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 • Workshop • Group Discussion • One-on-One Intervention • Demonstrations 	<ul style="list-style-type: none"> • Public Service Announcement • Billboards • Newsletters • TV Media Programs • Web sites other than eXtension • Other 1 (Publications, Exhibitions) • Other 2 (Radio Programas, Software)

3. Description of targeted audience

Farmers, agricultural entrepreneurs, PRAES professionals, government personnel, community leaders, and professionals from the private sector.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of farmers trained in recommended meat production practices.
- Number of farmers trained in animal protection practices.
- Number of farmers trained in milk quality recommended practices.
- Number of farmers trained in precommended practices in waste management systems and drainage or irrigation systems.

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of farmers that adopted a bio-security program.
2	Number of farmers that adopted practices in animal welfare and protection.
3	Number of farmers that improved milk quality after adopting the recommended practices.
4	Number of farmers that increased animal production after adopting the recommended record keeping, disease control and prevention, and feed utilization practices.
5	Number of farmers that adopted the recommended practices in relocalization of structures, dimensions of structures, and the construction code.
6	Number of farmers that adopted practices to improve their drainage or irrigation facilities.

Outcome # 1

1. Outcome Target

Number of farmers that adopted a bio-security program.

2. Outcome Type : Change in Action Outcome Measure

2012:30 2013:30 2014:30 2015:30 2016:30

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2012:120 2013:120 2014:120 2015:120 2016:120

3. Associated Knowledge Area(s)

- 315 - Animal Welfare/Well-Being and Protection

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of farmers that improved milk quality after adopting the recommended practices.

2. Outcome Type : Change in Action Outcome Measure

2012:125 2013:125 2014:125 2015:125 2016:125

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)

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Number of farmers that increased animal production after adopting the recommended record keeping, disease control and prevention, and feed utilization practices.

2. Outcome Type : Change in Condition Outcome Measure

2012:480 2013:500 2014:500 2015:500 2016:500

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number of farmers that adopted the recommended practices in relocalization of structures, dimensions of structures, and the construction code.

2. Outcome Type : Change in Action Outcome Measure

2012:80 2013:80 2014:80 2015:80 2016:80

3. Associated Knowledge Area(s)

- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 402 - Engineering Systems and Equipment

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Number of farmers that adopted practices to improve their drainage or irrigation facilities.

2. Outcome Type : Change in Action Outcome Measure

2012:40 2013:40 2014:40 2015:40 2016:40

3. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

Description

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.

The general feeling that the economy is weak is another factor that makes people put off 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. Also, 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.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Community Resources Development by Means of Fostering Sustainable Communities

2. Brief summary about Planned Program

The Community Resources Planning and Development Program of the Puerto Rico Agricultural Extension Service (PRAES) at the UPR Mayagüez Campus, continues focusing in the delineation of an effective Community Economic Development and Self management program that will address Puerto Rico's most pressing social issues.

Agriculture production in Puerto Rico still represents a skimp component of the Puerto Rican economy with a 0.9% of the GNP (Government Development Bank, 2009); personal bankruptcies continue increasing with a hike of 21% between 2009 and 2010 with 6,545 additional cases ("Corte Federal de Quiebra del Distrito de Puerto Rico"). To help manage both the agricultural activity and community crises, the Empowering Communities, and Community Economic Development sections of CRD will expand the initiative started in 2010 giving special emphasis to community based agricultural land conservation and to the generation of sustainable low scale family or community based agriculture and other economic initiatives. To achieve these objectives, the CRD strategies which began in 2010 will continue focusing beyond training activities centered toward specific careers or job areas and will focus on the identification and development of skills already present in the participants or the communities that might be geared toward activities of economic production, self employment or the creation of micro enterprises. Accordingly, our program will continue to stress the development of methodological tools that allow participants with various and diverse talents, skills and dexterities to be able to organize economic activities that will allow them to take advantage of these skills for their benefit and sustenance.

In addition, CRD focuses its efforts in guiding community leaders towards self management and empowerment. In the communities we serve, there is a prevalence of families with unequal access to economic and social development, compared to other groups on the island. The community is the focal point where people feel a sense of personal involvement and take pride in their actions. Accordingly, CRD in Puerto Rico works hard developing a sense of community belonging and increased identity in all its programs. 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. That is why we have adopted the Participative Action Research methodology as our principal approach to empowering and constructing stronger communities.

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	50%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	40%			
805	Community Institutions, Health, and Social Services	10%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Puerto Rico has experienced a sustained poverty level rate close to 50% for the past two decades. Official poverty figures once again surpassed those of fiscal year 2009, which were at a 30 years high. Per capita personal income dropped to \$15,846 (48% of that of Mississippi, the poorest State in the US). Unemployment figures continue close to 17% (compared to the prevailing 9.5% in the U.S.). As a result, between 2007 and 2010, Puerto Rico has added over 100,000 people to the unemployment rolls (20,000 more than in 2009). Low labor force participation has surpassed last year's 30 years low at 41.1 with an additional 4.6 descent from that of 2008. Puerto Rico is the only U.S. jurisdiction where there are more people of the "working age" group out of the labor market than working (Government Development Bank, 2011; Puerto Rico Department of Labor, 2011). As the previous figures make evident, Puerto Rico's government led economic restructuring plan, ended the government role as the principal promoter for the creation of jobs and the generator of economic activity.

The rate of communities, both urban and rural, that experience long term spells of poverty and inequality far surpass those in the U.S. Also, the island is experiencing an uncontrolled process of social decomposition with unmanageable criminality, domestic violence, school dropouts, suicides, drug addiction, and alcoholism rates. In view of this, our plan of work focuses on holistic educational strategies that will promote self employment and community oriented initiatives as a to foster sustainability, self reliance and empowerment. A participant oriented methodology will be employed (Participatory Action Research), in which participants will take an active role in defining problems and aspirations, seeking possible solutions, implementing strategies, and evaluating the results (Foote, 1991; Greenwood, 1998; Macpherson (et.al.), 2005).

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

- Holistic training of the field agents, home economists, and community leaders will help disseminate information to the communities that will foster social change.

- In order to make an adult education program successful, we must integrate the participants to all aspects of the educational process (i.e., definition of the problems and aspirations, development of possible solutions, implementation and evaluation).
 - Meaningful long- term changes in behavior and attitude take time to accomplish.
 - Communities possess the human, cultural and material resources needed for their social and economic development.
 - Sustainable, self employment and economic development are possible if people possess basic social and entrepreneurial tools that will let them to take advantage of their existing skills and existing opportunities in their communities.
 - The work of those who have the ministerial duty to serve the communities will be more effective and fruitful if they form strategic alliances that would maximize both institutional and human resources.
 - Popular knowledge is as essential and valuable as technical knowledge; both complement each other, both should be promoted and respected to achieve a meaningful improvement in the quality of life of the communities.
 - To obtain a positive outcome in the program development, 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 implementation of the program

2. Ultimate goal(s) of this Program

To increase the communities' well-being, quality of life and sustainability through the establishment of collaborative, community oriented and community-based economic initiatives and enterprises.

To improve the social, economic and environmental quality for individuals and families by increasing the number of community projects focused on developing empowered and self-managed communities.

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
2012	30.0	0.0	0.0	0.0
2013	30.0	0.0	0.0	0.0
2014	30.0	0.0	0.0	0.0
2015	30.0	0.0	0.0	0.0
2016	30.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Community assemblies, gatherings, and other meetings to establish rapport and explore needs and aspirations
- Conference/training in areas of social investment, marketing, market study and analysis, self-

employment opportunities identification, community-based business and empowerment

- Participative Action Research strategies such as "reading the streets", participant observation, ethnographies, life histories, focal groups, informal interviews, and reflexive diaries
- Use of "tool box" material that will empower community participants to take advantage of the endless amount of possibilities for community oriented economic initiatives
 - Establishment of strategic alliances with government agencies, non-governmental organizations and community institutions to collaborate in the promotion of community-based economic initiatives
 - Development of radio programs with the participation of community members and field personnel to promote community-based economic initiatives
 - Develop educational material such as curriculum and modules
 - Establishment of community coalitions with volunteer organizations, community services organizations, institutions, and other agencies
 - Seminars with community services institutions that offer assistance in case of disaster or emergency, including volunteer organizations, non-profit groups and government 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"> • Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations • Other 1 (Community assemblies, meetings) • Other 2 (Participative Action Research) 	<ul style="list-style-type: none"> • Public Service Announcement • Newsletters • Web sites other than eXtension • Other 1 (Radio Programs) • Other 2 (Publications, Exhibitions)

3. Description of targeted audience

Community participants (i.e., individuals and families), community leaders, extension professionals, and other professionals.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of persons trained in community-based business.
 - Number of leaders trained on community organization and empowerment (at least four workshops).
 - Number of leaers trained on emergency and disaster situations (at least four workshops).
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons applying the recommended practices in the process of developing a community-based business.
2	Number of community-based businesses established.
3	Number of community projects established to benefit the community.
4	Number of leaders participating actively in the design and implementation of community projects.
5	Number of communities that developed an emergency and safety plan.

Outcome # 1

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

2012:100 2013:125 2014:150 2015:175 2016:200

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of community-based businesses established.

2. Outcome Type : Change in Condition Outcome Measure

2012:25 2013:40 2014:50 2015:65 2016:75

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of community projects established to benefit the community.

2. Outcome Type : Change in Action Outcome Measure

2012:50 2013:50 2014:60 2015:65 2016:65

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2012:150 2013:200 2014:250 2015:250 2016:300

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number of communities that developed an emergency and safety plan.

2. Outcome Type : Change in Action Outcome Measure

2012:30 2013:30 2014:40 2015:40 2016:50

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Natural Disasters: Due to the geographic location of Puerto Rico, the island is subject to the possibility of tropical weather extremes such as hurricanes, drought or flooding, as well as telluric movements such as earthquakes and tsunamis.

Economy: The establishment of a sales tax in Puerto Rico is especially complicated and onerous for small businesses and self-employed individuals. As with any dependent economy, the current worldwide economic crisis has hit Puerto Rico especially hard.

Public Policy Changes and Competing Public Priorities: Puerto Rico's government response to the crisis continues to be based on the reduction of expenditures, mostly by eliminating government employment and sending thousands of government employees to the welfare rolls (contrary to the current trend in the U.S. government).

Appropriations Change: The projected reduction in the federal government's budget is expected to affect both the amount of economic resources, human capital and, as its result, the capacity to develop community projects.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Pre and post questionnaires will be administered during training and workshop sessions. Case studies will be carried out to illustrate norms that could serve to establish a program model or to illustrate anomalous outcomes that could help establish idiosyncratic or particular aspects to the community development initiative. Evaluation studies will be conducted during the program in order to understand the changes occurring in the communities. Periodic visits to the community will be conducted. A questionnaire has been developed to conduct a post program evaluation of the Community Entrepreneurship Tool Box.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

The goal of the Food Safety planned program is "To improve food safety through the control, reduction or elimination of contamination risks". . This component consists of 2 main areas: education for consumers and education for Food Mangers. The Puerto Rico Agricultural Extension Service (PRAES) has the following curriculums on Food Safety: (A) The "Fight BAC!" campaign, for consumers, which is being updated and adding new lessons from which Home Economists can select according to their audience ;(B) The Food Safety Certificate course, for persons in charge of food establishments; and (C) Train-the-trainers, for university personnel and professionals from other government agencies and organizations.

3. Program existence : Mature (More then 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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	100%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

According to the CDC (Center for Disease and Prevention) reducing foodborne illness by just 10% would keep 5 million Americans from getting sick each year and preventing a single fatal case of E. coli O157 infection would save an estimated \$7 million. Ensuring safe food is an important public health priority. During 2007 Puerto Rico had 11 confirmed food-borne outbreaks (CDC). The number of notifiable diseases were 64 cases of Hepatitis Type A, 949 cases of Salmonella, 1 cases of Shiguella, and 24 cases of E. Coli 0157:H7.

The ideal retail food program performance indicator should be the level of foodborne illness, but the occurrence of these illnesses is grossly underreported (FDA (2004). Preliminary data of the Morbidity and Mortality Weekly Report, April 2008 reported that a long-term decline in foodborne illness appears to be stalling. This makes the incidence of foodborne illness an unreliable program measurement. On the other hand, research reveal that American consumers are more knowledgeable about food safety, but may have erroneous ideas of which handling practices are effective to reduce foodborne illnesses at a home

environment (<http://fsis.gov/OA/rePRAESrch>). Among restaurants, the major difference between those with foodborne disease outbreaks and those with non-outbreaks is the presence of a certified kitchen manager, (Hedberg, C. W., et al., 2006). It was found that food workers are more likely to wash their hands when they are trained in food safety (Green, et al., 2007). Following the Food Code's recommended cooking temperatures ensures that food reaches a temperature high enough to kill pathogens.

PRAES' priorities are to offer the Food Safety Certification Course (FSCC) to persons in charge of retail food establishments and to continue offering formal education to professionals that teach or enforce compliance regulations.

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 and individuals
 - Working in different partnerships will help in the development of programs aimed at the promotion of health and the prevention of diseases.
 - Individuals that enroll or shows up for a course or program are more willing and motivated to learn and adopt changes.
 - The ability to learn is fundamental to the nature of humans, but there are individual differences.
 - Food safety education, will increase participants knowledge and promote positive attitudes towards food safety practices.
 - Positive attitudes will most likely enhance the adoption of safe food handling behavior.

2. Ultimate goal(s) of this Program

To improve food safety handling practices among individuals that prepare and serve food through the control, reduction or elimination of 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
2012	8.8	0.0	0.0	0.0
2013	8.8	0.0	0.0	0.0
2014	8.8	0.0	0.0	0.0
2015	8.8	0.0	0.0	0.0
2016	8.8	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Updating of all curriculums: Consumers and Food Managers in order to update and include recommendations for adult learning techniques.
- Work in collaboration with the communication media.
- Continue working in partnership with other agencies to develop educational programs.
- Offer Fight BAC! And Protect your baby curriculum to consumers.
- Exhibitions, information centers, radio shows, among others.
- Offer Food Safety Course to Food Establishment managers.
- PRAES and personnel of other agencies
- Trainings: Emphasis on institutions that serve At-Risk Population in the Food Code regulations, Hazard Analysis and Critical Control Points, Food Defense, and others.

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 • Workshop • Group Discussion • One-on-One Intervention 	<ul style="list-style-type: none"> • Other 1 (Publications, exhibits) • Other 2 (Radio Spots)

3. Description of targeted audience

- Extension professionals and other professionals
- Parents and persons that plans/buys/prepares food for the family
- Consumers with an emphasis on At risk Population
- Persons in Charge of Retail Food Establishments

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of consumers completing one Food Safety educational curriculum for consumers.
 - Number persons in charge of food establishments completing Food Safety Course.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of consumers that adopted one or more food handling practices.
2	Number of participants that approved the certification exam.
3	Number of participants that adopted three or more of eight selected food handling practices recommended by the Food Code.

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2012:900 2013:900 2014:900 2015:900 2016:900

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of participants that approved the certification exam.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:3500 2013:3500 2014:3500 2015:3500 2016:3500

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2012:2500 2013:2500 2014:2500 2015:2500 2016:2500

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Puerto Rico's location in the Caribbean makes it the object of a variety of natural events, which include hurricanes, heavy winds, droughts, and heavy rainy seasons that can cause floods. A major natural disaster such as a hurricane could completely reorient the government's priorities and make it essential to spend the already scarce resources on recovery rather than health related programs. On the other hand, individuals will be caught up in trying to reestablish their businesses, homes, and assisting their families' needs.

Puerto Rico, as in many other places, is going through a major financial crisis, which may or may not be solved in the near future. We expect changes in the amount of money assigned to our government's budget. This will have a domino effect on agencies and instrumentalities, as well as public policies and regulations.

On occasions, the support needed from the Municipal governments may vary if their interests are different from the ones established by our program; especially when part of the program is based on a different paradigm. It could take time for individuals, including our personnel, to change their attitudes and adopt a new model.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Different methods will be employed to measure the extent of the program. These will vary according to the curriculum presented. There will be a test after the Food Safety course. A second

pre/post test will be used to identify behavior changes. The instrument will be validated before administering it with our clientele.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

The global climate is changing, and will continue to change, in ways that affect the planning and day-to-day operations of businesses, government agencies, and other organizations. The manifestations of climate change include higher temperatures, altered rainfall patterns, and more frequent or intense extreme events such as heat waves, drought and storms. Natural disasters quadrupled during 1987 to 2007, from 120 to 500 events.

In Puerto Rico the year 2010 was recorded as a precipitation record breaking year; however 2011 started with a very low precipitation rate, fostering a significant amount of brush fires. Such extreme events have negative effects on our agricultural production. An example of this is dairy and plantain production, as demonstrated by a significant price increase due to shortage.

Soil erosion, caused by excessive rainfall and inadequate land management practices and urbanism, is one of the most serious environmental and public health problems. Humans obtain more than 99.7% of their food (calories) from the land and less than 0.3% from the oceans and other aquatic ecosystems. Overall soil is being lost from land areas 10 to 40 times faster than the rate of soil renewal imperiling future human food security and environmental quality.

With 9,000 square kilometers and close to 4 million people, Puerto Rico is one of the most densely populated countries in the world and has a long history of ineffective land-use planning. Also, due to its geographical location Puerto Rico is constantly exposed to the effects of natural disasters (hurricanes) which negatively affect natural resources such as water and soil. These resources are at stake by their susceptibility to weather changes and by the ever increasing demand and pressure to satisfy the needs of a growing human population.

Urban and housing development are also subjects of frequent attention in Puerto Rico, especially as they refer to urban sprawl, degradation of natural resources like forests, wetlands and watersheds, and the reduction of agricultural lands.

There is still great skepticism regarding climate change. Information is available on climate change through different channels, mostly generated from US Universities. However, it needs to be adapted to our tropical conditions and translated into Spanish.

The personnel of the Puerto Rico Agricultural Extension Service (PRAES) need to be more diligent in providing the farmers and the community with information, technologies, and education on how to cope with climate change and ways to contribute to greenhouse gas (GHG) mitigation. They need to engage in the development of farmers' leadership to enable them to be proactive (risk management practices) and actively involved in decision-making. This is of utmost importance, especially for the resource-scarce small farmers (most of our agricultural production comes from small-scale farms which are often family owned and operated), who contribute little to climate change and yet will be among the most affected.

The logical first step for this plan of work is the development of an appropriate curriculum (What it is - How it affects us - What we need to do), tailored to our local situation, which includes measures proven to be useful in the past, besides providing support with skills to choose the best option to deal with climate

uncertainty to make informed decisions. The second step is capacity building to our Extension personnel together with the State Department of Agriculture and other service agencies, geared to the implementation of practices, measures and resources that enable farmers to adapt, to mitigate and to minimize economic losses.

This effort needs to be supported by work in the community on issues on land-use and the preservation of agricultural land, strategies such as collaborations, development of decision-making skills, and involvement in public policy to ensure the long-term success of the program.

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 : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
104	Protect Soil from Harmful Effects of Natural Elements	25%			
111	Conservation and Efficient Use of Water	25%			
112	Watershed Protection and Management	25%			
125	Agroforestry	25%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Soil erosion and storm water runoff need special attention. Water turbidity in rivers and water bodies is high, severely affecting coastal areas. Despite of this, there is still a need for research in this area regarding the amount of soil lost and the economic impact at the farm level.

Water pollution degrades surface waters making them unsafe for drinking, fishing, swimming, and other activities. The National Pollutant Discharge Elimination System (NPDES) permits program is authorized by the Clean Water Act (CWA) section 402. The 1987 Water Quality Act (WQA) expanded the program to cover storm water discharges explicitly, both from municipal separate storm sewer systems (MS4) and industrial sources. The MS4 NPDES permits require regulated municipalities to use Best Management Practices (BMP's) to reduce pollutants to the "Maximum Extent Practicable." To demonstrate compliance, storm water permits typically require facilities to prepare a Storm Water Pollution Prevention Plan and to implement BMPs. In Puerto Rico most of the 78 municipalities are not complying with the NPDES program plan due to their critical economical situation and face the risk of costly fines. Extension personnel will be trained to assist in the implementation of (BMP's) for NPDES.

Besides water pollution, the other main consequence of storm water runoff mismanagement is

floods. Another problem of great concern is solid waste. Besides its high generation (greater than in the US), there is the aggravating circumstance that the life expectancy of the landfills is almost over due. The Island's dimensions and critical ecosystems provide virtually no safe area or space where to build new ones. Recycling is still the fastest and cheapest alternative. Twenty-seven per cent (27%) of the solid waste that gets into the landfills is organic. Its decomposition process generates methane, which contributes 20 times more CO₂ to GHG. We need to work on recycling-incorporating such organic "waste" to the soil or encouraging more composting, alternative uses, and markets.

All levels of government have roles to play in addressing climate change. Some aspects of the climate problem could be addressed at the local level, such as green house gas reduction, by implementing smart growth and adapting to climate impacts. Priorities will be set for water and soil, where sustainable practices will be strongly emphasized. Community volunteers could be trained for water monitoring to create a baseline data to assess progress.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

From a temporal perspective, adaptation to climate risks can be viewed at three levels, including responses to: current variability (which also reflect learning from past adaptations to historical climates), observed medium and long-term trends in climate, and anticipatory planning in response to model-based scenarios of long-term climate change. The responses across the three levels are often intertwined, and indeed might form a continuum.

There are several ways that the Extension system can help farmers and communities deal with climate change. These include:

Adaptation and contingency measures for what cannot be prevented (i.e., providing advice on how to deal with droughts, floods, and others). Adaptation to current climate variability can also increase resilience to long-term climate change. In a number of cases, however, anthropogenic climate change is likely to also require forward-looking investment and planning responses that go beyond short-term responses to current climate variability.

PRAES can also help with mitigation of climate change, which includes links to new markets, information about new regulatory structures, and new government priorities and policies. Extension can help with adaptation and mitigation through technologies and management information; capacity development; and facilitating, brokering and implementing policies and programs.

Technical training to enhance community leaders and farmer's abilities for planning, problem solving, critical thinking, prioritizing, negotiating, building consensus and leadership skills, working with multiple stakeholders and being proactive.

Introducing of locally appropriate technologies and management techniques that enable community and farmers to adapt to climate change (i.e., rain water harvesting, water storage for irrigation).

Implementing BMPs to control the amount of runoff water and to prevent water Pollution. Education in

risk management and encourage the use of insurance to minimize lost.

Stimulating the implementation of environmentally sound practices, sustainable agriculture to remain profitable.

2. Ultimate goal(s) of this Program

1. Enhance resilience and response capacity to extreme weather events while maintaining productivity and quality of life
2. Protect vital resources (soil and water) by implementing and adopting recommended preventive measures (BMP's)

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
2012	4.0	0.0	0.0	0.0
2013	4.0	0.0	0.0	0.0
2014	4.0	0.0	0.0	0.0
2015	4.0	0.0	0.0	0.0
2016	4.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Curriculum preparation
- Capacity building workshops
- Technical training meetings
- Demonstration projects
- Mass media use to disseminate information
- Collaboration with local, state and federal government agencies
- Technical advisory committees
- Grad students research

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

Extension	
Direct Methods	Indirect Methods

- Workshop
- Group Discussion
- One-on-One Intervention
- Demonstrations
- Other 1 (Volunteers)
- Other 2 (Seminars)

- Public Service Announcement
- Newsletters
- TV Media Programs
- Web sites other than eXtension
- Other 1 (Exhibitions)

3. Description of targeted audience

Farmers, communities, government professionals, county Extension personnel, leaders, volunteers, youth

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of people who received capacity development (workshops, seminars, conferences) on climate change.
- Number of people who received capacity development (workshops, seminars, conferences) on water quality, watershed protection, and maintenance.
- Number of people who recieved capacity development (workshops, seminars, conferences) on water collection, storage and re-use for agricultural purposes.
- Number of people who received capacity development in agroforestry, soil erosion, and storm water runoff control.
- Number of people who received capacity development on soil erosion and water environmental regulations.

- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of people who adopted recommended practices for the adoption or mitigation of climate change in their farms.
2	Number of people who established watershed protection practices.
3	Number of people who adopted practices to improve water collection, storage, and reuse efficiency.
4	Number of people who adopted agroforestry practices.
5	Number of people who adopted/implemented soil erosion control measures.
6	Number of people who comply with environmental soil erosion and water requirements.

Outcome # 1

1. Outcome Target

Number of people who adopted recommended practices for the adoption or mitigation of climate change in their farms.

2. Outcome Type : Change in Action Outcome Measure

2012:65 2013:75 2014:100 2015:150 2016:300

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
- 125 - Agroforestry

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of people who established watershed protection practices.

2. Outcome Type : Change in Action Outcome Measure

2012:40 2013:50 2014:60 2015:80 2016:100

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
- 125 - Agroforestry

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of people who adopted practices to improve water collection, storage, and reuse efficiency.

2. Outcome Type : Change in Action Outcome Measure

2012:20 2013:30 2014:40 2015:50 2016:60

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
- 125 - Agroforestry

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Number of people who adopted agroforestry practices.

2. Outcome Type : Change in Action Outcome Measure

2012:10 2013:20 2014:25 2015:30 2016:50

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
- 125 - Agroforestry

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number of people who adopted/implemented soil erosion control measures.

2. Outcome Type : Change in Action Outcome Measure

2012:35 2013:45 2014:55 2015:65 2016:70

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
- 125 - Agroforestry

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Number of people who comply with environmental soil erosion and water requirements.

2. Outcome Type : Change in Action Outcome Measure

2012:20 2013:40 2014:50 2015:60 2016:70

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
- 125 - Agroforestry

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

- Competing Programmatic Challenges

Description

Due to Puerto Rico's geographical location it is constantly exposed to the effects of natural disasters that are expected to become extreme (for example; hurricanes, precipitation, floods, droughts, earthquakes). Climate changes in an island will be expected to negatively affect natural resources such as water and soil and the livelihood of its inhabitants. They are at stake by first its susceptibility to weather changes; secondly, by the high demand and pressure set by an ever increasing demand to satisfy the needs of a growing human population. This population is also increasingly dependent on imported products and goods. Besides, any changes in the world markets are greatly felt on the economic activity in Puerto Rico.

The government has very important roles to play in addressing climate change, mostly in the way public policy is implemented.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

The decreases in oil availability, uncertainty in the cost of fuels and its implications in the economic wellbeing of our citizens, have triggered the urgency for energy independence and sustainability. Puerto Rico, having one of the highest costs of fuel in the United States and even though our tropical climate is favorable to the sustainable energy industry, not many projects have passed the planning phases. Our program seeks to increase existing knowledge of our clientele of the sustainable energy technologies, energy conservation, opportunities of financing sustainable energy projects and their cost, and environmental benefits.

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 : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
401	Structures, Facilities, and General Purpose Farm Supplies	15%			
402	Engineering Systems and Equipment	10%			
403	Waste Disposal, Recycling, and Reuse	65%			
405	Drainage and Irrigation Systems and Facilities	10%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The dependence on fossil fuels has affected the economic well-being of the citizens of Puerto Rico for the past decades. At a cost per kilowatt of electricity that fluctuates between 15 and 24 cents, the cost of producing goods in the industrial sector is extremely high. Often potential local and foreign investors are discouraged from establishing business on the Island due to these costs. For the average household, the electric bill takes a big part of the income, personal comfort and the use of basic consumer appliances often need to be limited to be able to pay for utility bills.

The local government has been partially successful at motivating people to invest in sustainable energy technologies like solar heaters, by offering tax incentives. The federal governments' \$200.00

economic incentive to change to more efficient appliances had little acceptance during this first year and a recent effort to trade-in old vehicles for newer, more efficient ones by offering economic incentives was cited by the local press as being short of meeting expectancies. On the other hand, New legislation that requires the local electric utility (Puerto Rico Electric Power Authority) to buy surplus electric power produced by their clients "net metering", has been criticized for requiring high capital investments and being too complicated to be understood by the average client.

Research results from work in the Puerto Rico Agricultural Experiment Station of the UPR (using dairy waste and sugar cane), that date back to the 1980's, show that this type of project can be successful under climate conditions in Puerto Rico. A demonstration project using biodiesel in the maintenance of vehicles in the Municipality of Caguas is showing excellent preliminary results. Poultry waste hydrolyzed with slaughterhouse wastewater to produce biogas in Aibonito also improved water quality and produced organic fertilizer.

Our experience with some of the most technically oriented clients in the Puerto Rico Agriculture Extension Service is that they have a desire to learn about technologies like biogas production, solar power, "green roofs" and net metering; but there is a very timid interest in making capital investments without big government incentives. The technologies are too complicated to be understood by the average citizen and they require high initial investments.

There is an imminent need to educate our clientele in all aspects of energy sustainability. Education is needed from the most basic concepts of energy audits and conservation, to the use and demonstration of the technologies. Our program is intended to increase existing knowledge of our clientele of the sustainable energy technologies, energy conservation, and opportunities to finance sustainable energy projects and their cost and environmental benefits.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

We have found that our clients are motivated by one or more of the following: economic incentives, laws and regulations that require them to make improvements, and a high rate of return in their investment (cost effectiveness). We assume that the economic incentives available for sustainable energy projects will be offered and improved. In addition, we have assumed that there will be pressure by environmental groups for the use of cleaner, "green" energy and that the finance institutions will be willing to finance new projects. PRAES specialists have been working on proposals and 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 and home economists.

2. Ultimate goal(s) of this Program

Increase existing knowledge of our clientele of the sustainable energy technologies, energy conservation, opportunities to finance sustainable energy projects, and their cost and environmental benefits.

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
2012	5.0	0.0	0.0	0.0
2013	5.0	0.0	0.0	0.0
2014	5.0	0.0	0.0	0.0
2015	5.0	0.0	0.0	0.0
2016	5.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Include in our workshops and meetings aspects of sustainable energy with emphasis on structures, waste management and irrigation equipment, and energy conservation.
- Establish collaborations with government agencies (Puerto Rico Electric Power Authority; Environmental Quality Board; Departments of Agriculture, Environmental and Natural Resources, and Education; Puerto Rico Aqueducts and Sewage Authority; USEPA; USDA; NRCS; and others) and with our partners in the University of Puerto Rico and other educational institutions.
- Design and make plans that include and promote energy sustainability and efficiency in structures, waste management systems and irrigation systems (new facilities or improvement to existing 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"> • Workshop • Group Discussion • Demonstrations 	<ul style="list-style-type: none"> • Web sites other than eXtension

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
 - Number of patents submitted
 - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of workshops and meetings offered which include aspects of energy sustainability and efficiency.
 - Number of collaborators from government agencies, partners in the University of Puerto Rico, and other educational institutions.
 - Number of designs and plans that include and promote energy sustainability and efficiency in structures, waste management systems, and irrigation systems (new facilities or improvement to existing facilities).
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of clients that participated in workshops and meetings offered, which include aspects of energy sustainability and efficiency.
2	Number of government agencies and partners in the University of Puerto Rico and other educational institutions that collaborate in projects that promote energy sustainability and efficiency.
3	Number of clients that adopted designs and plans that include and promote energy sustainability and efficiency in structures, waste management systems, and irrigation systems (new facilities or improvement to existing facilities).

Outcome # 1

1. Outcome Target

Number of clients that participated in workshops and meetings offered, which include aspects of energy sustainability and efficiency.

2. Outcome Type : Change in Action Outcome Measure

2012:100 2013:100 2014:100 2015:100 2016:100

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of government agencies and partners in the University of Puerto Rico and other educational institutions that collaborate in projects that promote energy sustainability and efficiency.

2. Outcome Type : Change in Action Outcome Measure

2012:25 2013:25 2014:35 2015:35 2016:35

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of clients that adopted designs and plans that include and promote energy sustainability and efficiency in structures, waste management systems, and irrigation systems (new facilities or

improvement to existing facilities).

2. Outcome Type : Change in Action Outcome Measure

2012:50	2013:50	2014:50	2015:50	2016:50
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3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

In a tropical island setting, priorities can drastically be affected by natural disasters. Tropical hurricanes are the most common. Many facilities can be affected and under these circumstances the number one priority for our clients is to get back on their feet as quick as possible and energy sustainability will be secondary.

A general feeling that the economy is weak is another factor that precludes people from investing in improving their infrastructures. When the general feeling is that the economy is strong, people tend to be more aggressive. Changes in public policies also make people change priorities and postpone projects. The availability of economic incentives is decisive in making final decisions that require capital investments.

Our program depends on the amount of time that the PRAES county agents and home economists can allocate to it. Any changes in priorities set by the administration will have an effect on the program's outcome.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

Food security emerged as one of the major risks of the 21st century (Global Risk Forum, 2008). For Puerto Rico this is more evident due to its condition as an island. Food availability is mainly through imports (80%) due to an extremely low domestic production of less than 20%. Extended supply chains that generated competitive advantage to agribusiness and people increased the vulnerability of the Puerto Rico's food system to disruptive risk.

In 2008, only 16.6% of the food and beverages consumed in Puerto Rico were produced on the Island (External Trade Statistics, 2009). Practically all of the cereal, oil, fat, sugar, vegetables, fish, and soup consumed were imported, as were more than 3/4 of fruit, vegetables, and meats. Most imports came from the United States (food miles from the USA to PR are an average of more than 2,800 miles, 1,300 are by sea), but Puerto Rico also received food from more than 50 countries around the world. The domestic production consisted mainly of milk, eggs, plantains, and coffee.

Although 58% of the people in Puerto Rico have access to appropriate foods for a nutritious diet through transfer income benefits, they need continuous orientation on the utilization of food through an adequate diet, water, sanitation, and health care. The system's stability is threatened by various factors such as climate change and the economic crisis which increase food prices.

Among the vulnerabilities of Puerto Rico's food supply chain are: a low local agricultural production with continued loss of agricultural land, a high dependence on imported foods, oligopolistic food import and transport logistics, the food reserve is not clearly defined, the lack of and adequate food security policy, and the sea routes towards the island match the path of Caribbean hurricane routes. Ensuring Puerto Rico's food security presupposes the elimination or reduction of these vulnerabilities. Although the Government is in charge of solving any crisis and emergency related to food, the private sector still has to develop innovative strategies to guarantee food security.

The PRAES should help farmers, agro entrepreneurs and the public in general to understand the threats to our food security and to identify strategies to attend these threats. Extension can coordinate the exchange of information between the government, academy, and private sectors to define and adopt strategies. The initiative will promote a business culture among farmers as a means to encourage the development of local capital and small and medium businesses on the island. To accomplish this goal Extension will use different strategies such as curriculum development, collaboration with the public and private sectors, and the dissemination of information.

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
131	Alternative Uses of Land	5%			
205	Plant Management Systems	15%			
307	Animal Management Systems	15%			
501	New and Improved Food Processing Technologies	10%			
603	Market Economics	20%			
606	International Trade and Development	5%			
610	Domestic Policy Analysis	10%			
704	Nutrition and Hunger in the Population	20%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Food security emerged as one of the major risks of the 21st century (Global Risk Forum, 2008). Extended supply chains that generated competitive advantage to agribusiness and people increased vulnerability of the food global system to disruptive risk. According to FAO, food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO, Seguridad Alimentaria. Informe de políticas, 2006). In 2008, there was a global food crisis that jeopardized this security and the international organization predicted another food crisis for 2011. Global water crisis, land degradation, dependence on fossil fuel, price setting, and climate change are some of the risks that can affect food security.

During 2010 and 2011 Puerto Rico local news highlighted a global food shortage and an islandwide lack of food security.

In 2007, the total value of agricultural production was equivalent to 1% of the Gross Domestic Products. There were 15,745 farms on the Island, a decline of an 11% compared to the year 2002, and the average farms size was 39.1 acres. The farmers' average age was 58.2 years old and more than one third were over 65 years old (Census of Agriculture, 2007).

During 2008, only 16.6% of the food and beverages consumed in Puerto Rico were produced on the Island (External Trade Statistics, 2008). Practically all the cereal, oil and fat, sugar, vegetables, fish and soup consumed were imported as were more than 3/4 of fruit, vegetables, and meat. Most imports were from the United States, but Puerto Rico received food from more than 50 countries around the world. Local production consisted mainly of milk, eggs, plantain, and coffee.

Some of the vulnerabilities of Puerto Rico's food supply chain are: the Island doesn't have an adequate food security policy, the local agricultural production is low with a continued loss of agricultural

land, a high dependence on imported food equivalent to more than 80% of our food consumption, monopolistic or oligopolistic food import and transport logistics, and sea routes towards the island match the path of hurricanes routes in the Caribbean.

It should be noted, nonetheless, that within the Caribbean region Puerto Rico does not have a high vulnerability index because of its fairly advanced economic development and receives federal funds in case of emergency from FEMA or Homeland Security. However, the food supply chains' stability can be impacted by extreme weather events such as hurricanes (the season runs from June 1 to November 30), which could devastate crops and cause severe damage to animal production and transportation logistics, as the island is located in one of the climate change hot zones identified by Intergovernmental Panel on Climate Change (2007), where severe changes--like an increase in the intensity and frequency of hurricanes--are expected. According to some estimates, if operations at port are halted for any reason, provisions to feed the population of almost four million people will be used up in 15 days as Puerto Rico is one of the most densely populated countries in the world with a high dependence on transfer incomes.

Ensuring Puerto Rico's food security presupposes the elimination or reduction of its vulnerabilities. Although the Government is in charge of solving any crisis and emergency related to food, the private sector still has to develop innovative strategies to adapt to and handle food supply chain risks.

In December 2009 the national Food Security initiative contact person finished her Ph.D. degree. Her dissertation was based on Food Supply Chain Vulnerability. As part of her literature review, she read FAO, IPCC, World Economic Forum, Latino American Economic Commission, and other documents related with the food crisis and risk management. One of her contributions was the development of a protocol to attend the disruption on the food supply chain and one of her conclusions was that the public and private sector need to work together on this matter. On January 2011, she presented the College of Agricultural Sciences, UPR-Mayagüez Campus, position on Food Security Proposal Policy.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

In Puerto Rico many people assume that there are no problems with our food security due to continuous food supplies, but they are unaware that these are mainly imported (more than 80 %) and that a lot of people use transfer income to purchase their food. The food reserve, the food miles, and the threats to the food supply chain are also unknown.

In the management of food security the Agricultural Extension Service should help farmers, agro entrepreneurs and public in general to understand the threats to our food security and to identify strategies to attend these threats. The exchange of information between the government, the academy, and the private sectors is required for the definition and adoption of strategies. The initiative will promote a business culture among farmers as a way to encourage the development of local capital and small and medium businesses in the island. Because food security is a multi- sector issue we will work with both the government and the private sector, as they need to coordinate work together. Some of the strategies that can be promoted are: an increase in local agricultural production, the development of risk management plans, monitoring the food supply chain's vulnerability and risks, evaluation and adjustment of the infrastructure and transportation systems (like irrigation and storage systems), the promotion of a food

security public policy, and the establishment of public/private partnerships to attend this situation.

2. Ultimate goal(s) of this Program

Increase food security at the national and household levels by:

1. Increasing local food production and competitiveness
2. Establishing a network of enterprises working as a food supply chain system and not as individual enterprises that negotiate together.
3. Developing home gardens
4. Establishing a nutritious and safe food supply for the household

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
2012	6.0	0.0	0.0	0.0
2013	6.0	0.0	0.0	0.0
2014	6.0	0.0	0.0	0.0
2015	6.0	0.0	0.0	0.0
2016	6.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- * Prepare Curriculum and educational material
- * Capacity building workshops
- * Technical training meeting
- * Establish collaboration between the government, the private sector and the academia
- * Mass media use to disseminate 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"> ● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention 	<ul style="list-style-type: none"> ● Billboards ● Newsletters ● Web sites other than eXtension ● Other 1 (Radio Programs)

3. Description of targeted audience

County Extension professionals, farmers, agro entrepreneurs, government professionals, housewives

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of agricultural enterprises feasibility studies

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of individuals that increased their knowledge about international trade and development.
2	Number of public policy issues related with national food security that were reviewed or proposed.
3	Number of marketing agreements established between local farmers and distributors or other components of the food supply chain.
4	Percentage increased in agricultural production.
5	Number of farmers that established sustainable agricultural systems.
6	Number of fallow "cuerdas"(acres) sowed or prepared for animal production.
7	Number of farmers that adopted one or more recommended post harvest practices.
8	Number of consumers that adopted the food basket as a guide for food security at the household level.
9	Number of home gardens established.

Outcome # 1

1. Outcome Target

Number of individuals that increased their knowledge about international trade and development.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:1500 2013:1000 2014:700 2015:700 2016:700

3. Associated Knowledge Area(s)

- 606 - International Trade and Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of public policy issues related with national food security that were reviewed or proposed.

2. Outcome Type : Change in Action Outcome Measure

2012:2 2013:1 2014:1 2015:1 2016:1

3. Associated Knowledge Area(s)

- 610 - Domestic Policy Analysis

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of marketing agreements established between local farmers and distributors or other components of the food supply chain.

2. Outcome Type : Change in Action Outcome Measure

2012:15 2013:15 2014:10 2015:10 2016:10

3. Associated Knowledge Area(s)

- 603 - Market Economics

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Percentage increased in agricultural production.

2. Outcome Type : Change in Action Outcome Measure

2012:0 2013:0 2014:1 2015:1 2016:1

3. Associated Knowledge Area(s)

- 131 - Alternative Uses of Land
- 205 - Plant Management Systems
- 307 - Animal Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Number of farmers that established sustainable agricultural systems.

2. Outcome Type : Change in Action Outcome Measure

2012:100 2013:100 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 307 - Animal Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Number of fallow "cuerdas"(acres) sowed or prepared for animal production.

2. Outcome Type : Change in Action Outcome Measure

2012:500 2013:1000 2014:1000 2015:1000 2016:1000

3. Associated Knowledge Area(s)

- 307 - Animal Management Systems

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Number of farmers that adopted one or more recommended post harvest practices.

2. Outcome Type : Change in Action Outcome Measure

2012:100 2013:100 2014:200 2015:200 2016:200

3. Associated Knowledge Area(s)

- 501 - New and Improved Food Processing Technologies

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Number of consumers that adopted the food basket as a guide for food security at the household level.

2. Outcome Type : Change in Action Outcome Measure

2012:800 2013:1000 2014:1500 2015:2000 2016:2500

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

Number of home gardens established.

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:400 2014:600 2015:800 2016:800

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Puerto Rico is located in the Caribbean and is identified by the IPCC as a hot zone because of the threats posed by climate changes like droughts, increase in the sea level, and extreme weather.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

{NO DATA ENTERED}

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Childhood Obesity

2. Brief summary about Planned Program

Healthy People 2010 identified overweight and obesity as 1 of 10 leading health indicators and called for a reduction in the proportion of children and adolescents who are overweight or obese (Center for Disease Control and Prevention-CDC). The planned program Childhood Obesity targeted this issue as a major public health problem and its focus will be on: nutrition knowledge, physical activity, and public policy to promote a holistic view of childhood obesity in the population. The program will concentrate on the development of family and personal strategies that facilitate healthy food choices and active living. It will be based on scientific evidence, which identifies the most important factors that contribute to the epidemic of childhood obesity, such as a poor diet and physical inactivity.

We should consider the following obesity drivers and trends: social, economic, environmental, technological, and political and for each driver we should consider some trends. For social, we mull over stigma discrimination, sedentary lifestyles, more eating out, responsibility: primacy of personal/family choices; for economic, we ponder profit: food and advertising companies that push consumption, large retailers dominating food supply chain, functional food and food/pharmaceutical profit; For environmental, we contemplate access to energy dense foods, car use and eco-sustainability. For technological, we weigh upon teleworking and boost of agriculture. For political, we ponder over personalized services for health and education and food regulations in Puerto Rico.

This Planned Program will work together with government agencies and community organizations and alliances through coordinated agreements. These collaborations will prevent duplicity of efforts and will promote the best use of resources and sharing of achievements. It also allows us to establish agreements to treat this population with a tailored cultural educational model and determine the accomplishment of 2020 Healthy People goals (Although it is currently under development, we will use Healthy People 2020 as a standard because it reflects the assessments of major determinants of health and wellness, changing public health priorities, and emerging issues related to USA health preparedness and prevention. We want to determine which educational curricula are best for collaboration in the present efforts to fight the obesity prevalence among youth and adults in Puerto Rico during 2012-2016).

This Planned Program promotes the inclusion of extension agents as educators to enhance the ability of families to grow their own nutritious foods and to increase physical activity. Furthermore, efforts to disseminate Puerto Rico's Food Basket, will relate locally grown foods and food security.

Our long-range goal is to reduce the progression of obesity in the local population through community based interventions, providing youth and their families' tools to develop, adopt, and maintain behavioral changes that will set the stage for healthy eating, physical activity, and weight management. The educational philosophies supporting the educational strategies are cooperative learning and learning-by-doing, which involves comprehensive and coordinated efforts of all the participants.

The specific aims are to implement educational curricula that include culturally appropriate eating patterns, food resource management, meal planning and food purchase; and to include physical activity

choices, essential for reducing risk of obesity and of chronic disease, with the purpose of improving the health of participants and educators.

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	50%			
704	Nutrition and Hunger in the Population	20%			
724	Healthy Lifestyle	30%			
	Total	100%			

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

According to estimates of the World Health Organization (WHO), over 1 billion people globally are currently overweight, 300 million people are clinically obese and the number of overweight children under the age of five is estimated to be over 42 million. More than 2.5 million deaths annually are weight related and this could rise to 5 million by 2020. The USA is forecast to spend 19% of GDP on health care by 2014, up from 15% in 2003.

Results from the National Health and Nutrition Examination Survey-NHANES (2007-2008), using measured heights and weights of children in the United States, indicate that an estimated 16.9% of children and adolescents aged 2-19 years are obese. Between 1976-1980 and 1999-2000, the prevalence of obesity increased; between 1999-2000 and 2007-2008 there was no significant trend in obesity prevalence. Among preschool children aged 2-5, obesity increased from 5.0% to 10.4% between 1976-1980 and 2007-2008 and from 6.5% to 19.6% among those aged 6-11. Among adolescents aged 12-19, obesity increased from 5.0% to 18.1% during the same period. Puerto Rico's childhood obesity prevalence is close to the Hispanics in New York, 22%.

Twenty-five percent of children in the US ages 5 to 10 already have elevated cholesterol levels and high blood pressure, 32% of children with Type 2 Diabetes are obese (10 times increment, between years 1982-1994). These conditions put them at risk of heart disease, diabetes, and sleep disorders as they grow older as. Because of overweightness and Type 2 Diabetes it could be possible the first generation of children whose life expectancy is lower than their parents.

The Recommended Community Strategies and Measurements to Prevent Obesity in the U.S. propose the community base strategies that change obesogenic environments. Changes might get access

to healthy food and promote free practice of physical activity. Also, this document suggests push to create public policy that guarantee the equal opportunity for all citizens, avoiding disparities by gender, socioeconomic status, race and ethnicity.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

- Children are raised on high-calorie food.
- Parents don't have time and energy to prepared home-cooked meals or even to serve family dinners.
- Electronic technologies enable sedentary forms of socializing and recreation.
- Increase of food costs estimulates the worst food purchasing.

2. Ultimate goal(s) of this Program

Reduce the prevalence of childhood obesity through improved nutrition and health 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
2012	10.6	0.0	0.0	0.0
2013	10.6	0.0	0.0	0.0
2014	10.6	0.0	0.0	0.0
2015	10.6	0.0	0.0	0.0
2016	10.6	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Offer courses on nutrition and physical activity for children/youth and their parents or caregivers.
- Promote breastfeeding during first 12 months of babies' life to prevent overweight and illness (help to enforce breastfeeding public policy, Bill 239).
 - Develop joint action at community level to promote and implement physical activity programs and nutrition education for parents and kids. Teach about school breakfast, lunch, and snacks in schools and other institutions to comply with communication 2-2007-2008 that rules expenditure and consumption of food and beverages minimum nutritional value.
 - Teach retailers close to schools about best food offers according to the Puerto Rico's Kids Food

Pyramid to help them comply with Bill No. 91, August 20, 1997, Free School Zone that prohibits expenditure of food with lower nutritional value close to schools.

- Promote discretionary calories food control.

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 • Workshop • Group Discussion • One-on-One Intervention • Demonstrations 	<ul style="list-style-type: none"> • Public Service Announcement • Newsletters • TV Media Programs • Web sites other than eXtension

3. Description of targeted audience

Puerto Rican children/youngsters and their families; PRAES educators

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of persons that completed non-formal nutrition and physical activity education.
- Number of persons that completed non-formal harvest course and physical activity education.

- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons that reduced their risk levels for obesity prevalence.
2	Number of persons that increased their physical activity level.
3	Number of persons that practice physical activity daily.
4	Number of persons that are harvesting and consuming nutritious foods from their own home or community garden.

Outcome # 1

1. Outcome Target

Number of persons that reduced their risk levels for obesity prevalence.

2. Outcome Type : Change in Action Outcome Measure

2012:400 2013:500 2014:750 2015:1000 2016:1000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of persons that increased their physical activity level.

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:250 2014:375 2015:500 2016:500

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Number of persons that practice physical activity daily.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:120 2013:150 2014:225 2015:300 2016:300

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Number of persons that are harvesting and consuming nutritious foods from their own home or community garden.

2. Outcome Type : Change in Action Outcome Measure

2012:200 2013:250 2014:375 2015:500 2016:500

3. Associated Knowledge Area(s)

- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Puerto Rico's location in the Caribbean area makes it the object of natural events, which include hurricanes, heavy winds, droughts and heavy rainy seasons that can cause floods. Also, it is in earthquake risk zone, as was demonstrated in the case of Haiti. A major natural disaster could

completely reorient the government's priorities and make it essential to spend scarce resources on recovery rather than health related programs. On the other hand, individuals will be caught up in trying to reestablish their business, homes and assisting their families' needs.

Puerto Rico is passing through a major financial crisis, which may not be solved in the near future. We have a reduced government budget. This has a domino effect on agencies and instrumentalities, as well as public policies and regulations.

On occasions the support needed from the Municipal Government may vary if it's interests are different from the ones established by our Program. Moreover, this project could be affected if policy and regulation change. We would then have to adjust the program's goals and strategies to whatever is established in order to comply and meet with the new assumptions.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

We will do pre/post test to evaluate knowledge and behavior changes with a selected sample. Another evaluation will be the completion of a portfolio for a selected sample to identify changes in body measurements that certify the reduction in obesity prevalence. We will also document changes in physical activity.