2010 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 2010- 2014. We budgeted an estimate of 184.5 FTE's for the five years covered in this period.

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

We made new coalitions during the past year and expect to make new ones during FY 2010□2014. The Planning and Evaluation Office trained all the professional personnel on the preparation of their plans of work based on clientele needs, supported by up□to□date statistical data and outlook reports and pursuant to federal and state government public policies.

PLANNED PROGRAMS:

During FY 2009 PRAES consolidated planned programs from 16 to 7 in order to use resources more effectively and reduced the paper burden to comply with the paper reduction act. These are as follow:

1) Animal Systems

The livestock sector in Puerto Rico includes dairy, beef cattle, swine, poultry (broiler & laying hens), fish, shrimp, rabbits, goats, and sheep. It represents approximately 48% the island's total gross agricultural income, (Statistics, Puerto Rico Department of Agriculture for FY 2005 2006). During the past four decades, milk production has been its most important enterprise. However, several factors have challenged the stability of this industry. These factors include: current trends of the industry, which show a steady decline in the number of farms while the average herd size has increased correspondingly; a reduction in the number of acres dedicated to forage production at the average dairy (12%) over the past ten years; and insufficient land for feed production, which has resulted in the farmers' increasing dependence on imported ingredients to feed their milking cows. Consequently, there has been an increase in the number of dairy cows in confinement or semi-confinement and in the need of comprehensive nutrient management at the farm level to increase efficiency and reduce the threat of soil and water contamination. In addition, the steady reduction in fresh milk consumption during the past years has exacerbated the economic stability of the milk industry, since this product generates the highest income to the farmer.

In Puerto Rico we produce only 23% of all the meat we consume. However, our meat producers face the following problems that affect the increase of the market: low efficiency and quality of production at the farm level and limited diversification of products to satisfy the needs of consumers. The causes are a limited control of imported products and high costs of production per unit of product, especially land and feed. We need to address these problems to be able to compete with imported products.

On the other hand, the local animal production system could become non-sustainable in the long run faced with the reality of high levels of nutrient excretion, the limited amount of land for forage production, and concentrated manure disposition. If

unattended, such a system can eventually lead to the pollution of streams, estuaries, and groundwater resources. Therefore, it is crucial for the long-term sustainability of the system, to reduce surplus nutrient excretion and to increase recycling of nutrients on the farm by increasing the efficiency of animal production.

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

2) Plant System

An economically profitable and progressive agriculture requires efficient crop production management practices, a plant protection program, efficient engineering and biosystems practices and a good planned program in economics, marketing and policy.

The gross agricultural income for FY 2007□2008 was $791.9 million (Puerto Rio Department of Agriculture). Animal and crop production represent 89% of this total gross income. Crop production is second in economic importance, with a value of $325.81 million (preliminary data PRDA) in FY 2007–2008; an increase of $43.4 million as compared to 2006–2007. The crop commodities include: fruit, vegetables, ornamentals, coffee, bananas, starchy crops and plantain.

Through the crop production program we seek ways to help farmers increase the use of improved production practices, as well as good agricultural practices (GAP) to achieve better growth management and improved product quality.

The main crop production problems faced by farmers in Puerto Rico are product quality and the poor use of adequate crop cultivation practices. With rising pesticide costs and growing public concerns about pesticide residues in food and the contamination of surface and groundwater supplies, farmers are trying to reduce their reliance on chemicals to control pests and diseases. The adoption of the IPM approach is essential to reduce the negative impacts associated with pest control.

The irrigation systems (300) constructed on the Island after legislation issued in 1995 also affect water quality and need constant maintenance to work effectively. Efficient water use and conservation by the crop production sector is addressed by the Department of Natural and Environmental Resources' "Water use Plan" ("*Plan Integral de Recursos de Agua de Puerto Rico 2008*", (http://www.drna.gobierno.pr/oficinas/arn/agua/negociadoagua/planagua), which makes water conservation a key issue. Farmers should be kept well–informed on this subject. Also, farmers and agricultural entrepreneurs need to learn about the following subjects: how to use planning to prepare for the future, how farm managers make decisions, how to choose enterprises and how to integrate production and marketing management.

We will continue to promote the adoption of the best plant protection management practices and to develop IPM systems that protect the environment, conserve the natural resources, and contribute to the competitiveness, profitability, and sustainability of Puerto Rico's agriculture. In engineering, our efforts will focus on promoting better irrigation and drainage practices, the effective operation and maintenance of equipment and soil and water conservation practices. Through economic, marketing and policy, the farmers will receive the necessary education and technical assistance to strengthen their abilities as managers and entrepreneurs.

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

Puerto Rico's high population density demands update and construction of infrastructure to satisfy its needs. This has resulted in a reduction of lands available for agriculture, with 60% of the cultivated land in more than 20% slopes, an erosion of 10% annually, and low fertility (Natural Resources Conservation Service).

There is great concern with soil erosion and deforestation of our lands and problems associated with the eutrofication and sedimentation of rivers on the island. Each year risks of flooding increase causing numerous agricultural losses to the local economy. On the other hand, animal producers, have conventional waste management systems, which rely mostly on

uncovered lagoons to avoid runoff and possible surface and ground water contamination. The residues are applied to crops or pastures as organic fertilizers. Such practices reduce the nitrogen content of manure by volatilizing nitrogen (ammonia) to the atmosphere with other volatile compounds such as methane, organic and sulfur. Often, there is a lack of adequate systems and those in existence receive little maintenance, causing environmental impacts, such as odors, land and water pollution, and dissemination of pathogens, among others. Some animal waste disposal systems have never been completed or submitted for approval to the regulatory agencies in Puerto Rico. As a result, turbidity, erosion, sedimentation and the presence of microorganism affect the quality and quantity of the water resources.

This makes necessary a better and more efficient use of our lands to improve animal and crop production and farmers have to establish conservation practices and a good fertilization program to get reasonable yields.

The development of new green areas, tree conservation, and reforestation are some of the alternatives to enhance, improve and promote wildlife in and around the cities. Reforestation and development of green areas in urban and rural areas by non□government entities should be promoted. Rangeland and forestry practices will be improved to prevent the contamination of our natural resources.

The Puerto Rico Agriculture Experiment Station Research is conducting research on anaerobic digester to respond to the situation of the quality and quantity of our water resources in the dairy cattle and swine enterprises. However, there is still much need for research on practices for combined air and water quality that are environmentally sound and economically feasible.

The planned program Management of Rangeland and Forestry/Soil, Water and Air is devoted to promoting the education of farmers and people 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.

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 the best management practices during farming. Farm demonstrations will be used as educational tools to showcase the desired practices, their benefits, and to encourage other farmers to adopt the practices. Each farm visit will require a report of the findings and recommendations. Short courses will be offered on improved pasture varieties, fertilization, silage, cover crops, and other related topics. A pre and post–test will be administered to measure the knowledge gained.

4) Human Health and Well□Being/Nurition/Food Safety

Since antiquity health and diseases have been major concerns of humans. However, despite their importance of preserving good health, people engage in behaviors that place them at risk of developing diseases. It is necessary to develop preventive educational programs targeted to children, youth, and families, which direct efforts toward the cause of the problem rather than the symptom. To reach this goal PRAES will continue working in different partnerships with health and human services agencies to focus on collaborative efforts on the development of programs aimed at the promotion of health and prevention of disease.

In the human health and well□being component we will promote healthy lifestyles for people in both rural and urban areas, and address high risk factors through the prevention and early detection of diseases, the prevention of injuries and disabilities, and the appropriate use of the health care system (promoting the development of self

The nutrition component is based on the idea that a healthy body feels good and looks good, no matter what its size. The basic attitude to be developed is: "I inherited a unique, complex, and attractive body. I will make sure it is as healthy as possible." The skills to be learned in this area include: how to compliment a person without referring to their size, how to cook meals for myself and for my family, how to make nutritious choices when eating out, and leaving food on the plate, if too much is served. It is very important that people who have limited incomes be taught food preparation skills and how to make the best use of the money available for food. They also need to learn how to increase the use of food they produce at home, how to make a wiser selection of foods, how to compare prices and places to buy foods, and how to plan healthy meals and snacks.

The goal of the Food Safety component is "To improve food safety through the control, reduction or elimination of

contamination risks". Its main components are the following: A) The "Fight BAC!" campaign, for consumers; 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

5) Families and Children/Consumer Education and Individual and Family Resources

The increase in population, as well as social, political, and economic changes impact Puerto Rican families, affecting their vital function and financial problems can cause negative effects not only on individuals, but on families, and employees as well.

Changes in the family structure in Puerto Rico has important implications for the children. 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). Of households with a women as head (with no man present), (268,476), 49.8% earn less than $10,000/year.On the other hand, while personal income increased from $51 billion (2006) to $ 53 billion (2007), the personal consumer debt increased accordingly from $21 billion to $22 billion (Puerto Rico Planning Board, 2008).

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 there were 9,048 bankruptcies for 2008; 17% more compared with the past year (the Puerto Rico Bulletin). Internal family factors like unplanned spending and conspicuous consumption seem to worsen the personal debt. As a result, 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.

Other negative impacts on families are child abuse and divorce. 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, pregnant adolescents, stepfamilies, grandparents raising grandchildren; women heads of household, and domestic violence.

The above socioeconomic data show the increasing need to help consumers and households 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.

The Families & Children/Consumer Education and Individual and Family Resources Management 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 by 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, aging aspects, and through competencies such as: how consumer behavior influences decision□making, budgeting, debt reduction, credit wise and savings. We will join efforts 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 through the establishment of coalitions.

6) Strengthening Youth Life Skills, Leadership and their 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, Civic and Leadership. To achieve these goals, different activities and methods will be used, such as: camps, competitions, meetings, demonstrations, and workshops; but, especially, the development of projects as a strategic learning tool. Learning experiences in-service that will give youngsters the

opportunity for reflection and action about issues that impact will also be promoted. 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.

The areas selected in the FY 2006□2007 Stakeholders' Input Process by the youngsters as of most concern to them are still receiving emphasis in our educational efforts. These areas are as follow: the use of alcohol and drugs, sexuality, and criminality. Statistics from various agencies and organizations in Puerto Rico, seem to agree with this assessment.

During 2004□2005 there were a total of 1,921 school desertions at the intermediate and high school levels of an enrollment of 234,009 youngsters (approximately 1% of school deserters in relation to the total student population) (Department of Education, Area of Planning and Education Development, Statistics Division). Studies indicate a close relationship between school desertion and juvenile delinquency. One of these studies, by Dora Nevárez□Muñiz, is entitled Crime in Puerto Rico. The Administration for Mental Health and Addiction Control Services (ASSMCA, 2004) revealed that 56.9% of about 24,000 students at the elementary, intermediate, and high school levels from public and private schools drink alcohol; and the Alliance for a Puerto Rico without Drugs (2002-2004) indicated that alcohol was the substance mostly used among youngsters of the public school system. Some 55.9% of the adolescents reported having drunk alcohol at least once in their life time. Other problems are offences made by minors against society. For 2004, there were 933 cases reported for the entire island (Puerto Rico's Assistant Police Superintendent for Citizen Services of the Statistics Division, 2004). Of these, 716 cases were drug related. In addition, 5,168 minors were intervened by the police (Puerto Rico Police Statistics Division, 2003) in offences related to violence (not sexual crimes).

Another serious problem that may lead to school desertion is pregnancy among adolescents. One of the concerns of the youngsters consulted in the Stakeholders' Input Process for FY 2003□2004. Sources from the Department of Education indicate that during 2003-2004 there were 152 pregnant students at the intermediate level and 788 at the high school level.

In the FY 2006□2007 Stakeholders' Input Process the youngsters selected chose the curricular areas of most interest to them. These were as follow: Environmental Education, Leadership and Personal Development, Communication and Expressive Arts, Technology and Engineering.

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

7) Community Resources Development by Means of Fostering Sustainable Communities

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

Since agriculture represents only 0.4% of the Puerto Rico GNP (Government Development Bank, 2007); agricultural land has been reduced from 690,689 acres in 2002 to 557,528 acres in 2007 (30.6% to 24.7% of the national territory in a 5□year period) (USDA-NASS Puerto Rico Office); and personal bankruptcies have increased in 46% between 2006 and 2007 ("Corte Federal de Quiebra del Distrito de Puerto Rico"), it is portended that both the agricultural activity and community vitality are in crisis. Accordingly, the Empowering Communities, and Community Economic Development sections of CRD will give special emphasis to community□based agricultural land conservation initiatives and to the generation of sustainable low-scale family or community□based agricultural initiatives.

CRD strategies will go beyond training activities centered toward specific careers or job areas. Rather, it will focus in 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. Our program stresses the development of methodological tools that will 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 subsistence.

CRD's efforts are focused in guiding community leaders towards self-management and empowering. In our social and disadvantaged communities, 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 empowering 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.

Puerto Rico has experienced a sustained poverty level rate close to 50% for the past two decades. The per capita personal Planned Program: Community Resources Development by Means of Fostering Sustainable Communities income is just $17,741 (48% of that of Mississippi, the poorest state of the US). Unemployment figures are at a ten years high with 12.4%, and labor force participation is at a low, 45% (Government Development Bank, 2008; Puerto Rico Department of Labor, 2007, U.S. Census Bureau, 2007 American Community Survey). The leading role of the Puerto Rican government as a principal promoter of the creation of jobs and the generator of economic activity, as it used to be during Operation Bootstrap era in the 1950 60s, is no longer active. The proportion of communities, both urban and rural, that experience long-term spells of poverty and inequality far surpass those in the US. In addition, the island is experiencing an alarming process of social decomposition with skyrocketing criminality, domestic violence, school dropouts, suicides, drug addiction, and alcoholism rates. Accordingly, our plan of work focuses on holistic educational strategies that will promote self-employment and community oriented initiatives as a means that will 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).

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	184.5	0.0	0.0	0.0
2011	184.5	0.0	0.0	0.0
2012	184.5	0.0	0.0	0.0
2013	184.5	0.0	0.0	0.0
2014	184.5	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 internal University members, which includes the program leader and two specialists (one from the Planning and Evaluation Office and one from the major subject area); and one faculty member from similar disciplines; and the external non-University members include representatives of the major government agencies or organizations that work with similar audiences. Members to the different committees are the director of the Family and Consumer Sciences program (UPR), the director of Agricultural Education department (UPR-RUM), and the director of the Institute for Community Development (UPR), a researcher from the Agricultural Experiment Station, as well as 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 quarterly to evaluate the proposed plan of work for the year. External committee members evaluate the quality and relevance of the activities and programs to the State goals and offer recommendations in order to continue emphasizing critical areas 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 describes how the committee's recommendations will be addressed.

III. Evaluation of Multis & Joint Activities

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

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

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

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

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

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

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

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

Planned programs are designed to address the needs of our populations. Educational techniques will be constantly evaluated to adapt to the skills levels of the participants and their educational needs, therefore, resulting in increased program effectiveness.Periodic meetings will also be conducted with staff teams to evaluate the effectiveness of their planned programs and identify strategies for improvement when needed.Multi-institutional and integrated activities will also contribute to achieve the goals 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 consist mainly of traditional participants or clientele of our programs who are members of the Local Advisory Committee. These clientele have vast experience in the four major Extension programs and include

farmers, homemakers, youth, and key community leaders. 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 Internal Focus Groups
- Use Advisory Committees

Brief explanation.

Stakeholders consist mainly of the local advisory committee members.Periodically, internal focus groups will be conducted with a sample of the committee members and other participants of our educational programs.

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

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

Brief explanation

Input from stakeholders is collected at the meetings conducted by the local advisory committees. 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 participantsof 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 who collect, which collects and analyzes the data.

3. A statement of how the input will be considered

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

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 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 Agriculture Experiment Station.When there are issues which need to be emphasized, programs are redirected to address these issues. New emerging issues are identified through these processes and analyzed according to staff and resources available to address them; when needed, recommendations will be set for hiring staff.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

V(A). Planned Program (Summary)

Program #1

1. Name of the Planned Program

Human Health and Well-Being/Nurition/Food Safety

2. Brief summary about Planned Program

This program consists of three major components which include health, nutrition, and food safety. Since antiquity health and diseases have been major concerns of humans. However, despite their importance of preserving good health, people engage in behaviors that place them at risk of developing diseases. It is necessary to develop preventive educational programs targeted to children, youth, and families, which direct efforts toward the cause of the problem rather than the symptom. To reach this goal PRAES will continue working in different partnerships with health and human services agencies to focus on collaborative efforts on the development of programs aimed at the promotion of health and prevention of disease.

In the human health and well-being component we will promote healthy lifestyles for people in both rural and urban areas, and address high risk factors through the prevention and early detection of diseases, the prevention of injuries and disabilities, and the appropriate use of the health care system (promoting the development of self□care skills). We will also continue working in the Healthy Indoor Air for America's Homes project, which prepares individuals with skills to help them identify interior air contaminants, their sources, their effects on human health, and their mitigation.

The nutrition component is based on the idea that a healthy body feels good and looks good, no matter what its size. The basic attitude to be developed is: "I inherited a unique, complex, and attractive body. I will make sure it is as healthy as possible." The skills to be learned in this area include: how to compliment a person without referring to their size, how to cook meals for myself and for my family, how to make nutritious choices when eating out, and leaving food on the plate, if too much is served. It is very important that people who have limited incomes be taught food preparation skills and how to make the best use of the money available for food. They also need to learn how to increase the use of food they produce ar home, how to make a wiser selection of foods, how to compare prices and places to buy foods, and how to plan healthy meals and snacks.

The goal of the Food Safety component is "To improve food safety through the control, reduction or elimination of contamination risks". Its main components are the following: A) The "Fight BAC!" campaign, for consumers; 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
703	Nutrition Education and Behavior	25%			
704	Nutrition and Hunger in the Population	15%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	25%			
724	Healthy Lifestyle	25%			
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	10%			
	Total	100%			

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

1. Situation and priorities

The general health status is the product of the influence of the general environment, genetics, and numerous specific risk factors associated to unhealthy behaviors. Obesity is associated with the leading causes of death and a key factor in the development of Type 2 Diabetes. The estimated prevalence of Diabetes Mellitus for both genders among 18 year olds and the older population, increased from 8.5 in 2000 to 11.9 in 2006. In 2007, 30.7% of Puerto Rican adults reported that they engaged 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week (PRBRFSS, 2009). Another risk factor are Chronic Respiratory Riseases , whcih are the fourth cause of death in Puerto Rico. In 2005 there were 1,554 deaths associated to this problem (Department of Health, 2008). One of the main causes is the poor quality of indoor air. Scientific evidence indicates that toxic levels in air in interiors can be higher than the outdoor air and the majority of the people spend approximately 90% of their time indoors.

The basic issue in the area of nutrition education and behavior is developing a healthy, well nourished population within the income constraints of each participant. Using the weight classification by Body Mass Index (BMI) for 2007, 38.3% of the population was overweight and 26.6% is obese (PRBRFSS, 2009). An informal survey of PRAES county personnel indicated that between 90 and 95% of the people failed to maintain weight loss after two to five years. However, recent work shows that the non diet approach (Health at Every Size) results in long term improved health in adults, although it was not associated with weight loss. Food related factors associated with overweight and obesity include: skipping breakfast, larger portion sizes, high fat high sugar diets, increased fruit juice consumption coupled with lower milk consumption, among others. In Puerto Rico we do not have statistics concerning the presence of an adequate food supply in households to last the entire month. Studies conducted by the Puerto Rico Department of the Family show that the funds provided by NAP are not sufficient to buy nutritious food for the whole month.

The food supply for Puerto Rico and the USA is safe thanks to a coordinated system of inspection. In Puerto Rico there were 36 outbreaks related to foodborne illnesses in (Health Department, 2004). In 2005, there were 69 cases of Hepatitis Type A, 690 cases of Salmonella, 9 cases of Shiguella, and 2 cases of E. Coli 0157:H7. 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 (htt://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). The Food Code provides recommended cooking temperatures to ensure 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.

- Attitudes, assumptions, and motivations of Extension personnel has to be modified:

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

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

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

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

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

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

- Focus should also be changed to:

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

2. Improvement is more important that meeting a specific goal.

3. Eating a variety of foods is pleasurable.

4. Enjoyment in eating fruits and vegetables more often.

5. Listening to hunger and fullness cues.

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

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

8. "Clean your plate" may not be healthful.

9. "Forbidden" or favorite foods can be included.

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

- The problem of overweight and obesity needs to be addressed at the household, school or community level, and not so much at the individual level.

- 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 promote healthy lifestyles for people by addressing high risk factors thorough the prevention and early detection of diseases and prepare individuals with skills that may help them identify interior air contaminants, their sources, their efforts on human health, and their mitigation to improve the quality if indoor air.

- To change attitudes, assumptions, motivations, implementing steps to improve the diet/physical activity characteristics of the individual and his or her family.

- 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
2010	23.6	0.0	0.0	0.0
2011	23.6	0.0	0.0	0.0
2012	23.6	0.0	0.0	0.0
2013	23.6	0.0	0.0	0.0
2014	23.6	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Prepare educational materials.

- Conference/ training related to healthy lifestyle, diabetes, injury prevention, and indoor air quality.

- Offer counseling in the areas of health and safety.

- Work in collaboration with the communication media.

- Continue working in partnership with other agencies to develop educational programs.

- Train the home economists regarding basic attitudes, assumptions, and motivations. Train the home economists in adult teaching methodology so that people decide to make changes.

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

- Courses based on learning tasks

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

- An evaluation of the reporting reliability and validity is planned for fall 2008

- 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**
● Workshop ● One-on-One Intervention ● Other 1 (Learning & Participation Tasks) ● Group Discussion	● Billboards ● Newsletters ● Other 2 (Radio Spots) ● Other 1 (Publications, Exhibitions)

3. Description of targeted audience

•Families and children from low-income areas such as "Special Communities" Identified by the Governor's office as being particularly vulnerable to social and economic problems. •Adolescents, using peer education strategy •Extension professionals and other professionals •Parents and persons that plans/buys/prepares food for the family •Personnel and students in schools •Consumers with an emphasis on At risk Population •Persons in charge of retail food establishments

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	20000	10000	12000	1000
2011	20000	10000	12000	1000
2012	20000	10000	12000	1000
2013	20000	10000	12000	1000
2014	20000	10000	12000	1000

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2010 : 0 **2011 :** 0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	2
2011	0	2	2
2012	0	2	2
2013	0	2	2
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

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

  2010 2500 **2011** 2500 **2012** :2500 **2013** 2500 **2014** 2500

- Number of consumers completing Food Safety educational curriculum for consumers.

  2010 :1000 **2011** :1000 **2012** :1000 **2013** :1000 **2014** :1000

- Number of persons in charge of food establishments completing Food Safety Course.

  2010 2500 **2011** 2500 **2012** :2500 **2013** 2500 **2014** 2500

- Number of people who completed a nutrition course that integrated one or more of the following topics: nutritional value of foods, healthy weight, food preparation, and food security.

  2010 2500 **2011** 2500 **2012** :2500 **2013** 2500 **2014** 2500

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons that reduced their risk levels upon the completion of one or more recommended practices on healthy lifestyles.
2	Number of persons that reduced their risk levels for a chronic disease upon the increase of physical activity in to their lifestyle.
3	Number of consumers that adopted one or more food handling practices.
4	Number of participants that approved the certification exam.
5	Number of participants that adopted three or more of 20 selected food handling practices recommended by the Food Code.
6	Number of people that adopted one or more of the recommended practices in the nutrition course.

Outcome #1

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1500	1500	1500	1500	1500

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

Outcome #2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
900	900	900	900	900

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

Outcome #3

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1000	1000	1000	1000	1000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #4

1. Outcome Target

Number of participants that approved the certification exam.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
3000	3000	3000	3000	3000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #5

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1700	1700	1700	1700	1700

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #6

1. Outcome Target

Number of people that adopted one or more of the recommended practices in the nutrition course.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
2000	2000	2000	2000	2000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 724 - Healthy Lifestyle

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Puerto Rico's location in the Caribbean area 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 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 familys' 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 government may vary if its 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.

A presented or on-going project could be affected if for any reason there are policy and regulation changes. Then we would have to adjust the program's goals and strategy to whatever is established in order to comply and meet with the new assumptions.

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

1. Evaluation Studies Planned

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

Description

Different methods will be employed to measure the extent of the program. These will vary according to the curriculum presented.One method that will be used is to evaluate changes in knowledge by administrating pre/post tests. A second pre/post test will be used to identify behavior changes. The instrument is designed and will be validated before administering it in our Food Safety courses.

2. Data Collection Methods

- On-Site
- Sampling
- Other (Questionaire)

Description

Data collection will vary according to the curriculum. In some cases, data will be collected in a sample of participants through different tests (pre/post, post, and retrospective tests administered on site.

For behavior changes, a validated questionnaire will be administered onsite before and after Food Safety Courses. Data will be reported on the Electronic Reporting System for PRAES.

V(A). Planned Program (Summary)

Program #2

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. Studies indicate that this can be translated, in many occasions, in school absenteeism, poor academic progress, in physical and emotional change, being sexually active without any responsibility, and poorly accepted social behavior. All children and youth experience some degree of risk as they progress from birth to adulthood, but an increasing amount of children are at a substantially higher risk for negative outcomes. These children and youth do not have the advantages that promote an optimum, healthy development of the body, mind, and spirit; and many do not have opportunities to experience positive stimulation for growth or nurturing support from their family, friends and community.

. The Puerto Rico 4-H and Youth Development Program has identified Youth Development as a mayor emphasis area for its long-range educational program. It is designed to provide youth with positive opportunities to learn and interact with peers and adults, provide leadership development, and focus on the enhancement of life skills through research-based educational programs focusing on Healthy Lifestyles, Science, Engineering and Technology, Civic and Leadership. Different activities and methods will be used, such as: camps, competitions, meetings, demonstrations, and workshops; but, especially, the development of projects as a strategic learning tool. Learning experiences in-service that will give youngsters the opportunity for reflection and action about issues that impact will also be promoted. 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

In FY 2006-2007 Stakeholders' Input Process the youngsters selected the use of alcohol and drugs, sexuality, and criminality as the areas of most concern to them. According to statistics of the Department of Education (Area of Planning and Education Development, Statistics Division), during 2004-2005 there were a total of 1,921 school desertions at the intermediate and high school levels of an enrollment of 234,009 youngsters (approximately 1% of school deserters in relation to the total student population); and studies indicate a close relationship between school desertion and juvenile delinquency. One of these

studies, by Dora Nevárez-Muñiz, is entitled Crime in Puerto Rico. The Administration for Mental Health and Addiction Control Services (ASSMCA, 2004) revealed that 56.9% of about 24,000 students at the elementary, intermediate, and high school levels from public and private schools drink alcohol; and the Alliance for a Puerto Rico without Drugs (2002-2004) indicated that alcohol was the substance mostly used among youngsters of the public school system. Some 55.9% of the adolescents reported having drunk alcohol at least once in their life time. Other problems are offences made by these minors against society (Puerto Rico's Assistant Police Superintendent for Citizen Services of the Statistics Division, 2004) with a total 933 cases for the entire island. Of these, 716 cases were drug related. Also a total of 5,168 minors were intervened by the police (Puerto Rico Police Statistics Division, 2003). These offences were related to violence and not to sexual crimes, as it was thought before. Another serious problem that may lead to school desertion is pregnancy among adolescents. Sources from the Department of Education indicate that during 2003-2004 there were 152 pregnant students at the intermediate level and 788 at the high school level These data confirm the concerns of the youngsters consulted in the Stakeholders' Input Process (2003-2004).

In the FY 2006-2007 Stakeholders' Input Process the selected youngsters chose the curricular areas of most interest to them. These were: Environmental Education, Leadership and Personal Development, Communication and Expressive Arts, Technology and Engineering

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

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 1,281 adult volunteers offering support to the 4-H Program working with youngsters in different activities (Youth Enrollment Report 2008).

•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
2010	39.3	0.0	0.0	0.0
2011	39.3	0.0	0.0	0.0
2012	39.3	0.0	0.0	0.0
2013	39.3	0.0	0.0	0.0
2014	39.3	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**
● Workshop ● Group Discussion ● Demonstrations ● One-on-One Intervention	● Web sites ● Other 1 (Radio Programs) ● Other 2 (Exhibitions)

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)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	6000	0	50000	15000
2011	6000	0	50000	15000
2012	6000	0	50000	15000
2013	6000	0	50000	15000
2014	6000	0	50000	15000

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of training and workshops in life skills and subject matter.

  2010 :800 **2011** :800 **2012** :900 **2013** :900 **2014** :950

- Number of children/ youth who participated in competitive activities.

  2010 :1000 **2011** :1000 **2012** :1200 **2013** :1200 **2014** :1300

- Number of children/ youth who participated in non competitive activities.

  2010 :5000 **2011** :5000 **2012** :5200 **2013** :5200 **2014** :5500

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

  2010 :5000 **2011** :5000 **2012** :5000 **2013** :5100 **2014** :5100

- Number of children/youth who participated in scientific process training.

  2010 :800 **2011** :800 **2012** :1000 **2013** :1000 **2014** :1100

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of children/youth who demonstrated thinking 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).
5	Number of individuals applyng science process skills, including incorporation of science learning in community service, enrollment in SET related post-secondary education, and entrepreneurship/career success.

Outcome #1

1. Outcome Target

Number of children/youth who demonstrated thinking 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

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
2900	2900	3000	3000	3100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1300	1300	1500	1500	1600

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

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

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1800	1800	1900	1900	2000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

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

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1700	1700	1800	1900	2000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #5

1. Outcome Target

Number of individuals applyng science process skills, including incorporation of science learning in community service, enrollment in SET related post-secondary education, and entrepreneurship/career success.

2. Outcome Type : Change in Action Outcome Measure

2010 :800 **2011 :** 800 **2012 :** 850 **2013 :**850 **2014 :**900

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

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, because of the government's inability to solve its budget problems. We expect that there may be changes in the budget assigned to government agencies and changes in public policy due to the situation of the economy.

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

1. Evaluation Studies Planned

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

Description

A summative evaluation is planned to assess changes in life skills among juniors and seniors 4-Hers.The evaluation will be implemented after completing a full year of diverse activities in the 4-H clubs.A restrospective instrument will be cosntructed based on Hendrick's Targeting Life Skills Model (1998).It will be validated during FY 2009.

2. Data Collection Methods

- On-Site
- Sampling

Description

A sampling strategy will be defined to identify the participants of the evaluation study.Data will be collected on-site through restrospective questionnaires after completing the ducational activities in their club for FY 2010.

V(A). Planned Program (Summary)

Program #3

1. Name of the Planned Program

Plant System

2. Brief summary about Planned Program

An economically profitable and progressive agriculture requires efficient crop production management practices, a plant protection program, efficient engineering and biosystems practices and a good planned program in economics, marketing and policy. Through the crop production program we seek ways to help farmers increase the use of improved production practices as well as good agricultural practices (GAP) to achieve better growth management and improved product quality. We will continue to promote the adoption of the best plant protection management practices and to develop IPM systems that protect the environment, conserve the natural resources, and contribute to the competitiveness, profitability, and sustainability of Puerto Rico's agriculture. In engineering our efforts will focus on promoting better irrigation and drainage practices, the effective operation and maintenance of equipment and soil and water conservation practices. Through economic, marketing and policy the farmers will receive the necessary education and technical assistance to strengthen their abilities as managers and entrepreneurs.

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
204	Plant Product Quality and Utility (Preharvest)	9%			
205	Plant Management Systems	8%			
211	Insects, Mites, and Other Arthropods Affecting Plants	7%			
212	Pathogens and Nematodes Affecting Plants	7%			
213	Weeds Affecting Plants	7%			
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%			
216	Integrated Pest Management Systems	8%			
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 2007-2008 was $791.9 million (Puerto Rio Department of Agriculture). animal and crop production represent 89% of this total gross income. Crop production is second in economic importance. In 2007–2008 the value of crops was $325.81 million (preliminary data PRDA), an increase of $43.4 million as compared to 2006–2007. The crop commodities include: fruits, vegetable, ornamentals, coffee, bananas, starchy crops and plantain.

Most of our farms are small or medium sized and owner operated The main crop production problems farmers face are product quality and the poor use of adequate crop cultivation practices. With rising pesticide costs and growing public concerns about pesticide residues in food and the contamination of surface and groundwater supplies, farmers are trying to reduce their reliance on chemicals to control pests and diseases. The adoption of the IPM approach is essential to reduce the negative impacts associated with pest control. The 300 rrigation systems constructed on the Island after legislation issued in 1995 also affect water quality and need constant maintenance to work effectively. The Department of Natural and Environmental Resources addresses efficient water use and conservation by the agricultural crop production sector in the Water use Plan ("Plan Integral de Recursos de Agua de Puerto Rico 2008", (http://www.drna.gobierno.pr/oficinas/arn/agua/negociadoagua/planagua, which makes water conservation a key issue. Farmers need to be kept informed and educated on this matter.Also, farmers and agricultural entrepreneurs need knowledge on several areas, such as: how to use planning to prepare for the future, how farm managers make decisions, how to choose enterprises and how to integrate production and marketing management.

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 move the farmers to be competitive, with better and more effective crop production practices, to increase the production, quality and utility of their products. With better management practices, development and implementation of IPM programs, good operation of irrigation systems and an educational program that offers the opportunity to obtain information about the economics of agricultural production, marketing and farm management, the farmers can expect increased income. Farmers who are early adopters of new information can make different product uses (value-added) and have high quality products that are essential to sell products to niche markets like hotels, restaurants and cruise lines that pay high prices for products of better quality.

2. Ultimate goal(s) of this Program

The ultimate goal is to improve product quality, increase production and competitiveness through the use of the most effective management system practices, integreted pest management options, irrigation systems, better practices in drainage and soil conservatrion, 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
2010	35.6	0.0	0.0	0.0
2011	35.6	0.0	0.0	0.0
2012	35.6	0.0	0.0	0.0
2013	35.6	0.0	0.0	0.0
2014	35.6	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Conduct production trainings.
- Conduct workshops
- Visits and guidance to farmers
- Conduct farmers meetings
- Collaborate with local government agencies
- Prepare IPM programs
- Prepare irrigation systems plans
- Prepare cultivation practices plan
- Prepare pest and diseases control plan
- Prepare educational material
- Distribute publications

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

Extension	
Direct Methods	**Indirect Methods**
● Workshop ● One-on-One Intervention ● Demonstrations ● Education Class ● Other 1 (Seminars)	● Newsletters ● Other 1 (Radio Programs) ● TV Media Programs ● Other 2 (Exhibitions) ● Web sites

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	23000	25000	1000	500
2011	23000	25000	1000	500
2012	23000	25000	1000	500
2013	23000	25000	1000	500
2014	23000	25000	1000	500

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	2
2011	0	2	2
2012	0	0	0
2013	0	2	2
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons trained on plant management, products quality, value-added, pesticide use,IPM, pesticide application, and commercial pesticide application.

  2010 :12500 **2011 :**12500 **2012 :**14300 **2013 :**1460 **2014 :**14700

- Number of workshops and meetings offered.

  2010 :100 **2011 :**100 **2012 :**100 **2013 :**100 **2014 :**100

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

  2010 :100 **2011 :**150 **2012 :**150 **2013 :**150 **2014 :**150

- Number of waste management systems designed.

  2010 :50 **2011 :**50 **2012 :**50 **2013 :**50 **2014 :**50

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

  2010 :50 **2011 :**50 **2012 :**50 **2013 :**50 **2014 :**50

- Number of demonstration facilities established.

2010 2 **2011** 2 **2012** 2 **2013** 2 **2014** 2

- Number of trainings, courses and seminars offered.

2010 20 **2011** 450 **2012** 450 **2013** 500 **2014** 600

- Number of farmes and agricultural entrepreneurs trained.

2010 300 **2011** 375 **2012** 450 **2013** 450 **2014** 450

- Number of clients that participated in workshops on structures, waste management systems, and drainage and irrigation systems.

2010 800 **2011** 900 **2012** 900 **2013** 1000 **2014** 1050

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of farmers that adopted one or more recommended practices of the plant management systems in crop commodities.
2	Number of farmers that increased production in crop commodities.
3	Number of farmers that increased the quality in crop commodities.
4	Number of farmers that adopted new value-added practices in crop commodities.
5	Number of farmers that increased their income after having adopted one or more practices of plant management systems and/or product quality.
6	Number of persons that acquired knowledge after completing a training program in integrated pest management.
7	Number of persons that adopted one or more techniques after completing an integrated pest management program.
8	Number of persons that reduced the use of pesticides after completing an integraed pest management program.
9	Number of persons that established an IPM program after completing a training program.
10	Number of farmers that acquired knowledge after completing a training program in pesticide application.
11	Number of farmers that acquired knowledge after completing a training program in integrated pest management.
12	Number of clients that increased their knowledge about improvements to increase the efficiency of structures (new and existing) and compliance with regulations.
13	Number of clients that increased their knowledge about appropriate systems for waste management in their projects.
14	Number of clients that increased their knowledge about drainage or irrigation facilities.
15	Number of clients that adopted one or more of the recommended practices to increase the efficiency of their structures and comply with all permits.
16	Number of clients that adopted one or more practices to improve their drainage or irrigation facilities.
17	Number of farmers that improved their structures (new and existing) and/or comply with permits.
18	Number of waste management systems improved (new or existing).
19	Number of drainage or irrigation facilities improved.
20	Number of farmers that increased their production as a result of improving their structures.
21	Number of farmers that increased their production as a result of improving their waste management systems.
22	Number of farmers that increased their production as a result of improving their drainage or irrigation facilities.
23	Number of farmers and agricultural entrepreneurs that adopted one or more economic practices.
24	Number of farmers and agricultural entrepreneurs that utilize economic tools to take effective economic decisions to improve their business.

Outcome #1

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :2800	**2011 :** 2800	**2012 :** 2900	**2013** :2900	**2014 :**3000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems

Outcome #2

1. Outcome Target

Number of farmers that increased production in crop commodities.

2. Outcome Type : Change in Action Outcome Measure

2010 :500	**2011 :** 500	**2012 :** 550	**2013** :550	**2014 :**550

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems

Outcome #3

1. Outcome Target

Number of farmers that increased the quality in crop commodities.

2. Outcome Type : Change in Action Outcome Measure

2010 :1000	**2011 :** 1000	**2012 :** 1000	**2013** :1000	**2014 :**1000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)

Outcome #4

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :200	**2011 :** 230	**2012 :** 230	**2013** :240	**2014 :**250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)

Outcome #5

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

2010 : 450	**2011 :** 450	**2012 :** 500	**2013 :** 550	**2014 :** 550

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems

Outcome #6

1. Outcome Target

Number of persons that acquired knowledge after completing a training program in integrated pest management.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 1500	**2011 :** 1500	**2012 :** 1500	**2013 :** 2000	**2014 :** 2000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #7

1. Outcome Target

Number of persons that adopted one or more techniques after completing an integrated pest management program.

2. Outcome Type : Change in Action Outcome Measure

2010 : 1000	**2011 :** 1000	**2012 :** 1000	**2013 :** 1100	**2014 :** 1100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #8

1. Outcome Target

Number of persons that reduced the use of pesticides after completing an integraed pest management program.

2. Outcome Type : Change in Condition Outcome Measure

2010 :300	**2011 :** 400	**2012 :** 400	**2013** :450	**2014 :**450

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #9

1. Outcome Target

Number of persons that established an IPM program after completing a training program.

2. Outcome Type : Change in Condition Outcome Measure

2010 :300	**2011 :** 350	**2012 :** 400	**2013** :450	**2014 :**450

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #10

1. Outcome Target

Number of farmers that acquired knowledge after completing a training program in pesticide application.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :1900	**2011 :** 1900	**2012 :** 1900	**2013** 2000	**2014 :**2000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants

Outcome #11

1. Outcome Target

Number of farmers that acquired knowledge after completing a training program in integrated pest management.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1900	1900	1900	2000	2000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #12

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
300	300	350	300	400

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #13

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
300	300	350	300	400

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #14

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	150	200	250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

Outcome #15

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 80	**2011 :** 80	**2012 :** 90	**2013 :** 90	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #16

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 300	**2011 :** 300	**2012 :** 350	**2013 :** 300	**2014 :** 400

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

Outcome #17

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 50	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #18

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 60	**2011 :** 60	**2012 :** 65	**2013 :** 65	**2014 :** 65

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #19

1. Outcome Target

Number of drainage or irrigation facilities improved.

2. Outcome Type : Change in Action Outcome Measure

2010 : 10	**2011 :** 10	**2012 :** 12	**2013 :** 12	**2014 :** 15

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

Outcome #20

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 30	**2011 :** 30	**2012 :** 30	**2013 :** 30	**2014 :** 35

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #21

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 45	**2011 :** 45	**2012 :** 45	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #22

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 0	**2011 :** 0	**2012 :** 0	**2013 :** 0	**2014 :** 0

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

Outcome #23

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :400 **2011 :** 450 **2012 :** 450 **2013 :**500 **2014 :**500

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #24

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :400 **2011 :** 450 **2012 :** 450 **2013 :**500 **2014 :**500

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Puerto Rico, being a tropical island in the Caribbean, can be affected by natural disasters that in turn can have devastating effects on our agriculture. Long periods with too much rain or without rain and hurricanes are common. High winds and rain from tropical storms affect production, product quality, irrigation systems, structures and IMP programs.These events also increase the dependence on imported products.

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

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

1. Evaluation Studies Planned

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

Description

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.

2. Data Collection Methods

- Structured
- Unstructured
- Whole population
- On-Site
- Sampling
- Observation

Description

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

V(A). Planned Program (Summary)

Program #4

1. Name of the Planned Program

Families and Children/Consumer Education and Individual and Family Resources

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 Families & Children/Consumer Education and Individual and Family Resources Management 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 by 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, 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.

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%			
801	Individual and Family Resource Management	40%			
802	Human Development and Family Well-Being	50%			
	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 $21 billion 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 household 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 (Barhein, 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.

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
2010	20.1	0.0	0.0	0.0
2011	20.1	0.0	0.0	0.0
2012	20.1	0.0	0.0	0.0
2013	20.1	0.0	0.0	0.0
2014	20.1	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
- Exhibition (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
• Group Discussion • Workshop • One-on-One Intervention	• Newsletters • Billboards • Web sites • Other 1 (Radio Programs) • Other 2 (Campaigns & Exhibitions)

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)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	12000	3000	2500	0
2011	12000	3000	2700	0
2012	12000	3000	3000	0
2013	12000	3000	3000	0
2014	12000	3000	3000	0

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	2
2011	0	2	2
2012	0	2	2
2013	0	2	2
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons trained in parenting and related areas.

  2010 :1500 **2011 :**1700 **2012 :**2000 **2013 :**2000 **2014 :**2000

- Number of persons trained in aging aspects.

  2010 :1000 **2011 :**1500 **2012 :**1500 **2013 :**2000 **2014 :**2000

- Number of consumers that completed the Consumer Education course.

  2010 :750 **2011 :**750 **2012 :**750 **2013 :**1000 **2014 :**1000

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

  2010 :750 **2011 :**1000 **2012 :**1000 **2013 :**1500 **2014 :**1500

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 debt reduction practices.(Family Resource Management)
4	Number of consumers that adopted practices on how to save.(Family Resource Management)
5	Number of consumers that improved their financial well-being.
6	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

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
1000	1000	1000	1000	1000

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #2

1. Outcome Target

Number of persons that gained knowledge in aging aspects.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
800	1000	1000	1500	1500

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #3

1. Outcome Target

Number of consumers that adopted debt reduction practices.(Family Resource Management)

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	100	200	200

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #4

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
500	750	750	1000	1000

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #5

1. Outcome Target

Number of consumers that improved their financial well-being.

2. Outcome Type : Change in Condition Outcome Measure

2010 : 50	**2011 :** 60	**2012 :** 70	**2013 :** 80	**2014 :** 90

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #6

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 600	**2011 :** 600	**2012 :** 600	**2013 :** 700	**2014 :** 700

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 607 - Consumer Economics
- 801 - Individual and Family Resource Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

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

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- Retrospective (post program)
- Time series (multiple points before and after program)
- During (during program)

Description

The CYFAR PREPAS: NH project evaluation is composed of a yearly evaluation during the complete project period to measure changes at short and mid stages different points in time and progress throughout the quinqennium. Cross sectional analysis and time series analysis will be performed using descriptive, cause-effect, discriminant, and predictive statistics tools.

Major changes will be: in the very short term-satisfaction level, knowledge, skills attitudes, and aspirations related to the topics covered in the project curricula; midterm-comparisons between behavior patterns and adoption and adaption of practices promoted by project educational activities; long term- initial and final well-being indices comparisons among participants. Factors for major differentiating analysis will be: demographics, site location, project stage, and level of intervention. Areas to be analyzed will consider project purpose.

A summative evaluation will also be conducted to assess changes in knowledge and practice in the area of financial security (budgeting and savings).A restrospective instrument will be developed and validated during FY 2009.

2. Data Collection Methods

- Observation
- Other (Survey: web-based)
- Portfolio Reviews
- Sampling
- Tests
- Journals
- On-Site

Description

Data collection methods and instruments to be used will vary according to the activities and stages of the CYFAR project. During this project year period:(1) On-site local activities by community faculty:the main instruments and methods to be used are pre- and post tests, reaction sheets, member portfolio, member reflexive diaries and albums review, observations for the whole population; (2) At the complete project level by project evaluator,: surveys to participants (on-site, the possibility of web-based surveys exists accordingly to the availability and skills of technology use), interviews of participants and staff in a structured and/or unstructured manner, standardized inventories administered to participants. At the state level, data collection will be from the population and/or from samples.

An on-site survey will be administered to a sample of participants to measure changes in practices after participating in the program. Instruments will be developed and pilot pre-tested during the first phase of the evaluation process.Anonther on-site suvey will be employed with adult participants of the Financial Security course.

V(A). Planned Program (Summary)

Program #5

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 the best management practices during farming. Farm demonstrations will be established as educational tools to showcase the desired practices, their 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 offered on improved pasture varieties, fertilization, silage, cover crops, and other related topics. A pre and post test will be administered to measure the knowledge gained.

PRAES programs promote the use of better management practices that seem economically profitable for grazing hay and silage production on agricultural lands. PRAES seeks to promote the management of range lands to increase the grazing capacity, as well as the production of hay and silage, through the implementation of sustainable management practices using minimum tillage.

There is great concern with soil erosion and deforestation of our lands and problems associated with the eutrofication and sedimentation of rivers on the island. Each year risks of flooding increase causing numerous agricultural losses to the local economy.

The development of new green areas, tree conservation, and reforestation are some of the alternatives to enhance, improve and promote wildlife in and around the cities. Reforestation and development of green areas in urban and rural areas by non-government entities should be promoted. Rangeland and forestry practices will be improved to prevent the contamination of our natural resources.

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

4. Program duration : 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	15%			
104	Protect Soil from Harmful Effects of Natural Elements	5%			
111	Conservation and Efficient Use of Water	5%			
112	Watershed Protection and Management	5%			
121	Management of Range Resources	20%			
122	Management and Control of Forest and Range Fires	5%			
123	Management and Sustainability of Forest Resources	10%			
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 high population density demands the update and construction of infrastructure to satisfy its needs. As a result, lands available for agriculture have been reduced. Sixty percent (60%) of the cultivated land is more than 20% slopes, with an erosion of 10% annually, and low fertility (Natural Resources Conservation Service). As a result, farmers have to establish conservation practices and a good fertilization program to get reasonable yields.

The gross agricultural income for FY 2007-2008 was $791.9 million (Puerto Rio Department of Agriculture). Animal and crop production represent 89% of this total gross income.

Intensive use of agricultural lands, deforestation, eutrofication, and sedimentation of rivers increase the risk of flooding, threatening the lives of people and the loss of livestock and crops. We need a better and more efficient use of our lands to

improve animal and crop production.

Coffee, plantains, fruit, and starchy crops, are cultivated in the hilly areas. 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 content of manure by volatilizing nitrogen (ammonia) to the atmosphere with other volatile compounds such as methane, organic and sulfur.

Some animal waste disposal systems in Puerto Rico 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 odors, land and water pollution, and dissemination of pathogens, among others.

We have problems with the quality and quantity of the water resources due to turbidity, erosion, sedimentation and the presence of microorganism. The Puerto Rico Agriculture Experiment Station Research is conducting research on anaerobic digester to respond to this situation in the dairy cattle and swine enterprises. However, there is still much need for research on practices for combined air and water quality that are environmentally sound and economically feasible.

The planned program Management of Rangeland and Forestry/Soil, Water and Air is devoted to promoting the education of farmers and people 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
2010	9.0	0.0	0.0	0.0
2011	9.0	0.0	0.0	0.0
2012	9.0	0.0	0.0	0.0
2013	9.0	0.0	0.0	0.0
2014	9.0	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
● Group Discussion ● Demonstrations ● One-on-One Intervention ● Workshop	● Newsletters ● Other 2 (Exhibitions, publications) ● Other 1 (Radio Programs, telephone, email)

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)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	4000	3000	0	0
2011	4500	3500	0	0
2012	4500	4000	0	0
2013	4500	4000	0	0
2014	5000	4500	0	0

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	2
2011	0	2	2
2012	0	2	2
2013	0	2	2
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of farmers trained in range management.

  2010 250 **2011** 250 **2012** :250 **2013** 250 **2014** 250

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

  2010 300 **2011** 300 **2012** :300 **2013** 250 **2014** 250

- Number of persons trained on forest and rangeland fire prevention.

  2010 :100 **2011** 100 **2012** :100 **2013** :100 **2014** :100

- Number of persons trained on pollution prevention and mitigation of natural resources.

  2010 :100 **2011** 100 **2012** :100 **2013** :100 **2014** :100

- Number of agency collaborations established.

  2010 75 **2011** 75 **2012** :75 **2013** 75 **2014** 75

- Number of people trained on natural resources and forest conservation.

  2010 225 **2011** 225 **2012** :225 **2013** 225 **2014** 275

- Numeber of trainings offered on soil, water,and air.

2010 20 **2011** 20 **2012** :20 **2013** 20 **2014** 20

- Number of farmers trained on agricultural practices for air and water quality.

2010 250 **2011** 250 **2012** :300 **2013** 300 **2014** 300

- Number of people trained on environmental regulations for soil, air, and water quality.

2010 500 **2011** 600 **2012** :700 **2013** 800 **2014** 900

- Number of farmers trained on soil fertility.

2010 350 **2011** 400 **2012** :400 **2013** 450 **2014** 500

- Number of farmers trained on soil conservation practices

2010 250 **2011** 300 **2012** :300 **2013** 400 **2014** 400

- Number of people trained on watershed protection.

2010 200 **2011** 200 **2012** :200 **2013** 200 **2014** 200

- Number of people trained on conservation and effective use of water resources.

2010 350 **2011** 350 **2012** :400 **2013** 400 **2014** 400

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 adopted the recommended practices for air and water quality.
9	Number of farmers that comply with the soil, air, and water regulations.
10	Number of farmers that adotped the fertilization practices.
11	Number of farmers that adopted one or more soil conservation practices.
12	Number of farmers that established practices for the protection of watersheds.
13	Number of persons that adopted practices to improve water resources.
14	Number of persons that adopted practices to improve water resources.
15	Number of persons that adopted practices to improve water resources.

Outcome #1

1. Outcome Target

Number of farmers that improved their pastures.

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	100	120	130	140

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources

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

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
150	150	200	200	250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #3

1. Outcome Target

Number of reforestation projects established.

2. Outcome Type : Change in Condition Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
20	25	25	30	30

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 124 - Urban Forestry

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

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
30	30	40	40	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 122 - Management and Control of Forest and Range Fires

Outcome #5

1. Outcome Target

Number of farmers that adopted the recommended range management practices.

2. Outcome Type : Change in Action Outcome Measure

2010 : 170	**2011 :** 200	**2012 :** 200	**2013 :** 200	**2014 :** 250

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources

Outcome #6

1. Outcome Target

Number of acres in improved pastures.

2. Outcome Type : Change in Action Outcome Measure

2010 : 500	**2011 :** 600	**2012 :** 600	**2013 :** 600	**2014 :** 700

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

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

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

2010 : 500	**2011 :** 700	**2012 :** 700	**2013 :** 700	**2014 :** 700

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation

Outcome #8

1. Outcome Target

Number of farmers that adopted the recommended practices for air and water quality.

2. Outcome Type : Change in Action Outcome Measure

2010 : 125	**2011 :** 150	**2012 :** 150	**2013 :** 200	**2014 :** 250

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

- 141 - Air Resource Protection and Management

Outcome #9

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :250	**2011 :** 300	**2012 :** 350	**2013** :400	**2014 :**400

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 141 - Air Resource Protection and Management

Outcome #10

1. Outcome Target

Number of farmers that adotped the fertilization practices.

2. Outcome Type : Change in Action Outcome Measure

2010 :300	**2011 :** 350	**2012 :** 350	**2013** :350	**2014 :**400

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #11

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :200	**2011 :** 250	**2012 :** 250	**2013** :300	**2014 :**350

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 112 - Watershed Protection and Management

Outcome #12

1. Outcome Target

Number of farmers that established practices for the protection of watersheds.

2. Outcome Type : Change in Action Outcome Measure

2010 : 80	**2011 :** 100	**2012 :** 100	**2013 :** 125	**2014 :** 125

3. Associated Institute Type(s)

•1862 Extension

4. 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

Outcome #13

1. Outcome Target

Number of persons that adopted practices to improve water resources.

2. Outcome Type : Change in Action Outcome Measure

2010 : 350	**2011 :** 350	**2012 :** 350	**2013 :** 250	**2014 :** 250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

Outcome #14

1. Outcome Target

Number of persons that adopted practices to improve water resources.

2. Outcome Type : Change in Action Outcome Measure

2010 : 350	**2011 :** 350	**2012 :** 350	**2013 :** 250	**2014 :** 250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

Outcome #15

1. Outcome Target

Number of persons that adopted practices to improve water resources.

2. Outcome Type : Change in Action Outcome Measure

2010 :350	**2011 :** 350	**2012 :** 350	**2013** :250	**2014 :**250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Every year Puerto Rico is subjected to and affected by a variety of natural disasters. Hurricanes, long periods of drought, or extensive periods of rain are the most common. Many agricultural facilities can be severely affected by these atmospheric events, which affect range production, cause floods or mud slides, and increase soil erosion and sedimentaiton of rivers and waterheds.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 (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Other (Surveys)
- Before-After (before and after program)

Description

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

2. Data Collection Methods

- Sampling
- Case Study
- On-Site
- Whole population
- Unstructured

Description

Different data collection methods will be used: pre□ and post□ tests – to compare and determine effectiveness of the educational programs; informal interviews – to comprehend and understand the situation presented and compared with outer municipalities with similar situations; and interviews with farmers – to identify case studies. The agricultural agents will be required to keep a file of the farmers they visit or offer technical assistance to. The file includes a farm development plan and records of all the main practices implemented on the farm, problems, and recommendations, as well as participation in other USDA program assistance.

V(A). Planned Program (Summary)

Program #6

1. Name of the Planned Program

Animal Systems

2. Brief summary about Planned Program

Livestock is the agricultural sector that has contributed the most to Puerto Rico's gross agricultural income.During FY 2007-2008 it contributed $379,427 million (48%) (Puerto Rico Department of Agriculture, Statistics for 2007-2008). It includes dairy beef, poultry, swine, aquaculture, and small operations such as rabbits, goats, sheep, bees and horses. Of all agricultural activities, it is the sector most prone to the transmission of diseases to humans. Transportation of people, equipment, materials, and goods, increases the risk of carrying diseases from one place to another in a short period of time. This poses a great threat and risk to farm activities involving animals. Farmers should be made aware of the importance of developing a control and prevention program of animal diseases and of following the recommended production practices to reduce the risk of loses in production and low yields.

On the other hand, local animal production has been impacted by high production costs and limited control of imported products. Improving the efficiency of production allows a greater opportunity for animal producers to increase the rentability of their enterprises and to be at an advantage when competing with imported products.

A cost-effective agriculture also requires efficient engineering practices. The majority of the farms in Puerto Rico have structures that form part of their infrastructure. Biological systems comprise most of the waste management, recycling, and reuse operations in farms with animals in confinement. The Engineering and Biosystems program seeks to improve existing structures and to provide farmers with model plans that comply with permits requirements.

The farmer is an entrepreneur working in agriculture as his 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 concerns, new production technologies, and changes in the economy.To help make farm operations more successful the Puerto Rico Agricultural Extension Service (PRAES) will orient farmers through the Animal Production/Animal Protection/Engineering and Biosystems/Economics, Marketing and Policy 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 aim at the effective operation and maintenance of farm equipment and the promotion of water conservation practices. This includes keeping the farm facilities clean, establishing a vaccination program, and keeping the animals by age groups, and promoting bio-security among farmers. Modern techniques will also be promoted to improve the efficiency of production. These include farm management, business management, finance and taxation, marketing and distribution practices, and domestic policy analysis.

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	5%			
302	Nutrient Utilization in Animals	5%			
303	Genetic Improvement of Animals	2%			
305	Animal Physiological Processes	2%			
306	Environmental Stress in Animals	5%			
307	Animal Production Management Systems	10%			
308	Improved Animal Products (Before Harvest)	5%			
311	Animal Diseases	10%			
312	External Parasites and Pests of Animals	5%			
313	Internal Parasites in Animals	5%			
315	Animal Welfare, Well-Being and Protection	5%			
401	Structures, Facilities, and General Purpose Farm Supplies	3%			
402	Engineering Systems and Equipment	3%			
403	Waste Disposal, Recycling, and Reuse	12%			
405	Drainage and Irrigation Systems and Facilities	4%			

601	Economics of Agricultural Production and Farm Management	7%			
602	Business Management, Finance, and Taxation	5%			
604	Marketing and Distribution Practices	5%			
610	Domestic Policy Analysis	2%			
	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).As a result, they need to be oriented on these new regulations. The waste management systems of many of these farmswill 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.

New trends in commercial treaties amongst countries make the implementation of bio-security practices indispensable to avoid the spread of diseases. Farmers that have bio-security programs in place need to improve them, and those that still have not implemented them should begin to do so.

Animal production provides us with food, fiber, medicine, and wildlife. Animal health is important in the farm business and needs the support and education of our clientele as diseases can devastate the animal enterprise and affect humans as well. Among these are foot and mouth disease, avian influenza, exotic Newcastle, bovine "spongiform encephalopathy" (mad cow disease), and swine fever.

Through the Animal Systems planned program PRAES will help create awareness of diseases and internal and external parasites in farm animals, to promote their prevention and control and to detect possible highly infectious animal disease agents. To carry out these educational efforts PRAES will continue partnerships with agencies such as APHIS□Veterinary Services, the Puerto Rico Department of Agriculture-Veterinary Division, and local animal associations.

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
2010	25.9	0.0	0.0	0.0
2011	25.9	0.0	0.0	0.0
2012	25.9	0.0	0.0	0.0
2013	25.9	0.0	0.0	0.0
2014	25.9	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)
- Collaborate in the construction of demonstration facilities

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

Extension	
Direct Methods	**Indirect Methods**
● Group Discussion ● Workshop ● One-on-One Intervention ● Education Class ● Demonstrations	● Public Service Announcement ● TV Media Programs ● Other 2 (Radio Programas, Software) ● Newsletters ● Other 1 (Publications, Exhibitions) ● Billboards ● Web sites

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)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	10000	9000	4000	900
2011	11000	10000	4000	900
2012	11000	10000	4000	900
2013	11000	10000	4000	900
2014	11000	10000	4000	900

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :** 0 **2013 :** 0 **2014 :** 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	2
2011	0	2	2
2012	0	2	2
2013	0	2	2
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons trained in control and prevention of diseases in animals, bio-security progras, control and prevention of internal and external parasites, animal welfare and protection, control of environmental stress on animals, animal productin, and animal products.

  2010 :1700 **2011 :**1900 **2012 :**2000 **2013 :**2100 **2014 :**2100

- Number of collaborations established.

  2010 :220 **2011 :**250 **2012 :**260 **2013 :**270 **2014 :**280

- Number of workshops and meetings offered.

  2010 :100 **2011 :**100 **2012 :**100 **2013 :**100 **2014 :**100

- Number of clients that participated in the workshop on structures, waste management systems and drainage or irrigation systems.

  2010 :900 **2011 :**900 **2012 :**900 **2013 :**900 **2014 :**900

- Number of waste management systems designed.

  2010 :50 **2011 :**50 **2012 :**50 **2013 :**50 **2014 :**50

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

2010 50 **2011** 50 **2012** 50 **2013** 50 **2014** 50

- Number of demonstration facilities established.

2010 2 **2011** 2 **2012** 2 **2013** 2 **2014** 2

- Number of trainings, courses and seminars offered.

2010 25 **2011** 30 **2012** 30 **2013** 30 **2014** 30

- Number of farmers and agricultural entreprenurs trained.

2010 375 **2011** 450 **2012** 450 **2013** 450 **2014** 450

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of persons that adopted disease control and prevention practices.
2	Number of persons that reduced the number of diseased animals on their farm.
3	Number of persons that adopted a bio-security program.
4	Number of persons that adopted practices in animal welfare and protection.
5	Number of persons that adopted practices for the control of parasites on their farm.
6	Number of peresons that improved efficiency of animal production.
7	Number of persons that adopted one or more practices to control heat stress.
8	Number of persons that improved the quality of their product
9	Number of perosns that improved the animal production practices.
10	Number of persons that improved the nutrient utilization practices in animals.
11	Number of persons that increased animal production after adopting the recommended practices.
12	Number of persons that increased their knowledge about appropriate systems for waste management in their projects.
13	Number of persons that adopted one or more of the recommended practices to increase the efficiency of their structures and comply with all permits.
14	Number of clients that adopted one or more practices to improve their drainage or irrigation facilities.
15	Number of farmeres that improved their structures (new or existing) and comply with permits.
16	Number of waste management systems improved (new or existing).
17	Number of drainage or irrigation facilities improved.
18	Number of farmers that increased their production as a reult of improving their structures.
19	Number of farmers that increased their production as a result of improving their waste management.
20	Number of farmers that increased their production as a result of improving their drainage or irrigation facilities.
21	Number of farmers and agricultural entrepreneurs that adopted one or more economic practices.
22	Number of farmers and agricultural entrepreneurs that use economic tools to make effective economic decisions to improve their business.

Outcome #1

1. Outcome Target

Number of persons that adopted disease control and prevention practices.

2. Outcome Type : Change in Action Outcome Measure

2010 :325	**2011 :** 350	**2012 :** 375	**2013** :400	**2014 :**400

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :225	**2011 :** 250	**2012 :** 250	**2013** :250	**2014 :**250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #3

1. Outcome Target

Number of persons that adopted a bio-security program.

2. Outcome Type : Change in Action Outcome Measure

2010 :60	**2011 :** 70	**2012 :** 70	**2013** :70	**2014 :**70

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #4

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
125	150	150	150	150

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 315 - Animal Welfare, Well-Being and Protection

Outcome #5

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
125	125	125	125	125

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #6

1. Outcome Target

Number of peresons that improved efficiency of animal production.

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
170	180	200	200	200

3. Associated Institute Type(s)

•1862 Extension

4. 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 Production Management Systems
- 308 - Improved Animal Products (Before Harvest)

Outcome #7

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
40	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. 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 Production Management Systems
- 308 - Improved Animal Products (Before Harvest)

Outcome #8

1. Outcome Target

Number of persons that improved the quality of their product

2. Outcome Type : Change in Action Outcome Measure

2010 :40 **2011 :** 50 **2012 :** 50 **2013 :**50 **2014 :**50

3. Associated Institute Type(s)

•1862 Extension

4. 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 Production Management Systems
- 308 - Improved Animal Products (Before Harvest)

Outcome #9

1. Outcome Target

Number of perosns that improved the animal production practices.

2. Outcome Type : Change in Action Outcome Measure

2010 :70 **2011 :** 80 **2012 :** 90 **2013 :**90 **2014 :**90

3. Associated Institute Type(s)

•1862 Extension

4. 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 Production Management Systems
- 308 - Improved Animal Products (Before Harvest)

Outcome #10

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
100	120	150	150	150

3. Associated Institute Type(s)

•1862 Extension

4. 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 Production Management Systems
- 308 - Improved Animal Products (Before Harvest)

Outcome #11

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
140	150	150	150	150

3. Associated Institute Type(s)

•1862 Extension

4. 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 Production Management Systems
- 308 - Improved Animal Products (Before Harvest)

Outcome #12

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
300	300	300	300	300

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #13

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
125	125	125	125	125

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #14

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
5	5	5	5	5

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #15

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
50	50	50	50	50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #16

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :	**2011 :**	**2012 :**	**2013 :**	**2014 :**
150	150	150	150	150

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #17

1. Outcome Target

Number of drainage or irrigation facilities improved.

2. Outcome Type : Change in Action Outcome Measure

2010 : 5	**2011 :** 5	**2012 :** 5	**2013 :** 5	**2014 :** 5

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

Outcome #18

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 0	**2011 :** 0	**2012 :** 0	**2013 :** 0	**2014 :** 0

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #19

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 70	**2011 :** 70	**2012 :** 70	**2013 :** 70	**2014 :** 70

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #20

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 3	**2011 :** 3	**2012 :** 3	**2013 :** 3	**2014 :** 3

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 405 - Drainage and Irrigation Systems and Facilities

Outcome #21

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 85	**2011 :** 100	**2012 :** 100	**2013 :** 100	**2014 :** 100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #22

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 : 40	**2011 :** 50	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Other (Focus prog. other agencies)
- Government Regulations
- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)
- Competing Public priorities
- Public Policy changes
- Competing Programmatic Challenges
- Economy

Description

Puerto Rico is affected by extremely high temperatures, especially during the Summer months, which can cause heat stress in animals and affect production. Other factors that often have devastating effects on animals, animal production and, consequently, on the economy are natural occurrences, such as hurricanes, which cause heavy rains and high winds during hurricane season (June to November), and long periods of drought during the dry season followed by periods of heavy rains.

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 (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

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

Description

A survey among participants prior to initiation of trainings and immediately after their completion will evaluate their knowledge and attitudes about animal production systems. Case studies will be used to evaluate this planned program with the purpose of compiling information about the factors that influence the participants' adoption of recommended practices. Therefore, the evaluation period will depend on the time for adoption. The evaluation will begin approximately by the second year of the program.

2. Data Collection Methods

- On-Site
- Observation
- Other (Focal groups)
- Case Study
- Unstructured
- Sampling

Description

The planned program will use qualitative methods including observation, interviews and case studies to collect the data. Data collection will be done using the four cardinal points as reference. A sampling of every livestock sector will be taken and questions will be discussed to measure the adoption and to know any needs to perform the adoption. Interviews will be non□structured, as themes and issues will emerge through the conversation.

V(A). Planned Program (Summary)

Program #7

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 Agricultural Extension Service at UPR Mayagüez Campus, focuses in the delineation of an effective Community Economic Development and Self-management program that will address Puerto Rico's most pressing social issues.

Since agriculture represents only 0.4% of the Puerto Rico GNP (Government Development Bank, 2007), agricultural has land been reduced from 690,689 acres in 2002 to 557,528 acres in 2007 (30.6% to 24.7% of the national territory in a 5-year period) (USDA-NASS Puerto Rico Office); and personal bankruptcies have increased in 46% between 2006 and 2007 ("Corte Federal de Quiebra del Distrito de Puerto Rico"), it is portended that both the agricultural activity and community vitality are in crisis. Accordingly, the Empowering Communities, and Community Economic Development sections of CRD will give special emphasis to community-based agricultural land conservation initiatives and to the generation of sustainable low-scale family or community-based agricultural initiatives. To achieve these objectives, CRD strategies will go beyond training activities centered toward specific careers or job areas. Rather, it focuses in 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 stresses the development of methodological tools that will 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 subsistence.

CRD focuses its efforts in guiding community leaders towards self-management and empowering. In our social and disadvantaged communities, 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 empowering 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.

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	40%			
803	Sociological and Technological Change Affecting Individuals, Families and Communities	30%			
805	Community Institutions, Health, and Social Services	30%			
	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. The per capita personal income is just $17,741 (48% of that of Mississippi, the poorest state of the US). Unemployment figures are at a ten years high with 12.4%, and labor force participation is at a low, 45% (Government Development Bank, 2008; Puerto Rico Department of Labor, 2007, U.S. Census Bureau, 2007 American Community Survey). The leading role of the Puerto Rican government as a principal promoter of the creation of jobs and the generator of economic activity, as it used to be during Operation Bootstrap era in the 1950 60s, is no longer active. The proportion of communities, both urban and rural, that experience long-term spells of poverty and inequality far surpass those in the US. In addition, the island is experiencing an alarming process of social decomposition with skyrocketing criminality, domestic violence, school dropouts, suicides, drug addiction, and alcoholism rates. Accordingly, our plan of work focuses on holistic educational strategies that will promote self-employment and community oriented initiatives as a means that will 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 the information to the communities.
- 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 attitudes 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 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.
- The development and inclusion of capable leaders in participating in community organization, decision making, and evaluation, helps bring about solutions to population needs and encourages a strong 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 obtain empowered and self-managed communities, thus, improving the social, economic and environmental quality for individuals and families.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	31.0	0.0	0.0	0.0
2011	31.0	0.0	0.0	0.0
2012	31.0	0.0	0.0	0.0
2013	31.0	0.0	0.0	0.0
2014	31.0	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, and community-based business
- Participative Action Research strategies such as "reading the streets", participant observation, ethnographies, life histories, focal groups, informal interviews, and reflexive diaries
- Development 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
- Workshops and meetings
- Develop educational material such as curriculum and modules
- Establish 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
- Educational community campaigns

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

Extension	
Direct Methods	**Indirect Methods**
• Other 1 (Community assemblies, meetings) • Demonstrations • Education Class • One-on-One Intervention • Group Discussion • Workshop • Other 2 (Participative Action Research)	• TV Media Programs • Public Service Announcement • Web sites • Billboards • Other 1 (Radio Programs) • Other 2 (Publications, Exhibitions) • Newsletters

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	750	2500	0	0
2011	1000	5000	0	0
2012	1200	5000	0	0
2013	1500	5000	0	0
2014	2000	5000	0	0

2. (Standard Research Target) Number of Patent Applications Submitted

Expected Patent Applications

2010 :0 **2011 :**0 **2012 :**0 **2013 :**0 **2014 :**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	1	1
2011	0	1	1
2012	0	1	1
2013	0	1	1
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of persons trained in community-based business.

2010 :100 **2011** :125 **2012** :125 **2013** :125 **2014** :125

- Number of leaders trained on community organization and empowerment (at least four workshops).

2010 :150 **2011** :200 **2012** :250 **2013** :250 **2014** :250

- Number of leaers trained on emergency and disaster situations (at least four workshops).

2010 :150 **2011** :200 **2012** :250 **2013** :250 **2014** :250

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

2010 : 20	**2011 :** 35	**2012 :** 50	**2013 :** 50	**2014 :** 75

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

Outcome #2

1. Outcome Target

Number of community-based businesses established.

2. Outcome Type : Change in Condition Outcome Measure

2010 : 10	**2011 :** 15	**2012 :** 20	**2013 :** 25	**2014 :** 35

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

Outcome #3

1. Outcome Target

Number of community projects established to benefit the community.

2. Outcome Type : Change in Action Outcome Measure

2010 : 40	**2011 :** 40	**2012 :** 50	**2013 :** 50	**2014 :** 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

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

2010 : 200	**2011 :** 250	**2012 :** 250	**2013 :** 300	**2014 :** 300

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #5

1. Outcome Target

Number of communities that developed an emergency and safety plan.

2. Outcome Type : Change in Action Outcome Measure

2010 :30 **2011 :** 35 **2012 :** 40 **2013 :**40 **2014 :**50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

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.

Economy: Puerto Rico is experiencing a major shift in its tributary system with the establishment of a sales tax for the second time since its establishment a year ago.This process is especially complicated and onerous for small businesses and self-employed individuals.

Public Policy Changes and Competing Public Priorities: There is a new government in office and, contrary to what it might be expected in the U.S., the Puerto Rican political culture usually dictates that a new government in office will conduct mayor shifts in both public priorities and the public way of conducting business without an ordered transition between administrations. Since almost half of the Puerto Rican population lives in poverty (our target population), they are particularly subjected to the tidal shifts in government interests and priorities.

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

1. Evaluation Studies Planned

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

Description

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.

2. Data Collection Methods

- Structured
- Observation
- Other (Part. Action Res Stra, focus gro)
- Sampling
- Unstructured
- Case Study
- Journals

Description

A sample of five communities, one from each of the PRAES regional districts, will be evaluated. Data will be collected during visits to the communities through the application of Participative Action Research strategies that include "reading the streets", participant observation, ethnographies, life histories, focus groups, informal interviews, and reflexive diaries or journals.